

SPECIAL COLLECTOR'S EDITION ON SUSTAINABLE DEVELOPMENT

Outlook

www.outlookindia.com

JULY 1, 2023



TOWARDS CIRCULARITY

As the world grapples with the ever-conflicting ends of economic growth and environmental preservation, nations and the global community come together to build a green, equitable new world. An *Outlook* special.



IPL

The Hallmark of Sustainability and Agro Prosperity



***We Are Happy
In Your Happiness***

- National leader in fertilizer distribution with pan India dealer network.
- The single point-of-access for all agro nutrients in the country.
- IPL believes in empowering farmers by providing integrated solutions and educating them about sustainable farming practices.
- IPL has the philosophy of selfless service deeply entrenched in all its endeavours.
- Diversified into sugar production to support sugarcane farmers.
- Producers of vehicle grade Green Fuel (CBG) and nutrient rich Fermented Organic Manure.



Indian Potash Limited

Potash Bhawan, 10-B, Rajendra Park, Pusa Road, New Delhi – 110 060
Phone: 011-25761540, 25763570, 25732438, 25725084
Fax: 011-25755313, E-mail: ipldel@potindia.com
Website: www.indianpotash.org

IPL Fertilizers - The First Choice of Wise Farmers



Photo: Shutterstock

- 2 | The Green Way Forward
- 3 | Towards Green Productivity Goals
- 4 | One Earth, One Family, One Future
- 6 | Onus and Ownership: Towards a Green Future
- 8 | India: Mission SDGs
- 12 | Circling Green
- 14 | Circular Economy Moves Up The Agenda
- 16 | Australia: The Circle of Life
- 18 | The Green Light: Towards Energy Efficiency
- 20 | Japan: The Top Runner
- 22 | Raising the Green Bar
- 24 | Green Productivity Fuels Smart Growth
- 26 | USA: Leading the New World
- 28 | Making it Big: MSMEs and Resource-Efficiency
- 30 | Walking the Green Mile
- 32 | Green Growth As The Mantra For Sustainable Development
- 34 | The Republic of Korea: Growing Green
- 36 | Germany: Institutionalising Innovation
- 38 | The Innovation Quotient: Productivity Enhancement for Green Growth
- 40 | South Africa: Resourceful Governance
- 42 | Granting Green: Sustainable Investments and India
- 44 | United Kingdom: Banking on Green
- 46 | Multilateral Mantra: Institutional Strengthening and Green Growth
- 48 | Canada: Strengthening the Green Way
- 50 | In Good Company
- 52 | The Plastic Pandemic
- 54 | Advantage India
- 56 | Future-Forward: The APO Perspective
- 58 | How Green is My Value
- 60 | NPC: Beyond Productivity
- 64 | India On a Mission

Outlook

Collector's Edition

SUCHETANA RAY
RAJIV TIKOO
SHRUTI SINGH
CHITRA NAIR
VINAY DOMINIC
ROHINA

CHAITANYA RUKUMPUR
SAAHIL BHATIA
VIKRAM SHARMA
SURESH K. PANDEY

BUSINESS OFFICE

INDRANIL ROY
SANDIP KUMAR GHOSH
SAYANTAN DASGUPTA
SHRUTIKA DEWAN
DIWAN SINGH BISHT
PRANA MANJARI
DEBABANI TAGORE
SHAILENDER VOHRA
SHASHANK DIXIT
GAGAN KOHLI

G. RAMESH (SOUTH), KAPIL DHAL (NORTH),
ARUN KUMAR JHA (EAST), MANOJ KAMBLE (WEST)

HEAD OFFICE

AB-10, S.J. Enclave, New Delhi - 110 029
Tel: 011-71280400; Fax: 26191420
Customer care helpline: 011-71280433,
71280462, 71280307

Email: outlook@outlookindia.com
For editorial queries: edit@outlookindia.com
For subscription helpline:
yourhelpline@outlookindia.com

Printed and published by Indranil Roy on
behalf of Outlook Publishing (India) Pvt. Ltd.
Printed at MP Printers
(A Unit of DB Corp Ltd) B-220, Phase-II,
Noida 201305, Gautam Budh Nagar (UP)
and published from AB-10, S.J. Enclave,
New Delhi-110 029

Released on June 21, 2023

Total number of pages 68, including covers



POINT AND SHARE

Now, open Outlook magazine on your
smartphone instantly.

Point your phone's scanner on the
code and align it in the frame.

You will be guided instantly to our
website, www.outlookindia.com

This is useful to share our stories on
social media or email them.

Editorial Coordinator: Sukanya Das | Cover Design: Vinay Dominic | Cover Illustration: Saahil Bhatia

The Green Way Forward

A holistic strategy that acknowledges the mutual interdependence of a healthy environment and robust, competitive economies, Green Productivity today is seen as an integral part of global initiatives in pursuing sustainability.



TOWARDS GREEN PRODUCTIVITY GOALS



The future of growth and productivity lies in green growth and green productivity. The two together are critical in the transition to a circular economy. Drawing upon the accepted understanding of sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs, green growth as an economic model does not trade the interests of the planet with its profits but harnesses the synergies of both in a win-win deal.

In the process, green growth also helps to catalyse the achievement of the United Nations Sustainable Development Goals (SDGs). For example, green growth is a key to achieving SDG 8 on Decent Work and Economic Growth, which seeks to promote sustainable economic growth. The goal targets delinking of economic growth from environmental degradation and ensuring resource efficiency in consumption and production.

Green growth is also linked directly or indirectly to a number of other SDGs. Besides, all SDGs are interlinked. Achieving one goal without making progress on other goals is not possible, which means green growth can be an important contributor to achievement of SDGs.

Similarly, green productivity is about increasing both productivity and environmental performance for larger development. According to the United Nations Environment Programme, companies that embrace green productivity practices show significant improvements in their competitiveness, profitability and resource efficiency.

In India, National Productivity Council (NPC), an autonomous organisation under the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, has been walking the green productivity talk for decades now—and successfully.

Staying abreast of the latest developments, NPC has been more recently even handholding Indian public and private sector companies in integrating Environmental, Social and Governance (ESG) factors in their strategies and operations to stay ahead of the competition in a responsible and profitable way.

Green growth and green productivity assume more significance in the context of India taking up a leadership role globally in pursuing low-carbon growth in recent years. In this backdrop, this special edition seeks to not only bring into sharp focus various aspects of green growth and green productivity, but also do so through the examples and case studies of countries like Australia, Canada, South Africa, Germany, Republic of Korea, Japan, the UK and the USA. The edition, it is hoped, will serve as a guiding light on green growth and green productivity in letter and spirit.

RAJIV TIKOO
Consulting Editor

One Earth, One Family, One Future

'Vasudhaiva Kutumbakam', the mantra for India's G20 Presidency Year, translates to One Earth, One Family, One Future and perfectly encapsulates India's vision for the world and its action plan to realise this vision, in collaboration and friendship with other nations. A closer look at where we stand and the way forward

Ipshita Banerjee Bhandary

The world is facing a severe challenge—that of climate change in serious conflict with the economic prosperity of nations. Multilateral institutions are struggling to lessen carbon footprints and undertake initiatives that are urgent and all-encompassing, fair and equitable. It is also imperative to ensure that the Sustainable Development Goals as outlined by the United Nations are achieved so as to positively impact nations and citizens. India, during its G20 presidency this year, will engage in meaningful discussions on climate action and achieving the Global Goals.

India is one of the top five countries in the world in terms of adopting and implementing environmental goals. India regularly files the United Nations Framework Convention on Climate Change (UNFCCC) report and has already exceeded its goal for 2030, of having a 40 per cent share of renewable energy in its installed capacity in 2021. Businesses that have decided to set up manufacturing in India grow and expand due to the country's competitiveness and ability to innovate and design new products.

Experts say that if nations focus on ensuring decarbonising economies and initiating action beyond electricity, we are home and safe. Piyush Goyal, Minister of Commerce and Industry, Textiles and Consumer Affairs, Food and Public Distribution as well as former G20 Sherpa, thinks decarbonising



PIYUSH GOYAL
Minister of Commerce
and Industry

Photo: Getty Images

economies is the only way forward. While stating that India, with 17 per cent of the world population, contributes only 5 per cent of the total carbon emissions, he enumerated several milestones India had achieved in renewable energy. India's installed non-fossil energy capacity—the fourth largest globally—has increased by almost 300 per cent in the last seven and a half years and stands at more than 150 GW now. India has one of the world's lowest solar tariffs at Rs 2.14 kW/h. Describing several initiatives India has taken on the green energy front in the last few years, Goyal has said that India's initiative to convert incandescent lights to LED lights (UJALA) is a noteworthy example of sustainable development.

A chartered accountant and lawyer by qualification, Goyal has been a committed climate warrior in both his personal capacity and his various professional personas. After being elected to the Rajya Sabha from Maharashtra in 2014, he was given independent charge of the Ministry of Power, Coal, New and Renewable Energy. His tenure was marked by multiple landmark initiatives, one of the most significant being a massive expansion of renewable energy through the world's largest renewable energy expansion programme. The ministry has constantly been pushing towards the adoption of clean energy and even today in his capacity as Minister of Commerce and Industry, Goyal continues his focus on

creating an enabling framework for Indian industry to transition to a higher green productivity index.

"As India sets its sight on becoming energy-independent by 2047 and achieving net zero by 2070, we recognise the critical role of green hydrogen. India has the potential to be the largest manufacturer and exporter of green hydrogen and electrolyzers in the world," Goyal has said. Under the National Hydrogen Mission, India will reduce the cost of hydrogen to half.

He referred to the five nectar elements or Panchamrit mentioned by the Prime Minister at COP26 Glasgow and said that these goals reinforced India's commitment to sustainable energy. These goals are to reach non-fossil energy capacity of 500 GW by 2030, to meet 50 per cent of its energy requirements from renewable energy by 2030, to reduce carbon emissions by 1 billion tonnes by 2030, to reduce the economy's carbon intensity by 45 per cent by 2030 and to achieve the target of net zero by 2070.

He said that India's vision was based on the 5 Ps—People, Planet, Prosperity, Peace and Partnership. "We are not just the fastest growing economy of the world, but also the fastest growing green economy of the world," Goyal added.

According to him, the Union Budgets 2022–23 and 2023–24 were testaments to the government's commitment to achieving a sustainable future. Major budgetary provisions reinforcing India's commitment to green industrialisation were the sovereign green bonds and additional allocation for the solar Production Linked Incentive (PLI) scheme.

As a leading agri-producer, India's initiatives in the field of biofuels are also significant. According to Goyal, India is focusing on converting sugarcane and food grains to ethanol, the blending of which would reduce dependence on fuel imports. India has the potential to be a world leader in biofuels, he says. He has also consistently underscored the government's focus on converting "waste to energy" and "waste to wealth".

"India has grown almost 12 times in the last three decades in spite of several black swan events. Transformational steps have been taken by the government to take inclusive growth to every section of the society without discrimination and to the remotest corners of the nation," said Goyal. He also adds that if industries focus on the five key areas in the manufacturing sector—standards for quality, durability, design, price and sustainability—and align them to international standards, change is inevitable.

Goyal has also said, "There is an innate need to globalise trade and get the best from the world while

INDIA IS ONE OF THE TOP FIVE COUNTRIES IN THE WORLD IN TERMS OF ADOPTING AND IMPLEMENTING ENVIRONMENTAL GOALS. INDIA REGULARLY FILES THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC) REPORT AND HAS ALREADY EXCEEDED ITS GOAL FOR 2030, OF HAVING A 40 PER CENT SHARE OF RENEWABLE ENERGY IN ITS INSTALLED CAPACITY IN 2021




RAJESH KUMAR SINGH, IAS,
Secretary, DPIIT, Government of India

simultaneously giving the best to the world. India must focus on green energy, reducing emissions and other SDG contributing toward a better future and utilising Product Linked Incentive schemes (PLIs) to strengthen the Micro, Small and Medium Enterprises (MSME) ecosystem."

The National Productivity Council under DPIIT, the Commerce and Industry Ministry plans to do this as its nodal body while working to increase both lean and green productivity across sectors. The Minister is the President of NPC, while the Secretary, DPIIT, Rajesh Kumar Singh, IAS, is its Chairman. With Singh's extensive experience across ministries and departments key to green development such as the Ministry of Petroleum and Natural Gas, Department of Agriculture, and that of Urban Development, the move towards a circular economy is on in full swing.

Emphasising the need for citizens to aid in achieving the SDGs, Goyal has said, "We must adopt LiFE—Lifestyle for the Environment—so that in our daily lives, one can start focusing on moving towards a circular economy, start eliminating wastage and start recycling and reusing. Our students are the catalyst of the new India, and the government can only act as an enabler. We must respect intergenerational equity, we do not have the right to use up all the resources of this planet."

"I applaud Prime Minister Shri Narendra Modi's vision of 'Vasudhaiva Kutumbakam', of peace and dialogue, orderly and inclusive growth and humane approach. India wants to be a responsible global citizen, be it in the sphere of climate change or digital public infrastructure. It is through the theme of G20 in India—'One Earth, One Family, One Future'—that we wish to inspire the world to care for others, to have a greater degree of dialogue and greater concern for the planet and for the future of our children." 

AMITABH KANT
G20 Sherpa for India and
former NITI Aayog CEO

Onus and Ownership: Towards a Green Future

With India assuming the G20 presidency for the year 2022-23, the focus is firmly on the nation to set the agenda for the year and play an effective leadership role in action areas for sustainable development. A look at the region's projected future

Ipshita Banerjee Bhandary

India has assumed the presidency of G20 in 2022-23 and the world is looking to see what the nation sets as the key action areas in relation to sustainable development. Amitabh Kant, India's G20 Sherpa during its presidency year, and policy maker with previous appointments such as CEO, NITI Aayog and Secretary, Department of Industrial Policy & Promotion, says, "India's focus would be on addressing the climate crisis, Sustainable Development Goals (SDGs) progress, global debt, geopolitical tensions and the ensuing food

and energy crises. India's priorities reflect the aspirations of not just G20 countries, but also of the Global South. Accelerating progress on SDGs will be a core priority during our presidency. A renewed push for green development and climate finance will be another, with the Prime Minister's concept of Lifestyle for Environment (LiFE) woven in. Food security, the availability of fertilisers and energy security are also key issues India will aim to address during the year."

It is but a given that the world needs to look at alternative paradigms of production and consumption to achieve sustainable and holistic well-being of the society. Transitioning to a fully circular economy within a generation—the absolute need of the hour to fight climate change—will require urgent and large-scale action from all stakeholders. Extensive and intensive cross-sectoral collaboration is critical to facilitate circular economy. According to spokespersons, India will emphasise on providing thrust to the circular economy agenda towards developing

consensus on key issues during its presidency. The G20 platform provides opportunities for collaborative circular economy transition and these will have to be seized and leveraged, reiterates Kant.

What makes the SDGs such a priority? The answer is simple yet complex. The custodian of the development agenda in the G20 since 2010, the Development Working Group (DWG) has steered the alignment of the development agenda of the G20 with the SDGs after the adoption of the 2030 Agenda for Sustainable Development and its Goals in 2015.

India has proposed dovetailing climate action with sustainable development, making a clear bid to bring issues facing emerging economies and the Global South in sharp focus on the world stage. Accelerating global growth is high on the agenda, bringing to the fore the need to recognise that any growth strategy must keep inclusivity at its core. Hence, accelerating progress on SDGs is a must.

With the world amidst a climate crisis, accelerating decarbonisation and green energy will be crucial to making growth sustainable. Green development will be the key. At the same time, the burden of green transition has to be equitable.

At the first Development Working Group Meeting of the current presidency in Mumbai from December 13 to December 16, 2022, Kant outlined India's Development Working Group (DWG G20) priorities and approach. "It is important to recognise the need for a just-green transition. India will seek to balance these various priorities and ensure that the benefits of global growth reach those who need it the most. Let me explain India's Development Working Group (DWG) priorities as (i) Green Development including climate action and financing, just energy transitions and LiFE (LifeStyle for Environment); (ii) Accelerating implementation of SDGs; and (iii) Digital Public Goods/Data for Development".


But, how easy will it be to persuade the richer nations to offer finances to the Global South's transition to green energy? "We will keep persuading all countries. The developed world has accepted the principle of just transition. India is not responsible for polluting the world. India has taken only 1.5 per cent of the carbon space, while it is entitled to 18.5 per cent of the carbon space. The developed world creates as

much as 88 per cent of pollution. They need to ensure climate justice," says Kant.

India's net zero commitment and its linkage to sustainable development is another key question. India's announcement that it aims to reach net zero emissions by 2070 and to meet 50 per cent of its energy requirements from renewable energy sources by 2030 is a hugely significant moment for global climate action. India is pioneering a new model of economic development that could avoid the carbon-intensive approaches of the past and provide a blueprint for other developing economies.

Chasing the net zero goal is net positive for India, and the country's growth has the potential to catalyse global economic resurgence. India's achievements will have a multiplier impact on the achievement of UN SDGs. India's G20 presidency is an opportune moment to bridge the access gap between developed and emerging economies, particularly in energy. Decarbonising economies is the need of the hour—this requires cohesive action and transforming large parts of the economy. Action is needed beyond electricity, which accounts for only a fifth of the energy usage.

Are policy and implementation the only ways forward? Kant has repeatedly spoken about the need to reduce mindless consumption and for widespread behavioural change. The way individuals and communities approach the present challenges will be critical to effect change. Urgent behavioural change at individual and community levels is required to avoid destructive consumption and ensure mindful resource utilisation. If communities and individuals make mindful changes to their present lifestyles, there will be immense positive impact. This is what Prime Minister Narendra Modi's vision of LiFE articulates.

What, then is the one big idea that India proposes to make its G20 presidency memorable and effective with? Kant says, "We have 13 working groups, and eight tracks on the finance front. We have several engagement groups, each working on three to four broad priorities regarding inclusive and resilient growth, green climate action and accelerating the pace of life. To my mind, we should lead towards green development and get the backing of all countries. Technological innovations have so far come from the developed world. For the first time a developing country like India would be able to showcase its technology." 

“
INDIA'S FOCUS
WOULD BE ON
ADDRESSING
THE CLIMATE
CRISIS, SLOW
SUSTAINABLE
DEVELOPMENT
GOALS
PROGRESS,
GLOBAL DEBT,
GEOPOLITICAL
TENSIONS
AND THE
ENSUING FOOD
AND ENERGY
CRISIS. INDIA'S
PRIORITIES
REFLECT THE
ASPIRATIONS OF
NOT JUST G20
COUNTRIES, BUT
ALSO OF THE
GLOBAL SOUTH.
ACCELERATING
PROGRESS ON
SDGs WILL BE A
CORE PRIORITY
DURING OUR
PRESIDENCY

”



Photo: Getty Images

India: Mission SDGs

Today, several challenges threaten humankind, the most significant of which are poverty, hunger, inequality and climate change. Bold collaborative action is needed to address and overcome these. The Global Goals lay out the aims as well as the roadmap towards this. A transformative agenda agreed to by all nations to build a greener, fairer, better world by 2030, the 17 Sustainable Development Goals represent our only hope to survive as a civilization. In India's G20 presidency year, here is a report on India's journey towards achieving the SDGs

Aradhana Das

India is, and hence all Indians are, committed to achieve the Sustainable Development Goals (SDGs) by 2030 as a signatory to the transformative agenda adopted by the 193 member states at the United Nations General Assembly Summit in September 2015. The SDGs are based on the principle of universality and aim to ensure that no one is left behind in development efforts. The 17 SDGs aim to end

poverty, protect the planet and ensure the principle of universality: 'Leave No One Behind'.

The 17 SDGs are: no poverty; zero hunger; good health and well-being; quality education; gender equality; clean water and sanitation; affordable and clean energy; decent work and economic growth; industry, innovation and infrastructure; reduced inequalities; sustainable cities and communities; responsible consumption and production; climate action; life below water; life on land; peace, justice and strong institutions; partnerships for the goals.

While the Constitution of India enshrines the above goals as both rights and responsibilities of all citizens, a call to action within a specified time frame was an urgent need to galvanise the world into action. India has also been striving to meet the target. According to the Centre for Science and Environment's *State of India's Environment Report*, 2022, India holds rank 120 on the 17 SDGs adopted as a part of the 2030 agenda. Overall, India's SDG score was 66 out of 100.

The NITI Aayog has released the SDG India Index and Dashboard 2020–21 to document and rank the progress made by India towards achieving the SDGs.

No Poverty: India has made significant progress

towards achieving the No Poverty goal. In the last few decades, India has lifted millions of people out of extreme poverty. According to the World Bank, India's poverty rate has declined from 60 per cent in 1981 to 21 per cent in 2011, indicating that over 270 million people have been pulled out of poverty in the last 40 years. India's poverty rate is now comparable to that of many other developing countries.

The Government of India has implemented several programmes to reduce poverty. One of the most significant is the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) also the infographic will go here, which provides employment and income support to rural households. NREGA has been successful in reducing poverty and improving the standard of living of many rural households. Another important initiative is the Pradhan Mantri Jan Dhan Yojana (PMJDY), which aims to provide banking services to the unbanked population. This has helped millions of poor open bank accounts, which has helped them to save money and access credit. India's achievements towards the No Poverty goal are impressive, and the government's commitment to poverty reduction is evident. With the right policies and initiatives, India can continue to progress towards reducing poverty further and improving the standard of living for all its citizens.

Zero Hunger: India has a critical role to play in achieving the Zero Hunger goal set by the United Nations. India is home to one of the largest populations of malnourished people in the world, with an estimated 194.4 million people undernourished in 2019, according to the *State of Food Security and Nutrition in the World* report. However, India has also made significant strides in

reducing hunger and malnutrition in recent years. Several programmes aimed at improving food security and nutrition have been launched and implemented, such as the National Food Security Act, the Mid-Day Meal Scheme, and the Integrated Child Development Services Scheme.

One of India's most significant contributions to the Zero Hunger goal is its agricultural sector. Agriculture, the backbone of India's economy, is also the largest employer in the country and contributes significantly to the country's GDP. India is the world's second-largest producer of food, and its agricultural sector has the potential to help feed the world's growing population. The programmes and policies launched will improve food security and nutrition and help India honour its pledge to achieve the UN's Zero Hunger Challenge.

The National Nutrition Mission is a significant initiative that aims to reduce malnutrition in India by 2 per cent per annum and focuses on improving the nutritional status of women and children, especially from vulnerable communities. The Pradhan Mantri Kisan Samman Nidhi Yojana (PM-KISAN) is another initiative which provides direct income support to small and marginal farmers. The programme aims to improve the economic condition of farmers, which, in turn, can help improve food security and nutrition.

Good Health and Well-being: The focus of SDG3 is to ensure healthy life and well-being for all ages. It focuses on identifying key targets that would improve the well-being of the country's population. India has committed to increase public health expenditure to 2.5 per cent of the GDP by 2025. The government has planned to establish well equipped 1.5 lakh health and wellness centres by 2022. Efforts to control tuberculosis and achieve the target of bringing an end to TB by 2025, five years ahead of the global target year of 2030, are seeing good results.

Quality Education: Education is undeniably the most important enabling factor for sustainable development. India is successfully marching towards the completion of 'Education for All' goal. Several programmes have been initiated to provide free and compulsory education to all children in the age group of six to 14 years as a fundamental right. Some important initiatives that have boosted education in the country are Sarva Shiksha Abhiyan (SSA) and Right to Education (RTE). RTE provides for comprehensive elementary education for all and mandates 25 per cent quota in private schools for children from economically weaker sections.

INDIA AT PRESENT IS SHINING BRIGHT IN TERMS OF ACHIEVING THE 17 GLOBAL GOALS BY 2030. THE EFFORT AND DEDICATION OF THE GOVERNMENT HAS BEEN COMMENDABLE IN THIS REGARD. TIME AND AGAIN, THE COUNTRY HAS PROVED THAT ACHIEVING THE SDGS STAND AS NATIONAL PRIORITIES



Source: The United Nations

Gender Equality: One of the most populous countries in the world, with over 1.3 billion people, India has a large population of women and girls. In addition, India has a high rate of illiteracy among women, which means they are less likely to be able to read or write. While steps toward improving gender equality in India have been taken by passing laws that protect women from domestic violence, much more needs to be done for these laws to be effective.

Clean Water and Sanitation: According to NSS data, 88.7 per cent of Indian households had sufficient drinking water from primary drinking water sources in 2018, while 79.8 per cent of households had access to toilet facilities. As per the 2019–2021 goal score for states and Union Territories (UTs) in rural India based on SDG on water and sanitation, the achiever states and UTs (100 per cent) are Sikkim, Himachal Pradesh, Andaman and Nicobar Islands. The National Rural Drinking Water Programme (NRDWP) was improved and included under Jal Jeevan Mission to supply Functional Household Tap Connection to every rural household, i.e. *Har Ghar Nal Se Jal* by 2024.

Affordable and Clean Energy: With targets to achieve net zero emissions by 2070 while meeting 50 per cent of its energy needs through renewable energy sources by 2030, the goal of affordable and clean energy gives hope to India's energy sector. Energy is one of the leading contributors to climate change, which totals around 60 per cent of the global greenhouse gas emissions. The main area of focus is to use energy from renewable resources, such as wind, solar, water, biomass and geothermal energy, which are inexhaustible and clean. Renewable energy currently constitutes 15 per cent of the global energy mix.

The Government of India has started programmes to help sustainable energy transitions. In August 2022, the Cabinet approved a national plan to boost the country's commitment to minimise the emissions intensity of its GDP by 45 per cent. Commenting on bio-economy, Prime Minister Narendra Modi said that the sector has grown eight times in the last eight years. In February 2022, India founded a framework for producing and exporting green hydrogen. India's energy penetration has widened considerably. Minister for Power and New and Renewable Energy R.K. Singh said, "We achieved universal access to electricity by electrifying more than 18,000 villages in under 1,000 days and more than 28 million households in just 18 months in what was the



IN THE LAST FEW DECADES, INDIA HAS LIFTED MILLIONS OF PEOPLE OUT OF EXTREME POVERTY. ACCORDING TO THE WORLD BANK, INDIA'S POVERTY RATE HAS DECLINED FROM 60 PER CENT IN 1981 TO 21 PER CENT IN 2011, INDICATING THAT OVER 270 MILLION PEOPLE HAVE BEEN PULLED OUT OF POVERTY IN THE LAST 40 YEARS

largest expansion of access in such a short time anywhere in the world."

Decent Work and Economic Growth: India has made significant attempts to attain the goal of decent work and economic growth for all. Programmes like Make in India, Start-up India, Skill India and Digital India have been introduced with the primary aim of creating employment opportunities for the youth. The government is also focusing on improving trade and business environment across the country. The business report 2016–17 by the World Bank highlighted the fact that it only takes 29 days to start a business in India. This demonstrates that India is using the two-pronged strategy of growth and employment to achieve these.

Industry, Innovation and Infrastructure: Constructing resilient infrastructure, including regional and trans-border infrastructure, supporting sustainable industrialisation and promoting innovation is the pledge this goal makes. India is leaving no stone unturned to boost its industry and economy. The National Industrial Corridor Development Programme is one of the largest projects in the world. Under the State Level Business Reforms Action Plan, more than 7,000 modifications were executed in the 36 states and Union Territories to restructure business management. The country has made significant progress in terms of rank in the World Bank's *Ease of Doing Business*, jumping from 142 in 2014 to 63 in 2019.

Reduced Inequalities: This goal refers to reducing income inequalities, promoting equal access to social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, religion and so on. It also aims to position developing countries so that they can take part in decision-making at international multilateral institutions and platforms

Sustainable Cities and Communities: Ensuring access to adequate, safe and affordable housing to all and to upgrade slums is the focus of this goal. It also involves access to sustainable transport system, with special attention to the needs of women, children, persons with disabilities and older people. The government has already taken initiatives such as AMRUT (Atal Mission for Rejuvenation and Urban Transformation), launched in 2015, to develop basic amenities in the city and PMAY (Pradhan Mantri Awas Yojana) to help poor and urban slum dwellers in the construction of houses.

Responsible Consumption and Production: India's resource use in recent years has been responsible. The population of China and India together forms 36 per cent of the global population but when it comes to global municipal waste, they produce only 27 per cent. A considerable fraction of the total hazardous waste produced by India is recyclable and if the National Recycling Policy is implemented seriously, then self-sufficiency can be achieved in the next 10 years. According to 2018 statistics, the Plastic Policy Index of India is less than the national requirement. India's per capita plastic consumption is below 11 kg, significantly lower than the 109 kg of the United States of America.

Climate Action: India pledged to reach net zero emissions by 2070 at COP26. Towards the end of 2022, India assumed the presidency of the G20 leadership. Its leadership mantra 'Vasudhaiva Kutumbakam' translating to 'One earth, one family, one future', indicates the country's vision of the connectedness of humankind in relation to climate change. Amitabh Kant, G20 Sherpa of India, has said that India will prioritise accelerating progress on the SDGs, along with facilitating green development and climate finance. Kant also emphasised that making growth sustainable by accelerating decarbonisation and green energy is extremely crucial. At present, India has the capacity to generate just over 40 per cent of its power from renewable sources, so the 50 per cent target is expected to be achieved by 2030, according to the UN and Climate Action Tracker. India is the third largest producer of solar energy in the world with the lowest renewable costs. It is predicted that by greening its economy, India could facilitate green growth to add \$1 trillion to its GDP by 2030 and \$15 trillion by 2070.

The National Action Plan on Climate Change (NAPCC), along with the State Action Plans on

THE EFFORT AND DEDICATION OF THE GOVERNMENT HAS BEEN COMMENDABLE IN THIS REGARD (SDGs). TIME AND AGAIN, THE COUNTRY HAS PROVED THAT THESE SDGs STAND AS PRIORITIES. INDIA'S DEDICATION IN WORKING TOWARDS ATTAINING THE 17 GOALS CAN BE RECOGNISED THROUGH THE STEPS TAKEN BY COUNTRY IN RECENT TIMES.


Climate Change, is an important landmark for incorporating climate in development processes at the national and state levels. NAPCC has eight national missions, which are in the areas of solar energy, energy efficiency, sustainable habitat, sustainable agriculture, Green India, water, Himalayan ecosystem, and strategic knowledge. The Ministry of Environment, Forest and Climate Change acknowledges "poverty eradication along with green growth" as an essential factor to India's sustainable development. This vision also symbolises the definition of green growth by the Thirteenth Finance Commission of India as a "narrative that enables rethinking growth strategies with regard to their impact(s) on environmental inclusiveness and sustainability".

Life Below Water: India has made noteworthy conservation efforts to ensure coastal protection, improve water quality and encourage sustainable fishing. Based on recent data, India ranks 70th in the world for Life Below Water and is making improvements in terms of conservation.

Life on Land: India is one of the 17 mega-biodiverse countries in the world. With only 2.4 per cent of the earth's land area, it supports seven to eight per cent of the world's recorded species. It is home to around eight per cent of the world's biodiversity, with many of the species exclusively available only here. India is committed to achieving the Aichi targets of the Convention on Biological Diversity. It also actively promotes the implementation of the Nagoya Protocol.

Peace, Justice and Strong Institutions: Peace, justice and strong institutions are important to ensure the achievement of all other goals. This aims to reduce violence and death rates and also promises to end abuse, trafficking, exploitation and violence and torture against children. India has been trying hard to fight these odds and achieve a safe environment for all.

Partnerships for the Goals: To achieve the SDGs, global partnership is the need of the hour. India, as one of the prime actors, is successfully playing its role in strengthening global partnership for the smooth functioning of different sectors.

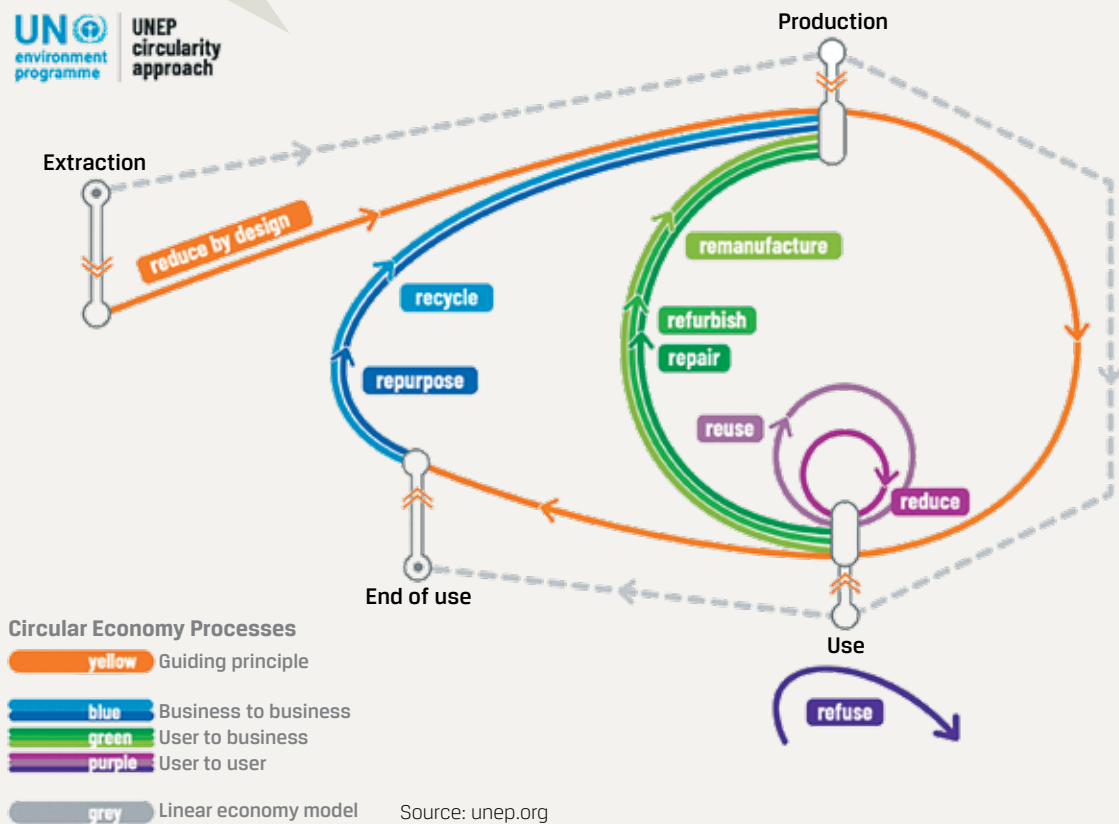
All the SDGs are interlinked. Attaining one goal is impossible without working on the other. The effort and dedication of the government has been commendable in this regard (SDGs). Time and again, the country has proved that these SDGs stand as priorities. India's dedication in working towards attaining the 17 goals can be recognised through the steps taken by country in recent times. 

The UNEP circularity platform provides an understanding of the circularity concept, its scope and how it contributes to promoting sustainable consumption and production patterns

Circling Green

UNEP
environment
programme

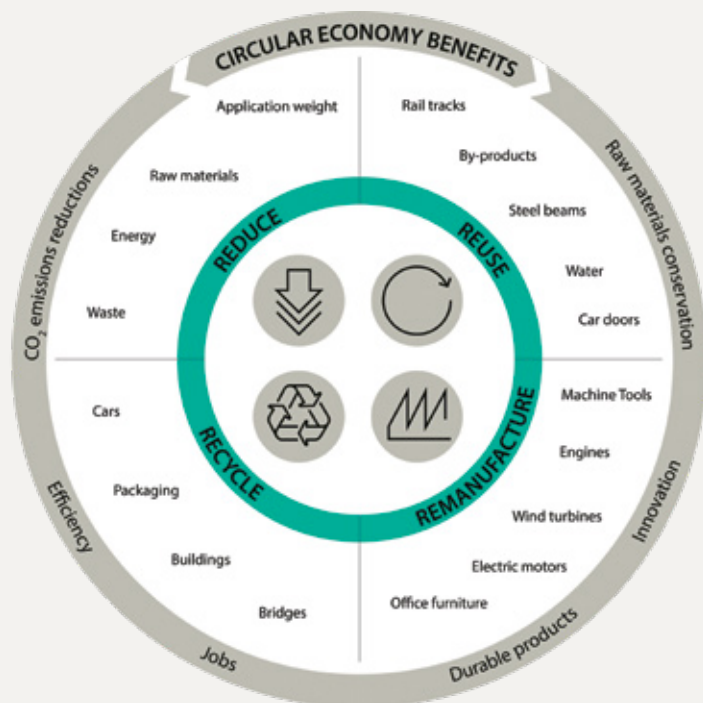
UNEP
circularity
approach



A circular economy entails markets that give incentives to reusing products, rather than scrapping them and then extracting new resources

Source: unctad.org

This visual depicts the ways in which circular economy strategies can contribute to various SDGs





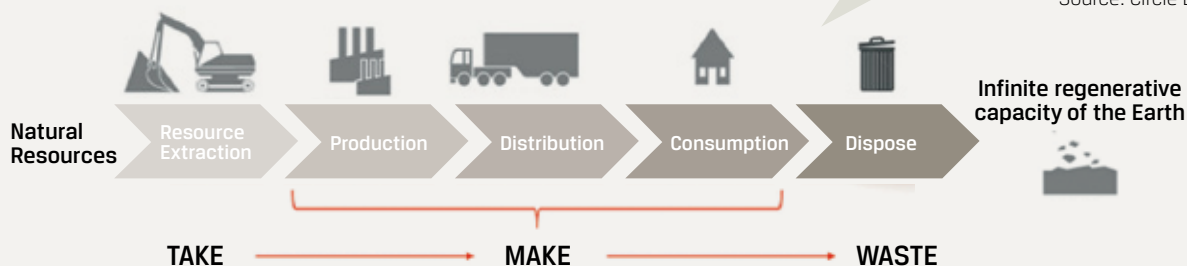
Something Old, Something New

The circular economy is a new way of creating value, and ultimately prosperity. It works by extending product lifespan through improved design and servicing, and relocating waste from the end of the supply chain to the beginning—in effect, using resources more efficiently by using them over and over, not only once

Source: Circular Economy UNIDO

The linear economy— The 'take, make and waste' approach of production

Source: Circle Economy



▲ SDGs that strongly benefit from CE practices

● SDGs that benefit from CE practices indirectly

● SDGs that facilitate the uptake of CD practices

■ SDGs that provide opportunities to enable CD practices

Source: The United Nations



Circular Economy Moves Up The Agenda

Photo: Shutterstock

The budget announcement of Rs 10,000 crore for GOBARdhan scheme and the G20 discussion put focus on the issue

Naina Gautam

When Finance Minister Nirmala Sitharaman presented Union Budget 2023–24, she allocated Rs 10,000 crore for promoting circular economy through GOBARdhan (Galvanising Organic Bio-Agro Resources Dhan) scheme. The scheme provides for setting up 500 new waste-to-wealth plants, including 125 compressed biogas (CBG) plants in rural areas and 75 plants in urban areas and 300 community or cluster-based plants. It is not a one-time initiative because the government proposes to introduce a 5 per cent CBG mandate for natural and biogas marketing organisations. The budget announcement builds on earlier government initiatives, which have been taken from time to time on e-waste, lithium-ion batteries, end-of-life vehicles, scrap metal and municipal solid waste. Even the meetings of the Environment and Climate Sustainability Working Group (ECSWG) of G20 have on the agenda 'Strengthening of Circular Economy'.

What is circular economy?

In the traditional linear economy of today, we extract resources, manufacture goods and discard waste – this leads to environmental degradation. In contrast, the circular economy is a system that seeks to optimise the use of resource and reduce waste. Focusing on 6 R's of Reduce, Reuse, Recycle, Refurbish, Recover and Repair, circular economy uses practices as well as develops products to reduce resource utilisation, extend life of products, reduce waste and even regenerate natural systems. It has the potential to foster innovation, create new jobs and business opportunities, which can lead to economic growth. For example, the principles of circular economy can be applied easily in sectors like industry, agriculture, construction and consumer goods. Manufacturers can use, develop and employ closed-loop supply networks and use recycled material. Agriculturalists can take up composting and regenerative practices. Builders can retrofit old buildings and use sustainable building material in new constructions. Circular economy is a win-win

for both the economy and the environment.

How can we create an enabling ecosystem for circular economy?

The government can play a key role. A circular economy ecosystem can get a shot in the arm with friendly laws and policies, support to R&D and incentives to businesses. New thinking and technological breakthroughs need to go into developing infrastructure guided by new waste management strategies.

Companies need to follow environmental laws and policies not only in letter, but also in spirit. Creating mass awareness will lead to informed customers preferring products and services from circular economy. They may participate in recycle-and-reuse chains. They may choose product-as-a-service models like carpooling over private ownership. Extra effort is needed to trigger behaviour change so that consumers make green choices. Customer pressure can prompt businesses to follow circular economy practices.

What is the business case for circular economy?

A circular economy triggers using lesser resources and minimising waste, thereby reducing extraction and related costs. It calls for knowledge and skill enhancement in digital technologies, resource management and sustainable design. It triggers innovation and competitiveness, leading to development of new products and services. Innovation can help develop closed-loop supply chains and business models of using products as services. Reduction in emissions improves health of both people and the planet, reducing remedial costs. Such factors fuel sustainable economy, catalysing economic growth.

What is the linkage between circular economy and the SDGs?

Circular economy can accelerate achievement of SDGs through its focus on reducing resource consumption, waste and emissions, which also catalyse economic growth. While circular economy has an overall impact on SDGs, it has direct bearing on some of the SDGs. Resource conservation and waste reduction are aligned with SDG 12 on Responsible Consumption and Production. Its targets are focused on sustainable management and efficient use of natural resources; environmentally sound management of chemicals and all wastes throughout their life cycle; reducing waste generation through prevention, reduction,



CIRCULAR ECONOMY IS A SYSTEM THAT SEEKS TO OPTIMISE THE USE OF RESOURCES AND REDUCES WASTE. FOCUSING ON 6 Rs OF REDUCE, REUSE, RECYCLE, REFURBISHMENT, RECOVER, AND REPAIRING, CIRCULAR ECONOMY USES PRACTICES AS WELL AS DEVELOPS PRODUCTS TO REDUCE RESOURCE UTILISATION, EXTEND LIFE OF PRODUCTS, REDUCE WASTE AND EVEN REGENERATE NATURAL SYSTEMS

recycling and reuse; rationalising inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, etc. Importantly, the SDG 12 also aims to halve, by 2030, global food waste across levels from the retail and consumer to food losses along production and supply chains. Besides, development of new business opportunities and creation of new jobs feeds into SDG 8 on Decent Work and Economic Growth. Innovation in technology and business models supports SDG 9 on Industry, Innovation, and Infrastructure. Conservation of resources and waste reduction advances SDG 13 on Climate Action.

What is the experience with circular economy worldwide?

Countries like China, France, Italy, Sweden, the Netherlands and the United Kingdom are working on various aspects of circular economy. China has laid down its Circular Economy Promotion Law. The United Kingdom has a circular economy package, which charts the roadmap for realising circular economy. The UK believes that adoption of circular economy requires refashioning changes in the value chain. France is a circular economy pioneer, with provisions like reparability index for electronic and electric products. In France, companies with unsold food stock are not to discard it, but rather reuse, recycle or donate their products. The Netherlands aims to be 100 per cent dependent on circularity by 2050. An instance: government buildings have to be built by using recycled material. Italy has budgetary provision—a public investment fund—to support transition. Italy also recycles more than 79 per cent of its urban waste. Sweden has one of the highest recycling waste rates in the world. It focuses on circular sourcing and circularity embedded production that assures 5 Rs are met.


India has also embarked on the circular economy road and more recently laid down waste disposal norms for manufacturers, producers and bulk consumers with the formulation of Battery Waste Management Rules 2022; Plastic Waste Management (Amendment) Rules 2022; and e-Waste Management Rules 2022. Even transactions are encouraged among stakeholders for Extended Producer Responsibility (EPR) certificates. Action plans have been also laid down on e-waste, lithium-ion batteries, end-of-life vehicles, scrap metal and municipal solid waste. 



Photo: Getty Images

Australia: The Circle of Life

Australia has demonstrated consistent commitment to the actualisation of a circular economy. A case study

Abhijit Sen

As opposed to the linear economy of take, make and dispose, circular economy focuses on the 3 R's—Reduce, Reuse and Recycle. Over the past decade, Australia has taken some major initiatives to become a circular economy by 2030. Statistically speaking, Australia produces 67 million tonnes of waste every year. The new goal is to convert this waste into a resource.

To achieve this, Australia came out with a National Waste Policy in 2018. Its main objectives were:

- (a) Reduce total waste generated by each person in the country by 10 per cent by 2030
- (b) Achieve an average recovery rate of 80 per cent from all waste streams by 2030
- (c) Phase out problematic and unnecessary plastics by 2025

A Circular Economy Ministerial Advisory Group was set up to guide the transition from a linear economy. It advises the government through the

Minister for Environment and Water on various aspects. These include operations associated with the transition, removing regulatory and commercial hurdles, promoting best practice initiatives that can be adopted and expanded, boosting research and development, innovation needs and monitoring the progress towards this transition. Experienced players in the circular economy space, like Planet Ark and Bingo, were also roped in.

It is significant that in the 2022 polls, nicknamed the climate elections, the party and the prime ministerial candidate won on the basis of climate policy. The Labor Party committed itself to stronger climate action and to seizing the opportunities on the road to net zero, which was reflected in the win and in Prime Minister Anthony Albanese's victory speech in May 2022 where he boldly committed to ending "the climate wars" and becoming a "renewable energy superpower", and making "significant commitments towards a net zero vision".

Albanese, in his former role as Minister for Cities, was a vocal champion of liveable, productive



ANTHONY ALBANESE
Prime Minister,
Australia



and sustainable cities and thus, understands the complex challenges facing the built environment. The Albanese government seems committed to translate these visionary policies and many more into real-world outcomes.

To achieve these goals, the country has earmarked a sum of \$83.1 million over five years, starting from 2022–23.

Interestingly, Australia's national science agency, CSIRO (Commonwealth Scientific and Industrial Research Organisation), in February 2021, had organised a virtual event with India, the I-ACE hackathon, to encourage a move towards circular economy among students and among small & medium enterprises (SMEs). The aim was to cut plastics waste, create innovative packaging and recover critical metals from electronics waste. Collaborators from India included NITI Aayog and Atal Innovation Mission.

Returning to the Australian experience, let us highlight the roles of Planet Ark and Bingo, two major players in the circular economy space.

Planet Ark feels that circular economy is a modern tool for resource management that helps materials circulate within the system instead of being sent for landfill. It has taken the lead to create the ACE (Australian Circular Economy) hub for seamless transition to the new space. Its chief goals are to help the government, people and corporates reduce their environmental impact. This is possible through sustainable resource use, supporting low carbon lifestyles and connecting people with nature.


“
**WE NEED
TO END THE
CLIMATE
WARS. AND WE
CAN DO IT BY
INVESTING IN
RENEWABLE
ENERGY,
CREATING
JOBS, AND
MAKING
CHEAPER
POWER HERE
IN AUSTRALIA**
”

Over the years, ACE has become the go-to resource for implementing circular economy thought into action. It has helped corporates, individuals and communities with tools and education to embrace circular economy.

Here are a few examples from the work done by Planet Ark:

- (a) It has helped recycle batteries by keeping away hazardous materials from entering landfill using fireproof collection boxes. The batteries were then recycled by Australia's only onshore mixed-battery recycling company, Envirostream. About 95 per cent materials recovered were sent back to the manufacturing sector. These included steel, copper and aluminium.
- (b) It has devised a method to recycle computer printer cartridges through public drop-off sites and registered workplace collections. Since 2003, 49 million cartridges have been recycled with zero waste going to landfill.
- (c) It has used food waste to make nutritious ingredients. Apple pomace has been used as the model food source. The same can be done with grapes, broccoli, carrots and tomatoes.
- (d) It has supported high-density or shared housing projects instead of urban sprawl. Maximum asset utilisation has been achieved through renting, sharing, co-living and leasing. It has also focused on the role of urban design, critical infrastructure and essential services. This is how cities become more liveable and sustainable.

Bingo, another key player in this space, is committed to diverting waste from landfill and providing new technology to raise the recovery rate to 90 per cent by 2030. It has a host of advanced recycling centres that process materials for resale and re-use. Recently, it opened Materials Processing Centre 2 (MPC2), the largest dry mixed waste recycling plant in the world, in Sydney. It works across 14 different material streams. When fully operational, it can divert 90 per cent materials from landfill. Bingo also sponsors Planet Ark's ACE hub.

Another interesting case study is ASPIRE (Advisory System Process Innovation and Resource Exchange). Developed by CSIRO, this is a pilot project for four Melbourne municipalities. Simply put, it is an economic project with environmental benefits. Targeted at SMEs, it offers digital solutions for the 3'R's. Also called a dating site for SMEs, ASPIRE has so far roped in 100 companies, saved 1000 tonnes of waste from landfill annually. This has resulted in an annual saving of \$200,000. Earlier, landfill used to be the first option for these SMEs. 

AUSTRALIA'S PRIMARY GOALS



The Green Light: Towards Energy Efficiency

The energy scenario in India is complex and dynamic. The energy mix is a combination of traditional and modern, and there exist various challenges in meeting the increasing demand. With the government and states playing vital roles to realise the vision of a sustainable and energy-efficient nation, it will not be long before India becomes energy-surplus

J. Nagesh & Aradhana Das

India is the third-largest energy consumer in the world—thanks to rising incomes and improving standards of living. Energy use has doubled since the year 2000, with 80 per cent still being met by coal, oil and solid biomass. India's energy scenario is facing several challenges, such as ever-increasing demand, along with the need to reduce dependence on fossil fuels and to lessen carbon emission. Universal energy access and energy security is one of India's fundamental development goals. To meet energy demand without increasing carbon emissions, the government has taken a two-directional approach. With respect to generation, it is promoting greater use of renewable energy—mainly solar and wind power. For demand, efforts are on to enhance efficient energy use by leveraging innovative policy measures under the Energy Conservation Act.

Renewable Energy: The In-Thing

India is promoting the use of renewable energy to reduce dependence on fossil fuels and thus, address climate change. The country had set a target of 175 GW of renewable energy capacity by 2022, including 100 GW of solar and 60 GW of wind power. The government provides various incentives to develop renewable energy projects, including tax exemptions, subsidies and low-cost financing. Several large-scale renewable energy projects have been established and more are planned. Several incentives have been

INDIA IS PROMOTING THE USE OF RENEWABLE ENERGY TO REDUCE DEPENDENCE ON FOSSIL FUELS AND TO ADDRESS CLIMATE CHANGE. THE COUNTRY HAD SET A TARGET OF 175 GW OF RENEWABLE ENERGY CAPACITY BY 2022, INCLUDING 100 GW OF SOLAR AND 60 GW OF WIND POWER



Photo: Getty Images

undertaken to promote the development and use of renewable energy sources through technical assistance, information dissemination and financial incentives. These include:

1. The National Solar Mission, which aims to increase use of solar energy
2. The National Biogas and Manure Management Programme, which promotes the use of biogas
3. The National Wind Energy Mission, which aims to increase the use of wind energy
4. The National Hydroelectric Power Policy, which aims to increase the use of hydroelectric power
5. The National Biofuels Policy, which aims to increase the use of bio fuels

Climate Action: The Mission

India's Nationally Determined Contributions (NDCs) are the climate change mitigation and adaptation goals that it has set for itself as part of the Paris Agreement. India formally updated its NDC to the United Nations Framework Convention on Climate Change (UNFCCC) in August 2022. This represents a significant step towards India's goal of achieving net zero emissions by 2070. The following are the key features of the plan:

- Meeting 50 per cent of energy needs from non-fossil fuel-based energy resources by 2030
- Installing 500 GW of non-fossil fuel power generation capacity by 2030
- Cutting emissions by one billion tonnes, from projected business-as-usual (BAU) 2030 levels



Prominent programmes introduced to promote energy conservation in India:

- The National Mission for Enhanced Energy Efficiency (NMEEE) is expected to achieve total avoided capacity addition of 19,598 MW, fuel savings of around 23 million tonnes per year and greenhouse gas emissions reduction of 98.55 million tonnes per year
- The Bureau of Energy Efficiency to develop and implement energy efficiency programmes in various sectors of the economy
- PAT scheme, which sets energy efficiency targets for large energy-consuming industries and rewards those that exceed the targets
- The Energy Conservation Building Code which set standards for energy-efficient design and construction of new buildings

- Net zero emissions to be achieved by 2070
- Creating an additional carbon sink

Energy Efficiency: India's Journey


India witnessed an increase in energy demand post-Independence. The energy crisis that hit the country in 1973 changed the scenario drastically. It took a decade of rigorous awareness campaigns to make consumers, especially industries, acknowledge energy efficiency as a means of cost reduction and improving profits.

The country's transport sector has been a key focus area due to increasing demand and the resulting impact on energy consumption and emissions. Several policies to promote the use of fuel-efficient vehicles, including tax incentives for hybrid and electric vehicles, have been introduced. Investments have been made in the expansion and improvement of public transportation systems, including introduction of metro rail in several cities and promotion of public transport use

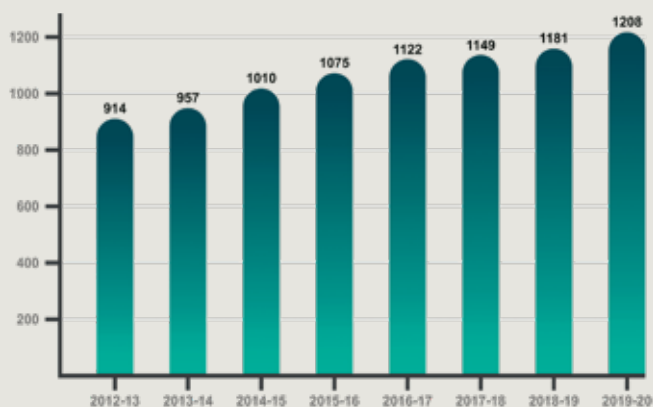
India is also pursuing an aggressive electric vehicles (EVs) policy. Key aspects of the policy include:

- Fostering domestic production of EVs and components
- Setting up charging infrastructure
- Offering financial incentives and subsidies for EVs
- Encouraging the use of EVs by government departments

In continuum

India has made significant efforts to improve energy efficiency in recent years, with some notable successes. Though there remains much room for improvement, with continued efforts and investment, India will continue to see progress in its energy efficiency efforts, contributing to a more sustainable future. 

Increasing Per Capita Consumption of Electricity



Source: Central Electricity Authority

Sources of Electricity Production in India





Japan: The Top Runner

Always a leader in creating the cutting-edge technology, Japan has been at the forefront of attaining energy efficiency as well

Ipshita Banerjee Bhandary

Japan is a country that has limited natural resources and depends largely on imports for its energy supplies. In the past, the country relied heavily on nuclear energy, but following the Fukushima disaster in 2011, the government has shifted its focus towards renewable energy and energy efficiency measures. Japan aims to become carbon-neutral by 2050 and towards this end, it has made significant progress in creating an efficient, resilient and sustainable energy system. Japan has always led the world in innovation and technology and this will further the nation's vision.

The Japanese government has implemented various policies and initiatives to promote energy efficiency, including the Energy Conservation Law and the Top Runner Programme. The Top Runner Programme sets energy efficiency targets for different products and industries, and companies that exceed these targets are rewarded.

In 1999, Japan introduced the Top Runner Programme, a framework of energy efficiency standards for energy-intensive products like motor vehicles and home appliances. By end 2014, a total of 23 product categories were included in the programme. The basis for inclusion of products is either their high energy utilisation, widespread and extensive use or their significant potential for becoming more energy efficient. Energy efficiency



FUMIO KISHIDA
Prime Minister, Japan



Photo: Shutterstock



JAPAN'S STRONG INNOVATION AND TECHNOLOGY BASE WILL CONTINUE TO PLAY A VITAL ROLE IN DEVELOPING THE TECHNOLOGIES NEEDED TO ACHIEVE ITS AMBITIONS OF BECOMING CARBON-NEUTRAL BY 2050

targets have to be met with a given number of years on the template of the most efficient model on the market, that is, the 'Top Runner'.

Interestingly, though the Ministry of the Environment, Government of Japan is empowered to disclose names of companies that have failed their targets and also to issue closure orders and fines, not a single fine or order had to be issued—all targets have been met or exceeded.

This is indicative of the complete support the programme enjoys from manufacturers.

At present, Japan's energy conservation law stipulates that more than 30 categories of products have to meet its requirements. For most product categories, only voluntary statements and manufacturers' test reports are required. For certain categories, however, such as LED products, the requirement states that they must be tested in one of the country's registered testing laboratories.

Japan has also implemented building codes that require new buildings to meet certain energy efficiency standards. The government has also encouraged retrofitting of older buildings to reduce energy consumption.

Additionally, the Japanese government has encouraged the use of smart grids and smart meters to monitor energy consumption and encourage energy-saving practices.

To further energy-saving inventory renovation and introduce renewable energy equipment, a low-interest loan programme will be established by the Japan Housing Finance Agency.

Municipalities have designated areas where architects will need to explain the advantages of introducing renewable energy facilities to property owners.

A significant factor in achieving carbon neutrality is incorporating more timber in both renovations and new builds. Measures have been incorporated so that building energy consumption will be reduced by 2030 by approximately 8.89 million kL from 2013 levels.

The Cabinet of Japan approved the Bill for the Partial Revision of the Law Concerning the Improvement of Energy Consumption Performance of Buildings to Contribute to the Realisation of a Decarbonised Society in April of 2022. This law accelerates energy-saving measures in the building sector in order to achieve carbon neutrality by 2050 and a 46 per cent reduction in greenhouse gas emissions by 2030 compared to 2013 levels.

The expansion of the Top Runner Programme and promotion of the display of energy-saving


performance at the time of sale or lease will guide new construction after 2025 towards the ZEH/ZEB level.

The measures that have helped Japan on its journey towards greater energy efficiency:

1. Building codes: Japan has very strict building codes that require new buildings to meet energy efficiency standards. This includes requirements for insulation, ventilation, and lighting.
2. Energy labeling: Japan created a voluntary energy labeling system for appliances and electronics in 1980, which was eventually made mandatory in 2010. This system rates products based on their energy efficiency, helping consumers make more informed purchasing decisions.
3. Public transportation: Japan has one of the most efficient public transportation systems in the world, with extensive rail networks and high-speed trains. This reduces the reliance on cars and lowers energy consumption.
4. Industrial efficiency: Japan's industry has focused on improving energy efficiency in manufacturing processes, including implementation of lean production methods.
5. Energy-saving campaigns: Japan frequently runs public awareness campaigns to encourage energy conservation and behaviour changes among consumers and businesses. These campaigns are especially important during times of high energy demand, such as during heat waves.

"We will try to achieve a sustainable economy by turning the challenge of decarbonisation into a growth engine," said Japanese Prime Minister Fumio Kishida.

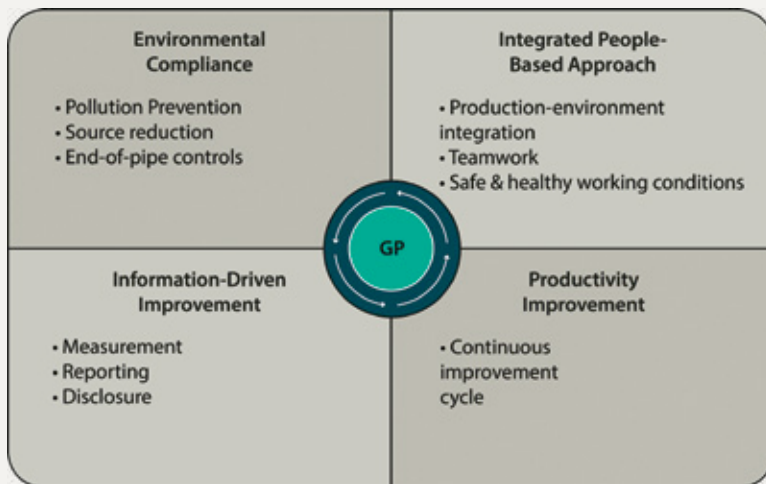
Overall, Japan's emphasis on energy efficiency has helped it achieve a high level of economic prosperity while minimising its energy consumption and carbon emissions.

These efforts have helped Japan to reduce its energy consumption and dependency on fossil fuels. However, there is still room for improvement, and the country continues to work towards a more sustainable energy future. 

“
WE WILL TRY
TO ACHIEVE A
SUSTAINABLE
ECONOMY BY
TURNING THE
CHALLENGE OF
DECARBONISATION
INTO A GROWTH
ENGINE

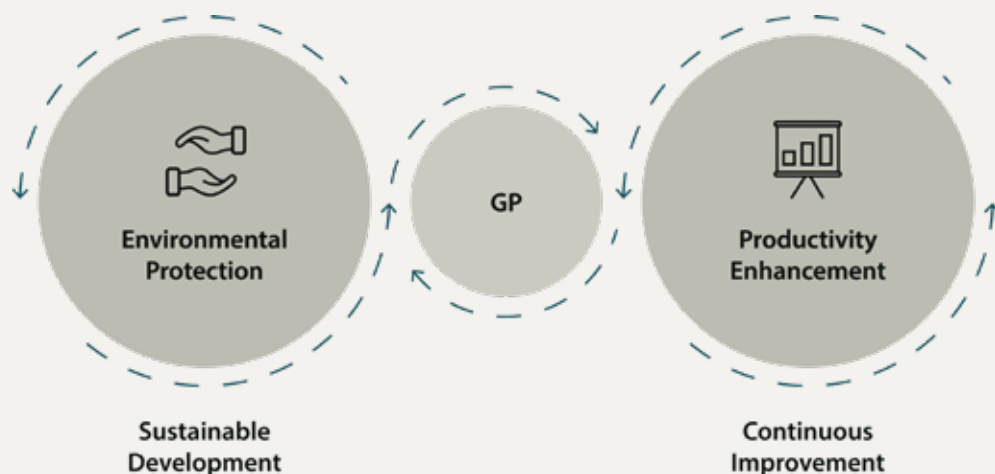
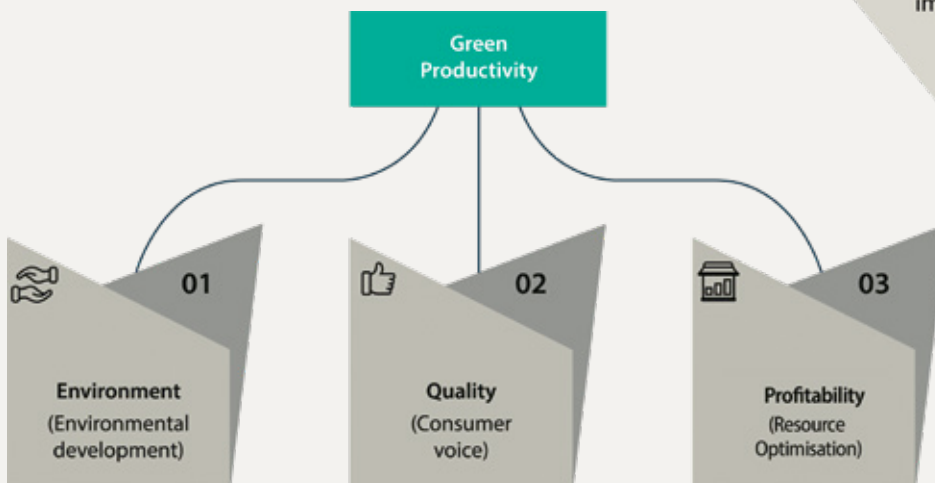
”

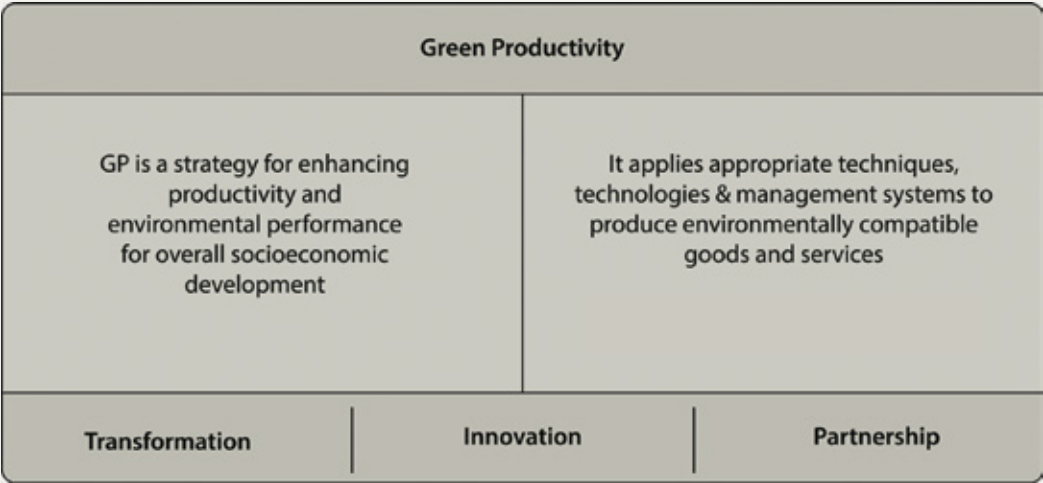
Raising the Green Bar



Green Productivity

Driving forces of green productivity





Benefits of sustainability and green supply chain

Increased operational and social productivity	Increased adherence to environmental standards
Process innovation	Brand image improvement
New market acquisition	Compliance with regulations
Cost reduction	Product innovation



By implementing green productivity measures, businesses and governments can improve their competitiveness, enhance the sustainability of their operations and contribute to a more equitable and prosperous society

Shailaja Tripathi

Green productivity is about improving productivity and environmental performance for overall socio-economic development, which improves the quality of human life over time. Increasing productivity and preserving the environment are two sides of the same coin. Green productivity includes reducing the environmental effect of an organisation's activities, products and services, while boosting its profitability and competitive advantage by combining environmental management methods, techniques and technology.

Eco-mapping and benchmarking are some of the green productivity tools. Green productivity leads to profitability on the back of resource optimisation. Companies benefit from value-added products and services, environmental preservation and bottom-line savings. Embracing green productivity is also useful for small and medium-sized firms to gain a competitive edge by working smarter with fewer resources.

In India, the National Productivity Council (NPC), an autonomous organisation under DPIIT, Ministry of Commerce and Industry, Government of India, is a thought and action leader in green productivity. Over the decades, NPC has been handholding both the public and private sector companies to make a paradigm shift in their strategy and operations to focus on green productivity.

What is green productivity?

Green productivity refers to the integration of environmental considerations into economic



Green Productivity Fuels Smart Growth

production processes, with the aim to enhance both economic performance and environmental quality. This seeks to balance economic growth with environmental protection, ensuring that production processes are optimally sustainable.

According to a report by the United Nations Environment Programme (UNEP), there is growing evidence that companies that adopt green productivity practices are able to achieve significant improvements in their competitiveness, profitability and resource efficiency. For example, businesses that adopt green productivity strategies can reduce their energy and water consumption, cut waste and lower emissions, thereby reducing their overall costs and increasing their competitiveness.



Photo: Getty Images

APO DEFINES GREEN PRODUCTIVITY AS A STRATEGY FOR SIMULTANEOUSLY ENHANCING PRODUCTIVITY AND ENVIRONMENTAL PERFORMANCE FOR OVERALL SOCIO-ECONOMIC DEVELOPMENT THAT LEADS TO SUSTAINED IMPROVEMENT IN THE QUALITY OF HUMAN LIFE.

What are the benefits of green productivity?

Green productivity offers multiple benefits:

- **Environmental benefits:** Green productivity helps to reduce pollution and conserve natural resources. It helps to address climate change.
- **Economic benefits:** It can improve financial performances by reducing costs, improving competitiveness and increasing profits.
- **Increased efficiency:** It improves the efficiency of production processes by reducing waste, increasing resource utilisation and reducing energy consumption.
- **Government support:** Many governments have recognised the importance of green productivity and have implemented policies and programmes to support its adoption by businesses.
- **International cooperation:** It requires international cooperation to ensure that the benefits are shared by all countries. International organisations, such as the Asian Productivity Organisation, play an important role in promoting green productivity and sustainable development.
- **Sectoral approach:** Green productivity can be applied in a variety of sectors, including manufacturing, agriculture, construction and service industries, to improve environmental performance and economic competitiveness.

What is the relationship between green productivity and Environmental, Social and Governance (ESG)?

While the environmental criteria look at a company's

environmental protection efforts, management of relationships with customers, suppliers, employees and the communities in which it operates is taken into account under the social criteria whereas leadership, executive compensation, audits, internal controls and shareholder rights come under governance.


The integration of ESG and green productivity can provide numerous benefits for companies, such as increased employee engagement, improved brand reputation and enhanced customer loyalty. It also demonstrates a company's commitment to responsible business practices and creates a positive impact on the planet and society.

What are the examples of green productivity-related cost savings?

In terms of facts and figures, a study by the World Business Council for Sustainable Development found that companies that adopt green productivity practices can achieve average cost savings of 15 per cent to 20 per cent. A report by the International Labour Organization (ILO) found that green productivity can also lead to creation of new jobs, as companies invest in new technologies and processes to improve their resource efficiency.

Another study by the UNEP found that companies that adopt green productivity practices can reduce their energy consumption by as much as 30 per cent, which can lower their energy bills and their carbon footprint. In addition, the report found that companies can also reduce their water consumption by up to 40 per cent, which can lower their water bills and help conserve this resource.

How is green productivity being pursued globally?

It is worth noting that many governments around the world are taking action to encourage the adoption of green productivity practices. For example, the European Union has implemented a number of policies and initiatives to promote green productivity, including the Eco-Management and Audit Scheme (EMAS) and the Resource Efficiency Roadmap. These initiatives aim to encourage companies to adopt more sustainable production processes and reduce their environmental impact. 

USA: Leading the New World

Photo: Getty Images

The USA has been known as the New World, the land of opportunity. While it has taken time for the polity and the Big Industry in the country to acknowledge the real threat of climate change, there is no denying that the USA is looking to change its institutions, industry and processes to transition to a circular economy through digitisation, automation and Industry 4.0

Archita Rungta

The federal government of the United States of America, along with its states, cities and businesses, has stepped up to fulfill its ambitious emission reduction goals through long- and short-term milestones. Factors that have furthered this include decreasing the cost of renewables, advances in technological development and a massive shift in the priorities of businesses to stimulate the green economy. Substantial investments at the state level in renewable energy, energy storage, grid upgrades, hydrogen, carbon capture, adaptation and resilience along with other areas have shored up this mission. Washington DC has made combatting climate action its top priority by exponentially increasing investments.



JOE BIDEN
President, USA

Industrialisation, Digitisation and the Circular Economy

The key problem with today's linear economy is that once natural resources are extracted from the earth, used and consumed, they are deposited in

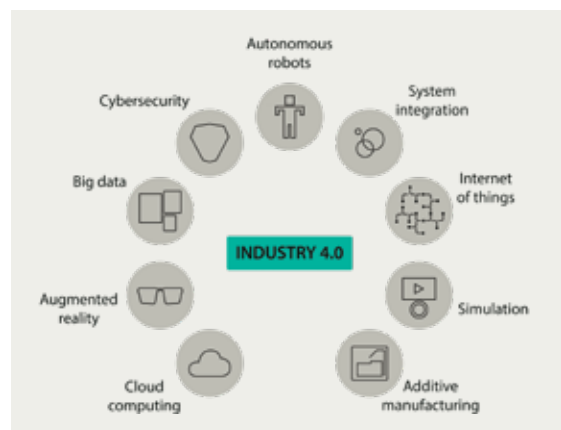
landfills. This creates a plethora of social, economic and environmental problems.

A circular economy, thus, is vital to retain discarded parts and materials within the economy. Once the lifespan of a product is over, if the parts are disassembled and reused, natural resources can be preserved and the need for landfills is reduced.

The US has committed to fully transitioning from its current linear economy to a circular economy by 2029. This will require a significant shift in manufacturers' mindset, technology and business processes. About 31 per cent of US companies will undertake major transformation to fulfill this.

Manufacturers are steadfastly selecting technical solutions as identifying the right technology is vital. Many are transitioning key operations to the cloud and gaining new cost and flexibility advantages in the process. About 56 per cent of discrete manufacturers are already on the cloud.

Migrating to the cloud offers advantages of





technologies such as automation, AI and data analytics which are prominent for the circular economy of the future. Insights on improving ways whereby products can be reused and recycled are generated by connected smart products.

In combination with automation and analytics, robotics will also play an important role. Manufacturers can hence leverage automation to continually capture value—starting from basic infrastructure to track pressure and flow or simple task execution automation for actuators.

The emergence of Industry 4.0—a modern manufacturing system driven by Information Technology (IT)—is critical to actualising a sustainable society.

Industry 4.0 is a major contributor to the era of digitisation. Its implications for sustainable development have gained immense attention from the perspective of the triple bottom line, namely sustainable business models and circular economy. Triple bottom line studies mainly concentrate on Industry 4.0 adoption and implementation, sustainable supply chains, smart and sustainable cities and smart factories.

Industry 4.0 envisions higher productivity, efficiency and self-managing production processes where machines, equipment, people, logistic systems and work-in-process components communicate and cooperate with each other directly. A real-time lean manufacturing ecosystem is created when production and logistic processes are integrated intelligently, making the ecosystem more efficient and flexible. This facilitates sustainable smart value creation chains that include all of the life-cycle phases of the product from the initial idea, design, development, production, use and maintenance to recycling.

Digitisation of industries presents innumerable opportunities to small and medium-sized

“
AS PRESIDENT, I HAVE A RESPONSIBILITY TO ACT WITH URGENCY AND RESOLVE WHEN OUR NATION FACES CLEAR AND PRESENT DANGER. AND THAT'S WHAT CLIMATE CHANGE IS ABOUT. IT IS LITERALLY, NOT FIGURATIVELY, A CLEAR AND PRESENT DANGER
”

enterprises. Industry 4.0 is based on synchronous manufacturing—components in the production flow use auto identification to inform each machine and operator what is to be done for production and customisation of the end product at each step of the process. Industry 4.0 is a key factor in improving productivity and energy efficiency.


With the second wave of Industry 4.0, manufacturers are embracing the notion of circular economy along with its multiple benefits. A sustainable path to product development benefits not just the environment but also boosts the bottom line. Customers now prefer manufacturers who create sustainable products—they are prepared to pay a premium.

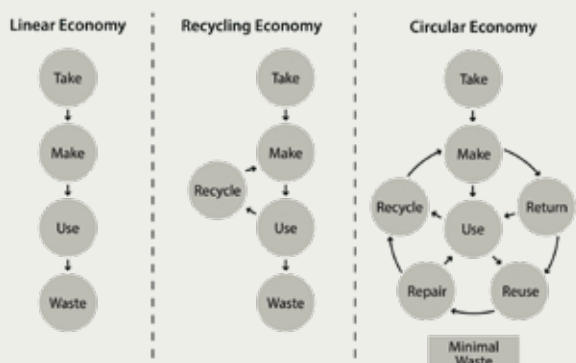
US President Joe Biden has promoted a landmark law to slow climate change by authorising hundreds of billions of dollars to boost renewable energy and help consumers buy electronic vehicles and energy-efficient appliances.

A majority of the US states have a renewable portfolio standard of at least 50 per cent for their electricity generation. Several states have reinforced their climate commitments by joining national climate initiatives such as The US Climate Alliance, 'We are still in' and 'America's pledge'. Regional initiatives such as the Regional Greenhouse Gas Initiative (RGGI), a coalition of 11 states that have developed a market-based system to reduce greenhouse gas emissions, are also active. These highlight the importance of state policies in furthering the national climate agenda and sending a strong signal to the private sector that green economy is inevitable.

Long-term contributors to emissions reduction in the US are subnational actors which provide necessary investment in key sectors tied to the green economy.

Multiple growth opportunities have been identified by green consultants as the renewable energy sector continues to expand. About 60 per cent of all proposed renewable energy projects are solar. Florida, California, Nevada, Texas, Colorado and New York have the largest projects in the pipeline.

Meaningful climate conscious upgrades depend on more than just expenditures. Enacting legislation, enabling customer data access, conducting modernisation and reforming regulation are all critical in the advent towards the success of circular economy. And the US is striving hard to become a leader in this new world as well. 



Ecosystem Collaboration Model

Opportunities to innovate in a circular economy lie between organizations.

Companies utilizing the circular economy's competitive advantages collaborate with their ecosystem partners to create, capture, and deliver sustainable value.

Efficient digital collaboration within a business ecosystem throughout a product's life cycle is critical to enable attractive circular business models and competitive user experiences.

Making it Big: MSMEs and Resource Efficiency

The Micro, Small and Medium Enterprises (MSME) sector is a key driver of India's economic growth. The sector provides crucial employment opportunities with low capital requirements and, helps uplift the country's rural and underdeveloped areas, reducing regional imbalances and inequality. It is crucial to enable MSMEs to contribute more to the country's socio-economic development through sustainable philosophy and practices.

Vijay Ronjan & Sukanya Das

A panacea for unemployment, poverty, underdevelopment, income inequalities and regional imbalances, India's 7.9 million registered MSMEs are categorised into 99 per cent Micro enterprises and 1 per cent Small & Medium enterprises, with more than 52 per cent being rural. Currently, the sector accounts for 30 per cent of our Gross Domestic Product (GDP), 50 per cent of the total exports and is the second-largest employer in rural India after agriculture, employing more than 120 million people. MSMEs can be a crucial element of the government's 5 trillion-dollar economy vision, and if leveraged optimally, can contribute at least 40 per cent to India's GDP by 2030.

The segment enables inclusion of neglected entrepreneurs such as women and also facilitates grassroots empowerment and wealth creation. In FY22 alone, 8.59 lakh women-led MSMEs were registered on the Udyam portal—17 per cent of the total MSME registration. About 63.4 million units contribute 6.11 per cent of the manufacturing GDP and 24.63 per cent



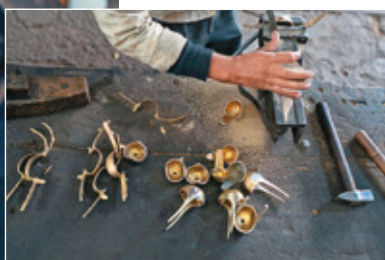
of the services GDP. The Government of India has been proactive in encouraging the MSME segment. Benefits are available as subsidies, financial support and access to skill and technological development. The government has also revised the definition of micro, small and medium enterprises and added close to 2.5 crore traders to increase the coverage.

The segment, however, faces several challenges, the most significant being accessing credit and optimising resource efficiency. For the past 10 years, its contribution to GDP has remained stagnant at about 30 per cent. Obsolete technology, lack of skilled manpower and inability to adopt green initiatives have stunted its potential to further propel the economic growth trajectory. Policy initiatives cannot help unless unhindered credit flow at cheap interest rates is available. Even though the number of MSMEs has increased to more than nine crore in five years, only 1.5 crore MSMEs have goods and services tax (GST) registration. Without an Udyam number, the remaining 83 per cent have no access to formal credit at low rates. To bridge this access gap, the Small Industries Development Bank of India (SIDBI) is working with micro-finance institutions and small NBFCs to provide loans to such business entities.

The huge costs incurred on energy consumption is another major challenge. Unless MSMEs reduce this, viability will remain elusive, further reducing access to low-cost credit. On a purchasing power parity basis, Indian industry pays five times the power price of US industries; two and a half times that of China's. Thus, energy accounts for a significant share of total input costs. MSMEs' energy consumption is equivalent to 20 to 25 per cent of the energy consumed by India's



Photos: Getty Images



large industries sector.

In a highly price-sensitive domestic market and extremely competitive export market, expenditure on energy squeezes profit margins. Energy costs for the most polluting MSMEs in manufacturing are 10 to 30 per cent of total production costs—this creates an incentive to invest in energy-efficient plants and source electricity from cheaper, renewable sources.

Efficient resource management is a key challenge. Without cheap credit to upgrade technology, access cheaper source of renewable energy and automate production capabilities, survival will be difficult. Today, enterprises rely on informal and personal finances for over 50 per cent of capex and 60 per cent of opex. Energy-efficiency investments tend to have high upfront costs. Low (or perceived low) creditworthiness of most MSMEs remains a barrier to adopting measures that could otherwise enhance their bottom line. Market conditions matter: MSME units competing with larger enterprises are three times more likely to carry out an energy-efficiency audit and three and a half times more likely to invest in energy-efficient technologies (EETs).

Limited awareness stemming from ignorance of energy consumption across industrial processes poses another hurdle. Yet, precisely measuring energy consumption increases the investment odds in EETs nearly six-fold.

The turnover of trained operators is very high, making it difficult to retain workers or skill new ones. This deprioritises energy efficiency. Since 99 per cent of MSMEs are categorised as informal and are Tiny or Micro/Small, this is a major blind spot.


Resource efficiency is important. First, resource

RESOURCE-EFFICIENT MSMEs HAVE BETTER ACCESS TO NEW MARKETS, SUCH AS GREEN PROCUREMENT, WHERE COMPANIES WITH GREEN CREDENTIALS ARE PREFERRED. RESOURCE EFFICIENCY HELPS IMPROVE OVERALL PRODUCTIVITY BY REDUCING DOWNTIME AND IMPROVING QUALITY

efficiency can help reduce costs by decreasing energy and water consumption, and effective waste management. Second, resource-efficiency provides a competitive advantage by reducing costs, improving environmental performance and providing a positioning as environmentally responsible business. Third, resource efficiency helps comply with environmental regulations, thus reducing fines and penalties, and enhancing reputation. Fourth, resource-efficient MSMEs have better access to new markets, such as green procurement, where companies with green credentials are preferred. Fifth, resource efficiency helps improve overall productivity by reducing downtime and improving quality. Resource-efficient MSMEs are more resilient to external shocks such as price volatility and natural disasters, as they have reduced costs and increased efficiency.

The main challenge remains access to finance. As of 2021, it is estimated that only around 15-20 per cent of MSME units are funded by banks. As of March 2021, the RBI puts the total outstanding credit to MSMEs at Rs. 8.1 lakh crore (around \$110 billion), while total number of MSME accounts was around 4.7 crore (47 million). This means that only 15 to 20 per cent of MSME units have access to bank funding.

The barriers to accessing commercially available finance include stiff lending policies with high collateral security requirements, small project ticket sizes, insufficient credit history and high transaction costs. Bureaucratic procedures and documentation requirements pose challenges. Lack of understanding of the formal banking system is another. Without an investment-grade credit rating or a strong Environmental, Social, and Governance (ESG) profile, MSMEs are unable to access the trillion dollar sustainable debt market.

Access to finance has been facilitated through schemes for MSMEs such as Credit Linked Capital Subsidy Scheme (CLCSS). Various public-private partnership (PPP) initiatives have been implemented to help through NSIC, SIDBI and credit guarantee fund schemes. Tax incentives for MSMEs that use green energy, various customs and GST exemptions and subsidies for green energy projects are available. Several financing sources are available for green energy and technological upgradations such as loans from commercial banks, regional rural banks, and other financial institutions, green banking for MSMEs that invest in resource-efficient technologies and practices. With the laser focus on *Atmanirbhar Bharat*, the government is working concertedly to make the MSME segment more vibrant, resource-efficient and sustainable. 

Walking the Green Mile

INCLUSIVE GREEN GROWTH

THE PATHWAY TO SUSTAINABLE DEVELOPMENT

The world's population is predicted to reach 9 billion people by 2050, and they will all need food, water, and energy. Our current growth patterns are highly inefficient and stand in the way of truly sustainable development. The way forward is inclusive green growth that is clean in its treatment of the environment, efficient in its use of natural resources, resilient, and meets the needs of all people.

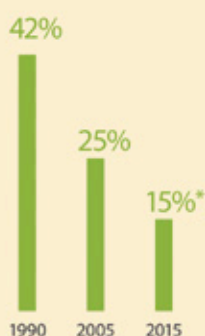


WHY GREEN GROWTH?

For the past 250 years, economic growth has come largely at the expense of the environment. The damage has reached a scale that threatens human welfare and prospects for future growth, and despite impressive gains in the last two decades, many basic needs remain unmet.

Two decades of unprecedented growth have greatly improved welfare ...

POVERTY RATE



*Projected

... but not without a significant toll on the environment.



13 MILLION

Hectares of forest lost annually between 2000 and 2010, an area the size of Nicaragua lost each year.



3X



Increase in water withdrawals in last 50 years, leading to water scarcity.



550 BILLION+

Tons of CO₂ emitted globally from 1990 to 2010.



85%

Ocean fisheries fully exploited, over-exploited, or depleted.



\$1 TRILLION

Spent annually to subsidize over-exploitation of natural capital, including fossil fuels.

Meanwhile, massive basic needs remain unmet.

People without access to sanitation



2.6 BILLION

People without electricity



1.3 BILLION

People without safe, clean drinking water



900 MILLION

Visual: The World Bank



GREEN GROWTH OPPORTUNITIES

As countries grow and urbanize, we must design energy, transportation, and agricultural systems that facilitate commerce while limiting environmental impacts. Today's 2.6 billion urban dwellers will be 4 billion by 2030. Sustainable energy is one opportunity for green growth. There are others.

1 DENSITY

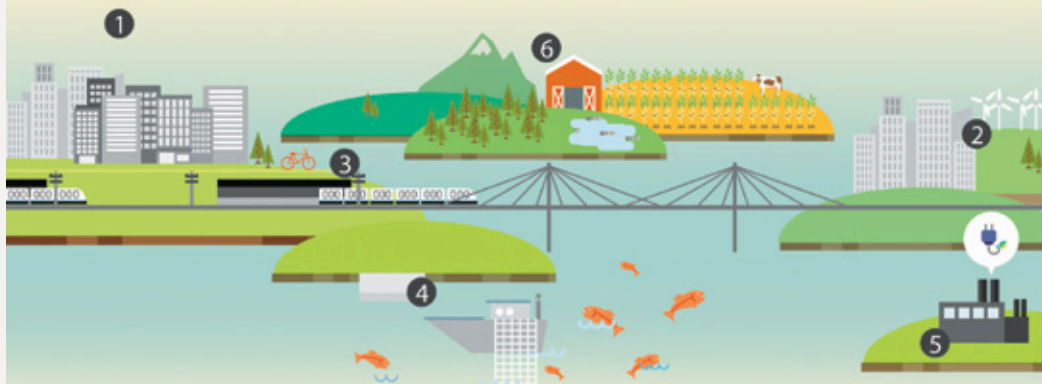
Urban density enables more efficient land use, transportation, and commerce.

2 EFFICIENCY

Energy-efficiency technologies can reduce energy consumption in new buildings by up to 30 percent.

3 TRANSPORT

City residents and businesses benefit from efficient and accessible public transit and no-fuel options.



4 OCEANS

Better management could increase the wealth of global fisheries from \$120 billion to \$900 billion.

5 INDUSTRY

Every \$1 invested in energy efficiency saves at least \$2 in energy expenses.

6 LANDSCAPES

Sound forest and watershed management boosts household incomes and, along with climate-smart agriculture, bolsters resilience.

Visual: The World Bank

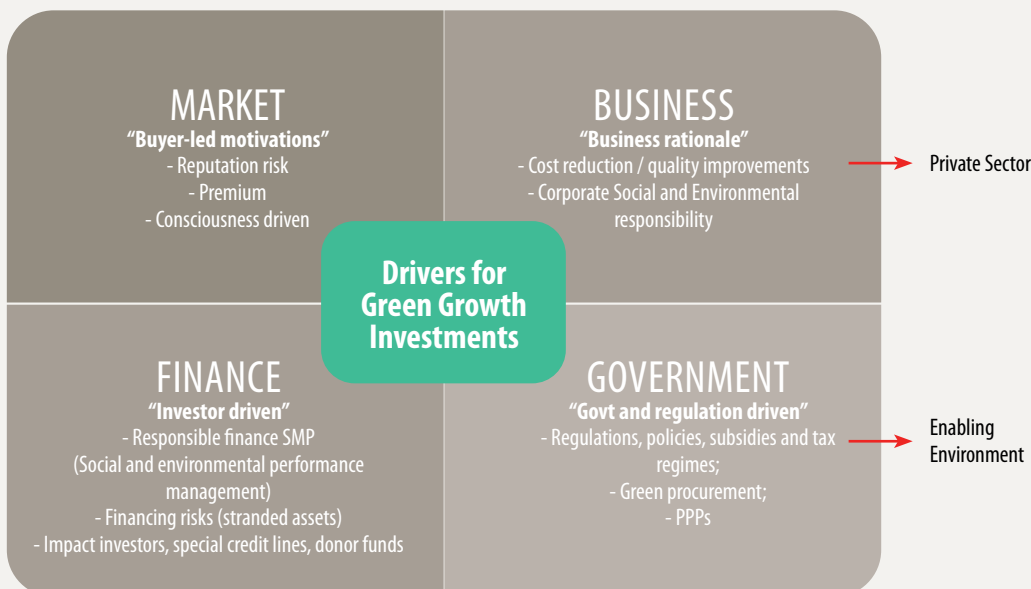




Photo: Getty Images

Green Growth As The Mantra For Sustainable Development

Green growth is a model of economic growth that does not compromise the interests of the planet while making profits

Naina Gautam

India has firmly shown its commitment to promote green growth. In the recent Union Budget, green growth is marked as one of the rishis in the *Saptarishis* of the *Amrit Kaal* budget. To give a fillip to sustainable and greener activities, a green credit programme has also been announced. Other measures undertaken by India relate to LiFE (Lifestyle for Environment), green infrastructure through sovereign green bonds, building an enabling ecosystem for green mobility and so on. Even as the G20 President, India is pushing for a Green Development Pact.

What is green growth?

Green growth is a model of economic growth that does not compromise the interests of the planet while making profits. It is characterised by synergy between environmental concerns and economic growth. Green growth also promises

to accelerate achievement of United Nation's Sustainable Development Goals (SDGs). For green growth to become a norm, it has to be pillared by good governance, transparency and inclusivity. Developing countries like Costa Rica and Rwanda, and developed countries like Denmark and Sweden have been focusing on green growth through renewable, energy efficiency, reducing greenhouse gases (GHGs) and green finance.

Why do we need green growth?

The world population has crossed 8 billion, accompanied by economic development. In the course of time, natural resources have been depleted greatly. Human-induced climate change poses a big risk to people and the planet. This system of economic development is unsustainable. Refashioning the system through emphasis on green growth, which ensures



sustainable use of resources, is the obvious way forward. Green growth helps tackle the climate change crisis too. It is the cornerstone of sustainable development as it includes aversion to operations that deplete resources or compromise the quality of natural ecosystem.

Which sectors is green growth relevant to?

Green growth is a cross-cutting strategy. It holds true for buildings, chemicals, energy, finance, fisheries, forestry, information communication and technology, waste, water, etc. For example, in agriculture, green growth will mean increasing the profit curve while also being mindful of food and ecosystem, increasing carbon sinks and reducing emissions, and using resources optimally. In doing so, SDG 2 will be also achieved which focuses on promotion of sustainable agriculture, food security, nutrition and hunger.

HUMAN-INDUCED CLIMATE CHANGE POSES A BIG RISK TO PEOPLE AND THE PLANET. THIS SYSTEM OF ECONOMIC DEVELOPMENT IS UNSUSTAINABLE. GREEN GROWTH, WHICH ENSURES SUSTAINABLE USE OF RESOURCES, IS THE OBVIOUS WAY FORWARD.

What is the impact of green growth on the economy?

Usage of resources present in the environment can help to increase the gross domestic product (GDP) of the economy. However, overusing them will lead to a cut in their supply, which can lead to reduction in the GDP. Thus, countries have found that saving resources by inculcating the green growth approach is the best way forward. However, strategies will vary across countries and continents. With the creation of new markets, it also leads to job generation in the economy.

How is the private sector a player in the green growth?


Green growth can be facilitated by the private sector as it can influence the market by creating demand for green products. The private sector also can engage in investments and innovations in green energy, green business strategies, etc. However, the private sector does not function in a silo. Policy ecosystem should be enabling through subsidies, concessions, tax reliefs, credit access, market stability, etc. It becomes all the more important as businesses are increasingly being asked to be mindful of Environmental, Social, Governance (ESG) concerns.

Which are the main SDGs that are related to green growth?

The impact on green growth is overarching, but it specifically impacts SDG 8 and Target 8.4. Goal 8 is about decent work for all, sustainable, inclusive, full and productive employment and sustainable economic growth. Target 8.4 is about efficient production and consumption that separates economic growth from environment depletion.

What are the indicators of green growth?

Though no universally accepted parameters of green growth exist, green growth indicators listed by World Bank include:

- Environmental and resource productivity and innovation
- Natural assets (including biodiversity) and their cost-effective management
- The environmental quality of life (including access to basic services such as clean water)
- Related green growth policies, economic opportunities and social context of green growth
- Monitoring sustainability of overall economic developments, for example through comprehensive wealth accounting. 

Earth Matters



Ecosystem Services:
the service that
nature provides us

● Provisioning services
(biotic)

● Regulating
services

● Provisioning services
(abiotic)

● Cultural
services

Visual: International Institute for Sustainable Development

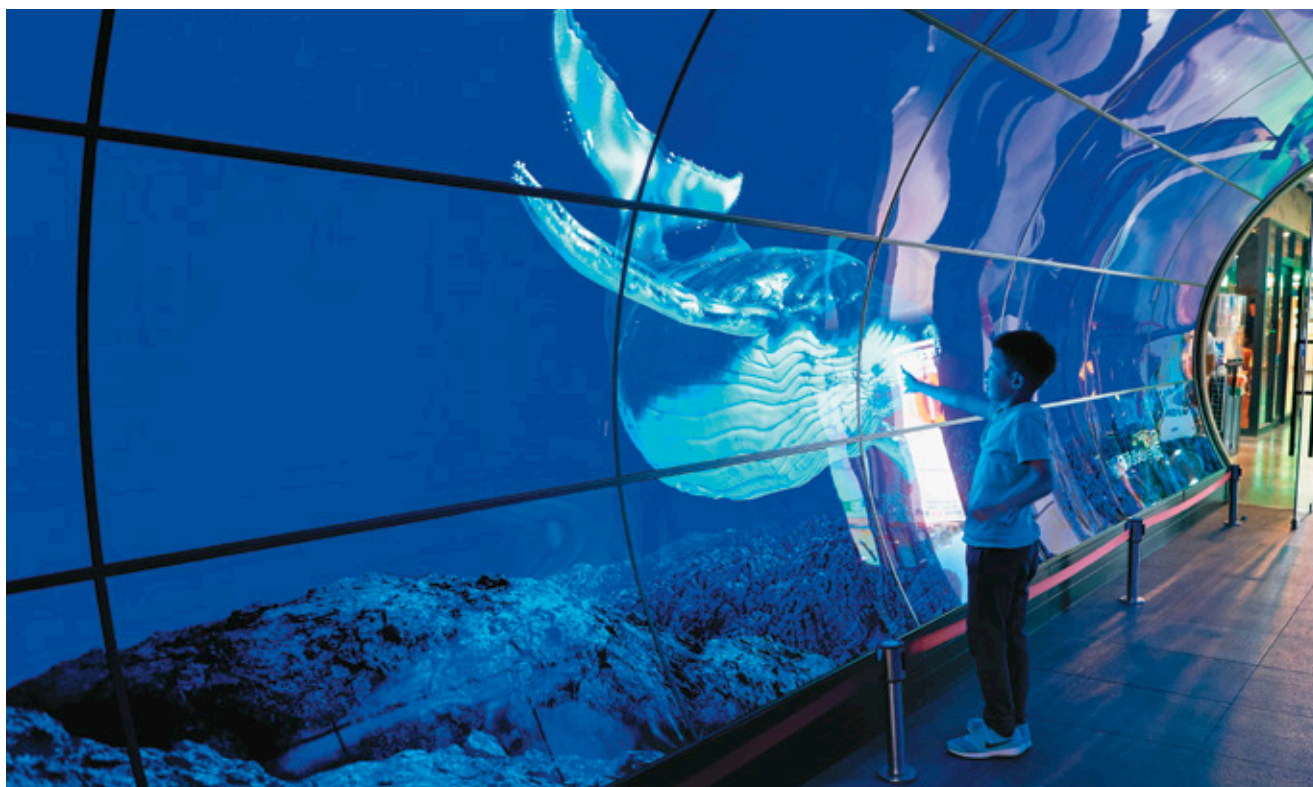


Photo: Shutterstock

The Republic of Korea: Growing Green

From being a climate laggard with a polluting economic model, the Republic of Korea has achieved major milestones in the areas of greenhouse gases, green technology, resource efficiency, and energy security. In fact, the nation's relentless pursuit of green growth as a national priority and a development paradigm is a lesson for other countries

Abhijit Sen



YOON SUK-YEOL
President, Republic of Korea

The Republic of Korea took the green growth route pretty early. On August 15, 2008, at the 60th anniversary of the founding of the Republic of Korea (ROK), the then President Lee Myung-bak declared green growth as the key to the country's better future, where economic growth and environment protection would move in tandem. He said: "I want to put forward low-carbon green growth as the core of the Republic's new vision."

Accordingly, in 2009, the country launched a \$85 billion clean energy plan. Restoration of the four major rivers—Han, Nakdong, Geum and Yeongsan—addressing water pollution and shortage, preservation of the



Photo: Getty Images

river ecosystem, encouraging solar and wind energy and creating a 1297-km pathway for cyclists were key features. The government planned to create multipurpose spaces and enhance regional development.

In 2011, in a bid to reduce environmental pollution, ROK selected 23 green growth indicators from the Organisation for Economic Cooperation and Development's (OECD) long list. In 2012, it set up the Global Green Growth Institute (GGGI), an international, inter-governmental organisation. It envisages a low-carbon world that offers inclusive and sustainable growth. Headquartered in Seoul, it has 39 members.

Despite all these initiatives, for almost one and a half decades in this century, ROK remained a climate laggard. In 2017, approximately 17,000 Koreans died due to poor air quality. In 2018, ROK ranked 11th in greenhouse gas (GHG) emissions. In 2019, it ranked seventh in CO₂ emissions.

The ROK government had already seen the writing on the wall. Before the Covid-19 pandemic, the government, in partnership with local NGOs, launched the 'Blue Sky Net Zero 2050' campaign.

In July 2020, just after the first wave of

“**FROM THE LONGER-TERM PERSPECTIVE, WE NEED INNOVATIVE EFFORTS TO SIGNIFICANTLY REDUCE CARBON EMISSIONS AND SWITCH TO THE HYDROGEN INDUSTRY. THE GOVERNMENT WILL INCREASE INVESTMENTS TO DEVELOP TECHNOLOGIES THAT CAN REDUCE CARBON EMISSIONS**”



the pandemic, it announced a \$134.5 billion investment whose main features were decarbonisation, digitisation and job creation. The broad areas were to build an innovative ecosystem and green industry, move towards green infrastructure and focus on renewable energy.

On December 15, 2020, the government unveiled a low-emission development strategy to help the country become carbon-neutral by 2050. The initial target was to reduce GHG emissions by 24.14 per cent by 2030.


At the P4G (Partnering for Green Growth) Summit in Seoul 2021, former President Moon Jae-In announced ending funding of new overseas coal-fired power plants and issuing permits for new domestic coal power plants.

A delivery mechanism for climate action through government-industry partnership was also worked out. In September 2021, South Korean companies, led by LG, had a 34 per cent market share in rechargeable batteries. In the country itself, electric vehicle demand is likely to jump from 3.4 per cent in 2020 to 85 to 97 per cent by 2050. Rechargeable batteries are an essential component in such vehicles.

Nuclear energy is also emerging as a key area. Incumbent President Yoon Suk-yeol has said that the government plans to raise nuclear power share to 30 per cent of the total energy mix by 2030. Twenty-five nuclear reactors now generate one third of South Korea's electricity.

A key takeaway from the Republic of Korea is that the narrative of climate change action has been nationalised by successive governments. This has been framed as an opportunity for the country and presents a lesson for countries where policy change for climate action has been decelerated by political polarisation.

The goals of economic growth and environmental sustainability are ever conflicting. Indubitably, ROK's pioneering of green growth makes it a global leader in the mission to reconcile the two.

This is also reflected in the latest report by the GGGI which commends ROK for its relentless pursuit of green growth as a national priority and a development paradigm. So far, major milestones have been achieved in the areas of greenhouse gases, green technology, resource efficiency and energy security. One hopes South Korea's green growth experience will be a lesson for other countries too. 

Performance Indicators

- South Korean companies, led by LG, had a 34 per cent market share in rechargeable batteries in September 2021
- Electric vehicle demand is likely to jump from 3.4 per cent in 2020 to 85 to 97 per cent by 2050. Rechargeable batteries are an essential component in such vehicles
- Korean company Hanwha Q CELLS has a share of 25 per cent in the US solar photovoltaic cells market
- Fifteen major Korean companies, including Hyundai, Posco and SK, launched a business council to promote domestic hydrogen industry and hop on to the global decarbonisation bandwagon. A promise of \$38 billion investment for hydrogen use—from fuel cell vehicles to power plants—has been made



Photo: Shutterstock

Germany: Institutionalising Innovation

Germany is striving to limit the amount of carbon, energy and resources required for its economy to grow. Thanks to its stringent environmental requirements and regulations, the country has become a proud leader in environmental goods and services sector

Archita Rungta



OLAF SCHOLZ
Chancellor, Germany

Germany is a pioneer in green growth policies. The country has shaped the debate on sustainable growth in Europe and is at the centre of any serious multilateral effort to address environmental issues. Germany's political economy of energy and environmental sustainability has contributed to its becoming a green pioneer. Its focus on sustainable energy began as early as the 1960s and gained momentum after reunification with East Germany during the efforts to shut down polluting factories.

Today, Germany is a proud leader in the environmental goods and services sector thanks to its stringent environmental requirements. The green industry, worth up to 300 billion euros

in 2020 was an important source of economic growth and jobs. The main challenges that plague the European nation are in areas such as air and water quality, protection of biodiversity and decarbonisation, as highlighted by the Environmental Performance Review.

Environment Director of the Organisation for Economic Cooperation and Development (OECD) Simon Upton has said, "Today's massive environmental challenges demand cost-effective solutions that promote innovation and avoid technological lock-in. New sources of green growth can play an important part in the recovery from the current economic and financial crisis. In this, Germany is leading the way."

Germany is an innovator in green technologies. An export-based economy that ships out 80 per cent of its solar PV products, Germany is looking to leverage the shift to clean energy sources worldwide. Green innovations are boosted by energy transition which in turn creates jobs to help Germany position itself as a green-tech exporter. Half of the world's solar production equipment is made in Germany.

Similar to the renewables market, the market for products which increase energy efficiency is significant and will only continue to grow. Germany is a major player in both of these and has attracted substantial investment for development in this sector.

The German Ministry for Energy and Economic Affairs estimated that the net number of additional jobs brought about by renewables would reach 100,000 by the year 2030 and 230,000 by 2050 owing to developments in the sector.

The government actively encourages investment in renewable energy sources wherein regulators have created a fixed feed-in tariff for utilities to purchase renewable energy from independent sources. Germany has shown that policymakers, businesses and consumers can achieve economic growth along with facilitating environmental policies.

The German environment ministry has defined green economy as an economic strategy to continually reduce harmful emission and pollutant input into the environment, practise close cycle waste management with a view to creating a circular economy, reduce the use of resources in absolute terms and act consistently in harmony with the environment and nature.



By 2045, Germany aspires to become a climate-neutral industrial nation which puts the federal republic at the forefront of international efforts. Germany's climate policy is guided by the 2015 United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement, as well as Agenda 2030 and the principle of climate justice. The government intends to restructure into a socio-environmental market from a social market economy to meet its goals of protection of nature and the environment. The federal government has given high priority to combatting species extinction. A million species are threatened around the world and the convention protects endangered plant and animal species from excessive exploitation by international trade.

The law in Germany explicitly requires it to reduce its greenhouse gas emissions by at least 65 per cent in 2030 as compared to 1990 and by 88 per cent by 2040 so that, by 2045, Germany can achieve greenhouse gas neutrality.

This implies that there is an optimum balance between the rate of greenhouse gas emission and how quickly they break down. By 2023, 80 per cent of Germany's energy needs will be met by solar or wind power and the last nuclear power station will be taken offline.

The European Union has a green deal aimed to make Europe the first climate-neutral continent by 2050 which is supported by Germany in various ways. The federal foreign minister, Annalena Baerbock, updated the primary objective as "using every tool we have to improve climate protection and to facilitate sustainable development for every country on earth". She also categorised the climate crisis as "the major security policy issue of the age".

“
OUR
TRANSFORMATION
TOWARD A
CLIMATE-NEUTRAL
ECONOMY—THE
FUNDAMENTAL
TASK OF OUR
CENTURY—IS
CURRENTLY
TAKING ON AN
ENTIRELY NEW
DYNAMIC NOT IN
SPITE OF, BUT
BECAUSE OF, THE
RUSSIAN WAR
”

She emphasised that climate foreign policy is an integral part of any security strategy: "Every tonne of CO2 that can be reduced, every tenth of a degree less global warming makes a contribution to the security of humankind."

At the World Economic Forum annual meeting in 2023, in a special address, German Chancellor Olaf Scholz reaffirmed his country's goal of attaining climate neutrality or net zero greenhouse gas emissions by 2045.

"Our transformation toward a climate-neutral economy—the fundamental task of our century—is currently taking on an entirely new dynamic," said Scholz, "not in spite of, but because of, the Russian war"

Green technology accounts for 15 per cent of Germany's gross domestic product as green markets have a humungous growth potential. Recent developments that have driven the demand for green tech include the European Green Deal, Covid-19 Recovery Funds and the amended German Climate Law to become climate-neutral by 2045.

The government is providing more support to digital start-ups that offer future technology to accelerate climate and digital innovations.

The number of green start-ups in Germany is more than 6,000 and constitute about 30 per cent of the total ecosystem—these are promoted by various initiatives and promotions.

The federal government is working hard to phase out coal by 2030 and to expand modern mobility solutions to further the cause of green energy. The aim for 100 per cent renewables creates a need for innovations such as electrolyzers, battery cells and smart meters, areas where Germany has the potential and capacity to become an industry leader and transfer green tech to developing countries.

The government of Germany acknowledges the importance of future technologies and aims to mobilise more private capital funding towards these sectors. The government also plans to introduce a new sustainability funding line to be anchored in the start-up strategy. It also supports research in transfer and uptake of technologies.

It is vital for Germany to dare towards greater green progress and innovate green technologies to support its path towards climate neutrality while benefitting the economy.

SDG Dashboards and Trends



Source: The United Nations

The Innovation Quotient: Productivity Enhancement for Green Growth

Sustained innovation-led productivity growth is the aggregate measure of the outcome of a country's efforts to raise productivity. It is regarded as the top-ranked key deliverable since robust and sustained productivity growth fuels green economic growth and higher standards of living. A bigger economic pie resulting from sustained productivity growth also contributes to the reduction of poverty and income inequality over time. The word 'sustained' emphasises the need for productivity growth to continue rising over the long term

Amit Jain & Sukanya Das

Since the early 2000s, India has consistently ranked among the fastest growth rate economies in the world. India was recognised as the third-largest potential market in the world and 29th for "innovation" factors in the *Global Competitiveness Report 2017–18*.

Appropriate policy measures to reach the grassroots are imperatives to establish an all-sharing

growth model in a nation as socio-economically varied as India. The government's greatest contribution to the innovation system is to conceptualise policies that support innovation, encourage foreign direct investment, reward industrial pursuit of innovative products and establish institutional frameworks that support both basic and advanced research in universities and industrial research and development.

The 'Need' Factor

The success of green growth will rely on its capacity to gradually decrease the resources needed to promote economic growth. Green growth may be crucial to achieve a balance between the demands across various sectors.

India has repeatedly shown its commitment to environmental stewardship, climate action and focus on renewables to decarbonise. India's government counterparts, implementing partners and resource partners in areas of sustainable green energy, green transit, improved urban waste management, climate resilient livelihoods, low-cost rural green housing, net-zero carbon emission, digitalisation, IT infrastructure and sustainable landscapes management are the driving force behind India's effort in the direction to achieve Sustainable Development Goals.

Planning to Achieve

Recent programmes like Aatmanirbhar Bharat, Make in India, Production Linked Incentives (PLI) programmes, Accelerating Growth of New India's Innovations (AGNi), Start-up India mission and Atal Tinkering Labs Initiative for Fostering Innovation Capabilities are notable endeavours launched to solely enhance India's influence on the global arena by promoting engagement in global value chains. Bridging digital divide, leveraging

Broad Learning Areas for India

1. **Green Budgeting:** The government should adopt green budgeting for India, wherein all departments can publish environmental fiscal declarations indicating significant green initiatives that mainstream sustainability in decision-making processes
2. **Incentivising Mechanisms:** Government needs to incentivise green initiatives—the reduction in the cost of tackling environmental concerns while increasing markets for green innovation leads to increases in resource allocation efficiency
3. **Diverse Investments:** Seeking investment in action climate-resilient green growth strategies. Mobilisation of foreign direct investment, trade and human capital to be considered to build green technological and innovation capacity
4. **Policy Framework:** The economic structure, existing capacity for innovation and the institutions in place should be considered when developing policy frameworks to promote green innovation. Environmental Policy Frameworks can support green growth, including through pricing mechanisms and transition measures
5. **Research and Development:** The public and private sector together need to focus on research and development in energy and environmental as well as chemistry, material sciences and engineering (being equally important sources of scientific research for green inventions) to spur green innovation
6. **Understanding Developing Issues:** Prioritising skill development and professional education is necessary to open doors in green growth-related industries
7. **Promotion of New Pilots and Technologies:** Increasing focus and investments in new pilots and technology demonstration in regions with growth potential
8. **Information Management System:** Addressing data gaps to enhance the ability to prepare plans and evaluate current policy initiatives
9. **Capacity Building:** Capacity Building—financial, technical and industrial—is key to implementing climate-resilient green growth plans

India's Commitments For 2030

- Increasing non-fossil energy capacity to 500 Gigawatts (GWs)
- Fulfilling 50 per cent of energy requirements from renewable sources
- Reducing carbon intensity of economy by 45 per cent
- Reducing total projected carbon emissions by one billion tonnes
- The country aims to address
 - (i) Climate Change
 - (ii) Public Security
 - (iii) Human Development
 - (iv) Emerging Frontiers
 - (v) Policy

Major Steps Taken Towards Green Growth and Sustainable Development Goals

- Permitting Foreign Direct Investment (FDI) up to 100 per cent under the automatic route for renewable energy projects; waiver of Inter State Transmission System (ISTS) charges for inter-state sale of solar and wind power; setting up of Ultra Mega Renewable Energy Parks; launch of supportive schemes such as Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM), among others; Green Energy Corridor Scheme; integration of 500 GW Renewable Energy capacity by 2030; the net zero target by 2030 by Indian Railways; LED bulb campaign; promoting electric vehicles and many more by Ministry of New and Renewable Energy (MNRE)
- About 500 new waste-to-wealth plants to be established under the GOBARdhan scheme of the Ministry of Housing and Urban Affairs (MoHUA)
- Priority capital investments towards energy transition and net zero objectives, and energy security by Ministry of Petroleum & Natural Gas
- National Green Hydrogen Mission to facilitate the transition of the economy to a low carbon intensity and reduce dependence on fossil fuel imports
- Approval of Phase-II of FAME scheme to generate demand by supporting e-mobility
- Granting highest allocation in the MNRE to the solar energy sector to achieve the target of producing 280 GW of installed solar capacity by 2030
- Aim of 100 per cent electrification of India Railways by December 2023, and net zero carbon emission by the year 2030
- Prohibition of identified single use plastic items as per the Ministry of Environment, Forest and Climate Change
- Enhancement of metro rail networks for public transport and coverage of more cities

digital technology and data for human-centric smart cities, developing common framework for digital economy, digitalisation of business and business models, Industry 4.0 and developing consumer-centric digital policies have been on the agenda of G20.

The government had earlier launched the Digital India programme, an umbrella programme covering multiple government ministries and departments, which weaves together many ideas into a single, comprehensive vision so that each can be implemented as part of a larger goal. Digital India will provide the much-needed thrust to the nine pillars of growth areas, namely broadband highways, universal access to mobile connectivity, public internet access programme, e-governance, reforming government through technology, e-kranti—electronic delivery of services, information for all, electronics manufacturing, IT for jobs and early harvest programmes.

India's initiatives to emphasise green growth are Green Hydrogen Mission, Energy Transition, Energy Storage Projects, Renewable Energy Evacuation, Green Credit Programme, PM-PRANAM (PM Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth), GOBARdhan scheme, among others. These green growth efforts will help to reduce carbon intensity of the economy and provide for largescale green job opportunities.

The Way Forward

India seeks collaboration with G20 countries in specific areas and other broad areas.

Specific Areas


- Sourcing innovative techniques and technologies to strengthen India's digital programme
- Regulatory interventions to minimise the cost and R&D for clean coal technology
- Encouraging disclosure of energy usage and process-related carbon emissions for renewables sector

Major Achievements of the Digital India Programme

PAYMENTS	2017-18	2022
Digital Payments (BHIM)	0.7 Cr	14,532 Cr
Digital Transactions	159.73 Cr	33,096 Cr
Digital Payments (Debit Card)	27.28 Cr	2404 Cr

In line with the Prime Minister's vision of "LiFE," or Lifestyle for Environment, India is making strides towards the *panchamrit* and net zero carbon emissions by 2070.

- Strengthening and upgrading of its solar R&D and manufacturing capabilities in the power distribution sector
- Improving the operational performance by achieving 100 per cent metering to achieve 100 per cent billing/collection efficiency and to reduce the commercial losses for the transport sector
- Shifting to green transport, interventions and massive investments along with upgradation in terms of fuel quality and fuel efficiency
- Institutionalising informal sector and modernising recycling technologies for efficient and holistic waste management

The momentum of India's innovation journey to sustainable green growth is proposed to be aided by expanding partnership of Indian organisations with organisations of G20 countries. 

South Africa: Resourceful Governance

South Africa, the largest producer of platinum and chrome, with its minerals—including gold, diamond, titanium and vanadium—contributing \$25 billion to the country's GDP, is well on the way to doubling its investment in mining by 2030. However, this is with an energy policy firmly in place and aligned with the world's decarbonisation and clean energy goals

Abhijit Sen

South Africa has many firsts to its credit. The largest producer of platinum and chrome, its minerals including gold, diamond, titanium and vanadium, contribute \$25 billion to the country's Gross Domestic Product (GDP). The country has set its sights on doubling its investment in mining by 2030. President of South Africa Cyril Ramaphosa, in his State of the Nation Address (SONA) in Cape Town on February 9, 2023, said that his immediate priority was to restore energy security in the country. Ramaphosa said, "Extraordinary circumstances call for extraordinary measures. The energy crisis is an existential threat to our economy and social fabric. We must spare no effort, and we must allow no delay, in implementing these measures. As we take these actions to resolve

the energy crisis, we are mindful of the risks that climate change poses to our society. Extreme weather events in the form of drought, floods and wild fires increasingly pose a risk to the health, well-being and safety of people. We will continue our just transition to a low carbon economy at a pace our country can afford and in a manner that ensures energy security. We will undertake our just transition in a way that opens up the possibility of new investments, new industrialisation and that, above all, creates new jobs. The Presidential Climate Commission is guiding much of this work, and, in doing so, building a new model for inclusive and collective decision-making, incorporating the individuals, workers and communities that are most affected in the transition."

The new measures included expediting procurement of new capacity from renewables, gas



CYRIL RAMAPHOSA
President,
South Africa

“
EXTRAORDINARY
CIRCUMSTANCES
CALL FOR
EXTRAORDINARY
MEASURES. THE
ENERGY CRISIS IS
AN EXISTENTIAL
THREAT TO OUR
ECONOMY AND
SOCIAL FABRIC.
WE MUST SPARE
NO EFFORT, AND
WE MUST ALLOW
NO DELAY, IN
IMPLEMENTING
THESE MEASURES
”

Photo: Getty Images





Natural resources underpin human consumption and production systems and are intertwined with climate, biodiversity and pollution/health.



Barbara Nakangu of International Union for Conservation of Nature (IUCN) in her essay *Challenges and Opportunities in Eastern and Southern Africa*, said that the Natural Resources Governance Framework (NRGF) found seven major challenges in the region

- Inclusive decision-making remained a weak area
- Large-scale land grabbing led to anti-people investment policies
- A mix of land and resource rights, a result of various reforms, marginalised vulnerable people's access to human resources
- Devolution, where the major challenge was insufficient transfer of power.
- Proper and equitable benefit sharing was faced by a legacy that denied access to high-value resources
- Locally driven strategy and direction for natural resource management (NRM) was often undermined by outsider-driven, market-oriented innovation
- Diversity of culture and knowledge of the region are insufficiently recognised or explored

and battery storage. Businesses and households were encouraged to invest in rooftop solar panels. On the water security front, the department of water and sanitation got the nod to invest in major infrastructure projects like Lesotho Highlands Phase II and Lilane Dam.

South Africa has always been a water-deficit country. After the National Water Act was passed in 1998, the Integrated Water Resource Management (IWRM) was set up. The aim was to protect, use, conserve, manage and control water resources as a whole. Rivers, dams, wetlands and ground water were all managed as a single cycle.

The Natural Resource Governance Framework (NRGF), an initiative by the International Union for Conservation of Nature (IUCN), could play a key role here by boosting the assessment of natural resource governance and improving decision-making. The structural and institutional barriers in managing ecosystems across land, forests, water, fishery, wildlife and grasslands, though, pose challenges.

A good idea being contemplated is the

establishment of trans-border Natural Resource Management (NRM) around water, marine ecosystems and protected areas. A prominent example is Greater Limpopo National Park that runs through South Africa, Zimbabwe and Mozambique. Besides, there are over 20 water systems shared by two or more countries in the region. Such mechanisms boost decision-making and people participation. For example, the Open City initiative of Southern Africa supports NGOs in several cities.

Another instance is South Africa's Cape region, with one of the highest plant diversity levels. Here, the government, with support from the World Bank, worked with farmers and municipalities to increase by 282 percent the area of highly threatened lowland ecosystems under conservation. Even mineral giant De Beers has made an official statement that it does not cause any harm to biodiversity during its exploration process. A similar example is the Kilimanjaro Declaration of 2016 where 272 representatives from Africa across various groups resolved to start a pan-Africa movement that recognised the rights and freedom of the indigenous groups of people.

The mining sector saw a sea change in 1998 with the passing of the National Environmental Management Act (NEMA). In 2004, ownership of the mineral reserves passed from private hands to the state's custodianship. The Department of Minerals became the controller of the mining sector. Today's tax structure is more unified. The act was binding on all sectors. The country is also armed with a Biodiversity and Protected Areas Act. According to the International Council of Metals and Mining (ICMM), good governance is based on transparency and accountability.

For South Africa, 2018 was another watershed year. After talks with all stakeholders, the broad-based socio-economic empowerment charter for the mining sector was released. For a new mining right, the shareholding pattern must have 30 per cent Black Economy Empowerment (BEE). About 20 per cent effective ownership in the form of shares will now go to a BEE entrepreneur. The tenure for prospecting is five years. Renewal tenure is three years.

After a prolonged lull from 2010 to 2018, South Africa's industry is now back on its feet. With a robust, forward-looking energy policy in place, commodity prices heading north and foreign direct investment picking up, South Africa is getting ready for energy transition with decarbonisation and clean energy as buzzwords. One cannot take chances when the mineral reserves are pegged at \$2.5 trillion!





Granting Green: Sustainable Investments and India

Environmental, Social and Governance (ESG) investments are becoming increasingly popular among global investors as they recognise the importance of these factors in making investment decisions. The low-carbon transition is driving significant growth in sustainable finance as investors redirect trillions of dollars towards environmentally and socially responsible businesses. Where does India feature in this investment landscape?

Archana Chaudhary & Sukanya Das

With ESG assets projected to grow significantly in coming years —estimates forecast that they will exceed \$53 trillion by 2025 —representing more than a third of the total assets worth \$140.5 trillion under management globally, corporations are also responding to this trend by improving their collection and communication of ESG data, and by committing to more ambitious climate goals.

As a result, sustainable finance is becoming an increasingly important part of the global financial system, creating a need for the G20 to develop a comprehensive ESG vision to reconcile efforts of companies, ESG assessors, governments and regulatory bodies.

The Way Forward

A regional G20 ESG framework for companies operated across geographies will help enhance the credibility of ESG investments by holding companies accountable for promises they make in ESG-related disclosures. G20 is crucial

in solidifying the credibility of ESG. This increasing awareness of the environmental and social risks and opportunities and growing investor demand for sustainable options is receiving support from the Indian government and regulators.

India, set to become the world's fastest-growing major economy in 2023, is actively supporting the transition to a sustainable economy through the growth of ESG investments as more Indian companies commit to improved norms. The assets under management (AUM) related to ESG funds in India have grown significantly, rising from Rs 26.3 billion (\$324 million) in 2019 to Rs 123 billion (\$1.5 billion) in March 2022.

Shaping Sustainable Finance Regulation

Years before Prime Minister Narendra Modi announced India's commitment to cut emissions to net zero by 2070 at COP26, India has been creating policies to ensure economic growth that can sustain environment, social progress and governance. India first prescribed corporate social responsibility in 2013 within the Companies Act, as was suggested in its National Voluntary Guidelines (NVGs) on Social, Environmental and Economic Responsibilities of Business in 2011. The Companies Act, 2013 introduced one of the first ESG disclosure requirements for companies.

Stock market regulator Securities and Exchange Board of India (SEBI) in November 2015 mandated

Mandated Disclosures for BRSR Reporting Requirements Compliance

- Companies must disclose ESG risks and list their mitigation strategy and the financial implications of the plan
- List sustainability goals and report performance
- List environment-related disclosures including waste management practices, biodiversity, the quantum of waste generation and greenhouse gas emissions
- Social diversity in the company's workforce along with details of measures for differently abled employees, gender diversity, safety, welfare benefits, median wages, occupational health and turnover rates
- Social impact assessments for rehabilitation, resettlement and corporate social responsibility.
- Consumer complaints, including those related to product recall, labelling, data privacy and cyber security

Government-Owned Companies That Have Raised ESG Funds

- Indian state-owned engineering and manufacturing company Bharat Heavy Electricals Limited (BHEL) from investors like IFC, ADB and JICA
- State-owned electricity generator National Thermal Power Corporation (NTPC) has raised ESG funds from investors like IFC, ADB and JICA
- Indian Renewable Energy Development Agency (IREDA), a state-owned agency that provides financial assistance to renewable energy projects, has raised funds from ADB, IFC and KfW

reporting on ESG parameters for the top 500 listed companies. Asking companies to mandatorily include ESG disclosures as part of their annual reports under the Business Responsibility Reporting (BRR) norms was meant to facilitate the BRR framework which sought to extend corporate responsibility beyond shareholders to include employees, community and the environment.

SEBI introduced a regulatory framework for issuing green securities in India to help attract funds reserved for ESG-compliant projects, such as renewable energy, clean transport, climate change adaptation, energy efficiency, waste management and biodiversity conservation.

In its effort to strengthen ESG disclosures, SEBI issued new sustainability-related reporting requirements in 2021—the Business Responsibility and Sustainability Report (BRSR). Replacing the BRR, this brings India's sustainability reporting on par with global standards.

Moulding the Economy

Along with financial regulations, the Indian government has over the years sought to promote ESG through a string of policy measures to ensure the economy's transition to low carbon.

These policies aim to promote the Indian economy's sustainable transition. And while more initiatives are being developed, ongoing policies seek to align the environmental aspect of ESG by promoting use of clean energy and reducing carbon emissions, an important factor for many investors.

Attracting Investments

India's ESG investment landscape, though still nascent, is gaining momentum and interest from

both domestic and global investors. The country's current ESG assets under management are \$1.5 billion, accounting for only 2 per cent of Asia-Pacific fund assets under management. Globally, the numbers of investors that apply ESG criteria to their investment portfolio is rising steadily with about 96 per cent of top 250 companies in the world reporting on their ESG performance. Policies and regulation in place so far have helped many Indian companies successfully raise ESG funds.

In Continuum

India's push to ensure ESG funding will ease pressure from international investors interested in companies with strong ESG profiles and will also align with India's commitment to the UN Sustainable Development Goals and to the Paris Agreement.

Finance delivery as per earlier commitments made by developed countries and an enhanced private sector partnership will help create access to a global pool of environmental, social and governance capital which may well be a goal worth pursuing by G20 nations under India's presidency.

While some developed economies, including Japan, the UK, the US, Germany, Canada and the European Union, have expanded their climate finance commitments until 2025, there is a long way to go for ESG finance. Emerging economies, except for China, are expected to need about \$2 trillion by 2030 to meet their climate commitments. 

Examples of Climate Action

- The National Action Plan on Climate Change lays out a comprehensive strategy to address climate change and promote sustainable development
- The National Clean Energy Fund provides financial support for clean energy projects and research and development
- The National Solar Mission aims to increase the use of solar energy and achieve grid parity for solar power
- The National Electric Mobility Mission Plan aims to promote the use of electric vehicles and reduce dependence on fossil fuels
- The Make in India initiative aims to promote manufacturing in India and encourage companies to adopt sustainable practices
- The National Water Mission aims to ensure the sustainable management of water resources
- The National Green Tribunal is a specialised court that deals with environmental disputes and issues related to green laws
- The Companies Act 2013 includes provisions for corporate social responsibility (CSR) and requires certain companies to spend a certain percentage of their profits on socially responsible activities

United Kingdom: Banking on Green

Combatting the adverse effects of climate change has steadily become a global imperative. The United Kingdom is determined to become one of the global leaders in this mission and is leading the way in terms of green finance initiatives

Archita Rungta

The United Kingdom has always envisioned for itself a role that is more than being a signatory to various pacts and protocols when it comes to climate action. The UK signed the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 and the Kyoto Protocol in 1997, and became a signatory to the Paris Agreement by committing to the UN 2030 Agenda for Sustainable Development. Walking the green talk, in 2019, UK became the first economy to legislate for net zero.

The net zero transition includes benefits of growing the low-carbon economy, creating numerous jobs and enabling investments to new and sustainable markets. To enable and empower this, the green finance strategy was developed in 2019 with the aim to align private sector financial flows with environmentally sustainable growth. The UK has established its commitment to green finance by creating the world's first net zero financial centre and a net zero financial system along with implementing

progressive green finance reforms.

In accordance with the Paris Agreement, finance flows are being made consistent towards low greenhouse gas emissions and climate-resilient development. The UK is working intensively with international partners to shepherd global action in:

- Ensuring that all participants are privy to adequate information vital to factor climate change into every investment decision through transparent disclosure of climate impact, opportunities and risks
- Ensuring that financial systems can manage climate related risks through climate scenario analysis and surveillance work
- Measuring the alignment of the transition of investment to net zero. Setting out credible transition plans including decarbonisation targets and supervising vigilantly

The UK is committed to retaining its global leadership position in green finance to help the world move towards delivering all global commitments made in the Paris Agreement.

Towards this end, the country has also started consultation on Carbon Border Adjustment Mechanism



RISHI SUNAK
Prime Minister, UK

“
THERE IS NO
LONG-TERM
PROSPERITY
WITHOUT ACTION
ON CLIMATE
CHANGE
”

Photo: Shutterstock





Delivering on the Green Finance Strategy

- Committed to making TCFD-aligned disclosures mandatory across the economy
- Included an obligation in their remit letters for the financial regulators to have regard to climate
- Led G7 discussions on the development of global standards for sustainability disclosure
- Committed to implementing a UK Green Taxonomy to provide a shared understanding of which economic activities count as green
- Initiated a Green Gilt programme in September 2021 and the issuance of £10 billion cash planned for financial year 2023-24 represents the largest debut transaction size for any sovereign
- Working to catalyse market-led action on nature-related financial disclosures

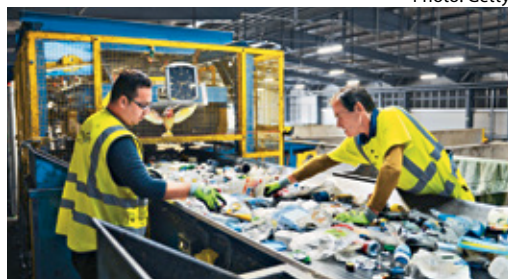
The Task Force on Climate-Related Financial Disclosures (TCFD)

The Task Force on Climate-Related Financial Disclosures (TCFD) was created in 2015 by the Financial Stability Board. It provided for companies to convey how they managed their financial risks and opportunities that climate change posed to their business. The TCFD recommendations have been accepted widely over the world.

The chancellor announced that the TCFD aligned disclosures will be made fully mandatory across the UK economy by 2025.

THE UK HAS PROMISED TO DELIVER ON ITS CLIMATE FINANCE PROMISES DESPITE THE BLEAK ECONOMIC SCENARIO. A NUMBER OF FUNDING PACKAGES HAVE BEEN SIGNED BY THE UK THAT AIM TO SUPPORT POORER COUNTRIES THROUGH MITIGATING EFFECTS OF CLIMATE CHANGE AND ALSO FOR PAYING TOWARDS INITIATIVES TO REDUCE CARBON EMISSIONS

Photo: Getty



(CABM), which proposes a border levy that will ensure that products coming from a country with lower carbon price will have a new border tariff to pay.

The UK is insistent that they need to tax imports of products that are made using highly polluting processes, thereby protecting British manufacturers from less stringent environmentally-regulated competitors.

Prime Minister Rishi Sunak has said, "The government is making progress on a carbon border adjustment mechanism. This is a reasonable and sensible thing to implement." At the COP27 Climate Summit, he had promised to deliver on Britain's climate finance promises despite a bleak economic scenario. The UK has initiated several funding packages to support poorer countries through mitigating effects of climate change.

The UK government has been steadfastly building on the successfully laid foundations of greening the finance system as is illustrated in three phases.

Phase 1

Informing Consumers and Investors: Providing accurate and timely information to market participants, enabling a flow of useful information on environmental sustainability from corporates to financial market participants

Phase 2

Acting on the information: Ensuring that the sustainability information is mainstreamed into financial and business decisions such as risk management and investor stewardship

Phase 3


Shifting financial flows: Allowing for the financial flows within the economy shift to align with UK's environmental goals and the net zero commitment.

Flagship policies for successful green finance strategy include tackling "greenwashing" by creating a 1.5 degree aligned science-based taxonomy or clear definition of green economic activity to help guide private finance and public budgets. It includes establishing a robust, science-based regulatory and legislative framework to ensure that finance sector flows have been greened, with net zero outcomes. It includes building on G20 language to secure a commitment at the G7 to create net zero financial systems.

Six environmental objectives established by the UK

1. Climate change mitigation which propagates stabilisation of greenhouse gas emission.
2. Climate change adaption which reduces risks of adverse impacts of climate change
3. Sustainable use and protection of water and marine resources
4. Transition to a circular economy by maintaining and reusing products sustainably, thereby increasing their life span
5. Pollution prevention and control
6. Protection and restoration of ecosystems and their biodiversity

The launch of the Green Technical Advisory Group (GTAG), chaired by the Green Finance Institute, to provide unbiased advice on market, regulatory and scientific considerations around developing and implementing taxonomy are other significant steps in this regard.

In conclusion, innovation and reflection of a changed world is vital for the UK to maintain London's position as one of the world's leading financial centres. In order to remain competitive and relevant, one of the most positive actions that the UK needs to take is to combat climate change and lead the way with green finance. 



Multilateral Mantra: Institutional Strengthening and Green Growth

Green growth envisages fostering economic growth and development while keeping in mind that natural assets continue to give the resources and environmental services on which our well-being depends. The role of multilateral and national institutions, such as financial, industry, R&D, social and academia, is of great importance in driving green growth

Dr. Ganesan Kannabiran & Aradhana Das

Intensification of multilateral and national institutions has been a top priority of G20 for robust and inclusive growth through collective actions of all involved entities. The goal should be to integrate green growth into institutional processes, rather than creating standalone policies and initiatives. Green growth envisages fostering economic growth and development while keeping in mind that natural assets provide the resources and environmental services on which our welfare depends.

Multilateral and National Institutions: Emergence and Importance

Multilateral institutions were initiatives of nations to address and redress the devastation caused by World War II. Multilateral organisations can facilitate

linkages to governments and can catalyse, through their normative role, the development of guidelines and standards to support the actors advance social innovations and integrate research in their process. Meant to create a new world order based on the voluntary association of nations for their mutual benefit, the relevance of these institutions for addressing the challenges of the rest of the world was limited by the nature of their establishment.

The challenges faced by the entire world in the past two decades, especially during the Covid-19 pandemic and the post-pandemic period, were not really addressed or supported by these institutions. Today, the world is facing the challenges in tackling the crises of multilateral nature and order. Given the background, facilitated access under the multilateral institutions is a major benefit in itself. This access provides monetary benefits, due to its socio-economic impact and reduced transaction costs, compared to individually negotiated access and benefit-sharing terms across nations.

National institutions address the economic, social and environmental dimensions in a balanced manner. These adopt integrated planning across sectors as much as possible and consider the interests of future generations. Importantly, national institutions strive to meaningfully engage all relevant stakeholders in decision-making processes, maintaining an effective balance between top-down and bottom-up processes for participation. The role of national institutions is imperative to any growth strategy including green growth. Those services can

target various public actors, including policy-makers, regulators, rural energy agencies and public financial institutions.

Green Growth and Multilateral Institutions

Multilateral institutions and development banks are at the forefront of dealing with global challenges. However, programmes such as green growth require major scale-up of response mechanisms. Therefore, strengthening of multilateral institutions is a priority in the context of India's G20 presidency. New institutional arrangements will need to be established to guide the development of green growth strategies and to overcome the institutional inertia and silos that exist around economic and environmental policy making and implementation.

Although evidence would suggest that the multilateral institutions are healthy and vibrant, especially for green growth, they are increasingly fragmented, with overlapping responsibilities between agencies. They face challenges of governance, legitimacy and effectiveness. However, India's Finance Minister Nirmala Sitharaman has highlighted that India will prioritise the strengthening of these multilateral institutions, a most appropriate call at this juncture. The role of G20 has become paramount for achieving significant outcomes from green growth initiatives.

Multilateral agencies and development banks can support governments in:

- Establishing political stability as well as clear policies and regulations, harmonised with national energy roadmaps
- Providing assistance in the design and implementation of cost-effective and socially beneficial public measures
- Helping phase out counterproductive instruments such as fossil fuel subsidies

Opportunities for Multilateral and National Institutions

Green growth policies are an integral part of structural reforms needed to foster strong, more sustainable and inclusive growth. Multilateral agencies and development banks can support project developers in feasibility studies, procurement processes, financial structuring and due diligence preparation, as well as economic, social and environmental impact assessment. Moreover, they may assist promising projects in the tendering and bidding processes.

INDIA'S FINANCE MINISTER NIRMALA SITHARAMAN HAS HIGHLIGHTED THAT INDIA WILL PRIORITISE THE STRENGTHENING OF THESE MULTILATERAL INSTITUTIONS, A MOST APPROPRIATE CALL AT THIS JUNCTURE. THE ROLE OF G20 HAS BECOME PARAMOUNT FOR ACHIEVING SIGNIFICANT OUTCOMES FROM GREEN GROWTH INITIATIVES


The governance of national institutions is typically organised into sectorised or functional ministries and departments. National Sustainable Development Strategies (NSDSs) need to integrate the economic, social and environmental dimensions at the strategic planning stage through horizontal integration to avoid potential administrative challenges. Effective partnerships need to be established to build relationships between civil society and governments to enable full participation in the democratic process, leading to access to fair, timely and affordable justice. The most important aspect of sustainable development—intergenerational equity—has to incorporate the rights of future generations.

Need for a Solid Base

The need to reshape the foundations of multilateralism is widely recognised. The capacity of multilateral organisations to deliver results effectively in the new global environment is being questioned by important stakeholders. India's leadership of G20 has taken up the effort of increasing the ability of multilateral and national institutions to be effective.

Strengthening may involve redefining the focus and objectives and creating new channels of resources for green growth through regional and bi-national cooperation, in addition to multilateral organisations. This new form of multilateralism shall lead to clearly specified results—value chain, opportunity for recipient countries to compete for resources through high quality funding requests and strong commitment to transparency, evaluation and learning. Huge resources are needed to increase resilience to climate change and other environmental hazards, reverse environmental decline and build peace. Opportunities exist to create vertical funds for green growth and thereby ensure better alignment between resources and development outcomes.

In Continuum

Making multilateral organisations more responsive, effective, transparent, democratic, objective, action and solution-oriented and credible is of primary importance to promote cooperation. In order to effectively realise the theme of globalisation, responses from multilateral institutions beyond the actions of powerful governments are vital in the emerging context. India's leadership for G20 shall go a long way to achieve the collective pursuance of G20 nations towards green growth. 

Canada: Strengthening the Green Way

For any nation, its government is the most important player in the fight against climate change, not only because governments have the power to legislate change-making policies, or because they are the ones to implement and execute those policies, but because the state itself is usually the largest player across sectors and industries. The government of Canada has recognised and acknowledged this and is working to adopt sustainable practices and lead the way



Photo: Getty Images

Archita Rungta

As the sole trustee of the largest number of resources with the largest fixed asset portfolio, the government of Canada is the most important player towards transitioning to green practices in the country. About 32,000 buildings, 30,000 vehicles and 20,000 engineering assets such as bridges and dams make up its assets list. In transitioning to a circular and net zero economy, the government has set itself the target of reducing greenhouse gas emissions from federal facilities by 40 per cent below the 2005 levels by 2030.

As the government is the largest purchaser of goods and services, it plans to achieve its target by

procuring and implementing green strategies. All core government departments and agencies have applied the greening government strategy towards net zero emissions by 2050.

The formulated plan to ensure this:

- Inclusion of the national safety and security fleet towards the net zero by 2050 target
- Procurement of clean technology by federal agencies and departments
- Transforming the management of federal real estate portfolio and actively working towards decarbonising its real property footprint
- Applying the climate lens to integrate climate considerations throughout government decision-making, ensuring the adoption of an aligned approach

Working along with provinces and territories is critical to achieving Canada's 2030 climate target and developing pathways to 2050 net zero greenhouse gas emissions.

The urgency of climate change and its ramifications have been recognised by each jurisdiction despite unique circumstances including demographics, geography and economic fundamentals as they work together to reduce emissions within their own jurisdiction. The government of Canada is working with all provinces and territories on a bilateral and regional basis to strengthen institutions and push towards a joint effort to increase Canada's climate efforts and create solid middle-class jobs across Canada, in line with the United Nation's Sustainable Development Goals.

Strategies will be built on or will complement federal measures such as home retrofits, increasing net zero public transit and active transportation, making zero-emission vehicles more affordable,



JUSTIN TRUDEAU
Prime Minister,
Canada

“
MORE AND MORE
COUNTRIES ARE
IMPLEMENTING
A PRICE ON
POLLUTION
MEANWHILE, AT
UNIVERSITIES
AND RESEARCH
CENTRES
AROUND THE
WORLD, SOME OF
OUR SHARPEST
MINDS ARE
COMING UP WITH
TECHNOLOGIES
THAT WILL
USHER US
TOWARD A
CARBON-
NEUTRAL FUTURE

”

Paris Agreement

The Paris Agreement is an international agreement under the United Nations Framework Convention on Climate Change (UNFCCC). It was adopted by 196 countries in 2015. Its goals are to keep the global average temperature to well below 2°C above pre-industrial levels and undertake efforts to limit temperature increase even further to 1.5°C; to enhance climate resilience and the ability to adapt to climate change; and, to make global finance flows consistent with low greenhouse gas emissions and climate-resilient development. Canada played an active and constructive role in securing international consensus on the Paris Agreement.



leveraging Canada's competitive advantage to develop domestic electric vehicles, invest in renewables and next-generation clean technology solutions, plant two billion trees and protect 25 per cent of Canada's land and oceans and also invest in biofuels and hydrogen.

Canada has always been at the forefront while tackling issues that plague the world. It believes in leading by example and striving to be a constructive part of global solutions. Canada has consistently advocated for inclusive solutions and a global approach towards solving the climate crisis.

In fulfillment of its global commitments, Canada is providing \$35 million to developing countries to combat short-lived climate pollutants. Bilateral partners such as Chile, Cote d'Ivoire and Senegal have benefitted from Canada's help in advanced work to reduce methane emissions from the solid waste sector. Such initiatives help to address the near-term climate change effects and reduce the health impacts of pollutants in developing countries. Shared environmental concerns such as acid rain and Great Lakes pollution are being handled in close collaboration with the United States.

Along with other members of the United Nations, Canada adopted the 2030 agenda for sustainable development which was a global call to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. The government of Canada hence worked with its partners through 17 concrete actions on the Sustainable Development Goals which include reduced inequalities, sustainable cities and communities, responsible consumption and production and positive climate action.

The list of objectives for the government include:

- Actively push for strong rules for international carbon markets
- Continue to advocate for a minimum price for pollution on a global level encouraging all countries to adapt it at the earliest
- Be part of a core group of countries under the zero-emission vehicle transition council to facilitate a local transition to zero-emission vehicles

The indigenous people of Canada are among those most affected by climate change—they have been facing challenges and health stressors due to the changing climate. Some of these concerns include wildfires, permafrost thaw, changing wildlife patterns, diminishing access to traditional food sources and flooding. These struggles continue to challenge the adaptation capacity of Canada's indigenous people. It is estimated that 25 per cent of the \$5.2 billion worth of existing infrastructure assets across 33 communities in the Northwest Territories—approximately \$1.3 billion—is at risk due to permafrost impacts.

It must be noted that greenhouse emissions by indigenous people are not in proportion to the adverse effects that they face. This has led the government of Canada to support the indigenous people advance their climate priorities by renewed nation-to-nation, Inuit-to-crown and government-to-government relationships with First Nations, Inuit and Metis people based on the recognition of rights, respect, cooperation and partnership.

Improvement of food security, community health, clean energy, resilient infrastructure and protection of biodiversity are some of the proactive steps taken by the government to support co-development, collaboration and indigenous self-determination. Canada recognises the importance of the First Nations, Inuit and Metis people to find solutions to changing climate in their homes and communities.

To meet green energy goals, Prime Minister Justin Trudeau announced up to \$255 million in new spending on clean energy to power thousands of homes and create new jobs in Nova Scotia. About \$125 million alone has been allocated to new wind projects towards achieving the goal of reaching net zero electricity emissions by 2035 and reducing the greenhouse gas (GHG) emissions by 40 to 45 per cent of 2005 levels by 2030.

In Good Company

Post-Independence, Indian Potash Limited with its green conscience has consistently worked on farmer welfare and high crop yield, while minimising and mitigating environmental damage

Ipshita Banerjee Bhandary

The Journey

The story of the Indian Potash Limited (IPL) has its genesis in the vision of a handful of dedicated people in the early 50s. Prior to 1950, the use of potash was intermittent, almost inconsequential and demographically confined to a few southern states. Potash was unknown to Indian farmers. The use of potash in balanced measure leads to higher yields and aids sustainable agriculture. Potash is also one of the three primary plant macronutrients along with nitrogen and phosphorus. Thanks to dedicated and intensive field work by Indian Potash Limited (IPL), the acceptance of potash across India grew. This success story is considered one of the most remarkable sagas in the annals of the Indian fertiliser industry.

IPL was incorporated under the Indian Companies Act with the purpose of promoting reasonable use of potash. Without diluting its primary charter of balanced fertiliser promotion, the company made synergistic forays into dairy, cattle feed, sugar and rural warehousing. It has also acquired a jetty at Vizag Port under PPP model from Vishakhapatnam Port Authority. The common thread that remains through

DR. P. S. GAHLAUT,
MD, Indian Potash
Limited



all these activities is its unwavering focus on farmers without compromising the environment.

After 70 years since its inception, the company continues to strive towards achieving its goals—helping agrarian growth and farmers' upliftment, thereby aiding sustainable development and consistency of the domestic agrarian economy.

Circularity at its Core

At the core of IPL's CSR policy is sustainable development. It states, "As a corporate receiving various benefits out of society, it is our co-extensive responsibility to pay back in return to the society in terms of helping needy people by facilitating in education, good health, food, clothes, etc., keeping the environment clean and safe for the society by adhering to the best industrial practices and adopting best technologies, and so on. It is the company's intention to make a positive contribution to the society in which the Company operates."

One of the major areas of CSR is ensuring environmental sustainability, ecological balance, protection of flora and fauna, agroforestry, conservation of natural resources and maintaining quality of soil, air and water.

The Farmers' Friend

The company has been unwavering in its support to the Indian farmer. The main focus has been farmer welfare and knowledge of sustainable practices. IPL has been supplying fertilisers and educating farmers towards gainful farming to improve their earnings. With this focus on sustainable social livelihood, the company forayed into dairy products and purchased milk directly from farmers to ensure they get prompt and best prices. IPL's brand 'Dairy Fresh' milk undergoes 20 stringent test post-collection at their processing plant before being sold. IPL also supplies cattle feed produced in its plant to farmers.



Photo: Suresh K Pandey



Photos: Getty Images

The company has formed the IPL farmers' club to pass on knowledge to farmers. The club provides a platform and an opportunity to facilitate interaction among the farmers on various activities related to agriculture and commodity purchase and sale.

IPL agronomists share their knowledge and experience at *haats*, field days, harvest festivals, farmers conferences, crop seminars, *kisan mela*, agro exhibitions, dealer training programmes, village adoption programmes, crop demonstrations, soil testing, fertiliser recommendation programmes and at agro service centres. Activities including mass media programmes like screening of films as well as slides through audio-visuals vans and rural theatres, press publicity, radio jingles, road side hoardings, wall paintings, distribution of elaborately printed publicity literature like crop leaflets, hand bills; POP displays material such as posters, stickers, tin plates, glow signs, calendars and exhibition material are used.

Technical information on the various aspects of potash in agriculture, covering the rate of potash application, removal of potash by crops, potash fertility status, K deficiency symptoms on crops, method of K application were published in booklets, brochures, folders and posters. Results of crop demonstrations conducted were compiled, published and circulated for experience sharing. Agriculture periodicals were used for awareness.

Leading Thought

IPL's green conscience and missionary stance has always superseded commercial interests. IPL promoted Potash Research Institute of India (PRII) in 1977 as a national-level research institute and provided funds of Rs 45 million from internal accruals. The objective was to facilitate research on potassium and related plant nutrients to ensure better soil feasibility, management and crop yield and also to facilitate the exchange of information on the use of

“SINCE THE 1990s, THE COMPANY HAS IN CONJUNCTION WITH VARIOUS INTERNATIONAL AGENCIES CARRIED OUT AGRICULTURAL EXTENSION PROJECTS AND IMPLEMENTED DEVELOPMENTAL PROJECTS AT THE VILLAGE LEVEL. THESE HAVE MANIFOLD OBJECTIVES—OF IMPROVING YIELDS, OF CORRECTING THE IMBALANCE IN FERTILISER USE, OF INCREASING THE LIVELIHOOD SUSTAINABILITY, AND RURAL DEVELOPMENT IN ITS TOTALITY

”

potassium in agriculture and to collaborate with various universities and institutes.

IPL's *Environment Improvement in Rainfed Areas* (EIRA) project was foreseen as an initiative towards evolving an innovative and pioneering comprehensive programme of sustainable improvement in the environment quality of rain-fed areas and management of natural resources by community involvement. Project interventions, in the form of activities focusing on soil and water conservation, energy conservation, afforestation and use of organic manure, improved environmental balance.


Certain interventions like the installation of compressed biogas (CBG) plants have reduced transport pollution by enabling greater use of CBG as vehicular fuel. Farm bundling resulted in an increase in production due to moisture conservation and check in soil erosion. The stop dams/check dams and farm ponds increased the water level of wells. The plantation efforts and protection of forest land facilitated greenery, check of soil erosion and changes in atmospheric temperature. Energy conservation activities in addition to installation of bio-gas plants like household toilets, distribution of pressure cookers, smokeless and improved iron chullahs, NADEP and vermi-composting, etc. helped to meet the need of extra energy resources and contributed to the good health of people, particularly women. Development of village level institutions like village environment committees (VEC), self-help groups (SHGs) and user groups (UG) transformed governance aspects to increase the participator process.

IPL firmly believes that it can be an even bigger change agent in inculcating sustainable agri-practices across the the country.

In Retrospect

IPL has believed that providing extension services below a threshold level does not bring about desired change in the agricultural development and therefore adopted an area development approach by implementing intensive programmes through various projects.

Collaboration with other agencies, national and international, was found to be effective in rendering agricultural and rural development services.

Understanding farmers' needs and then designing and implementing extension programmes to enhance the prosperity of rural India has been the prime mover of extension services of IPL. 

The Plastic Pandemic

The 20th and 21st centuries have often been called 'The Plastic Age', with no other industry witnessing such success. However, unrestrained plastics use poses great danger to the continued survival of life below water and thus, life on earth. This World Environment Day 2023 focuses on the solutions to plastic pollution. A look at the threats and possible countermeasures in India

Archita Rungta

Plastic waste is piling up, collection mechanisms are struggling to match pace and recycling processes are expensive. As a result, plastic pollution remains one of the biggest threats to survival on earth and has thus become one of the focal points of the fight for survival.

Water, constituting 71 per cent of the earth's surface, has since time immemorial served as a dump for human waste directly or indirectly. About 80 per cent of marine litter consists of plastics, the production and usage of which became large scale since the 1950s. Cheap and durable plastic became the most overused commodity all over India, and in fact the world.

The ocean returns all the rubbish it cannot process back to the coast. Thus, it is sadly a common sight to see plastic litter on shorelines. Horrific visuals of marine life struggling to survive with plastic waste are also unfortunately common. As a nation, India is working hard towards finding workable solutions towards mitigating this massive problem.

The Ganges Basin is a focus region where several initiatives have been activated to address the health of the aquatic and marine ecosystem. As the major urban settlements on the course of the River Ganga, Haridwar, Prayagraj and Agra have been chosen for assessment.

The first step is to identify the sources and causes of plastic waste generation in major cities and urban centres. The primary component of plastic pollution is unsustainable use and disposal of plastic products. Uncontrolled landfilling and open burning have been the most common waste disposal methods in India, leading to leakage into natural drainage system and the oceans.

The rate at which plastic is entering the environment far exceeds the current clean-up capacity – this has necessitated an urgent need to reduce inputs of plastic to the environment. This requires a shift in thinking from linear economic models to reuse- and-recycle. The government is actively working at the state level to ban the use of single-use plastics for consumers and manufacturers.

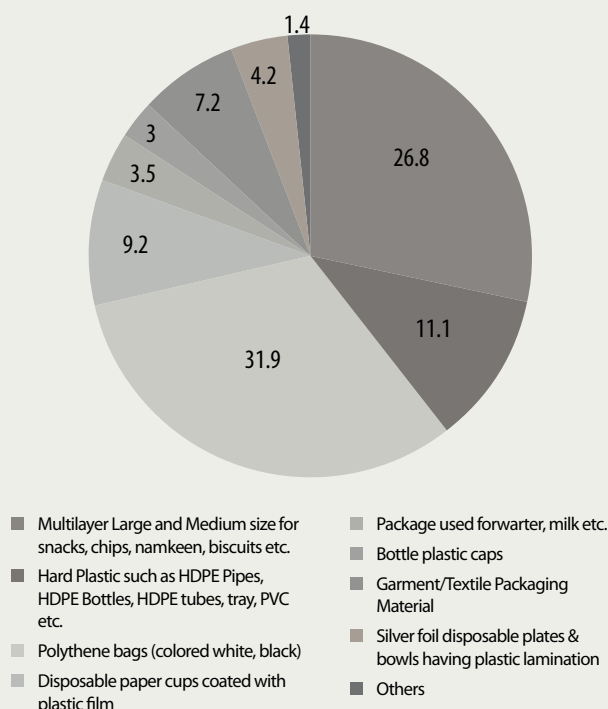
Governments have introduced various economic incentives,

Photo: Getty Images



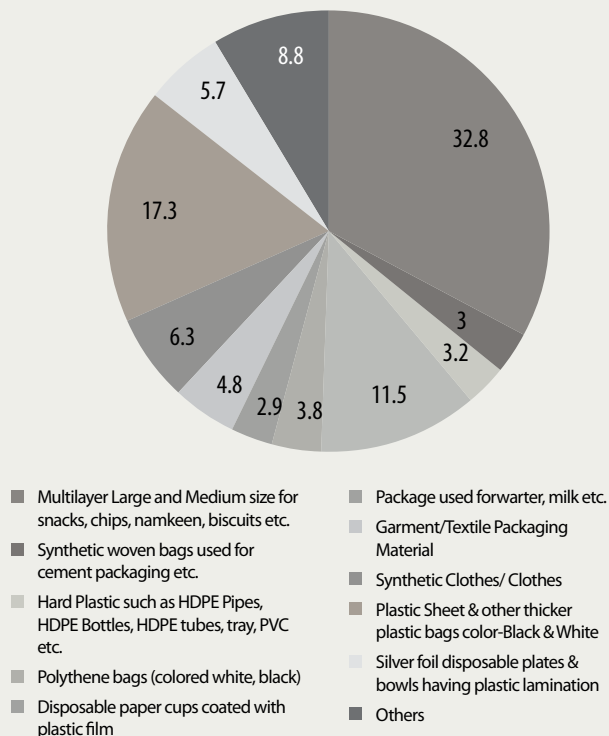
Breakup of Plastic Items in Numbers

Total Plastics by count (in %) at Haridwar



Breakup of Plastic items by Weight

Total Plastics by weight (in %) at Haridwar



Source: www.npcindia.gov.in

support projects which recycle single-use items to the uptake of eco-friendly alternatives to single-use plastics. The introduction of depository schemes under the Swachh Bharat Abhiyaan and focus on redesign to mitigate multi-layer plastic use and make products recyclable are some other initiatives taken. It must be remembered that recyclability is economically feasible only when it is built into design. For example, packaging materials have to be designed such that they are fully reusable, recyclable or compostable. Design has to include non-hazardous dyes and ensure that the product can be adequately dismantled after use to make it sufficiently viable for recycle. Plastic recycling is being approached via two methods - chemical recycling recovery-and-disposal operations including waste-to-energy and pyrolysis.


A recent study done at Haridwar found that 31 per cent of all waste plastic was in the form of polythene bags while large and medium chips and snacks packets were the second-largest contributor at 28.6 per cent. Hard plastics such as pipes and HDPE bottles contributed close to 11.1 per cent and the rest were taken up by disposable cups, foils, bottle plastic caps, packing used for milk and so on. Garments and textile packaging also added to plastic waste. In terms of weight too, polythene bags added to 32.8 per cent, making them the largest offender followed by chips and snacks packets at 17.3 per cent.

The biggest challenge facing the plastic recycling industry is that of making processes cost-effective and efficient. The aspects being observed and studied are primary waste management, plastic leakage routes into rivers, countermeasures specific to study areas which then can be applied locally in cities such as Agra, Haridwar, Mumbai and Prayagraj.

An identification of four study areas has been done as countermeasures that need to be implemented – these include policy-level countermeasures to prevent manufacture and sale of certain plastic products that generate waste that are difficult to treat.

Other related initiatives include effective waste collection and management system, availability of adequate plastic treatment facilities within reasonable distances from collection points for the reduction of transportation costs and regular inspection of hotspots and their cleaning on a regular basis.

In conclusion, it can be said the major polymers and their hazards can impact terrestrial and aquatic environments if plastic waste is not managed appropriately within geographical boundaries. If not properly collected and correctly disposed, plastic waste can decay and cause air pollution and degradation of soil, surface and groundwater and aquatic and marine ecosystems. Microplastics specifically have multiple adverse effects including causing irreparable damage to soil organisms which eventually enter the soil ecosystem and impact ground water. Entanglement, ingestion and bioaccumulation are the different ways through which micro plastics impact marine wildlife in fatal ways. It is to address hazards such as these that various counter measures are being developed at policy, programme, plan and project levels

Sustained efforts are on to synergize these countermeasures with ongoing programmes such as Clean India Mission, Namami Gange, Air Quality Monitoring Programme, Groundwater Quality Programme and Soil Health Card programme to ensure that there is a robust cohesive effort to mitigate the problem of plastic pollution for increased environmental health and stability. 

Advantage India

India enjoys a natural advantage when it comes to transitioning to a circular economy – a mindset that has repair, reuse and recycle as an ingrained, inherent faculty. This, along with enabling collaborations between Centre and the states, will drive the transition towards circularity further.



Photo: Getty Images

KD Bhardwaj and Nikita Roy

The world's most populous country and the seventh-largest in terms of area, India is one of the fastest developing economies. While keeping the just welfare and aspirations of its 1.4 billion at the heart, India has been consciously making green choices with a focus on resource conservation and efficiency, despite experiencing rapid industrialisation and urbanisation. And at the heart of these initiatives is strong Centre-state collaboration building on moving back to the traditional Indian mindset of reuse, repair and recycle.

A Laser Focus

India has identified focus sectors for implementation of circular economy and green productivity. These sectors are automobiles, construction, agriculture and electronic and electrical equipment as they account for

two-thirds of the expenditure of an average Indian household. Across the country's vast geographical expanse comprising 28 states and 8 Union Territories, various initiatives at both national and state levels specific to these sectors have been put in place that represent India's perspective on achieving circular economy through green productivity initiatives.

The initiatives launched are guided by the nation's green goals which in turn have been classified into current and future green activities, requirements/regulations given from the government, incentives provided by the government, assistance expected from the government and also assessment of the percentage of impact the responding organisations have had in terms of their productivity, employees' working efficiency and contribution to the sustainability of the economy.

The Government of India has actively promoted policies and projects to leverage advanced IT and OT solutions so as to further drive the country towards a circular economy.

The State of Matters

Some states including Maharashtra, Rajasthan and Karnataka have initiated schemes to revive traditional water bodies and provide natural drinking water systems. The Mukhyamantri Jal Swavalamban Abhiyan was launched in Rajasthan in 2016 to make villages self-sufficient in water. Rajasthan has also set up centres to facilitate low cost, end-to-end rural solid waste management models.

The Haryana government has made rainwater harvesting mandatory and is also promoting crop diversity to promote less water-intensive crops. Southern states such as Telangana have established a plethora of liquid waste treatment plants, thereby proving that regulations backed by strict monitoring are effective measures for waste management.

Jamshedpur, a city in the state of Jharkhand



Photo: Getty Images

is all set to become the country's first ZLD city with the help of Tata Steel's Bara Treatment plant. The states of Gujarat and Maharashtra have also joined in with their initiatives of electricity generation for farmers and promotion of green fuel through setting up green funds.

Coordinated efforts by the state and central governments ensure that energy efficiency and conservation are being implemented throughout India. Different strategies however have to be devised and adopted by different states owing to the vast differences in geographical and socioeconomic dynamics. A common national framework towards green productivity thus does not necessarily produce desired outcomes as they have to be consciously tailored to suit the needs of each state.

State governments have proactively undertaken initiatives to ensure economic development while keeping environmental factors in due consideration. Specific state level schemes have been devised to solve environmental challenges ranging from waste management, water scarcity/reuse, solar energy etc. States are focusing on green productivity to ensure that they can individually contribute to the task of circular economy as it is widely

assumed that moving towards circularity will bring substantial economic benefits.

The Mindset Advantage

India has embarked on a growth path that is restorative and regenerative in nature, learning from the challenges that the world's developed countries are facing in making conscious efforts to transition from linear to circular economies and also in the interests of climate justice.

By adopting the principles of circular economy, India has the opportunity to save money, make money and work for global good by adopting a leadership position.


The two areas identified and focused on as most critical are waste management and electricity from recyclable resources.

Traditionally, the Indian economy has been one where the principles of reusing, re-purposing and recycling have not only been second nature but have been strongly propagated. This traditional philosophy and mindset have been proved to be the currency of the future in the face of shrinking natural resources and an asset to businesses, policy makers and citizens towards transitioning to a circular economy.

The building blocks of circularity such as high utilisation, a culture of repair, of distributed recovery and recycling of materials post-use are deeply embedded in the habits and psyche of India's people. These informal economic activities have provided employment to some of India's poorest. India is poised to cut down on carbon emissions by turning these existing trends into core developmental strategies as a circular economy can be defined as a continuous cycle that preserves and enhances natural capital, optimises resource yields, and minimises system risks by managing finite stocks and renewable flows.

The Green Bottomline

Mahatma Gandhi strived towards a lifelong quest for efficiency in production, sufficiency in consumption and conserving resources, all of which are concepts that align with the concept of circular economy.

Overuse of resources by the world's affluent has caused high price levels and market volatility. A regenerative development path towards long-term prosperity can be built on the current strengths of the Indian market and the existing strengths of the Indian mindset by engaging businesses to build on the long-term vision of circular economy. 

Awareness Survey on the Incentives Provided by Government

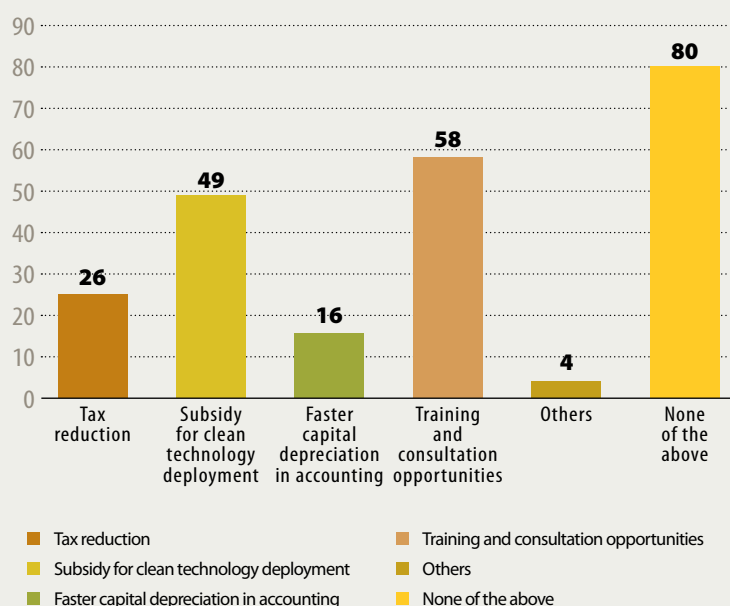




Photo: Getty Images

Future Forward: The APO Perspective

The rise of Asia as a global economic powerhouse is not far off. As per APO Databook 2022, it is projected that Asian countries are going to account for almost 50 per cent of the world's GDP by 2030 on PPP basis. The Asian Productivity Organization (APO), a nonprofit, non-discriminatory, non-political intergovernmental organization, is working to facilitate and drive the 21 member Asia-Pacific countries to achieve this goal in an even shorter time span, keeping the 17 Sustainable Development goals firmly aligned



DR INDRA PRADANA SINGAWINATA
Secretary-General, APO

When the Asian Productivity Organization (APO) was established in 1961, the world was on the cusp of the Third Industrial Revolution. Products were being mass-manufactured on automated assembly lines rather than manually, and industrial productivity increased with the introduction of standardised processes and utilisation of new energy sources. Productivity tools and techniques focused on streamlining processes, improving the reliability of machinery, and limiting the number of rejects. Economies were shifting from agriculture to services, leading to urbanisation, higher wages and standards of living, and greater economic prosperity.

In past decades, key sources of productivity growth have shifted from labour to capital, management, knowledge, IT, and currently to innovation. All of these shifts have been anticipated and addressed in APO projects and programmes. During the decade of establishment (1961–70), the APO implemented courses related to machinery repair and maintenance, recognised the contributions of workers and trade unions to labour productivity, built capacity for quality control and improvement, embraced agriculture as a focus area for productivity improvement, and concentrated on capacity building of SMEs.

During its decade of consolidation (1970–80) and expansion (1980–90), the APO expanded its scope of activities to include research on productivity, commemorating its Silver Jubilee under the theme “Productivity through People in the Age of Changing Technology.” With rapid industrialisation and globalisation, enterprises were required to deliver world-class products at the lowest possible prices. In that scenario, applications of productivity tools and techniques played a vital role in enhancing competitiveness by using human resources, raw materials, and machinery systematically to achieve maximum output with the least input. Hence, productivity improvement was not an option but a necessity.

Gradually, however, the adverse effects of ill-planned industrialisation on the environment became visible. One such impact was depletion of the ozone layer in the late 1970s and 1980s. Environmental concerns such as air, water, and land pollution; toxic waste; loss of biodiversity; and greenhouse gas emissions were initially ignored under the assumption that they were local issues. That approach changed gradually as environmental quality standards were introduced.

By the mid-1980s and early 1990s, the global implications of environmental degradation were widely recognised. The Montreal Protocol of 1987 was a landmark multilateral environmental agreement regulating the production and consumption of man-made ozone-depleting substances. Similar conventions

on climate change, biodiversity, and combating desertification happened. Consumers demonstrated willingness to pay a premium for eco-friendly products. The term “eco-efficiency” was coined by the World Business Council of Sustainable Development, a coalition of international companies sharing a commitment to the environment, in 1992 during the Rio Earth Summit. Other initiatives included ISO 14000, which defined key elements of management systems to address environmental issues, and the Social Accountability 8000 standard to certify the performance of companies in areas related to workforce health, safety, and working environment.

The APO recognised the need to review the existing productivity improvement approach to address environmental concerns, integrate it with new environmental management systems, and expand the productivity concept. Inspired by the 1992 Rio Earth Summit and Agenda 21, the APO launched its Special Program for the Environment in 1994 under a special cash grant from the Japanese government. This resulted in the development of the Green Productivity (GP) concept focusing on productivity and management tools that go hand-in-hand with waste and emission reductions, energy conservation, and environmental management systems. It guides enterprises in building competitive, resilient businesses while improving their environmental performance.


The triple focus of GP is environment, quality, and profitability, which supports APO’s mission of contributing to the sustainable socioeconomic

development of Asia and the Pacific through enhancing productivity. It supports industries in strengthening their triple bottom lines and provides policymakers a framework for greener growth without compromising opportunities for future generations. The GP Framework is based on conventional productivity improvement methodologies such as the plan-do-check-act cycle and proven tools and techniques applicable at enterprise level.

As worldwide efforts to combat climate change continued through the Kyoto Protocol in 1998, UN Millennium Declaration in 2000, and Paris Agreement in 2015 resulting in the 17 UN SDGs, APO activities based on GP proved to be a pathway to decouple industrialisation and economic growth from environmental degradation. Major GP activities included the development of training manuals and handbooks; building capacity through courses, workshops, and conferences on green growth; and research publications linking GP and evolving sustainability concepts such as circular economy. The APO World Conference on GP in 1996, 2002, and 2014 confirmed the GP Program to be a driving force in achieving sustainable development and recognised the significance of green technologies, eco-products and ecoservices, and green innovations in promoting economic growth.

Looking ahead, green growth will remain at the center of socioeconomic development efforts. Net-zero emission targets and nationally determined contributions will encourage nations to explore innovative ways to create a sustainable green future. Advances in Information and Communication Technology (ICT) and computing will redefine manufacturing processes to produce items that can be reused, repaired easily, and then recycled.

Understanding the gaps in information dissemination and the capacity building needed to ensure green growth, the APO is now accrediting Certification Bodies on Green Productivity Specialists. APO-certified GP Specialists act as practitioners, implementers, and promoters of green growth and the GP Framework at the grassroots level.

To address evolving challenges related to productivity enhancement and climate change, the APO has begun to upgrade the existing GP concept to GP 2.0. This will involve mapping the status of green initiatives in APO members, identifying new green growth opportunities, expanding GP tools and techniques, and exploring emerging technologies to foster innovation and sustainable development. It is envisaged that GP 2.0 will contribute to environmental efforts at individual, organisational, and national levels for a greener, cleaner tomorrow. 

SINCE 2019, APO HAS FOCUSED ON ADOPTING NEW TECHNOLOGICAL CHALLENGES TO TIDE OVER THE PANDEMIC AND HAS BEEN ADVISING ITS MEMBER COUNTRIES ON HOW TO CREATE SUSTAINABLE ECOSYSTEMS OF PRODUCTIVITY

Report card

- Two conferences, five workshops, and two training courses were implemented under the Green Productivity focus area in 2021.
- APO organized a workshop on developing a roadmap to help members assess their preparedness towards digitization at different industries and firms.
- The APO published a resource paper named ‘Measuring Public sector Productivity: A Practical Guide’ to explain the concepts and measurements of productivity and why citizens should be concerned about the productivity performance of public sectors.
- A national follow-up project in Cambodia was conducted in 2019 to formulate a general roadmap with extension programs for moving the agribusiness sector and Food Value Chains into the future.
- A national conference by APO with 150 participants in India introduced key stakeholders to the latest technologies and best practices in Food Value Chains to raise productivity as well as the safety and quality of agrifood products, especially among Subject Matter Experts (SMEs).
- APO welcomed Türkiye as the 21st member in 2020.
- APO published a total number of 20 books in 2021 including APO Productivity Data Book 2021, APO Productivity Readiness 2020, APO Productivity Index as a part of 60 years celebration of establishment.
- The APO continued collaboration with the Asia Development Bank Institute (ADBI) in conducting a joint study on the impact of COVID-19 on selected APO members.



How Green is My Value

In the green growth and green productivity paradigm, Environmental, Social and Governance (ESG) factors define and underpin the goals of all forward-looking governments and economies. The apex bodies for productivity in most nations have set goals that incorporate these principles as the understanding on which productivity goals are defined and set. **Sukanya Das** talks to **Sundeep Kumar Nayak, IAS**, Director General, National Productivity Council, India, to understand the organisation's focus on ESG

The Director General of National Productivity Council (NPC), Sundeep Kumar Nayak, a career bureaucrat and member of the Indian Administrative Service, is a formidable climate warrior at heart and in action. Armed with three full-time Master's degrees, one each from IIT Kharagpur, the London School of Economics and the Monterey Institute of International Studies California, and numerous short-term academic programmes from premier institutes such as the Goldman School of Public Policy, University of California at Berkeley, as well as over 35 years of professional experience, Sundeep Kumar Nayak is on a mission—to make NPC a knowledge and thought leader in the field of productivity and empower India's global competitiveness. Some excerpts from an insightful interaction:

◆ **NPC's vision states that it aims to be the knowledge leader in productivity to help India become globally competitive. Where do we stand with respect to this?**

We are well-positioned. While India remains at heart an agricultural economy, it has become more knowledge-driven,

thanks to its young, educated and skilled population.

Young people are much more environmentally conscious—they are shunning the older ways of building and being. This dovetails perfectly with the need of the hour—enhancing green productivity to aid green growth to transition to a circular economy. This will drive India towards greater green compliance and given the new regulatory frameworks, greater competitiveness globally.

Rejuvenating the productivity movement towards Atmanirbhar Bharat is the motto of NPC and our network of 12 regional offices and 28 local productivity councils in India will be geared towards driving green growth across levels and sectors. In fact, NPC has embarked upon a number of initiatives including a APO supported and DPIIT-funded Centre of Excellence on Industry 4.0 for innovation. Women, youth and digital cooperatives in rural settings will be focus areas.

◆ **NPC has been focusing on ESG implementation initiatives with organisations. What is ESG and why is it important?**

ESG stands for Environmental, Social and Governance (ESG) practices. Given the climate crisis, companies are facing increasing pressure from regulators and investors to follow ESG practices. The corporate sector has to step up to survive.

Let me give you an instance. In 2022, the Securities and Exchange Board of India (SEBI) made the Business Responsibility and Sustainability Report (BRSR) mandatory for the country's top 1,000 listed companies beginning FY 2022-23. Companies now have to report their sustainability-related initiatives.

But, it is not just about mandated compliance. In the ever-changing business environment, both investors and stakeholders require business to be environmentally sustainable. Adapting to and mitigating climate change impact and transitioning to sustainable development have emerged as major global issues. Global sustainability challenges such as demographic shifts, flood risk and rising sea levels, privacy and data security, along with regulatory pressures, have introduced new risk factors for investors. As companies face rising complexity on a global scale, investors are re-evaluating traditional investment approaches. Thus, the concept of ESG comprising a holistic approach for companies to remain responsible to their investors and stakeholders while complying with various environmental, social and governance regulatory risk, has gained increasing relevance.

◆ How can the NPC help companies with ESG compliance?

Very significantly indeed. Developments such as new regulatory frameworks present an opportunity to companies to switch to sustainable resilient business practices—this is where NPC comes in.

NPC under DPIIT, Ministry of Commerce and Industry, is pursuing the goal of net zero set by Prime Minister Narendra Modi at COP26. NPC is leading the way in creating a mindset shift towards ESG practices. To promote ESG as a crucial component of business operations and make businesses sustainable, competitive and resilient while being ESG/BRSR compliant, NPC has developed its own original seven-step strategy which is being offered to Indian corporates to help them comply with the BRSR mandate.

NPC has named this service as SAPTAPADI framework to re-emphasise Indian corporates' holistic commitment to sustainable development. The Saptapadi (Seven Steps) framework is an end-to-end ESG programme with seven steps to be embraced by entities to pursue their ESG journey. This includes



Photo: Suresh K Pandey

SUNDEEP KUMAR NAYAK, IAS,
Director General, National Productivity Council, India

INVESTORS ARE RE-EVALUATING TRADITIONAL INVESTMENT APPROACHES. IT IS IN RESPONSE TO THIS THAT THE CONCEPT OF ESG COMPRISING A HOLISTIC APPROACH FOR COMPANIES TO REMAIN RESPONSIBLE TO THEIR INVESTORS AS WELL AS STAKEHOLDERS WHILE COMPLYING WITH VARIOUS ENVIRONMENTAL, SOCIAL AND GOVERNANCE REGULATORY RISK, HAS GAINED INCREASING RELEVANCE

building the base, curating the human and technological aspects and formulating ESG framework, working on the deficiencies and strengths, developing ESG plan, implementation of ESG, reviewing and monitoring of policy and addressing scope of refinement and actions.

◆ What are the steps NPC is taking to create awareness about both the need and the service?

NPC intends to familiarise organisations with various facets of sustainability and its importance to business and future investment. With this objective, NPC has been organising conclaves as part of pan-India ESG series. NPC has taken the initiative to organise this series of conferences on the subject of ESG to aim at industry transformation.


◆ Such as?


Too many to name. But some long-term partners and key stakeholders are the Department of Public Enterprises, Government of India, Confederation of Indian Industry (CII), Southern Region, the Ministry of Environment, Forest and Climate Change, Indian Potash Ltd, the Government of Assam and the Government of Uttarakhand. We try to involve all possible stakeholders under one roof for a day to discuss various aspects of ESG, including financing. This presents a big opportunity for NPC as we tell corporates how we are equipped to help them file their mandatory returns.

◆ Who are the participants, usually?

These workshops have been well-received by policy leaders, academicians, corporates and civil society. Each session sees immersive brainstorming, along with lively Q&A sessions, indicating the interest and enthusiasm.

◆ What is the way forward with regard to this?

Our goal is not just to facilitate but to enable and empower Indian industry to achieve industrial transformation and emerge as global leaders in terms of sustainability by integrating ESG agenda into business strategy. Understanding the ESG drivers early on will help support this and that is what NPC is dedicatedly working on. 



NPC: Beyond Productivity

Nations have to address the climate crisis while balancing the ever-conflicting imperative of delivering economic growth for their citizens. Multilateral organisations, thus, are focussed on taking climate action that is urgent and inclusive, equitable and just, while ensuring the Global Goals are met. None of this can be achieved without rethinking progress and redefining productivity. At the forefront of this push towards green development in India is the National Productivity Council, India's premier consulting and capacity-building organisation.

Sukanya Das

Today, alternate paradigms of production and consumption are a must to first survive as a civilisation and then, to achieve sustainable wellbeing. A circular economy, defined as an economic system of closed loops in which raw materials, components and products lose their value minimally, with renewable energy sources and systems thinking -at the core, is necessary to combat climate change. A fully circular economy within a generation is the necessity and effecting this transition through large-scale action is the need of the hour.

This necessitates rethinking progress and redefining productivity. At the forefront of this push towards green development in India is the National Productivity Council (NPC), India's premier consulting and capacity-building organisation. An autonomous body set up in 1958 under the Department for

Promotion of Industry & Internal Trade (DPIIT), Ministry of Commerce and Industry, Government of India, NPC is a tri-partite non-profit organisation with equal representation from the government, employers and workers' associations, apart from technical and professional institutions including members from local productivity councils and Chambers of Commerce on its Governing Body.

The Union Minister of Commerce & Industry serves as the President of NPC's Governing Council while the Secretary, Department for Promotion of Industry and Internal Trade (DPIIT) chairs the Governing Body. Apart from providing training, consultancy and undertaking research in the area of productivity, NPC also implements the productivity promotion schemes of the Government and is chartered to carry out the productivity-related programmes of the intergovernmental bodies of which the GOI is a member.

India: In the World

With India assuming the G20 Presidency in November 2022, as befits her newly acknowledged status at the forefront of global thought and action leadership, India will be focussing on climate action, fast-tracking progress on United Nations Sustainable Development Goals (UNSDGs), responding to geopolitical tensions, with its own just national interests firmly front and centre. Green development



Photo: Shutterstock

is envisaged as the common end as well as a means to achieving other ends. Reconciling climate action with sustainable development, green productivity and green growth will be the key. And it is in these aspects that NPC will play a statesman role.

NPC: Closing the Loop

To move towards circularity, the critical 5 Rs are to Rethink, Refuse, Reduce, Reuse, Recycle. Not just as individuals but as communities, countries, continents and the global collective. Intense cross-regional, cross-national, and cross-sectoral collaboration is critical. A mission-oriented apex body, NPC with its charter to promote productivity culture across sectors in alignment with national, regional and global requirements for a socio-economically stronger India, will lead the way. Its areas of expertise include Industrial Engineering, Agri-Business, Industrial Engineering, Economic Services, Quality Management, Human Resources Management, IT application, Technology Management, Energy Management, Environment, and Climate Action.

Headquartered in New Delhi, NPC offers its service through 40 locations spread across India, including 12 Regional Directorates and 28 Local Productivity Councils. The Dr. Ambedkar Institute of Productivity in Chennai is a think tank focused on productivity promotion. A dedicated permanent team of about 160 engineers, economists, management professionals and more than 100 associated professionals across sectors make up NPC's committed workforce. The Director General of NPC is appointed by the Government of India.

Sundeeep Kumar Nayak, Director General, NPC stated, "The productivity movement in the country dates back to the late 1950s with the setting up of the National Productivity Council (NPC) and its associated network of local productivity

councils (LPCs) across the country. NPC and LPCs combined with NPC as an apex body have made significant contributions to spread the message and importance of productivity during the last 60 years."

International outreach and collaboration are prime area of focus. NPC represents the Government of India at intergovernmental bodies focusing on productivity and thus plays a key role in strengthening cross-border collaboration.

Vision: Productivity Plus

NPC's vision is to be a knowledge and thought leader in the field of productivity and to facilitate India's transition to greater global competitiveness through green development.

But what exactly is productivity? As a word, productivity is as widely misunderstood as it is widely used. Productivity is not simply 'more with less resources'. According to the European Productivity Agency, "Productivity is above all, a state of mind-set. It is an attitude that seeks the continuous improvement of what exists. It is a conviction that one can do better today than yesterday, and that tomorrow will be better than today".

A focus on productivity results in higher-quality goods and services at significantly reduced price. Productivity is a determinant of profit margins, sales revenue, and/or unit costs and thus, the index of an organisation's financial and competitive strength. In the private sector, productivity could mean the difference between a company thriving, simply surviving or withering away after earlier success. Productivity assumes greater importance in the public sector as it determines the number and quality of services that can be provided with limited funds available. Nayak has stated, "To become globally competitive and *atmanirbhar*, India's manufacturing sector players have to lift their productivity closer to global standards. Improvements to key manufacturing processes could multiply the productivity of Indian companies exponentially."

At a two-day conference in September 2022 in New Delhi, NPC announced the "Navmantra," a Nine-Pronged-Approach for Swavalambi Bharat. This approach has five thematic focus areas and four geographic focal regions. The thematic areas are Youth & Productivity, Women & Productivity, Innovations, Agri & Co-ops and Industry Partnerships. Each of the thematic areas and focal regions will be steered by professionals from NPC and co-steered by LPC



representatives in the push to achieve the vision of Atmanirbhar Bharat.

Mission: Walking the Green Talk

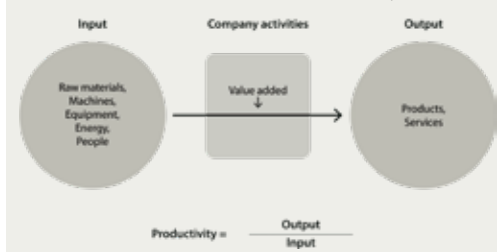
The definition of productivity today includes the parameter and paradigm of sustainability, or green. All questions of productivity have to factor in the reality of climate change. Even after including all the Net Zero pledges and updated country ambitions made at COP26 (Glasgow), the world is still on a 2.4°C global warming trajectory. It is indubitable that a denial of the extent of climate crisis remains, even while engaged in impact-mitigating action.

NPC defines its mission as contributing to sustainable, inclusive socio-economic development of India by enhancing awareness and sustainable productivity. Nayak has said, "Rejuvenating the productivity movement towards Atmanirbhar Bharat is the motto of NPC."

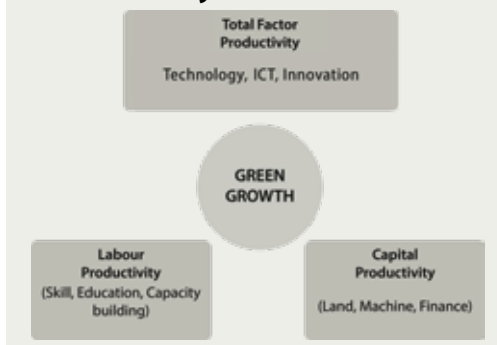
The Writing on the Wall

The writing is clearly on the wall. Transition has to happen. This will entail an enabling and incentivising policy framework that powers the shift, coupled with industry leaders taking the initiative and the government itself leading by example. NPC stands at the junction of all these aspects and is the organisation positioned and poised to drive this paradigm shift.

What is Productivity?



Productivity and Green Growth



NPC'S VISION IS TO BE A KNOWLEDGE AND THOUGHT LEADER IN THE FIELD OF PRODUCTIVITY AND FACILITATE INDIA'S TRANSITION TO GREATER GLOBAL COMPETITIVENESS IN AND THROUGH GREEN DEVELOPMENT

NPC IS ENGAGED IN REACHING OUT TO THE ECOSYSTEM AND WORKING WITH STAKEHOLDERS TO BOTH ACCELERATE AND EASE THE GREEN TRANSITION THROUGH CAPACITY BUILDING, WHILE COLLABORATING WITH INTERNATIONAL PARTNERS ON TECHNOLOGY AND KNOWLEDGE ACQUIREMENT

The Shift: Productivity and Green Growth

What is green growth? Simply put, it is a movement away from the traditional economic strategy of 'grow first clean up later' to a more responsible economic growth with emphasis on environmental and social concerns. This primarily entails:

- A low carbon economic growth
- A holistic approach to integrate the three pillars of sustainable development
 - Economic development
 - Social development
 - Environmental Sustainability

Green Growth and Circularity

For India, the transition towards a circular economy entails:

- Maintaining the value of products, materials and resources in the economy for as long as possible
- Minimising waste generation
- Boosting competitiveness with new business opportunities and innovative products and services
- Bringing economic, social and environmental gains

Transition to a Circular Economy

Green growth is possible only through sustainable practices, resource efficiency and renewable energy sources. Green growth envisions a future with environmentally sustainable and equitable economic growth, resource security, healthy environment and restored ecosystems with rich ecology and biodiversity.

- Reduction in primary resource consumption to 'sustainable' levels, in keeping with achieving the SDGs and staying within planetary boundaries
- Creation of higher value with less material through resource-efficient and circular approaches, waste minimisation, material security
- Creation of employment opportunities and business models beneficial to the cause of environment protection and restoration
- Keeping products, components and materials at their highest utility and value
- Eliminating the concept of waste, with materials ultimately re-entering the economy at end-of use as defined, valuable technical or biological ingredients.

The Way Forward

All these can only be achieved if the following are enabled.

1. Promotion of biobased resources and support for innovation on bioeconomy

2. Strategy on plastics and reduction of marine litter
3. Recovery of valuable resources and better assessment of environmental performance
4. Promotion of the recovery/recycling of critical materials and exchange of best practices
5. Common methodology to measure and manage waste

The National Productivity Council is actively engaged in outreach activities – working with all stakeholders in the ecosystem to both accelerate and ease the transition through capacity-building, while collaborating with international partners on technology and knowledge acquirement. NPC's expertise and commitment is to ease the transition across the board for government entities, Public Sector Units, corporates and MSMEs.

The Strength Analysis

A pre-eminent organisation of the GOI, NPC has been enabled to work on nomination basis. Its team of focussed, cross-sectoral experts and consultants enables it to provide end-to-end productivity solutions. Its delivery track record is impeccable, with consistent on-time delivery. Its multidisciplinary expertise and the deft ability to deploy and leverage this in the interest of the organisations it is working with, is formidable

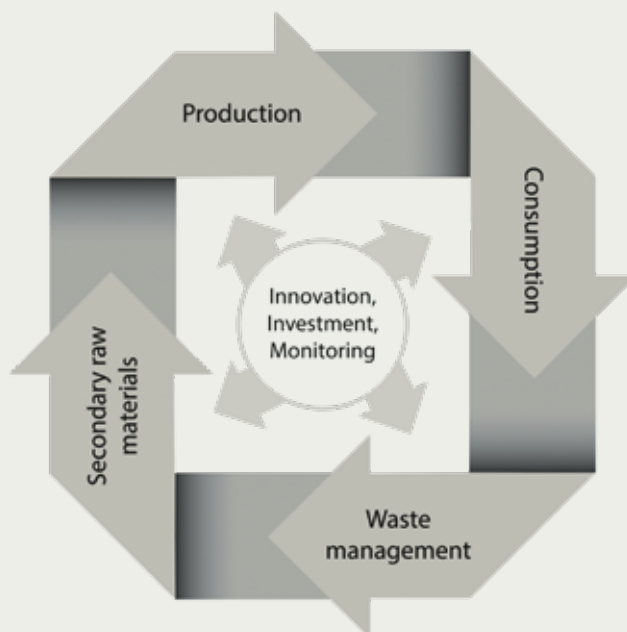
Its pan-India presence and government body status provides it the capability to undertake large-scale surveys and pan-India level projects. NPC provides its services to Governments, Public Sector Units and MSMEs with a laser focus on MSMEs.

Interventions of Note

NPC has notable successes across sectors and organisations including:

- Organisational restructuring for productivity enhancement
- Green Lean (GLEAN) + Industry 4.0 and Advanced Energy Management
- Post environment clearance monitoring
- Certification of energy and environment auditors and managers and water audit services
- HR management and Recruitment solutions: online and offline
- Inspection, Monitoring and Evaluation
- Ease of Doing Business
- Online training and 5S Certification
- Developing Productivity Indices
- Quality improvement in healthcare facilities
- Circular economy and waste management

Green Growth Action Areas



BESIDES PROVIDING TRAINING, CONSULTANCY AND UNDERTAKING RESEARCH IN THE AREA OF PRODUCTIVITY, NPC ALSO IMPLEMENTS THE PRODUCTIVITY PROMOTION SCHEMES OF THE GOVERNMENT AND IS CHARTERED TO CARRY OUT THE PROGRAMMES OF APO, TOKYO

Growth Streams of the Future


NPC is future-ready. Not only is it at the forefront of enabling and facilitating the circularity transition, it has identified the needs of the future and is geared up to meet them.

Projected future growth streams are:

- Certification services for productivity management
- Organisational transformation from legacy to digital ecosystem
- Circular economy and waste management
- Industrial engineering-based interventions
- Productivity improvement in MSMEs
- Mentoring support for startups and innovation
- All India Surveys and projects
- Project Management Unit (PMU) services for Government
- Research-based support for policy making

Mission LiFE

On the sidelines of COP26, Prime Minister Narendra Modi declared Mission LiFE or 'Lifestyle for Environment'. The Mission plans to create and nurture a global network of individuals, namely 'Pro-Planet People' (P3), who will have a shared commitment to adopt and promote environmentally-friendly lifestyles. Through the P3 community, the Mission seeks to create an ecosystem that will reinforce and enable environmentally friendly behaviours to be self-sustainable.

LiFE provides a further impetus to NPC's efforts to drive all-inclusive green growth, improving not just the standard of living but the quality of life for the citizens of India and the world. 

India On a Mission

With India's demonstrated success in leveraging collective action for large-scale change, Mission LiFE is set to galvanise the global action to combat the climate crisis, while furthering the UN sustainable Development Goals.

Sukanya Das

Over the last two decades, policy makers have realigned their national and regional visions, goals, and strategies towards climate action and sustainability. Multilateral and bilateral treaties have been signed, laws have been framed, initiatives implemented, incentives designed and awareness programmes launched to address environmental degradation and climate change. However, the potential of individuals, communities and institutions to be change agents has not been leveraged.

India is looking to change this with Mission LiFE – 'a nation-led global mass movement to nudge individual and community action to protect and preserve the environment'.

Launched by the Prime Minister in the presence of U.N. Secretary-General Antonio Guterres in October 2022, Mission LiFE (Lifestyle For Environment) was first spoken of at COP 26 in Glasgow in November 2021. Acknowledging climate change as the main challenge humankind faces today, the Prime Minister had then underscored that climate action and the move towards greater sustainability has to go beyond policy making to involve individuals, families and communities.

As a first step, India has included LiFE in its Nationally

Determined Contributions, becoming the first country to do so. This states "India will put forward and propagate a healthy and sustainable way of living based on its traditions and the values of conservation and moderation, including through a mass movement for LiFE, as a key to combating climate change."

LiFE is but a formalised articulation of India's environment-friendly culture and traditional practices. In India the average carbon footprint per person per year is 1.8 tonnes, while the global average is 4.5 tonnes. Mission LiFE is envisaged as a mass movement for "mindful and deliberate utilisation, instead of mindless and destructive consumption" to preserve the environment.

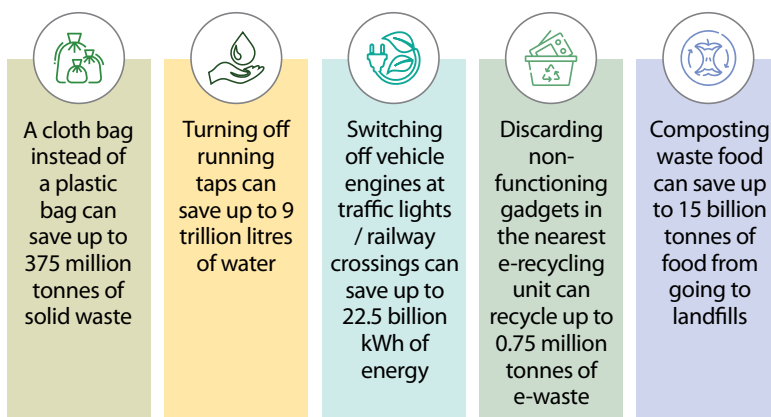
Mission LiFE democratises climate action, with every single individual having the power to be a change agent. With this, Mission LiFE aims to translate the vision of LiFE into impact that can be measured:

- Mobilising at least one billion global citizens to take individual and collective action to protect and conserve the environment over 2022–28.
- Making at least 80 per cent of all villages and urban local bodies in India environment-friendly by 2028

The Mission will be piloted by NITI Aayog and implemented by the Union Ministry of Environment, Forest and Climate Change.

Life of Impact

As compared to an estimated business-as-usual scenario by 1 billion Indians in 2022–23 to 2027–28, LiFE actions can significantly address climate change



LiFE and Sustainable Development Goals (SDGs)

Sustainable cities and communities (SDG 11), responsible production and consumption (SDG 12), climate change (SDG 13), life on land (SDG 15), and life below water (SDG 14) all call for individuals to synchronise their lifestyles with resources available. Strong environmental action has the potential to create about 65 million jobs by 2030, thus meeting SDG 8: Decent Work and Economic Growth. SDG 12 involves delinking economic growth and environmental degradation and goes beyond businesses to engage individuals as active participants. Indubitably, Mission LiFE dovetails directly and indirectly with both the letter and the spirit of the UNSDGs.

Our tiles
adorn
your home.

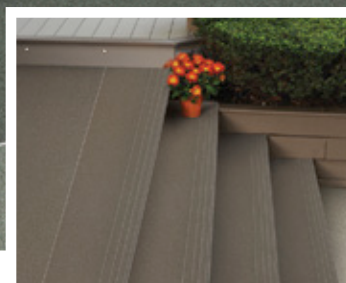
Let our
staircases
lead you
higher.

JOHNSON[®]ENDURA
INDUSTRIAL TILING SOLUTIONS

STEPPING STONE



Gone are the days when laying staircases was cumbersome and expensive to install. A revolution presents itself in the form of Endura Stepping Stone. India's first bull nosed, full-bodied, skid resistant vitrified tiles with embossed tread lines to provide greater safety and durability. It comes in three sizes and in a range of subtle salt and pepper designs, plain colours, granite and marble variants. You will find matching tiles for risers and landing areas too. It's fire-proof, resistant to stains and its abrasion resistance is so high that it's way stronger than stone in the face of regular exposure. Designed to make climbing easier and safer for everyone.



JOHNSON[®]
Not just tiles, Lifestyles.[®]
Expect more

www.hrjohnsonindia.com
Email: tiles.customer@prismjohnson.in
Toll Free No.: 1800-210-7484

+91 84510 57484

hrjohnson_india

HRJIndia

Hrjohnsonindia1



EXIDE
integra

LIVE THE LI-ION LIFE

Integrated power back-up
system with Li-ion



Presenting the smart, safe and stylish Exide Integra. Powered with the next-gen tech of Li-ion. Built with a neo-compact look and user-friendly design to complement your modern lifestyle.



To know more, scan:



INDIA MOVES ON **EXIDE**

1800-103-5454