INDIA & EU:

Lowering Carbon, Increasing Connectivity

A special report on climate action

EUROPE INDIA
BUSINESS COUNCIL

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FOREWORD

Søren Gade

Member of the European Parliament
Chair, Delegation for Relations with India
Chairman, Europe India Business Council

As Chairman of the Europe India Business Council, I am very pleased to release this special report on climate co-operation between the European Union and India.

The relations have progressed significantly on multiple fronts:

- From trade and investment to security and climate action.
- During the 15th India-EU Summit, both parties adopted a roadmap to 2025. With the purpose to deepen our strategic partnership.
- Unsurprisingly, many of the provisions in this roadmap refer to sustainable modernization, climate change, clean energy, environment, sustainable urban development, and improving connectivity between both partners.

I strongly support the progressive agenda on climate being one of the most important pillars of this growing strategic partnership.

The European Union has made significant steps on this front with the European Green Deal.

Europe will be the first continent to obtain climate neutrality in the world by 2050, and from the acceleration of our ambition with Fit for 55, we will reduce emissions by 55% by 2030.

I was very much honored by the appearance of India's Prime Minister Mr. Modi at the COP26 gathering in Scotland last year. Furthermore, I fully acknowledge the ambition set by India to be Net Zero by 2070 as well as the intent to fulfil 50% of its energy requirements through renewables by 2030.

Executing on these significant plans will go a long way in tackling climate change, not just in our two regions, but globally.

Knowing that India is the biggest democracy in the world, I am looking forward to follow the decarbonization and energy transition.

The EU can be a crucial partner to India - and there are tremendous opportunities for direct investments and exchanging both knowledge, values, and best practices. For example, Europe's prowess in wind energy, hydrogen, and carbon capture could be of immense benefit to India. On the other hand, I am sure that the International Solar Alliance under India's leadership will help catalyze breakthroughs. 86 countries has already ratified the framework - including many from the EU. This is a solid path towards succeeding

in the sustainable transition.

We now enhance the pace of this partnership. Looking forward to both the upcoming EU-India Summit and COP27 later this year.

We also need to extend the partnership to include action on the ground and execution outside the political circles. We now need to aim for the support of business community, scientists, civil society organizations, and opinion leaders to rally their communities.

Therefore, I am very pleased that we have been able to include many voices in this report, and to provide their perspectives on the most significant opportunities that exist.

I thank each of the contributors to this report, who have brought their perspectives on climate action that provide us points of reflection and calls to action.

I am grateful to his Excellency Mr. Santosh Jha for providing his thoughts on the bilateral relationship.

Silvana Koch-Mehrin, former MEP and President of WPL, makes an important point on how climate action could be an opportunity for inclusion and empowerment of women.

Stefania Benaglia and Irina Kustova, representing the ThinkTank CEPS, made a case for how energy connectivity can be a major driver for the India-EU strategic partnership.

Sadhguru, who will be present for the launch of this report, passionately raised the topic of Soil, which is an often-overlooked part of the climate agenda. Dr. Uttam Kumar Sinha, similarly, takes a deep dive on the issues of water management.

India's former ambassadors to the UN, Asoke Mukerji, and to the EU, Manjiv Puri, provide deep insight from the ringside views of the issue.

Bibek Debroy, Chairman of the Economic advisory council to the Indian Prime Minister, details out India's new declarations at the COP26.

The CEO of Flanders Investment and Trade, Claire Tillekaerts, outlines key opportunities for collaboration in Clean Tech, an area that Dr. Frank-Jürgen Richter, the Chairman of Horasis, also identified it as a major opportunity.

Eelco van der Enden, CEO of Global Reporting Initiative, opines on the important area of sustainability reporting and standards.

Jorge Pikunic, the CEO of Xynteo, who has created a community of CEOs to support India's energy transition talks about how to finance the change.

Prashant Mathur, the CEO of Saatvik green energy, outlines the case for solar energy as a policy choice.

Two of India's leading business houses, Reliance represented by Mohan Murti and Tata by Eugenio Longo, talked about the energy reset and the role of technology respectively.

Gauri Khandekar of the Brussels Institute of Governance, and Dr. Subhadip Mukherjee from IIM Shillong, brought views from leading academic institutions.

Finally, Joel Fernandes from Eurochambres outlined many initiatives and projects that offer practical support for businesses in clean energy.

There is tons of insight and perspective in their views, which I urge policymakers on both sides of the aisle to study carefully.

The Europe India Business Council will continue to play an important role as a rallying point in Brussels, to push many of these discussions and recommendations forward. We welcome you to join us in this effort in the future, to help accelerate more change that is progressive. To succeed, we must do it together.

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MESSAGE FROM THE AMBASSADOR

Santosh Jha

Ambassador of India to Belgium,
Luxembourg and the European Union

I am happy to note that the Europe India Business Council is bringing out a publication "India & EU: Lowering Carbon, Increasing Connectivity", which is a special report on climate action. This is a timely initiative and will help bring the much needed attention on the challenge of climate change, including in the context of India-EU bilateral relations.

As a developing country, India has been in the forefront in terms of making efforts to combat climate change both domestically as well as at the global level. Our impressive achievements in this regard has been acknowledged by a number of reports published on this subject in recent years. In fact, India has been rated as the only G-20 country that is 2 degree centigrade goal compliant. Its achievements in the field of promotion of renewable energy has also been remarkable particularly in the last 7-8 years. India has already reached its Paris Commitment of sourcing 40% of its energy capacity from non-fossil sources. There are a plethora of other programmes to promote sustainable living, expanding usage of renewable energy, promoting climate resilient lifestyle and implementing large scale energy conservation initiatives. In fact, almost all of India's flagship initiatives, today, have a distinct imprint of sustainability and climate resilient goals.

The strong emphasis on climate resilient policies and successful implementation of highly courageous and ambitious goals are a direct result of the vision and leadership of Prime Minister Shri Narendra Modi. Just as he had promoted more ambitious climate objectives prior to COP-15 in Paris, he has further raised the bar for India at COP-26 in Glasgow by announcing 5 nectar elements, "Panchamrit", to deal with the global challenge of climate change. Accordingly, India will raise its non-fossil energy capacity to 500 GW by 2030; will meet 50% of its energy requirements from renewable energy by 2030; will reduce the total projected carbon emissions by 1 billion tonnes till 2030; will reduce the carbon intensity of its economy by more than 45% by 2030; and will achieve the target of Net Zero by 2070. These are highly ambitious targets, which if met, can contribute to a very significant degree to global efforts in combating climate change. In the same vein, as he had proposed to raise ambitions on climate action, the Prime Minister has also called for raising ambition with regard to climate finance as well. The record in this regard of the developed countries has remained unsatisfactory, and the Prime Minister called on them to raise their ambition in this regard by raising US$ 1 trillion as their new commitment. This would be in keeping with the principle of climate justice as raising ambitions with regard to climate action by the

developing countries should have a matching increase in ambition with regard to climate finance. The Prime Minister also gave a call for changing lifestyles and to come together to take Lifestyle For Environment (LIFE) forward as a global campaign.

Given the high priority that both India and EU attach to the challenge of climate change, it is only natural that they must also cooperate bilaterally to make greater efforts in this regard. The two sides have already launched a Clean Energy and Climate Partnership which provides for stronger cooperation in promoting cleaner forms of energy as well as implementing sustainable practices in our respective endeavours towards economic development. I am happy that under this partnership the first meeting of the Climate Dialogue took place last year. Similarly, the India-EU Energy Panel has also met after several years in 2021. Both these mechanisms have agreed upon a rich agenda to take forward our joint endeavours in the area of climate and clean energy. Our cooperation has also been advanced by the EU decisions to join the International Solar Alliance and the Coalition for Disaster Resilient Infrastructure. These initiatives are bound to benefit from the EU's advanced capabilities, expertise and technologies. I am confident that our cooperation will bear results which are mutually beneficial and will make a significant contribution in promoting sustainable and climate resilient development in both India and EU.

I once again would like to applaud the efforts of Europe India Business Council in bringing this issue to the forefront of our bilateral discourse. I would also like to thank the various experts who have contributed to this effort.

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INDIA & EU – LOWERING CARBON, INCREASING CONNECTIVITY – OPPORTUNITIES TO COLLABORATE ON CLIMATE

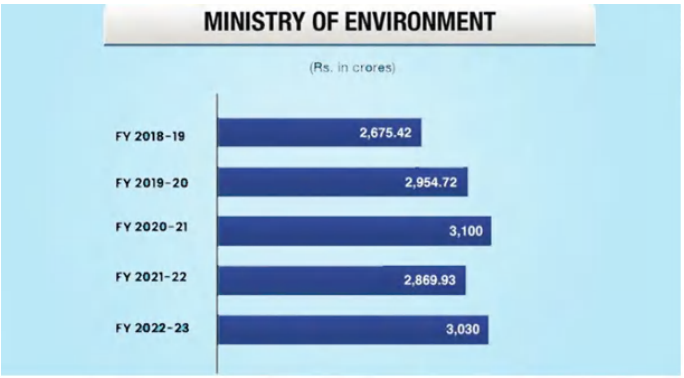
India & Climate Change Initiatives

Climate change is one of the most pressing issues confronting governments today. Over the last decade, a steady stream of dismal studies has emphasised the critical importance of tackling the climate problem. It was anticipated in 2010 that countries had 30 years to cut greenhouse emissions (GHGs) by half; currently, this must be accomplished in less than ten years. According to the Intergovernmental Panel on Climate Change's 2018 study, the window of opportunity to limit temperature rise to 1.5°C in order to avert the worst effects of climate change is quickly closing[1].

Renewable energy sources and technologies have the potential to bring answers to developing countries' long-standing energy concerns. Wind energy, solar energy, geothermal energy, ocean energy, biomass energy, and fuel cell technology may all be employed to help India solve its energy problem. To fulfil the energy needs of such a rapidly developing economy, India will need a secure supply of 3–4 times the total energy utilised now. Renewable energy is one possibility for meeting this goal. Renewable energy now accounts for around 38%, making India one of the leading energy producers. India is gradually embracing ethical, renewable energy solutions, reducing carbon emissions, cleaning the air, and assuring a more sustainable future.

Historically, India has been extremely vulnerable to climate-related catastrophes such as floods, droughts, and cyclones. India has various publicly financed projects to address the immediate effects of climate change as well as the prevention and management of climate hazards. Aside from this, the fundamental goal of major anti-poverty and rural development initiatives is to reduce susceptibility to climate threats. At the moment, the Government of India is very interested in making a difference in climate change, which is reflected in the graph below as one can notice that this year's budget has been welcoming towards Union Ministry of Environment, Forests, and Climate Change (MOEFCC) seeing a higher estimated expenditure of Rs 3,030 crore compared to Rs 2,520 crore in 2021-22[2].

Graph 1:
Union Ministry of Environment Budget Year on Year.



Source: Union Budget 2022 (indiabudget.gov.in)

As a large tropical developing country, India confronts a greater difficulty than most other countries in dealing with the repercussions of Climate Change. Climate change is a global phenomenon with local implications. India's climate change policy includes both foreign and internal components, as

1. Intergovernmental Panel on Climate Change, Special Report – Global Warming of 1.50C, IPCC, 2018.
2. Climate action takes centre stage in India's annual budget, Times of India, Feb 1, 2022 – Can be accessed here

expressed in two important papers. The first is the National Action Plan on Climate Change (NAPCC), which was approved on June 30, 2008. The other is India's Nationally Determined Contributions (NDC) submitted to the United Nations Framework Convention on Climate Change (UNFCCC) on October 2, 2015. The NAPCC is mainly concerned with domestic issues.

The NAPCC combines India's goal of environmentally sustainable development as well as the procedures that will be taken to realise it. It is founded on the realisation that Climate Change action must take place in numerous interconnected sectors at the same time, including energy, industry, agriculture, water, forests, urban areas, and the fragile alpine environment. This was the setting for the NAPCC's eight National Missions. Only a few years later, the UN adopted the 17 Sustainable Development Goals (SDG), recognising the necessity for interconnected policy and coordinated action.

Large development and growth demands have been a policy focus for India, with climate being viewed as a co-benefit. India has made significant progress in bringing millions out of poverty while shifting its economy to a low-carbon future. India is investing in clean energy transitions because it makes economic sense, creates jobs, and aids in mitigating the effects of climate change, and it is one of the few countries on track to meet its NDCs under the Paris Agreement[3].

The energy intensity of India's growth will fall by 33-35 percent by 2030 compared to the 2005 baseline year, implying that India would use progressively and considerably less energy for every extra dollar of GDP. This aim is expected to be reached, based on the successes of the National Mission to Enhance Energy Efficiency. As one of the world's greatest rising economies with a substantial worldwide energy footprint, India's contribution to combating global climate change is significant.

On the backdrop of the National Solar Mission's excellent accomplishment, the NDC has set a target of 175 GW of renewable energy by 2030. According to reports, this capability might be attained ten years in advance. The government may enhance India's 2030 objective to 227 GW. The objective of obtaining 40% of power from renewable sources by 2030 is expected to be met several years ahead of schedule. India is aggressively working to reduce the proportion of coal-fired thermal power in its energy mix. It is not well known that the country imposes a hefty coal cess of around Rs. 400 per tonne, with the earnings going into a Clean Energy Fund.

India is making significant progress toward ensuring a clean energy future for its people, drawing on its intrinsic civilisational characteristics and implementing a wide range of policy interventions under the legal framework of the Energy Conservation Act, which covers 15 energy-intensive industries, and the Energy Conservation Building Code, which covers all new urban infrastructure. Thirty-two states of the Indian Union have created and began implementing their own State Action Plans on Climate Change. There is also an active and thriving civic society that raises residents' understanding of the problem of Climate Change and what each of us can do as individuals to address it. In addition, India has increased its international climate and renewable energy diplomacy by founding the International Solar Alliance (ISA) in 2014 and the Coalition for Disaster Resilient Infrastructure in 2019. India's transition to a low-carbon economy can serve as a model for other developing countries.

EU & Climate Change Initiatives

Climate policy in the EU has been in the works for well over thirty years. It was a minor part of the EU's research agenda in the late 1970s. Its goal was to look at the core scientific concerns of climate change rather than questions about its governance. In the

3. United Nations Framework Convention on Climate Change, The Paris Agreement, UNFCCC, 2015.

21st Century, the aim of sustainable energy growth by 2030 served as a foundation for the EU's position at international climate discussions in Paris in 2015.

To meet the objectives for 2020 and 2030, the EU adopted a slew of legislative initiatives, including the emissions trading system, renewable energy sources, extremely energy-efficient buildings and goods, rules for automobile emissions, and fluorinated gas emissions. Within the scope of the Paris Agreement, the European Commission also submitted, in November 2018, a plan for a climate neutral economy by 2050, outlining a cost-effective path to meeting the Paris Agreement's aim of net-zero emissions.

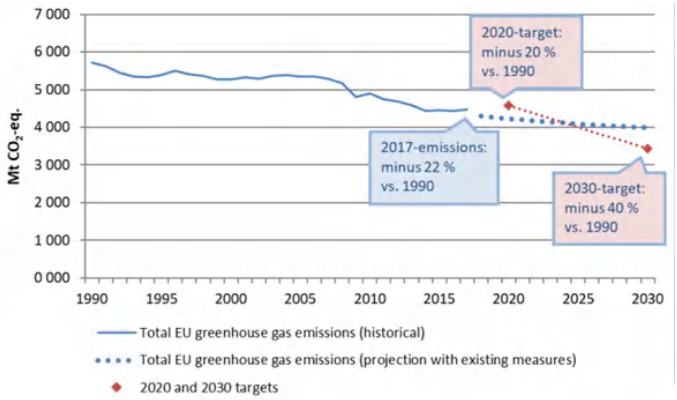
Climate policy in the EU directs regional and national efforts to reduce and adapt to climate change. This climate policy is based on the United Nations Framework Convention on Climate Change, the Kyoto Protocol, and the Paris Agreement. The EU's climate policy is centred on carbon trading, national objectives for sectors that are not subject to emissions trading, and the EU Adaptation Strategy. The EU has pledged to cut greenhouse gas emissions by 55% by 2030 compared to 1990 levels[4].

The EU is facing huge problems as a result of the heightened concerns of climate change, with substantial ramifications in the energy industry, where important issues impacting each Member State's national production mix are surfacing. The proportion of renewable energy must be raised, and energy efficiency must be enhanced. To avoid disastrous climate change, the EU is trying to cut GHG emissions while also urging other nations and areas to do the same. The EU, which accounts for around 10% of global GHG emissions, is taking the lead in the transition to a zero-emissions economy[5].

In order to meet various climate change aims, the European Commission proposed binding legislation known as the climate and energy package in 2008. The European Parliament and the Council agreed on the package, and it became law in June 2009. The EU suggested gradually increasing its emissions reductions from 20% to 30% by 2020, on the condition that other big economies commit to doing their share in the global effort to cut emissions. The EU met its 2020 objective of decreasing GHG emissions by 20% below 1990 levels with ease.

According to preliminary statistics, GHG emissions in the EU declined by 22% in 2017, including emissions from international air transport, but not emissions or removals from land use, land-use change, or forestry activities. Graph 2 below depicts emissions in 2030 that are projected to be 30% lower than 1990 levels based on current policies and without any additional actions.

Graph 2:



Source: Report from the Commission to the European Parliament and the Council, EU and the Paris Climate Agreement, October 26, 2018.

The EU has set the above objectives for 2030 based on a 2°C temperature increase trajectory, and it is expected that it will continue to have the lowest per-GDP GHG emissions rate among the G20 countries by 2030[6]. In addition, the European Commission released an EU Framework Strategy for Energy Union in 2015. The framework lays its foundation on three

4. 2030 Climate Target Plan, European Commission – Can be accessed here.
5. Communication from the Commission to the European Parliament and the Council, A Clean Planet for all. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy, COM(2018)773, 28 November 2018.
6. Ibid.

long-term goals: supply security, sustainability, and competitiveness[7]. It is based on the 2030 energy and climate framework and the 2014 energy security plan, and it incorporates a number of policy areas into a single coherent and cohesive approach.

India – EU Climate Change Collaborations

Recognising the risks presented by climate change, India and the EU have emerged as significant stakeholders in global climate change initiatives. Not only have India, and the EU found common ground in their goals, but they also share similar concerns about climate change. Both have emerged as allies in advancing ambitious international agendas, deepening bilateral partnerships, and defining domestic objectives.

The partnership between India and the European Union has reached new heights due to their collaboration on climate change, which has been fundamental to their relationship. Both have pursued a Clean Energy and Climate Partnership to some great lengths since 2016 while focussing on growing clean energy cooperation and implementing the Paris Agreement, especially when it comes to energy efficiency, renewable energy, sustainable financing, to name a few.

Climate change is humanity's most severe threat. For India and the EU, the path to a convergence of their thinking and actions in reducing the effects of climate change has not been straightforward. The divide of responsibilities between the developing and developed worlds has been the most basic divergence in their approaches to climate change. These disparities in the blame for the temperature rise were also acknowledged in the United Nations Framework Convention on Climate Change (UNFCC) and Kyoto Protocol, which stated that "parties should act to protect the climate system on the basis of equality and in accordance with their common but differentiated responsibilities and respective capabilities"[8].

Both India and the European Union have emerged as significant contributors in the global fight against climate change. As previously noted, both parties have undertaken a number of measures and established crucial policy frameworks to mitigate the consequences of climate change. Both India and the EU were prominent throughout the Paris Climate Agreement negotiations and signing while declaring ambitious NDCs. When India and the EU formed its strategic partnership in 2004, they recognised climate change as a critical problem. The resulting Joint Action Plan of 2005 pledged both partners to collaborate on any future global climate discussions.

During the 2017 India-EU Summit, the establishment of the Clean Energy and Climate Change Partnership acknowledged "climate action and clean energy transition as an imperative for the future development of our societies"[9].

India and the EU have a strong strategic partnership that involves collaboration in a wide range of industries, including energy. During the India-EU Leaders Meeting in Porto in May 2021, the EU and India agreed to strengthen their partnership to accelerate renewable energy deployment, promote energy efficiency, develop smart grids and storage technologies, and reform the electricity market. The leaders anticipated the approval of a new work programme to boost collaboration in the implementation of breakthrough renewable technologies such as offshore wind generation, harnessing the potential of green hydrogen, electrifying the transportation sector, enhancing cold chain efficiency, and so on.

Following the CoP26, the EU India Energy Panel commended the fact that more EU member countries

7. Communication from the Commission to the European Parliament and the Council, A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Polic, 25 February 2015.
8. The Principle of Common But Differentiated Responsibilities: Origins and Scope, CISDL Legal Brief, 2002.
9. EU-India Joint Statement on Clean Energy and Climate Change, 2017, European Council, Can be accessed here.

are joining the International Solar Alliance. The EU has funded a project of around one million Euros to increase the engagement of the EU, Member States, academic, business, and financial communities in the International Solar Alliance. The Panel agreed to look at further methods to boost EU-India collaboration through the International Solar Alliance. In addition, the EU emphasised its support for India's strong partnership with the International Energy Agency. India and the EU have agreed to work closely together on sustainable energy concerns within the scope of the G20.

As part of this enhanced collaboration, the EU and India have decided to conduct new research, study visits, and joint workshops in crucial areas, exchanging information and best practices. Furthermore, the Energy Panel agreed to co-host/organise the following events: India-EU offshore wind business and investment summit in the first half of next year, with an exhibition of European and Indian companies, B2B facilitation, and sessions on lowering the cost of offshore wind and financing offshore wind; India-EU High-Level Platform on Smart Grid Replication, identifying potential opportunities and barriers for replicating and scaling up smart grid projects in India.

India's stand at COP26

The Conference of Parties (COP) is an international platform for taking stock, debating, and moving climate change mitigation and adaptation strategies forward. The United Kingdom (UK) led and hosted the 26th Conference of Parties (COP26), which had four goals: mitigation and net-zero emissions; adaptation to maintain communities and habitat; funding delivery; and collaboration. COP26 was held in Glasgow, United Kingdom, in November 2021, and governments from all over the globe sent national delegations to negotiate and secure their positions on the climate change agenda.

Shri Narendra Modi, the Prime Minister of India, led the Indian Delegation to put forward a strong stance on a global stage. While delivering the national address, he stunned everyone by announcing a net-zero target year for India and increased short-term targets to 2030. He dubbed these five nectars "Panchamrit" and emphasised India's commitment to climate change:

I. India will bring its non-fossil energy capacity to 500 gigawatts (GW) by 2030.
II. India will bring its economy's carbon intensity down to 45 per cent by 2030.
III. India will fulfil 50 per cent of its energy requirement (understood as power generation capacity) through renewable energy by 2030.
IV. India will reduce one billion tonnes of carbon emissions from the total projected emissions by 2030.
V. India will achieve net-zero emissions by 2070.

He further presented the Lifestyle for Environment (LIFE) concept when announcing the long-term net-zero aim and short-term targets. He emphasised the significance of behavioural transformation so that each of us may help environmental preservation by changing our habits. When the data is scrutinised, it is evident that countries and residents worldwide will need to change their lives to reduce emissions at the grassroots level. In addition, India and the United Kingdom formed the Green Grids Initiative - One Sun, One World, One Grid objective to connect grids and largely use solar energy. This effort will promote renewable energy deployment in areas where it is appropriate for generating and where energy is needed, lowering the cost of energy storage. It also demonstrates India's dedication to resolving the climate catastrophe.

India has already begun to work on these goals. They are the only large economy on pace to reach its Paris commitments and have pledged to do more voluntarily. While they have significantly increased their pledges, the flow of extra resources, climate funding, and technology is as vital. The Prime Minister of India stated at the CoP26 that developed countries should meet their promises on climate financing as soon as possible.

SPEAK UP TO SAVE SOIL

Sadhguru

We, as a global civilization, have reached a point where every responsible scientist is pointing out that we will have a serious food crisis in the next 20–25 years.

Before 1950, there were famines in India which took the lives of millions of people. In four months, during the 1942 famine, 3.2 million people died of hunger in this country. It is not like a nuclear bomb – they died quietly, but can you imagine their pain and suffering? It is unfortunate that we have just forgotten and are driving ourselves in that direction once again.

Every scientist in the world is saying that by 2045, we will be producing forty percent less food than we are right now and our population will be over 9 billion. That is not a world you want to live in, and not a world you want your children to live in. Right now, the food that we are eating, the soil that we are using up, is not ours. We are eating up the soil of the unborn child – this is a crime against humanity.

Regenerating soil across the world is important. Everywhere, everyone knows that this needs to happen, but the problem is that people have not spoken. Currently, 5.26 billion people in the world live in democratic countries, i.e., they have the right to vote and elect their governments. Unfortunately, we have had a silent democracy. Democracy means it is the rule of the people, but right now people have not expressed a long-term interest in their own lives. If the people do not give a mandate to the government, how will the governments make long-term investments? People are asking for trinkets, so governments are offering trinkets. If people express long-term commitment, governments will do it. It is very important that people speak. This is a time when every responsible citizen must express that we are not only concerned about ourselves, but also about future generations.

A time has come where we need to address soil and take corrective measures now. This is what the Conscious Planet – Save Soil movement is about. As a part of the movement, we are trying to touch 3.5 billion citizens across the world, to impress upon all political parties and governments to take to long-term soil regeneration policies. Numbers are the only currency in a democratic nation. If sixty percent of the world's electorate speaks, there is no government which will ignore it.

For the last eight months, I have been talking to various heads of state, environmental ministers, and agricultural ministers across the world. I will be addressing the COP15 in May in the Ivory Coast, where 170 countries will be in attendance. We have prepared an elaborate soil policy which will be sent to every country. We have also written to 730 political parties in the world, because it is very important that every political party, irrespective of their philosophies, ideologies and beliefs, brings soil and ecological concerns into their election manifestos.

Each one of you should reach as many people as you can. Many global leaders, influencers are already participating in the movement. Be a part of this and let us make it happen!

From 21 March, I am riding from London to southern India, as a lone motorcyclist, covering 30,000 kilometers and twenty-seven nations over hundred days. These hundred days, everyone must say something about soil, at least for five to ten minutes a day. Use social media – Twitter, Facebook, Telegram, or whatever you have. The whole world should speak of soil for one hundred days.

If we get 3.5 billion people to speak about soil and our concern for unborn children, no government can ignore this. This is not a protest or some kind of a pressure tactic. This is an expression of the will of the citizens.

OPPORTUNITIES AHEAD – VIEWS FROM THOUGHT LEADERS IN THE EU AND INDIA

BUILDING TOGETHER ON UN FRAMEWORKS

Asoke Mukerji

In 2015, during the apogee of multilateralism at the United Nations, two seminal global agreements were unanimously adopted that sought to address climate change issues in a holistic manner. India played an active and constructive role in negotiating both these agreements.

In September 2015, India's Prime Minister Narendra Modi joined world leaders including from the European Union at the UN Special Summit to adopt Agenda 2030 on Sustainable Development[1]. Between early 2013 and the autumn of 2015, negotiators representing the four major stakeholders (governments, businesses, academia and civil society) from all UN member-states had joined hands in an unprecedented effort to identify and achieve the 17 Sustainable Development Goals (SDGs) that are at the heart of Agenda 2030. India has prioritized a "whole of society" approach for meeting her national sustainable development objectives.

This approach converged a decades-long process beginning with the 1987 Brundtland Report to address climate change and development issues as converging issues, rather than issues that contradicted each other. In a vindication of India's perspective expressed during the 1972 Stockholm Summit on the Human Environment, where Prime Minister Indira Gandhi had said "poverty is the biggest polluter", Agenda 2030 asserted that its overarching goal (SDG1) was the eradication of poverty, without which none of its other goals could be sustained. In the Preamble of Agenda 2030, world leaders unanimously underlined the interlinkage between peace and sustainable development. They said that there "can be no sustainable development without peace and no peace without sustainable development."

Less than three months later, in November 2015, during the historic Paris Conference of Parties (CoP) of the UN Framework Convention on Climate Change (UNFCCC), India's Prime Minister Narendra Modi joined French President François Hollande to launch a visionary International Solar Alliance[2]. This was a proactive initiative to complement the Paris Agreement's objective on cutting greenhouse gas emissions worldwide.

101 countries today have signed the ISA Framework Agreement. They have endorsed a shared vision of "increased deployment of solar energy technologies as a means for bringing energy access, ensuring energy security, and driving energy transition in its member countries". The ISA is the first inter-governmental organization to be headquartered in independent India, illustrating the priority given to using the principle of international cooperation to respond to global challenges.

An important dimension of proactive cooperation between India and the European Union in meeting the targets of sustainable development is mutual support for the use of appropriate technologies for development. Apart from the manufacture of photo voltaic cells for solar energy generation, several

1. United Nations, "Agenda 2030 for Sustainable Development". Accessed March 2022 at https://sdgs.un.org/2030agenda
2. International Solar Alliance. Accessed March 2022 at https://isolaralliance.org/

environmentally-friendly technologies have become viable a rapidly transforming India.

The Asian Development Bank's Report on Digital Technologies for Climate Action, Disaster Resilience and Environmental Sustainability[3] released in October 2021 identified the role of these technologies for climate change mitigation, adaptation, disaster resilience management, and environmental sustainability, based on the primary building blocks of mobile phone networks and satellite imagery. The increasing use of data in developing apps, social media and cloud computing using these primary building blocks has demonstrated the tremendous potential for mutually beneficial cooperation using digital technologies, which are being accelerated through the increasing use of Artificial Intelligence.

India has joined several European Union members in co-sponsoring the global Coalition for Disaster Resilient Infrastructure (CDRI)[4]. This "partnership of national governments, UN agencies and programmes, multilateral development banks and financing mechanisms, the private sector, and knowledge institutions…aims to promote the resilience of new and existing infrastructure systems to climate and disaster risks in support of sustainable development." Expanding the participation of all the EU member-states in the CDRI should be a priority for effective international cooperation.

Two of India's flagship national programmes aligned with Agenda 2030's SDG 6 on Clean Water and Sanitation have demonstrated impressive results already. The Swachh Bharat ("Clean India") Mission launched on 2 October 2014[5], enabled the construction of 100 million rural toilets to make India declare herself "open defecation free" by 2 October 2019, with a focus on using technologies for solid and liquid waste management. The Jal Jeevan ("Water is Life") Mission, launched on 15 August 2019[6], aims to provide safe and adequate drinking water through individual household tap connections to more than 193 million rural households in India by 2024. The Mission includes the use of technologies for source sustainability, grey water management, water conservation and rainwater harvesting.

India's experience in using technologies for sustainable development are relevant for India's cooperation with her international partners both in India's domestic jurisdiction, as well as in third countries, including developing countries in Africa, Asia, and Latin America.

Two current policy priorities of India provide a global framework for international cooperation to respond to global climate change challenges. One is India's declared objective of implementing her Security and Growth for All in the Region (SAGAR)[7] policy in the Indian Ocean to catalyse the emergence of a Blue Economy. A wider dimension to integrate these issues into a global maritime policy framework will present itself at the UN Ocean Conference, scheduled to be held in Lisbon, Portugal from 27 June 2022, which has been built upon Agenda 2030's SDG 14.[8]

The other priority is India's response in May 2020 to the socio-economic challenges posed by the Covid pandemic through the AatmaNirbhar Bharat ("Self-reliant India") policy. This framework provides for international cooperation in contributing to the

3. Asian Development Bank, October 2021. Available at https://www.adb.org/sites/default/files/publication/700396/digital-technologies-climate-action.pdf
4. Coalition for Disaster Resilient Infrastructure, March 2022. Available at https://www.cdri.world/cdri-overview
5. Government of India, Ministry of Jal Shakti, Department of Drinking Water and Sanitation, March 2022. Available at https://swachhbharatmission.gov.in/sbmcms/index.htm
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revitalization of India's economy, especially the manufacturing sector, and generation of employment through the transfer and use of technologies, including "green" technologies[9].

India began her journey as an equal partner in modern multilateral institutions when she signed the Treaty of Versailles in June 1919, and opened her first diplomatic representation in Europe in 1920. Today, when India's international trade contributes 40% of her GDP, and as she is poised to become one of the top three global economies, it is appropriate to look at India's relations the European Union, which is India's third largest trading partner, to drive the vision of effective international cooperation forward.

(Ambassador Asoke Mukerji retired from India's Foreign Service as Ambassador and Permanent Representative of India to the United Nations in New York in December 2015.)

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INDIA AT COP26 AND THE ROAD AHEAD

Bibek Debroy

At the COP26 Summit in Glasgow, India's Prime Minister, Narendra Modi, spoke on climate change and India's commitment. Though he spoke in Hindi, the approximate English translation of his words conveys a sense of India's priorities and template for improvement.

"And I am happy that a developing country like India, which is working to lift crores of people out of poverty, and which is working day and night on the Ease of Living for crores of people, today, despite being 17 % of the world's population, whose responsibility has been only 5 per cent in emissions, it has left no stone unturned to show that it has fulfilled its obligation. Today the whole world believes that India is the only big economy which has delivered in letter and spirit on the Paris Commitment. We are making every effort with determination; and we are working hard and showing results. Today, as I come among you, I have brought India's track record. My words are not just words; they are announcements of a bright future for our future generations. Today, India ranks 4th in the world in installed renewable energy capacity. India's non-fossil fuel energy has increased by more than 25% in the last 7 years and now it has reached 40% of our energy mix. Every year more passengers travel by Indian Railways than the population of the world. This huge railway system has set a target of making itself 'Net Zero' by 2030.This initiative alone will lead to a reduction of emissions by 60 million tonnes annually. Similarly, our massive LED bulb campaign is reducing emissions by 40 million tonnes annually. Along with this, India has also given institutional solutions to cooperate with the world at the international level. As a revolutionary step in solar power, we initiated the initiative of International Solar Alliance. We have created a coalition for disaster resilient infrastructure for climate adaptation...In the midst of this global brainstorming on climate change, on behalf of India, I would like to present five nectar elements, 'Panchamrit', to deal with this challenge. First - India will take its non-fossil energy capacity to 500 GW by 2030. Second - India will meet 50 per cent of its energy requirements from renewable energy by 2030. Third - India will reduce the total projected carbon emissions by one billion tonnes from now till 2030. Fourth - By 2030, India will reduce the carbon intensity of its economy by more than 45 percent. And Fifth - by the year 2070, India will achieve the target of Net Zero."

Any cooperation with European Union, or with any other partner for that matter, must be based on that template. For COP26, there will be a non-binding nationally determined contribution and this is the first time a target date has been set for carbon neutrality. In 2024, a report will be submitted to United Nations Framework Convention on Climate Change (UNFCCC). As a relatively poor country, India's commitments must always be to alleviate the lot of the poor, though it is also true that the poor often suffer more from the adverse effects of climate change. In that context, another element of the PM's remarks is worthy of a quote. "We all know this truth that the promises made till date regarding climate finance have proved to be hollow. While we all are

raising our ambitions on climate action, the world's ambitions on climate finance cannot remain the same as they were at the time of the Paris Agreement. Today, when India has resolved to move forward with a new commitment and a new energy, the transfer of climate finance and low cost climate technologies have become more important. India expects developed countries to provide climate finance of $1 trillion at the earliest. Today, it is necessary that as we track the progress made in climate mitigation, we should also track climate finance. The proper justice would be that the countries which do not live up to their promises made on climate finance, pressure should be put on them."

How does Europe and the Europe India Business Council (EIBC) fit into this framework? Yes, there is a partnership between India and EU on clean energy and climate. There is also a roadmap for 2025. Negotiations about differentiation and equity apart, and beyond individual initiatives by India and EU, the crux remains technology and finance, the latter perhaps more than the former. While technology is available in both partners, including on digitalisation, deployment of technology, especially if it is developed by the private sector, is an expensive proposition. EIBC's primary contribution can be in that area of mobilizing investments and cheaper private finance. At some point, any discussion and dialogue must move on, beyond laundry lists and motherhood statements.

(Bibek Debroy is an Indian economist, serving as the Chairman of the Economic Advisory Council to the Prime Minister of India.)

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INVESTING JOINTLY IN CLEANTECH AND RESEARCH

Claire Tillekaerts

India and Europe are long standing allies with common objective to achieve carbon neutrality and lead the world towards clean and green economy. Several partnerships have been set up to reinforce collaborations, that are in the interest of both parties. This is reinforced by the mutual efforts to engage in green diplomacy.

Europe acknowledges the ambitious goals India has set itself, and the tremendous efforts already made. We recognize the plans put into motion, by frontrunners, such as the city of Mumbai. The state capital of Maharashtra aims to be emission net-zero by 2050, two decades ahead of the rest of India. It is this kind of ambitious targets, which will set the standard for the rest of the nation, but which will also require an innovative and collaborative approach.

To leverage the EU-India dialogue, it is essential to identify EU countries which can propel India towards a sustainable future, and we believe the opportunities are plentiful

Flanders-India opportunities

Flanders, the Northern region of Belgium, is in the heart of Europe. The region is not just geographically in the centre of Europe, with the city of Brussels, being both the capital of Flanders, Belgium, and the EU.

Brussels is also at the crossroad of regional, national, and international policy making.

More important even than our geographic location however, is our commitment to the EU's Green Deal. Flanders, Belgium, is a frontrunner when it comes to climate and cleantech.

We have been working on various areas of expertise, of particular interest and very applicable to India.

Our active R&D community is built around networks: between several R&D institutions at university and dedicated research institutes, as well as links with the companies, from SMEs to MNCs, to directly apply the results of the research in the real world.

Flanders is a global frontrunner in developing innovative cleantech applications across multiple fields such as energy to waste management. Belgium and Flanders as a region rank5:

- #3 in cleantech Initial Public Offering worldwide.
- #4 in materials reuse rate in Europe.
- #1 in the recycling of packaging waste.
- 650+ cleantech patents between 2010 and 2020.
- #4th in offshore wind energy in Europe
- #5 in SDG ranks in the world13

As large portions of the world, we are facing common challenges and joining forces, it is the best way forward to exchange lessons learned and best practices to apply and adapt them to local conditions.

A. Off -shore wind energy:

India has lofty goals. Despite its 7,600 Km long coastline and an offshore wind energy potential of 175 GW, India has not yet fully exploited this capacity, so far. However, the Government of India has woken up to this opportunity and wants to harness the potential of offshore wind energy along

India's coastline. The government's initial plan is to develop a strategy and roadmap for installation of offshore wind projects, off the coast of Gujarat and Tamil Nadu. India plans to produce 5 GW of electricity from offshore wind energy by 2022 and wants to expand it to 30 GW by 20306.

Flanders can help you achieve those goals. Despite our small geographical footprint, we have the 5th largest installed base in offshore wind and are world champion in capacity per inhabitant.

Flanders, albeit its coastline of only 65Km, is already a real powerhouse in the offshore wind energy production. Flanders has installed 9 wind farms in the North Sea, with an installed capacity of 2262 MW. These wind farms produce 8 TWh12 of electricity and help to eliminate an estimated carbon emission of 3 MMTPA7.

With over a decade of experience in the development of offshore wind energy projects, Belgium now has the ambition to further expand and triple its capacity, by applying the latest gains in technology and productivity and leveraging multi use of the limited area, with wind turbines, but also floating offshore solar. In the multi-use concept, there is also room for aquaculture and ecology. India is ideally placed to also learn from this expertise gained in the development of projects in European waters.

Flanders and India should leverage this opportunity, hand in glove, to contribute towards the renewable energy targets of India under the EU- India CECP partnership.

We encourage India to reach out to strategic partners in Flanders, Belgium, such the Blue Cluster, The Belgian Offshore Cluster, and the strong industrial supply chain in offshore wind expertise, to tap into the existing expertise in Europe, build up over the past decade. This will allow India to develop and harness the full potential of offshore wind energy in India, in the shortest possible time frame.

B. Circular economy

Circular economy is a fundamental part of the EU green deal, with a specific action plan as one of the main building blocks for sustainable growth.

In India, circular economy adoption is expected to reduce GHG emissions by 44% and contribute ~ USD 624 Bn annually by 20508. India's informal economy, which contributes to ~20% of the country's GDP, can catalyse India's transition towards circular economy9. Multi-stakeholder collaboration and alliances are instrumental to enable such circular business models.

Flanders, being densely populated, on only a limited surface, needed to find solutions for waste management already 30 years ago. Increasing economic, environmental and societal pressure led to a fast closing of landfills and increase scrutiny on waste incineration plants.

The nexus between politics, driven by society, a sound economic model and innovations from companies in Flanders led to global leadership in the recycling of household and industrial waste streams.

Alternatives were sought and found, in the form of waste to energy solutions, and increasingly in a path towards industrial and district heating networks. Additionally, the different waste fractions (organic, plastics…) are separated and, fuelled by research and innovation, new techniques were developed to increasingly re-use and recycle these fractions. Today, Flanders is a global frontrunner in waste treatment, with over 80% of household waste being collected and recycled. In the past few years, additional focus areas, like chemical plastic recycling, textiles and construction, where gains are still possible and new technologies are still emerging.

This is combined with a close monitoring, as well as active management and material recovery from the closed landfills, making optimal use of the historic resource buried there.

Overall, an increased re-use and recycling of waste streams has several benefits, ecologic, but also economic and even geopolitical, making regions less dependent on basic materials coming from the other side of the world.

However, it is instrumental to leverage the right technologies for recycle, upcycle, monitoring, tracking and aggregation of the waste streams.

The public waste management company, OVAM, who has been managing the transition from linear to circular since the very beginning, is extremely active and has built a partnership of government, civil society, companies and the knowledge community, in Circular Flanders.

Circular Flanders is a hub for all circular initiatives in Flanders where communities, cities and industry can find and exchange best practices.

This relates back to the basic concept of Flanders's R&D and economy: openness and international collaboration.

This collaboration can for example be found in an organization like VITO, one of the strategic research centres in Flanders, focussing on sustainable solutions.

VITO has been at the forefront of the development of new technologies in energy, water and circularity. It has collaborated with Indian partners on various projects in India, including the clean Ganga project.

Apart from the domains mentioned above, India and Flanders have ample opportunities to collaborate on domains such as Water purification, Green Hydrogen, bioplastics, IR 4.0, digital technology etc. Flanders strength lies in dedicated research centres, incubators, and clusters which work in tandem towards sustainability goals.

There is no silver bullet, and international collaboration is required to tackle the global challenges that lay ahead.

Together, India and Flanders have the scale and the technology/models required to truly achieve the common goal of a greener tomorrow.

The team of Flanders Investment & Trade is fully committed to establishing the connections and building the networks to foster collaborations in these fields. For more information we invite you to have a look at our website: https://www.flandersinvestmentandtrade.com/invest/en.

(Claire Tillekaerts is CEO Flanders Investment & Trade.)

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WHY INDIAN COMPANIES SHOULD TAKE NOTICE OF GLOBAL DEVELOPMENTS IN SUSTAINABILITY

Eelco van der Enden

Last year, at the COP26 climate summit, India made headlines. Prime minister Narendra Modi vowed to cut the country's emissions to achieve net zero by 2070. A big turnaround, given Indian's unwanted status as the world's third-largest polluter.

In practice this means that India need to source half its energy from renewable sources by the end of this decade.[1] Promises like this increase the need for the reporting of standardized, comparable information – to enhance decision-making by stakeholders in a way that avoids greenwashing, or a 'cherry picking' approach by companies in terms of what they disclose. That is where Global Reporting Initiative (GRI) come into play.

With 25 years as the global leader in sustainability reporting, GRI has been the catalyst for change and a constant and reliable partner towards the goal of sustainable development. Used by over 10,000 organizations, covering more than 100 countries – and 73% of the world's 250 largest companies – the GRI Standards are the most widely adopted sustainability reporting standards in the world.[2] This also goes for India. As addressed by our linkage document on using the GRI Standards for reporting against the SEBI Business Responsibility Reporting (BRR) framework, the majority of disclosure requirements are already covered by GRI – making it easier for Indian organizations to use GRI to fulfil their reporting needs.[3]

GRI data shows that, in 2021, there were a total of 22,464 downloads of the GRI Standards by users in India. The top-15 downloaded Topic Standards in India last year reveal not only the wide uptake of Standards, but more importantly, that Indian companies report on much wider sustainability issues than climate alone, and increasingly focus on social topics.

Number	Subject	Download
1	101 Foundation 2016	1369
2	306 Effluents and waste	1270
3	403 Occupational health and safety	1159
4	303 Water and effluents	946
5	305 Emissions	874
6	102 Foundation 2016	791
7	302 Energy	776
8	301 Materials	530
9	103 Foundation 2016	457
10	201 Economic performance	452
11	401 Employment	437
12	405 Diversity and equal opportunity	400
13	307 Environmental Compliance	397
14	304 Biodiversity	373
15	204 Procurement Practices	308

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A changing transparency landscape

Currently there are two significant developments happening in the sustainability reporting landscape:

1. The European Sustainability Reporting Standards (ESRS) being created by the EU for a multi stakeholder audience – including investors. GRI and the European Financial Reporting Advisory Group (EFRAG) are leading its co-construction efforts.
2. The standards for the disclosure of sustainability-related financial information are being drafted by the IFRS (International Financial Reporting Standards) Foundation – with which the newly established ISSB (International Sustainability Standards Board) is charged with for an investor audience only.

GRI is at the heart of global convergence relating to standards for the reporting of impacts of an organization on the world and society. Through our comprehensive reporting framework, we provides the basis future reporting standards, including both of these developments – which we see as complimentary rather than competing.

Reporting using the GRI Standards will therefore prepare Indian companies and create a global baseline for reporting according to IFRS and EU requirements. In particular, the GRI Standards can prepare for the upcoming ESRS – mandatory from financial year 2023. It is worth noting that Indian firms with supply or value chains in the EU will also need to prepare to report in line with these new standards.

Two-pillar system of corporate reporting

The approaches of the IFRS and the EU are not competing but complementary forces. GRI firmly supports the creation of a comprehensive corporate reporting system based on a two-pillar structure - for financial and sustainability reporting - with a core set of common disclosures and each pillar on an equal footing.

- Pillar 1 - addressing financial considerations through a strengthened financial report which includes sustainability disclosures, in the context of enterprise value.
- Pillar 2 - concentrating on sustainability reporting focusing on all external impacts a company is having on society and the environment and hence their contributions towards the goal of sustainable development.

GRI is fully committed to supporting this objective and will cooperate with the ISSB, EFRAG and (inter) governmental organizations to drive sustainability disclosure in a two-pillar reporting landscape forward. Not least because stakeholders, including investors, have made it apparent that a sole focus on financial impact and enterprise value creation alone will not explain an organization's effort on behalf of climate and society. Providing this perspective is precisely why the GRI standards have been valued for 25 years – because they allow organizations to identify, prioritize and be transparent on their impacts on the economy, environment, and society.

Transparency, of course, is only step one. Effective reporting, as enabled by GRI, empowers companies to take accountability for their impacts, address the needs of stakeholders and transition to responsible ways of working that are better for businesses, people and planet.

(Eelco van der Enden is CEO, Global Reporting Initiative (GRI))

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A SUSTAINABLE EU FRAMEWORK FOR THE DIGITALIZATION OF THE ENERGY SECTOR

Eugenio Sergio Longo

TCS welcomes the effort done by policy makers, such as the European Commission, aiming at building a green digital framework for the energy transition. We recognize the importance as it complements the work undertaken in the European Green Deal and is in line with the vision for the digital transformation by 2030 as set out in the Digital Decade Communication. TCS fully acknowledges the importance of the goal and strives towards contributing to the creation of growth and jobs, boost European competitiveness and innovation.

TCS' activity in Europe has been increasing over the last number of years. We actively engage with public stakeholders on a wide range of issues including on topics such as digital skills, the digital transformation, the EU's sustainability agenda and gender equality in tech. We see strong potential for further growth in the European market-especially as the focus of the EU switches to digital and green transitions. We are fully aligned with the EU's Green Deal and its sustainability ambitions.

Digitization of the energy sector is happening and will affect many areas of society. Everyone involved, be that in policy or industry need to actively play a role and ensure that the transformation will be a success for the EU's society, economy, and industry.

The entire landscape of the energy system is shifting as the industry experiences a rapid pace of change. With this comes the need for a profound transformation through digitalization. Digitalization of the energy sector is crucial to meet the EU's climate goals and secure a sustainable future, as it enables greater penetration of renewables, higher network efficiency and innovative customer services. Some examples of where digitization can be applied to the energy sector are:

- Tracking energy flows and prices from production to consumption, including storage of liquid and gas fuels, solid biomass etc., not just electricity. Tracking emission flows as well as carbon credits / offset flows through the value chain. Tracking capital flows within energy sector, especially relevant to 'new energy' like renewables.
- Using technology to bring about efficiencies in processes at each stage of the energy production and consumption cycle by identifying focus areas for emissions reduction and energy efficiency
- Managing energy flows to establishing energy stability and affordability parameters.
- Optimization at each step, and as a whole - optimization decisions take carbon into account, in addition to costs and reliability
- TCS suggests adding "edge computing" to the list of digital enablers for the energy transition

With the backdrop of a needed harmonized regulatory framework at the EU and the international level, the EU's engagement with

various stakeholders will increase the availability of digital solutions in the energy sector. As Europe is and wants to remain a global leader, it needs to cooperate internationally and engage with various countries to ensure that there are solutions available to successfully transform the energy sector.

To fully reach a digital single market, future legislation should not stifle growth nor act as an obstacle for the development of innovative businesses. Legislation should enable the market to overcome barriers and data flows to ensure that it creates opportunities for everyone involved. EU policy makers should help businesses grow and reach the EU's digital and sustainable goals by

1) Developing a framework for the greater collection and sharing of data – in a safe, secure, and anonymized manner - can help customers better understand their energy use and alternative solutions

2) Consolidating the role of energy vendors and selected industry verticals i.e., by incentivizing, large consumers to works towards better energy efficiency during the transition and Research and Innovation to facilitate greater understanding about how energy data can be digitalized.

The EU and TCS share a common vision on harnessing the power of digital technology for bringing future-proof efficiencies to the energy sector. TCS is an open and active collaborator in this area within the ecosystem and looks forward to bringing its innovation and vision towards achieving the EU's ambitious sustainable and digital goals.

(Eugenio Sergio Longo is Chief Sustainability Officer, Tata Consultancy Services, Europe.)

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CLEANTECH'S ROLE IN CLIMATE CHANGE

Frank-Jürgen Richter

If there is one bright spot from the ongoing pandemic, it is the fact that populations became more aware that lesser human activity is good for the environment. The great crisis brought about by global warming and climate change have been devastating on flora, fauna and humans alike.

Rising temperatures are leaving dual impacts of prolonged drought in some regions with increased melting of glaciers and snow caps. Rising waves threaten the very existence of many island nations; while some countries face devastating annual floods due to incessant rains.

Increased human activity has been identified as the major cause of such drastic climate change repercussions. In fact, 99% of climate scientists[1] now endorse the evidence for human-induced climate change. So rightfully, the change needs to start with us.

Adopting clean technology or cleantech is one viable step. Horasis is committed to further cleantech across societies. With this in mind, Horasis will be hosting several panels on cleantech in the upcoming Global Meeting on 19 May[2].

What is Cleantech?

Cleantech can be defined as a set of technologies that help reduce or optimize the need for natural resources, while also helping keep in check the negative impacts of rampant technology use.

It simply works as a double-edged sword providing us not only with greener energy alternatives, but also offsetting and balancing the use of technology in it.

Cleantech stresses on the use of abundantly available natural resources such as wind and waves to produce more greener energy to offset our high dependency on fossil fuels for energy needs.

Wind and waves are not the only use of cleantech that we can witness, it is also made of solar energy; geothermal energy; technologies being used to produce clean water and recycling of wastewater; and innovation in greener fuel options.

How it Addresses Climate Change?

Countries are racing to control global warming by pledging to reduce greenhouse gas (GHG) emissions by reducing their dependency on fossil fuels. GHG emissions disrupt the protection of ozone layer, making the earth vulnerable to high impacts of UV rays, leading to higher temperatures which result in melting polar ice caps and forest fires.

The OECD estimates that rise in temperature, sea levels and extreme weather conditions will result in economic losses of around 1.5% of GDP globally until 2050[3]. Meanwhile, another report states that climate change will also lead to high levels of poverty, pushing an additional 32 million to 132 million people into extreme poverty by 2030[4].

So low carbon technologies such as cleantech provide a viable solution to counter the impacts of climate change, while simultaneously creating new economic opportunities for countries and people.

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Use of cleantech is already reaping viable benefits. The $10.3 billion Climate Investment Funds, established in 2008 is one such global effort. The fund partners with multilateral developments, including the World Bank and the IFC, providing concessional financing to large-scale projects and programs in renewable energy, energy efficiency and sustainable transport. The fund has already produced some substantial results[5] – 26,600 megawatts in clean power; 11,037 gigawatts hour of energy saved every year; 72.2 metric tons of carbon dioxide reduced annually; and improved forest coverage for 44.7 million hectares.

The EU and India

Both the EU and India are important in this fight against climate. India with its second largest population is an important market to achieve the benefits of low carbon technologies such as cleantech. And we cannot also overlook the vast potential of the country in solar energy. This coupled with the EU's vast knowledge, framework and policies around green energy forms an important piece of the climate puzzle.

Europe's ambitious Green Deal[6] plans to utilize one-third of its €1.8 trillion ($1.97 trillion) investments from the NextGenerationEU Recovery Plan to achieve net zero GHG emissions by 2050. The deal aims to provide cleaner energy and water; increased cleantech innovation; future-proof jobs; and healthy and affordable food.

To achieve this immense task the EU has already tabled its first set of legislative proposals, Fit for 55[7] that aims to reduce net EU GHG emissions to 55% below 1990 levels by 2030, by implementing policies in areas such as climate, energy, transportation and taxation.

Meanwhile, India's Ministry of New and Renewable Energy has initiated the Green Energy Corridor[8] Project that aims to join electricity produced from renewable sources, such as solar and wind, with conventional power stations in the grid. As of October 2021, the project has completed laying of 8,405 capacity of transmission lines across eight states in the country providing 15,268 mega volt ampere of electricity to conventional power stations.

Startup Ecosystem

The startup ecosystem is booming in Europe. Amounts invested on cleantech startups in the region has already touched €5.07 billion ($5.6 billion) in 2020[9] . Lilium, a German aerospace company has created an electric vertical take-off aircraft that can fly up to 300 kilometers and carry five people. A welcome sign in comparison to the traditional short-haul regional aviation, which is responsible for 10% to 15% of aviation emissions. Additionally, the company also employs 700 people and plans to operate in multiple markets by 2025.

Continuing rise in the share of renewable energy on India's electricity grid is certainly pushing the demand for clean and flexible power, with a host of cleantech startups. Between 2019 to 2020, ReNew Power, one of India's leading renewable energy independent power provider, has successfully generated 1% of the total electricity requirement in India .

Globally, investment in cleantech is soaring – with a record $755 billion in 2021 . This marked a 27% increase over 2020, even amid an ongoing pandemic. While the signs are very promising, a lot more remains to be done. It is estimated that $2.1 trillion investment in cleantech is required per year between 2022 and 2025 to keep global temperature increases to 1.75 degrees Celsius and also to achieve global net-zero carbon emission scenarios. The road to a cleaner planet is a long one, but one worth travelling.

(Dr Frank-Jürgen Richter is Founder and Chairman, Horasis: The Global Visions Community.)

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A NEW PARTNERSHIP BASED ON INNOVATION, INDUSTRIAL DECARBONIZATION AND JUST TRANSITION

Gauri Khandekar

The EU-India relationship has evolved into a mature strategic partnership which delivers high on functionality. Beyond shared values and cooperation on political matters, the strategic partnership rests on key pillars such as the EU-India Clean Energy and Climate Partnership and the bilateral Partnership on Smart and Sustainable Urbanisation, both launched in 2016 which cover joint work on smart grids, cost-effective offshore wind energy, net-zero energy buildings, energy storage, advanced biofuels, amongst others.

Signatories to the Paris Climate Agreement, the EU and India have both pledged to achieve net zero emissions by 2050 and 2070 respectively. The climate transition will undoubtedly bring significant challenges but will also proffer copious opportunities for growth and collaboration.

In the run up to net zero, here are 3 concrete recommendations which the EU-India strategic partnership could benefit from: an EU-India Partnership on Innovation, cooperation on industrial decarbonization and a framework for just transition.

First, a cross-cutting EU-India Partnership on Innovation would further harness the potential of the above-mentioned two platforms and foster collaboration on industrial decarbonisation by allowing both sides to share best practises and jointly develop technological expertise in areas critical to the climate and energy transitions. The World Solar Technology Summit, which took place in India in September 2020, could in many ways be a model for a prospective EU-India Partnership on Innovation. The summit brought together the latest know-how on low-cost and innovative/disruptive solar technologies. It hosted a CEO conclave of the world's largest corporations active in the development and scaling up of solar technologies and storage solutions, and convened leading academics, scientists, researchers, and innovators. More importantly, it catalysed the launch of a financial instrument - the World Solar Bank - to fund solar projects and lower technology costs. The dedicated partnership on innovation will also require a sizeable mission-oriented funding to accelerate the development and deployment of climate friendly breakthrough technologies. Additionally, international finance institutions could be invited to play a greater role in related greenfield projects.

Second, cooperation on industrial decarbonisation can be a game-changer for climate action. The energy intensive sector which includes industries such as steel, cement, chemicals, non-ferrous metals, and glass, accounts for around 21% of global emissions. It is often labelled as a hard-to-abate sector given its high CO2-and-energy intensive processes and low current availability of technological decarbonization solutions. Moreover, in mainly developed countries, most of the low-hanging fruits for decarbonisation such as energy efficiency measures have already been picked.

The sector's innovation needs are substantial and

encompass a broad spectrum ranging from the creation and acceleration of new low-carbon production processes (many of which necessitate fundamentally different modes of production, in addition to novel feedstocks and/or core industrial processes), to innovation that applies not only to the value chains of energy-intensive industries but also to the energy systems that power them. Bringing emissions from (European) heavy industry down to net-zero by 2050 is possible but will require costly new production processes and a 25-60% increase in near-term capital investments to reach €40-50 billion per year. For industry, the 30 years left till 2050 for achieving climate neutrality translates into one large investment cycle. Low-CO2 technological solutions will however not be the sole panacea for the decarbonisation of the energy intensive sector. Achieving enhanced levels of circularity and materials efficiency will also be vital. This implies the better retention of material value by avoiding downgrading and contamination, improvement of efficiency of new material use in manufacturing and construction, and increasing the collection and recycling rates of basic materials.

EU-India collaboration on decarbonisation of the energy intensive sector could bring together industrial actors to share best practices, develop roadmaps for sectoral decarbonisation, jointly accelerate the development and deployment of low-carbon technologies, create larger markets for low-carbon energy intensive products, and facilitate the creation of a global level playing. An accompanying large mission-oriented finance and R&D programme would be needed to accelerate brownfield conversion, develop/co-develop and deploy breakthrough low-carbon technologies and promote electrification of industrial processes.

There are currently a number of breakthrough technologies which are being developed – most of which in Europe – for virtually all industries of the energy intensive sector. The vast majority of these technologies find themselves at low-to-mid technology readiness levels (TRLs), with only a handful at the demonstration stage. Opening a larger market for these breakthrough technologies would in turn bring down technology costs significantly and arguably be the fastest way to create a level playing field – a major concern of European energy intensive industries. It could eventually also create large markets for low-carbon products which would then be able to compete with incumbent products. Such collaboration may also eventually help India comply with the EU's proposed Carbon Border Adjustment Mechanism. Naturally, safeguards would be needed, for example an agreed phasing out of brownfield installations alongside the adoption of low-carbon technologies. EU-India collaboration on industrial decarbonisation could also enable greater knowledge transfer and sharing of best practices in circularity and materials efficiency leading to shorter global value chains.

Finally, a just transition would be paramount for India. India has an impressive track record on renewable energy and is expected to achieve its 175GW by 2022 renewable energy target, with plans to install 450GW renewable capacity by 2030. Coal however still provides around 70% of India's electricity and employs[1] roughly half a million people. This decade will therefore be crucial for India as it paces through its energy transition. The EU has recently established on its own just transition mechanism. Supporting the same in India through sharing of best practices, capacity building measures, investment or financial means would allow the country to take on an inclusive and sustainable development trajectory.

Going forward, the global climate and energy transition will require both India and the EU to collaborate more than ever and enhanced cooperation on climate action and diplomacy must become top priority for the bilateral relationship. Setting up a dedicated platform on innovation, collaboration on industrial decarbonization and a framework for just transition are areas for immediate exploration.

(Gauri Khandekar is Research Fellow at the Brussels School of Governance, Vrije Universiteit Brussel, Belgium.)

1. https://www.energyforum.in/fileadmin/user_upload/india/media_elements/publications/20200900_COVID19_Just_Transition/20201004_COVID-19_and_just_transition_in_India.pdf

STRENGTHENING EU-INDIA COOPERATION ON ENERGY AND CLIMATE ACTION THROUGH BUSINESS COLLABORATIONS

Joel Fernandes

The European Union attaches the highest importance to cooperation with India in the area of clean energy and climate action. With the European Green Deal, these key sectors have been put at the top of its domestic and external agenda.

Through the EU-India High-Level Dialogue on Climate Change held on April 28th 2021, both sides have signaled their intention to increase collaboration on the deployment of renewable energy, promotion of energy efficiency, collaboration on smart grids and storage technologies, as well as on modernising the electricity market. Other areas of cooperation revolve around the increased adoption of wind energy and collaborations in the field of green and blue hydrogen for the mobility sector. The EU strategy on relations with India proposes several concrete activities, aimed at making energy and climate cooperation even stronger to face global challenges.

This includes the launch of several EU-funded initiatives that focus on boosting clean technology transfer and green energy partnerships between both regions. An important case in point would be the **EU-India Clean Energy and Climate Partnership (CECP)**[1] project. Launched in December 2018, the project aims to reinforce cooperation between the EU and India with a view to ensure a secure, clean, affordable, and reliable energy supply for all in line with the Paris Agreement. The project, over the last 3 years, has implemented several initiatives that focus on solar energy, solar rooftop, smart grid, offshore wind, energy storage, RE Grid integration, biofuels, cold chain, green cooling, nearly zero energy building technologies etc.

In January 2019, the EU initiated the **Business Support to the EU-India Policy Dialogues Project**[2] which strives to increase business involvement in strategic areas of bilateral cooperation in order to reinforce the already strong partnership between the European Union and India. These key areas are derived from ongoing policy dialogues between the EU and India, such as Environment, Energy, Climate, ICT and Urbanisation and create relevant real-time opportunities for EU businesses interested in entering the Indian market. The project provided EU SMEs, the backbone of the European economy, the required support to understand and explore India as a market.

The EU-India Aviation Cluster[3] , a crucial aspect of the Policy Dialogues, is a collaborative platform of 23+ EU companies actively interested in strengthening bilateral relations and cooperation with India through

1. India-EU Clean Energy and Climate Partnership Project
2. Business Support to the EU-India Policy Dialogues Project
3. EU-India Aviation Cluster

demand-driven business and policy advocacy. It aims to showcase expertise and best practices in green aviation and sustainability, infrastructure and safety & operations, through smart technology.

In addition to these, the European Union and India are already entertaining a variety of Policy Dialogues, and many commitments are dovetailed by projects such as the Resource Efficiency Initiative (REI)[4], the **India EU Water Partnership (IEWP)**[5] , the **India EU Urban Partnership (IEUP)**[6] and the **International Urban and Regional Collaboration (IURC)**[7]. All these projects focus on sustainability, green technology and innovative solutions, at a technical, business and project level. In consequence, in most cases, the activities drive towards the net zero target.

While clean technology transfer and partnerships in the sustainability sector are of interest between the EU and India, this can only be facilitated by protecting the Intellectual Property of EU technology companies. To fulfill this requirement, the **India IP SME Helpdesk**[8] was launched in 2020. The project offers first-line Intellectual Property assistance service for European SMEs that operate or intend to access the Indian market and look to improve their global competitiveness.

The European Business and Technology Centre (EBTC)[9] has been a major contributor to this EU-India business corridor, implementing and assisting in several of these projects. As a project facilitation and advisory organisation, it strives to enable smart collaborations between the two regions through its expertise, network and know-how, with specific focus towards sustainability, innovation, green technology and internationalisation.

In the changing geo-political landscape, the rapid strides in the EU and India strategic partnership is significant. Together, they can provide global leadership for climate and energy transition. India is focusing on new energy reforms and transforming its regulatory system. Europe has the necessary resources, best practices, and innovative technologies to support India to leapfrog into the future.

In conclusion, even though there is a viable ecosystem in place for EU companies to transfer technology and solutions to India, there is a lack of understanding of and access to these Indian opportunities in the EU. As of 2021, there are 4500 EU businesses in India that have contributed to the creation of over 1.5 million direct and 5 million indirect jobs in the country. Given that there is tremendous opportunity in India, backed by support mechanisms for EU businesses by the European Union through its funded projects and policy dialogues, it is imperative that EU businesses prioritise India as one of their go to markets over the next five years. If they don't choose now, it will be too late.

(Joel Fernandes is Policy and Project Advisor, Eurochambres, Associate Director Europe, European Business and Technology Centre (EBTC), Project Lead Europe, Business Support to the EU-India Policy Dialogues Project, Project Lead Europe, EU-India Clean Energy and Climate Partnership Project , Project Officer, India IP SME Helpdesk.)

4. India-EU Resource Efficiency Initiative
5. India-EU Water Partnership
6. India-EU Urban Partnership
7. International Urban and Regional Collaboration (IURC)
8. India IP SME Helpdesk
9. European Business and Technology Centre (EBTC)

THROUGH PARTNERSHIP, SUSTAINABLE PROSPERITY

HOW INDIA CAN CREATE NEW JOBS AND ACHIEVE NET ZERO THROUGH FEARLESS COLLABORATION

Jorge Pikunic

India's economic growth just in my lifetime has been remarkable, now ranking as the 6th largest economy in the world by GDP. The industrial sector has grown by leaps and bounds, sectors like steel and cement are the world's second largest behind China. While this massive growth has created new levels of prosperity, I believe even better days lie ahead for India.

A big challenge, of course, is that much of this growth has been fuelled by carbon. With its energy use having doubled since 2000, India is now the world's third-largest producer of CO2 . To its credit, the emission-reduction plan that India unveiled at COP26 includes the most extensive expansion in renewable energy worldwide. If India fulfils its pledge to become Net Zero by 2070, I believe the country will realise an economic renaissance that is cleaner, healthier, more sustainable — and lifts millions more out of poverty.

Yes, the required investment will be significant, at around US $10 trillion. But by forging a tighter partnership between business, government, and society, India can leapfrog ahead of more developed economies and build a circular ecosystem for long-term growth. Altruism aside, it's also a great business opportunity for India's private sector. As Mark Carney, the UN's special envoy for climate action, has noted, the transition to Net Zero as "the greatest commercial opportunity of our age".

However, seizing these opportunities will require unprecedented levels of leadership, collaboration, and investment — not just within India, but from around the world. This commitment to partnership was on display at the inaugural Tata Xynteo Exchange[1], where more than 80 prominent business leaders from India, Asia, Europe, and the US discussed the leadership, collaboration, and financing needed to build a green economy in India.

The leaders agreed that collaboration is critical, and it starts with business. Indian companies need to set aside their competitive rivalries, they said, and forge new partnerships — across industries and even borders — to identify, pilot, and then scale projects that focus on decarbonisation, carbon capture, and the circular economy. To make the most efficient use of the capital being spent, businesses will also need to partner in building the shared infrastructure that will underpin the green economy.

Business also needs to work with policymakers to create an infrastructure roadmap or policy roadmap. That includes creating a national R&D program on the scale of the European Commission-led Mission Innovation program. With its growing

1. https://xynteo.com/how-india-can-create-new-jobs-and-become-net-zero

university research system, legacy industrial companies, and dynamic start-up ecosystem, India has the foundational tools for a Moonshot-style R&D initiative. And with most countries still in the early stages of their green journeys, India has the opportunity to develop — rather than import — the next generation of solar panels, batteries, and other physical and digital technologies.

Given the massive investments required, greater collaboration in financing is needed, too. At COP26, I had investors assure me that capital is abundant for low-carbon technologies. But I heard a different story from entrepreneurs and developers who told me they cannot find the right financing for their green projects. By working together, we can bridge the divide — and help capital flow more smoothly to the developers.

Funding the green transition will require a multitude of sources — everything from venture capital to "bridge financing" from multilateral development banks to the work of creative new groups like CFLI India, a public-private initiative[2] to unlock private climate finance. As Shemara Wikramanayake, CEO of Macquarie Group and co-chair of CFLI India, said at our Exchange[3], India can then share its learnings with other Asian countries to accelerate their own green revolutions.

Attracting outside investment is crucial, and that includes convincing the wealthiest nations that it's in their self-interest to help fund the country's march to Net Zero. the government can build confidence among investors, other governments, and the multilateral developments banks by setting up a climate investment framework. Such a framework would identify and analyse the best sources of climate financing, the instruments for mobilising and disbursing funds, and their ultimate beneficiaries. That would be critical for diagnosing, planning, and monitoring green investments.

While India has made tremendous strides economically, I believe this is all prelude to the next chapter — a revolution in how it powers its economy. As another of our keynote speakers, Shell executive Harry Brekelmans, said, "The biggest story in energy over the next three decades is India. And whatever happens in India matters hugely to the world". By coming together, we can help this great country transform its economy while bringing millions more out of poverty.

(Jorge Pikunic is Chief Executive Officer of Xynteo, a purpose-driven organisation that helps businesses achieve sustainable growth.)

2. https://www.bloomberg.com/cfli/mobilizing-investment/india/
3. https://xynteo.com/how-india-can-create-new-jobs-and-become-net-zero

A COMPREHENSIVE PARTNERSHIP ON SOLAR, WIND, HYDROGEN, AND ELECTRIC MOBILITY

Manjeev Singh Puri

The European Union and India are two of the biggest stakeholders in global action to fight climate change. Since 2016, they have together pursued a Clean Energy and Climate Partnership (CECP), which focuses on developing cooperation in clean energy and the implementation of the Paris Agreement. Energy efficiency, renewable energy, smart grids, storage, sustainable finance, and climate mitigation and adaptation are among the areas of focus.

The India-EU Leaders Summit in May 2021 saw a pledge for greater collaboration on climate finance and technology transfer and the setting up of a bilateral climate dialogue.

At the UNFCCC COP in Glasgow, Prime Minister Modi took the lead and announced major renewable energy goals for India apart from achieving net zero (GHG emissions) by 2070. These ambitious objectives set by India give rise to manifold possibilities for collaboration between India and the EU, including in energy and industrial transition.

India's aims for non-fossil fuel energy capacity of 500 GW by 2030 and fulfilling 50 percent of the nation's energy requirement through renewable energy by 2030. This provides unique possibilities for the EU to invest in the energy sector in India and help build capacities for India's energy transition. A specific area of such cooperation would be to build demand for wind and solar PV.

India and the EU could further collaborate on building open-source utility and system knowledge for how to build and operate highly variable renewables power systems, e.g., how to ensure firm clean power economically - through more transmission, demand management, batteries, hydrogen, etc. In addition, the collaboration on energy-efficient appliances and in particular low-carbon cooling could contribute to reducing India's peak electricity demand.

Moreover, the EU's experience from its Hydrogen Alliance could play a pivotal role for India's USD 214 million National Hydrogen Mission and India's quest for leveraging hydrogen as the source of fuel for a long-term strategy. There are common opportunities in developing hydrogen direct reduced iron steel making and targeted applications of CCUS (Carbon-Capture Unit and Storage) in cement making.

EU and India can also share mutually supportive perspectives on avoiding use of competitive instruments where industries adopt climate friendly measures. The two regions could work on shared research, development, and early commercialization efforts, e.g., through lead markets enabled by contracts for

difference.

Enhancement of electric mobility is another core focus of India where EU expertise and financing could be critical. Furthermore, India has one of the largest rail networks in the world and the EU has the most advanced rail technology providers with Alstom and Siemens. This bodes well for cooperation on furthering the greening of Indian railways through electrification, multimodal platforms, renewal of electric locomotives and induction of other low-carbon technologies.

With most climate action focus only being on mitigation, adaptation and loss invariably gets left behind. This must, however, change and India-EU cooperation in adaptation is a necessary imperative. Specific areas of collaboration could include data collection and risk assessment tools, multi-stakeholder adaptation planning, and building resilience in selected areas (extreme weather, water scarcity or flood prevention, heat stress). De-risking adaptation and resilience finance – particularly for disaster resilient infrastructure – and financing sectoral action at the sub national level is another vital need apart from development of innovative risk finance instruments.

Prime Minister Modi has also emphasized the importance of LIFE – Lifestyle in Environment – as a critical global effort to tackle climate change and push sustainable development. A great deal of thought in both India and the EU is on the circular economy and sustainability in production and consumption. The coming together of India and the EU in a global movement to push lifestyle adaptation, apar from circularity would add most significantly to tackling climate change and make it an effort at the level of the people, going well beyond energy transition which is usually the proximate goal.

And finally, without finance and technology, collaboration would not really add up. A key in this is moving the enormous availability of capital in the EU to India where clean technologies inherently have higher upfront costs and long payback periods. Leveraging the possibilities from enhanced access to the EU's capital markets is an imperative that must be incentivized and encouraged given the size of these economies, the scale of action required and the limitations on financing through multilateral institutions. In this context it would appear that an India specific EU fund, backed by the highest of ratings of say the EIB, could be established. This fund could be used to raise longer-tenure climate bonds, provide a currency-hedge facility and offer partial risk guarantees. It would also promote the induction of clean technologies on a large scale and financing adaptation.

Other finance related suggestions include harmonization of taxonomies. This is also important to prevent erroneous classification and green washing while promoting sustainability of the long-term green finance market. Moreover, there is critical need for capacity building in India, including among regulators, government departments, lenders, private sector entities and market participants, for skilling to ensure proper measurement of the carbon footprint and creation of reporting and disclosure ESG norms and to improve the absorptive capacity of stakeholders.

Climate Change is the existentialist challenge of our times. As two of the largest societies and economies in the world with democratic and people centric values at the center of their ethos, their leadership and cooperation in collaborative climate action would not only be a bilateral win-win but most significantly add to global human good.

(Ambassador Manjeev Singh Puri is Former Ambassador of India to the EU.)

INDIA – THE BIG ENERGY RESET

Mohan Murti

This energy dialogue is taking place against a difficult political, economic and security backdrop.

However, the crises we face are not limited to the political arena. On the economic front seemingly rock-solid truths – such as the eternal rise of oil prices – are beginning to cause enormous pain to economies and people, across the globe. I think now is the time for a global transition to sustainable energy sources. And now, is the first and foremost opportunity to get rid of subsidies in oil, coal and gas and their almost addictive effect on our society.

In India we are moving our economy onto a low carbon path and in this context, the Prime Minister of India has already made a firm commitment and a timeline associated with the necessary transition to this path. They include a promise for India to get 50% of its energy from renewable resources by 2030, and by the same year to reduce total projected carbon emissions by one billion tonnes. And a pledge for India to become a net-zero carbon emitter by 2070.

We realize that the shift towards renewables is no longer a luxury. On the contrary, due to rapid market growth the major hubs of renewable energy installations have become a common sight in various parts of India.

Generation costs for all renewable energy sources are now at the same level as for fossil fuels – without additional external risks such as air pollution and disposal. It is therefore not surprising that India`s capacity in renewables has increased multifold since the beginning of the millennium.

With cheap renewables there is a double dividend for India, because it opens doors to energy access in regions where millions of people have been living without electricity. The sun shines on every roof. And renewable energy can be generated in an extremely decentralized manner, without needing an extensive grid.

The emerging trend now in India is that climate change mitigation is now firmly founded on national action. The mindset has shifted from a "top down" one, to one with a strong "bottom up" component based on national undertakings.

It is now clear to most sections of Indian society that the era of fossil fuels is ending. And real transformation of the energy sector is the„will".

Over the past two years we have seen an exponential growth in climate action by cities, regions, businesses, and civil society, in addition to national actions. This reality is, I believe, inspired by the Prime Minister of India.

Another welcome trend in India today is that non-state actors are clearly becoming the engine of both mitigation and adaptation action. The scope and scale of initiatives and announcements, some at the highest level, are breathtaking. This is helping to define a "new normal", especially when one looks at:

- Actions by large Indian corporate giants – a record $100 billion in new clean energy investments by the end of this decade;
- Plan to repurpose a $4-billion (about Rs 30,000 crore) gasification assets for clean energy. India's biggest company by market value will use syngas—a product of coal gasification— to make blue hydrogen at a competitive cost of $1.2-1.5 a

kilo – perhaps, the cheapest in the world!

- The rapidly declining price of renewable energy and the explosion of mega solar and wind power installations;
- plans to build a giga factory in Jamnagar for the long-duration energy storage systems for intermittent energy and manufacture of solar energy panels.
- The government of India is actively formulating policies and promoting projects that are leveraging advanced IT and OT solutions to drive the country towards a circular economy system. Two such critical areas are electricity from recyclable resources and waste recycling & management.

In my view, India could emerge as one of the biggest winners of the clean energy transition.

The EU has been India`s natural partners. I see enormous and growing synergy between India and EU to work towards a strong alliance to make the most out of technological progress. By end of this decade, India will be in the "fast-lane" to make energy poverty history and to bring green jobs and green growth.

All this illustrates the great progress that we have made in the partnership between EU and India. But it is certainly no reason to relax our efforts!

I strongly believe that India will play a significant future role in the Fifth Industrial Revolution as we march forward to sustainable energy creation and the substitution of fossil fuel-based chemistry with renewable feedstock-based chemistry enabled by renewable energy, hydrogen and CO2 direct air capture. And, in this mission, Europe will play a defining role in the years to come.

(Mohan Murti is Chief Representative- Europe, Group Corporate Affairs for EU, Reliance Industries Limited, Germany.)

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SHINING THE LIGHT ON SOLAR ENERGY

Prashant Mathur

As you know, Current EU-India climate and energy relations are guided by the India-EU Clean Energy and Climate Partnership as agreed at the EU-India Summit with the aim of reinforcing cooperation on clean energy and implementation of the Paris Agreement by strengthening joint activities for deployment of climate-friendly energy sources, including solar and wind energy.

We are pleased to observe the collaboration of India and the European Union to scale up cooperation in the clean energy sector such as offshore wind, green hydrogen, and solar power. The EU Financing Investment in Clean Energy Platform aims at encouraging investment in the field of energy efficiency and renewable energy.

In fact, India has rapidly growing energy needs due to a growing gross domestic product and population and a huge energy infrastructure deficit. India is focussing on domestic production, including renewables and nuclear, and on energy efficiency.

The solid industrial foundation and solar expertise can facilitate technology transfer and play a vital role in developing the Indian solar sector and economic competence of the International Solar Energy targets.

A few nations of the EU already set a benchmark in solar energy generation and best practice for developing, O&M of Solar park which can be replicated in India instantaneously. So, the EU can support India to develop the best Standard Operating Procedures for Solar parks operation and maintenance on an immediate base.

Apart from the above, the EU can replicate their successful Energy Efficiency approach or design model in India such as Energy Conservation Building Code (ECBC), Nearly Zero Energy Building (nZEB), and Smart Buildings Indicators.

Moreover, The EU countries also have good hand on experience and research study in advanced Solar PV Manufacturing tech. like HJT /Topcon which is plenty of scope for continuing and deepening exchanges of knowledge and experience among countries on training and skills development policies and systems. It is particularly valuable for countries to share their experiences in R&D and new technology enhancement for future-readiness like Green hydrogen alliance with proximately so this could be useful to support business-to-business cooperation in support of green hydrogen pilots in India, cooperation on regulatory frameworks, and international initiatives to certify green hydrogen. India has also announced its INR 1500 crore, towards renewable energy development and National Hydrogen Mission. The EU's experience from its Hydrogen Alliance will be instrumental for India.

India's need for clean and affordable energy is vital for supporting economic activities and for addressing that Sustainable finance to be aimed at supporting the delivery of the objectives of The EU-India collaboration.

But the challenges of financing renewable energy in India are intricately associated with the structure of the industry and investment character

for the industry, which are largely shaped by the instrument types and sentiments of the investor therefore the EU can facilitate long-term private sector investments for a Solar industry transition.

Additionally, there are many issues with the institutions meant to provide a boost to the investment ecosystem in India which can be supported by the EU such as Solas Sustainable Energy Fund ICAV (SSEF) – debt financing or The EIB investment is supported by the European Fund for Strategic Investments (EFSI) or Long term energy contracting or policy tools for fair energy pricing reforms subsidies or Put a price on carbon or redirect money towards the people and make investments are in line with the SDGs(Sustainable Development Goals).

Also, The EU can consider giving" GSP plus status to India " which will attract the investor to invest in India. This will help for the sustainable growth of the renewable energy ecosystem.

At the end, I would like to quote that "We have reached a tipping point on the need for climate action. The disruption to our climate and our planet is already worse than we thought, and it is moving faster than predicted".

(Prashant Mathur is Chief Executive Officer, Saatvik Green Energy Pvt. Ltd.)

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CLIMATE ACTION IS AN OPPORTUNITY FOR WOMEN'S LEADERSHIP

Silvana Koch-Mehrin

The past two years have been particularly challenging in the drive for increased women's leadership. A huge gender gap hinders societies' ability to progressively move forward. The global pandemic didn't just expose where the gender equality fault lines are, but it drastically increased these very inequalities. In response, the work of Women Political Leaders (WPL) has been focused on bridging these gaps by ensuring women's work doesn't continue to fall through the cracks. Ensuring that the global space is filled with diverse women leaders' voices is an objective that WPL continues to pursue and ask its partners to actively support.

In calling for women leaders to play a greater role on climate action, WPL is guided by the theme of the 66th Session of the United Nations Commission on the Status of Women (CSW66): "Achieving gender equality and the empowerment of all women and girls in the context of climate change, environmental and disaster risk reduction policies and programmes". WPL has been at the forefront of exploring effective ways to advance women's leadership in climate action, where women are underrepresented. If not urgently addressed, this lack of women will lead the world towards climate solutions with even greater gender biases which are detrimental to women and girls and, ultimately, society as a whole.

Foremost, negative gender stereotypes that disproportionately affect both women and girls should be tackled at all levels. Climate action is not gender-neutral and shouldn't be treated as such. The first step is acknowledging the unique position of women within the climate discourse and the numerous socio-cultural, political and economic barriers that hinder women's active participation. Among other hurdles they face, women are greatly burdened by traditional gender roles, unpaid care work, and prejudicial political systems that discriminate against them based on their age, race, and social status.

Yet, we find that women can and have been creating and leading the implementation of sustainable climate solutions which are inclusive and representative of their contexts. For example, the Food and Agriculture Organization projects that if women farmers had equal access to productive resources, their farm yields would increase by 20 to 30 per cent. This could provide enough food to keep millions of people – female and male – from facing hunger. Furthermore, increasing financial support, seed ownership and increased capacity of small scale farmers, who are mostly women, is an equally deliberate attempt towards sustainable agriculture.

Secondly, there's a pressing need to upskill women to increase their participation within decision-making and leadership positions of climate action. This can be done through investments that strengthen innovative agricultural programs pushing for climate justice action, strategic cross-sectoral collaboration and partnerships among allied stakeholders. Such investments

should ensure needs-specific support is offered to individual women leaders who are championing climate action. The idea is to provide the women leaders who are doing the work as much support as needed while creating more space for others who want to offer support.

Thirdly, the time has come for changing the lens that has been used in engaging climate action from its exclusionary focus to a more diverse and inclusive focus. The best way to do this is to encourage the use of a feminist climate lens and feminist recovery approaches as a way to create, design and implement climate action policies that serve the most vulnerable and marginalised.

A feminist climate lens allows for an understanding of the links and layers that exist between climate action and all other issues affecting women. Climate action directly affects education and health, while exacerbating poverty, insecurity, wellbeing, malnutrition, and the economic and political autonomy of women. Feminist recovery approaches will then push for progressive climate action which is anchored in communities, particularly those affected disproportionately. Investing in the participation of women leaders is thus equal to investing in gender progressive solutions.

Fourth, we must recognise women's work in ongoing climate action without biases or prejudice. This means power must shift towards women's visibility, impact and influence. Women are already doing much back-breaking work at the local, national, regional and global levels, and their efforts should no longer be sidelined. Support for women's work should include tangible resources, tools, and significantly reduced barriers that go beyond slogans to actual outcomes and accountability. There needs to be teaching and training of women on climate-resilient crops, moving from depletion based economies to regeneration and implementation of social security care policies that protect women.

Finally, it's time that institutional, political and governing structures that ensure the implementation of gender progressive climate policies are made stronger, accessible and focused on women's leadership. Change only begins to happen when structures reject biases and lean into new ways of working – including women's decision-making and leadership.

Structures are critical to moving from theory towards the realisation of women's leadership on climate action and shouldn't be delayed any longer. The role of women, as half the world's population, demands priority investment – financially, socially and politically. Let's use this crisis as an opportunity to promote more women into leadership on climate action.

(Silvana Koch-Mehrin is President and Founder of Women Political Leaders (WPL), the global network of female politicians.)

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ENERGY CONNECTIVITY AS A DRIVER OF EU-INDIA RELATIONS

Stefania Benaglia

Irina Kustova

Connectivity and Climate Change are two mega-trends[1] that have been listed with the highest priority in the 2020 'Global Trends to 2030: European Perspective of Challenges And choices for EU-India Strategic Partnership[2].' Even accounting for the negative externalities of the Covid-19 pandemic, there is a clear understanding that the EU and India can and should pursue further cooperation on these issues.

The EU-India Connectivity Partnership, singed during the Leaders' Meeting[3] in Porto in 2021, paved the way to advance the strategic partnership earlier outlined in the EU-India Roadmap to 2025[4]. Mobilising sustainable finance, also through improving the investment climate, was one of its key focuses.

The EU further increased these efforts by launching an upgraded strategy called the 'Global Gateway[5]' in December 2021 with plans to mobilise 'up to EUR 300 billion in investments between 2021 and 2027.' The Global Gateway emphasises that economic and fiscal sustainability aims to 'create links, not dependencies between Europe and the world'.

Energy is one of the four key pillars (alongside transport, people-to-people, and digital connectivity) of the EU-India Connectivity Partnership and stipulates the further enhancement of the sustainable modernisation partnership, including clean energy, transport and climate. Among others, this means fostering the implementation of the Clean Energy and Climate Partnership (CECP),[6] which have been pursued jointly by the EU and India since 2016.

In December 2021, the India-EU Energy Panel

1. Mega-trends are those developments already underway and nearly impossible to change over the coming decade. Inevitably, all subsequent possible future scenarios will be framed by these trends. These are irreversible certainties. The methodology was developed by F. Gaub, ESPAS, Global Trends to 2030: Challenges and Choices for Europe, April 2019
2. Benaglia, S. (2021), 'Global Trends to 2030: A European Perspective on Challenges and Choices for the EU-India Strategic Partnership'. In: Gieg, P., Lowinger, T., Pietzko, M.,Zürn, A., Bava, U.S., Müller-Brandeck-Bocquet, G. (eds) EU-India Relations. Contributions to International Relations. Springer, Cham. https://doi.org/10.1007/978-3-030-65044-5_15
3. Different from Summits, whereby the EU is represented by the European Commission and Council Presidents, during a Leader's Meeting, all 27 EU leaders sitting in the European Council also participate.
4. https://eeas.europa.eu/sites/default/files/eu-india_strategic_partnership_a_roadmap_to_2025_0.pdf
5. https://ec.europa.eu/commission/presscorner/detail/en/ip_21_6433
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agreed on a new work programme. This opens new horizons for knowledge exchange and technical cooperation in a number of key areas, including energy efficiency, renewable energy, cooperation within the International Solar Alliance, grid integration, storage, and sustainable finance. Co-development could become an overarching approach that could further cooperation and accommodate the sensitivities of each partner's positions.

The gap between political declarations and the actual implementation of EU-India initiatives have often been pointed. It is for this reason that several joint efforts at expert level are currently ongoing to 'Walk the Talk'. The Centre for European Policy Studies (CEPS) is a leading actor on this.

Together with the Research and Information System (RIS), CEPS is leading **'EU-India Connectivity, New Context, New Horizons',** an initiative that aims to facilitate the identification of flagship EU-India Connectivity projects. The initiative's first workshop is planned for spring 2022 and will be focusing on energy connectivity. Bringing together a wide range of stakeholders from the business and financial communities, state entities and civil society, the workshop will aim to identify opportunities, challenges and the socio-economic impact of potential joint projects in renewable hydrogen and off-grid solar.

Together with the Observer Research Foundation (ORF), CEPS is also implementing the **India-EU Track 1.5 Dialogue on Climate Action and Ambition.**[7] The Dialogue focuses on creating a platform for the free exchange of views on climate ambitions between India and the EU. This can help identify shared aspirations and allow for an increased understanding of each other's positions, interests and ambitions beyond the official negotiating positions.

The roundtable held in October 2021 was a first step towards exchanging views in the run-up to the 26th UNFCCC Conference of Parties. Another two roundtables are planned in June and September 2022. They will focus on assessing the outcomes of the 26th UNFCCC Conference of Parties and will discuss the upcoming 27th UNFCCC Conference of Parties in November 2022, with special given attention to the EU and India's positions and various commitments.

Through its research as well as leading these initiatives, CEPS is at the forefront of fostering EU-India energy connectivity. By identifying connectivity projects and by creating a platform to discuss and fine tune climate ambitions, CEPS is contributing to narrowing the gap between political declarations and the actual implementation.

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INDIA'S PROGRESS ON ESG

Subhadip Mukherjee

On June 5th, 2021, during the celebration of World Environment Day 2021, India looked back at the achievements that have been recorded in past few years towards a greener and cleaner India, where India could make a note on 7 important schemes that have been launched in past few years and their achievements so far. These schemes include Namami Gange Programme (2014), Green Skill Development Programme (GSDP) (2018), Swachh Bharat Abhiyan (2014), Nagar Van Scheme (2020), Atal Bhujal Yojana (ABHY) (2019), Jal Jeevan Mission (2019), National Clean Air Programme (2019). The key achievements under these aforementioned 7 schemes are highlighted as follows:

1. Collection of floating solid waste from the surface of ghats and rivers.
2. Biodiversity Conservation and Ganga Rejuvenation.
3. Creation of Sewerage treatment capacity.
4. Industrial Effluent Monitoring.
5. 26,563 Swach Bharat Activities done.
6. Around 110 million toilets were constructed between 2014 and 2019.
7. The Jal Shakti scheme is implemented in various districts of seven priority states
8. Local infrastructure for rainwater harvesting, groundwater recharge, and management of household wastewater for reuse.
9. Integrated Command and Control Centres (ICCCs) have been established in smart cities.
10. A major effort has been taken to shift to Compressed Natural Gas (CNG) vehicles.

Since the beginning of the process of economic development, India has always focused on following a sustainable development and growth path. Being a member of the United Nation, India has taken a pivotal role in implementing 8 Millennium Development Goals (MDG), which were set during the 2010 MDG Summit. Out of these, one of them is 'Ensure environmental sustainability', in which India has shown remarkable achievements through aforementioned initiatives during the recent past.

Not only from the government side, the Country's several large companies through their series of Corporate Social Responsibility (CSR) programs, could show their presence in contributing to the progress of making a better environment. Based on the analysis done by the ministry of corporate affairs for CSR expenditures of all Indian companies in 2014-15, a recent study (Forbes, 2017), highlights that 14% (Rs 1,213 crore) of total CSR spending by the Indian companies was done on activities which are focused on preserving the environment. In the comparison of the percentage share of spending in CSR activities done by Indian companies across various social sectors, the environment has turned up to be the 3rd highest sector after education (32%) and health (26%) in 2014-15. In 2015-16, the spending share has further increased to 14.34% (Rs. 1,409 crores) of total CSR activities in environment preserving actions. In this regard, companies have mainly focused on projects that

have a sustainable long-term impact, such as installing solar-powered lighting systems and water conservation projects. In that, the most attractive environment-related CSR initiatives have involved the use of renewable energy, ranging from solar street lamps and lanterns to biomass cookstoves and various rooftop solar projects. Moreover, companies are also giving focus on activities to tackle water-related issues with several projects on watershed development and rainwater harvesting. This trend is been supported by the recent study conducted by NextGen to analyze the CSR expenditure (INR) of the top 100 companies for FY15-16. The major industry sectors which are giving more focus on preserving the environment as a part of their CSR activities are the FMCG sector (94 crores by two big companies), Energy sector (74 crores by two big companies), IT and financial services sector (76 crores by two big companies), etc. It has been highlighted that this recent pattern on CSR activity has resulted from the fact that the companies of these sectors are gradually recognizing the positive spillover effects of such environment-related CSR activities on other social and economic development factors such as opportunities for better education, health, and income. This would eventually also help India as a low carbon economy to achieve its goal of reducing carbon emission intensity per unit of Gross Domestic Product (GDP) by 33-35% from the 2005 level over 15 years, as per the Paris Climate Treaty. Given, the mandatory law by the ministry of corporate affairs came into effect on 1st April 2021, companies are inclined towards spending over Rs 1 trillion on CSR projects in these coming financial years (Crisil, 2022).

India's investors, businesses, and leaders are also performing well in the recent global Environmental, Social, Governance (ESG) space. In this regard, business leaders start considering sustainability as a dynamic marketing notion and focusing on these activities, which could help in offering several long-term benefits, such as reputation in the business world and building strong customer relationships and that could eventually contribute to growth. Several Mutual fund (MF) houses, such as SBI, Quantum India, Axis, ICICI Pru, Quant, etc., are providing access to ESG themes. This process will help more Indian companies to participate in ESG themes and eventually could attain ESG-complaint. This would further result in a significant contribution towards sustainable growth. Moreover, during the Covid-19 scenario, investors are finding ESG investing more beneficial due to its less volatile nature, as the ESG index has recorded a lesser drawdown in recent times. In this regard, interestingly, similar to the global peers, the Nifty ESG 100 index could recently bring equal or more returns compared to its other broader Nifty indices' counterpart concerning its point-to-point or rolling basis performances. This performance looks promising considering Bloomberg's forecast on global ESG assets, which is going to hit $53 trillion marks by 2025. Moreover, the regulatory body, Securities and Exchange Board of India (SEBI) has also taken initiative to regulate the ESG funds by allowing the MFs to invest in only those companies consisting of the top 1000 listed companies by market capitalization, which are covered under the mandatory Business Responsibility and Sustainability Reporting (BRSR).

If we revisit some other initiatives that have been taken by the government of India, one of the significant progress that we can note is in terms of the Bharat Stage (BS) emission standards are implemented by the GoI to regulate the output of air pollutants from the internal combustion engine and spark-ignition engine equipment, including motor vehicles. The central government has mandated that vehicle makers must manufacture, sell and register only BS-VI (BS6) vehicles from

April 1, 2020. In this regard, it should be noted that the first emission norms had been introduced in 1991 for petrol and in 1992 for diesel vehicles and have several periodic policy interventions taken place over the years to regulate air pollution. Another very recent significant move that has been taken by the government of India on this front is the 'Vehicle Scrapping Policy' which would come into force from 1st April 2022 for discarding old and polluting vehicles, which have higher maintenance and fuel consumption costs. The Vehicle Scrapping Policy is aimed at creating an eco-system for phasing out unfit and polluting vehicles in an environment-friendly and safe manner. The policy intends to create scrapping infrastructure in the form of Automated Testing Stations and Registered Vehicle Scrapping Facilities across the country. The Policy has the feature of incentivizing eco-friendly actions as well as disincentivizing pollution-creating activities. As an incentive, there will be a waiver of the fee for the issue of a certificate of registration for a new vehicle, purchased against the authority of the Certificate of Deposit (CoD) issued by a Registered Vehicle Scrapping Facility for a vehicle being scrapped. While, regarding disincentives, there will be an increase in the fee for conducting fitness tests and renewal of fitness certificates for motor vehicles more than 15 years old, will be Increase in the fitness certification fee for transport vehicles more than 15 years old, and an increase in the renewal of registration fee for personal vehicles (non-transport vehicles) more than 15 years old. Thus, the above report with notable facts indicates India's significant steps towards reaching a better environment-friendly economy over time.

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EU-INDIA PARTNERSHIP: WATER A GREAT ENABLER

Uttam Kumar Sinha

Water is one of the great challenges of the 21st century. With almost half of the global population expected to live in water-stressed or water-scarce countries by 2025, India will be no exception and its sustainable use of available water will largely determine its socio-economic stability.

Living conditions rely on striving economy, productive agriculture, and efficient infrastructure. Equally, a healthy and comfortable life depends on access to clean water. Technical and financial investment in water is good economics and there are no contradictions between economic growth and water availability and utilization. Several EU countries have an efficient water management system despite an impressive economic development over decades. One can reasonably conclude that water development is not a privilege but a precondition for wealth and prosperity.

India probably uses more water than any other country. Several reports indicate that the overall water demand for India, without major reform and investment, may be twice the available supply by 2030. More specifically, the demand for water in the business-as-usual scenario will increase by 22 per cent by 2025 and 32 per cent by 2050, which will require the use of all available water resources in the country.

Possibly one of the most modernising policy approaches of the current BJP-led NDA government has been to focus on water resources, the delivery system, and raise the profile of rivers. Water is indispensable to governance and development plans, livelihood and healthy life, expressed as Sujalam Sufalam (water for prosperity) and Swachh Bharat Abhiyan (clean India mission). For Prime Minister Narendra Modi, water is the engine for overall benefits. Last year, while launching the 'Catch the Rain' campaign with the tagline 'Catch the rain, where it falls, when it falls', Modi said, "Not only do we have to change the present situation, we also have to find solutions to future crises." No doubt, water measures have wide-based positive impacts but in the case of India it is also a question of dignity and social equality, especially for the poor and underprivileged.

Several water-related reforms have been introduced since 2014 such as Pradhan Mantri Krishi Sinchai Yojna, Har Khetko Paani, Per Drop More Crop campaign and Namami Gange Mission. A number of big ticket programmes like Swachh Bharat Urban, Swachh Bharat Gramin, Smart Cities Mission and Inland Navigation are centred on the indispensability of water. Women are the cornerstone of water policies. Millions of women in India have for long suffered the hardship of travelling long distances and spending hours getting water to their homes. This is being seriously corrected. Soon after the NDA government was re-elected in 2019, the Jal Jeevan Mission (JJM) was launched with a budgetary outlay of Rs 3.6 trillion and a promise to provide tap connections (Har Ghar Jal) to 15.70 crore households in rural India

by 2024.

The scale is gigantic but there is a political determination. As of December 2021, 5.50 crore rural households have been provided tap water supply since the launch of the mission. A janandolan (people's movement) on water has come about. The JJM is the world's largest community-based multi-dimensional approach to water management and conservation. While pathways have been created to deal with water issues in terms of sustainability, efficiency and distribution; furthering international cooperation on water research, technological development and innovative solutions are equally crucial. The end objective is the well-being of the people while ensuring economic growth and livelihood.

In the light of this, the EU-India Strategic Partnership is valuable. In 2020, the partnership produced 'A Roadmap to 2025'. EU-India as 'unions of diversity' has deeply embedded values of democracy, peace and stability, and rule-based order. Beyond the normative, there are common interests of prosperity, climate change, clean energy, environmental protection, and sustainable development. The road-map lays emphasis on bolstering water cooperation through "the Joint Working Group on Water and the EU-India Water Forum, as well as in the context of the India-EU Water Partnership (IEWP)."

Like the experiences of the many rivers in Europe, the Ganga and other rivers in India represent numerous difficulties of development and management. For one, cleaning the rivers cannot be separated from rejuvenating the flow. But rivers equally need to be harnessed. Economic development including energy and food security cannot be divorced from developing rivers. The challenge is to balance environmental and economic interests within the complex water system.

Collaboration and joint actions are enablers in the water sector. There are several on-going water projects, worth Euro 40 million or Rs 323 crore, under the EU-India Joint Call on Research and Innovation signed in 2019. Most of these projects focus on 'drinking water, waste water management and real-time monitoring and control system' and emphasise on 'affordable solutions' for Indian conditions in the rural and the urban areas. With a time-line of 4-years, the outcomes, particularly the transfer of European technologies to India and best practices, will be known next year. These projects involve the participation of universities, research labs, and both the private sector and the municipalities. Taking this as an example, India would require a comprehensive national capacity building that strengthens interdisciplinary research in universities and institutions and promotes indigenous capabilities in water management.

Science and technology is indeed bolstering India-EU strategic partnership. The IEWP forum is facilitating EU businesses in India's water sector and providing a platform for knowledge exchange. It is rooted in four critical contexts: water as a dwindling resource or the scarcity and its challenges on the agriculture sector; the quality of water and increasing level of pollution; the impact of climate change in particular floods and droughts; and the issues of water governance that requires cooperation and coordination between the centre and the states. These offer opportunities for cooperation in areas such as clean drinking water, ground water utilisation, water efficiency, sanitation, Ganga rejuvenation, inland waterways and hydro-powers.

India and Europe are both committed to Sustainable Development Goals (SDGs) and UN-Water. Many of 17 SDGs are centred on water, sanitation and hygiene. One of the objective of SDG6, in particular, is to 'expand international cooperation and capacity-building support to developing countries in water and sanitation related

activities and programmes.' Having achieved common understanding on water challenges, the EU-India partnership can consider the following:

- Taking stock of the entire water resources including rivers, underground water, lakes, and glaciers
- Determine river basins as units for development planning
- Improve 'first and last mile connectivity' or operational policies
- Emphasise the food-energy-water nexus
- Enhance institutional coordination in the water sector
- Develop and integrate road, rail and river transport

Water is a shared resource with no substitute. International cooperation offers great opportunity to correct some of the past planning and practices. New knowledge and technological break-through can help develop a robust water management based on two abiding principles – sustainability and equitability.

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The Europe India Business Council (EIBC) is an international non-profit association, based in Brussels. It operates as an AISBL, under a royal decree with His Majesty the King of the Belgians.

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