

Moving the Needle

...the journey from policy to implementation...



January 2024



Dear readers,

In this edition of Moving the Needle, we are pleased to feature Anita Marangoly George. She has served at various leadership and strategic positions across institutions like the World Bank, the International Finance Corporation and Caisse de Dépôt et Placement du Québec (CDPQ). Her inputs on the sustainable development of energy and extractive industries are widely sought and covered.

In the other sections, we take this opportunity to highlight what we perceive will be the outlook for this year in the sectors. From infrastructure to climate, from geopolitics to defence, from economy to impact and from health to technology – all of these sectors will define India’s position a decade down the line. We realize that the few common areas across all sectors is leveraging of technology while also considering impact on climate.

Like we have always maintained, this decade is very important for India and growth herein will lay a strong foundation for the coming decades as well. We wish you have a healthy, happy and prosperous new year! We hope you find this edition a valuable read and look forward to your inputs and suggestions.



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Anita Marangoly George

- Former Senior Director, Energy and Extractives Global Practice, World Bank Group
- Former EVP and Head of Emerging Markets, Caisse de Dépôt et Placement du Québec (CDPQ)

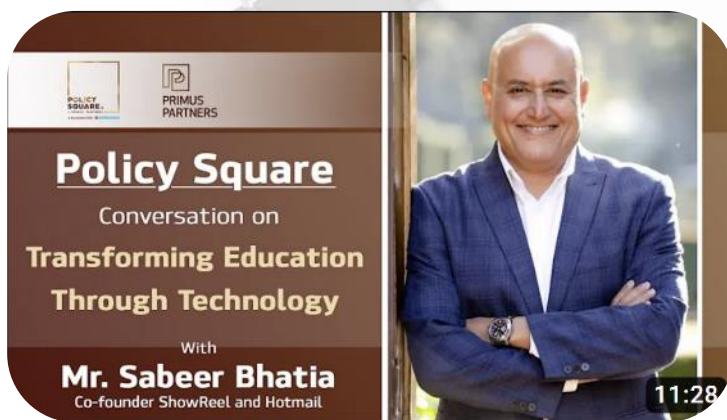
01 – Primus Outreach (an initiative to...)

#PolicySquare	...understand the more fundamental questions in policy making
#LeadersSpotlight	...highlight opinions of sector / segment leaders
#PrimusPodcast	...to bring together policymakers and thinkers in areas of critical importance

Policy Square, Leaders Spotlight and Primus Podcast are initiatives by Primus Partners wherein key constituents of the public policy ecosystem as well as the sector experts – senior policy-makers, civil society members, business executives etc. – are interviewed on critical issues and policies of national importance to explore their impact on the country and industry at-large.

The motivation for these initiatives series is driven by Primus Partners’ rich policy-sectoral-regulatory knowledge base, as well as experience of delivering projects across multiple domains and geographies, with an aim to leverage this knowledge, and create a platform to table in-depth discourse.

With this initiative, we have attempted to engage with experts at various levels within the country’s ecosystem. Each expert has brought in a new perspective – all towards enabling India’s growth both in absolute and relative terms.



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Mr Sabeer Bhatia,
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02 – Economy

Navigating India's economic horizons with resilience and promise

Within the intricate tapestry of the global economy, India stands out as a symbol of resilience and promise. The Indian economy in 2023 was marked by a remarkable recovery from the effects of the COVID-19 pandemic, as well as sustained growth in various sectors such as agriculture, manufacturing, services, and digital innovation.

The recently released UN World Economic Situation and Prospects (WESP) report predicts a 5.2% increase in the Gross Domestic Product of South Asia this year. This upward trajectory is significantly influenced by India's robust economic expansion, solidifying its status as the swiftest-growing major economy. As per the recent IMF estimates, it is anticipated to sustain this momentum with a growth rate of 6.3% projected for both 2023 and 2024.

The government has executed a variety of measures aimed at reinforcing and encouraging investments through strategic initiatives that cut across multiple sectors. This proactive approach is evidenced by the 10% increase in FDI inflows to India in 2022, propelling the nation to the position of the third-largest host country for declared greenfield projects.

An additional factor propelling fixed capital formation in the nation is the heightened government expenditure on initiatives like "Make in India," "PLI schemes," and "PM Gati Shakti" across roads, railways, and renewable energy projects. This increased spending has the potential to attract private-sector investment through a crowd-in effect in the coming year too.

The rapid pace of technological advancements continues to redefine industries globally. In India, the integration of technology into various sectors, including agriculture, healthcare, and finance, is expected to accelerate in 2024, with digital penetration increasing manifold in the country.

The IT sector in India is experiencing remarkable growth, with numerous homegrown startups playing a pivotal role in shaping upcoming technological trends, including AI, Blockchain, Quantum Computing, and IoT. Serving as a significant pillar of the Indian economy, the IT industry holds a substantial share in the US sourcing business, with India contributing to over half of this sector's operations.

Nevertheless, with opportunities unfolding in the coming year for the country, there are challenges that demand careful attention.

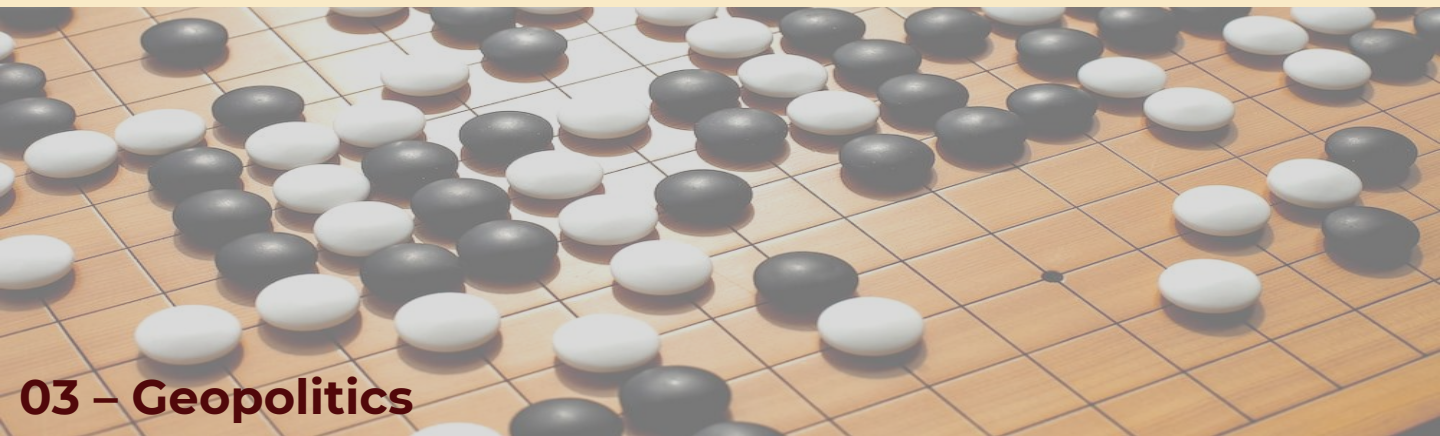
Firstly, despite narrowly avoiding a recession, the global economy has experienced substantial volatility and unpredictability over the past year. With the economy rebounding back and prices surging, managing inflation will be one of the pivotal tasks for the government. The inflation is still above the RBI tolerance level of 2-6% and the government will have to put in place anti-inflation policies to get a balance between monetary and fiscal discipline.

Secondly, while sectors such as food processing, infrastructure, pharmaceutical, defence manufacturing and fintech have been acting as growth-promising sectors, two critical sectors agriculture and services have shown signs of slowdown. Sustainable policy measures will be needed for these sectors.

Thirdly, there is an annual increase in power demand of around 8%. It is crucial for the power sector to witness substantial expansion in renewable capacities alongside the introduction of new coal-based capacities in this year.

While challenges may persist, India's ability to navigate and overcome them showcases a determination to build a prosperous and resilient economy for the future.

Therefore, to leverage the burgeoning landscape of investment and trade opportunities, it is essential to adopt a dual approach emphasizing the acceleration of technological transformation and the enhancement of governance in this year. This entails a concerted effort to not only propel advancements in technology but also to strengthen governance structures. The country's economic fundamentals, coupled with strategic policies and reform measures, present a compelling narrative of growth and stability.



03 – Geopolitics

Energy will be a key theme: “In the game of energy, the rules are constantly changing

Energy is at the centre of everything in the world today. From big tech innovation to big ticket investments, energy has a role to play everywhere. Estimates suggest that the global energy consumption will be to the extent of over 700mn by the year 2040 marking a 77% increase from 2018 levels. And when extrapolated on a long-term scale, the demand between 1980 and 2050 would have grown 300%. The numbers while been astonishing are equally representative of the new and diverse set of challenges and opportunities that this mega change in consumption pattern will bring through.

The year 2023 has been a promising one for the sector particularly. From an increase in renewable energy project approvals to greater commitments between governments and enterprises - the year had it all. Developing countries were at the forefront of leading the climate change race.

According to World Economic Forum’s Fostering Effective Energy Transition 2023 report, India and Singapore made advancements through all the three pillars of making energy more equitable, secure and sustainable. Whereas countries like Kenya and Azerbaijan made strides towards energy transition by improving their regulatory environments and infrastructure needed.

As the year drew to a close, green shipping became the buzzword for energy watchers with the conclusion of the COP 28. Growing on the proposal of countries like US and Norway to cut greenhouse gas emissions from shipping, green shipping was introduced as an idea. Country after country subscribed to it thereafter. India too introduced its green shipping policy in October 2023.

International shipping accounts for 80% of the global trade and in the words of the US Presidential Envoy for Climate Change John Kerry - “If shipping industry was a nation, it would be the 8th largest emitter”. The vision of a world restricted to 1.5 deg celsius change in temperature is no more a romantic idea but a reality staring us in the face and asking for action. The first global stocktake undertaken at the COP28 however painted a grim picture of reality. As per the reports release, the world is currently at 2.1-2.8 degree celsius increase in global temperatures which calls for serious actions to achieve the 2050 target which most countries are now skeptical of achieving.

The fuel that burns to make an energy-just-transition happen is the availability of enough financing opportunities to absorb

shocks for developing economies. At the COP28 in Dubai, the Loss and Damage fund at World Bank was officially launched with the precise idea of supporting this transition with an initial commitment of 700 million USD.

The COP 28 was also high on delivering a diverse set of pledges which included energy transition and a debut of food system transformation, an issue hitherto only talked about. Another first in this year’s gathering was the highest ever attendance of CEOs apart from world leaders and policy watchers, a move rightly indicative of the multi stakeholder model that the world today functions on.



With time running out faster than the pace of fulfilling of commitments, annual events such as COP are reminders of the need to start walking the talk before it is too late.

To sum it up, energy will indeed be critical geopolitically for 2024. The ongoing global energy crisis due to conflicts across the globe, coupled with the accelerated energy transitions due to climate change and energy security are to an extent resulting in weaponization of energy resources in the sense of being used as political leverage even. With global diversification of energy partners (with an intent to reduce dependence on just few suppliers) being further enhanced courtesy new political partnerships, there clearly is an impact that may be witnessed. The complex interplay of all above factors indicates that energy will be an important theme and the resultant dynamics will decide how the world navigates the changing landscape.

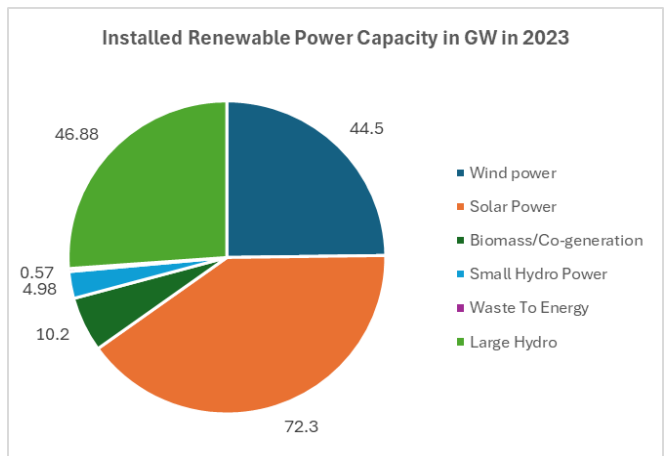
04 – Infrastructure

India plans to go “indigenously” green - reducing impact from geopolitical shocks

Increased economic activity over the last few decades has led to a doubling of per capita electricity consumption from 631 units to 1,255 units between 2005 to 2022; making India the third-largest electricity market in the world. As per a report by the Ministry of Power, Govt. of India, the peak electricity demand is expected to touch around 335 GW with an electrical energy requirement of 2280bn units for the year 2029-30.

Due to its commitment outlined in the Updated Nationally Determined Contribution (NDC), India plans to decrease the Emission Intensity of its GDP (calculated by dividing a country's total GHG by its GDP) by 45% from the 2005 level by 2030 which was 35.14 kgCO₂e/ 1000Rs (at 2004-05 Constant prices) in 2005. Alongside this goal, India is targeting to have 50% of its cumulative electric power installed capacity sourced from non-fossil fuel-based energy resources by 2030. As part of this effort, India has set its sight on achieving 500 GW of renewable energy installed capacity by 2030.

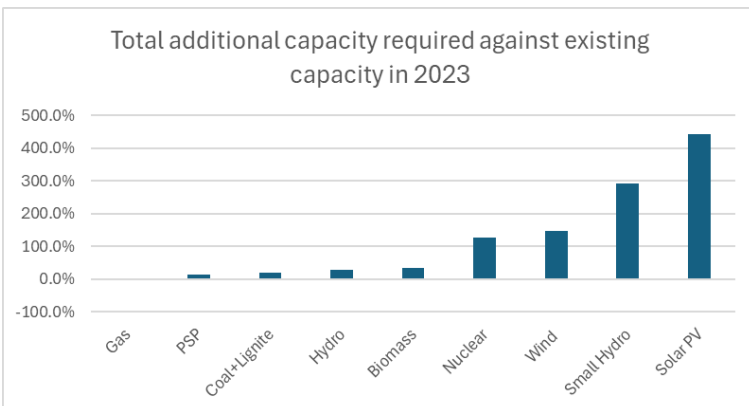
India has increased its installed capacity for renewable energy from 39.95 GW in 2014–15 to 180 GW in 2023, a growth of almost 450% and a 42.10% share in the total installed capacity, thanks to large-scale investments and a number of governmental initiatives. Currently, India stands 4th globally in terms of total renewable power capacity additions followed by China, the European Union and the United States whereas in the case of Solar and Wind energy installed capacities as well India stands 4th followed by China, US, Japan and Germany.



India is progressing at a substantial rate towards increasing its Renewable energy capacity to meet its energy security targets as well as complying with its NDCs. The study on optimal power generation mix v2.0 by the Central Electricity Authority states that to meet the targets mentioned above, India still needs to achieve 95% total power generation capacity addition which is led by Solar with 441% additional capacity demand followed by small hydro, wind and nuclear etc.

Through its policy initiatives such as the PLI scheme for High Efficiency Solar PV Modules which led to the manufacturing capacity addition of ~40 GW of Solar PV modules in Trench-I is anticipated to attract investment worth INR 93,041cr in Trench-II. The VGF scheme for the installation of 4,000 MWh Battery Energy Storage Systems (BESS) will further boost the Renewable energy capacity addition. Further, the National Green Hydrogen Mission will help in achieving the production of 5MT green hydrogen by 2030.

In 2024, India is expected to see the highest-ever renewable energy capacity additions at 19 GW including about 16-17 GW solar and 2-3 GW wind. India's solar module manufacturing capacity is set to grow almost 400% to reach 38-43GW, from 8GW per year.



05 – Technology

Sector Outlook for 2024 – from 6G to more sustainable technologies, it is all on the way

As the sun sets on 2023, analysts and technology enthusiasts are excited about what 2024 promises to be. Here are our top three bets on what we believe would revolutionize the Indian technology landscape in the coming year -

Grassroot adoption of 5G and advent of 6G

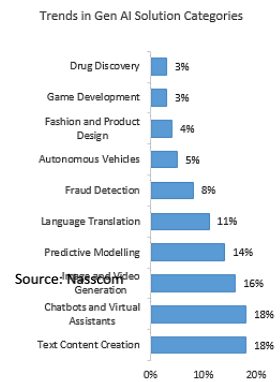
More than 7,000 cities and towns have become 5G-enabled since its launch in October 2022. But improving last mile connectivity remains a major focus area for the government and telecom operators in 2024, as digital inclusion would not only improve operator ARPU from implementing 5G at scale, but also improve public service delivery considerably.

Beyond the success of 5G, India would be looking at 2024 to build on its role to become a global supplier of 6G solutions and participate in the 6G standards setting. India has already secured over 200 patents in the field of 6G technology and has actively participated in the ITU's study group on 6G, with its contributions incorporated into the group's framework document. India's 6G initiative will be rolled out in two phases - The first seeing the exploration of ideas and proof-of-concept testing till 2025, and the government aiming to commercialise peer-reviewed ideas and concepts in phase 2.

GenAI – Text content creation & Chatbots to dominate through 2024

According to Inc42's latest report, India's GenAI market will be growing exponentially in the next few years. It is projected to surpass \$17 Bn by 2030 from \$1.1 Bn in 2023, growing at a CAGR of 48%. This expected meteoric rise is attributed to the innovative prowess of India's GenAI startups, with one in every three focussing on the code and data segment, laying the foundation for AI-driven solutions across verticals. As of May 2023, the Indian Generative AI landscape has over 60 startups dedicated to offering solutions across various industry verticals and more than \$590 million in funding has already flown into this space. In 2024, we expect to see a larger influx of solutions and investments, as well as GenAI's rapid adoption among consumers and businesses across various applications, including text, image, audio and video, 3D, code generation and more.

Use Case	Top Industries
Text Content Creation	Media, E-commerce, Advertising, Tech Services
Chatbots and Virtual Assistants	E-commerce, Banking, Tech Services
Image and Video Generation	Media, Entertainment, Advertising
Predictive Modelling	Finance, Healthcare, Retail
Language Translation	E-commerce, Travel and Hospitality, Tech Services
Fraud Detection	E-commerce, Banking, Insurance
Autonomous Vehicles	Automotive, Transportation, Logistics
Fashion and Product Design	Retail, Fashion, E-commerce
Game Development	Gaming, Entertainment
Drug Discovery	Pharmaceutical, Life Sciences, Biotechnology



Some notable tools in the Indian Generative AI space that are expected to get more traction are KissanGPT, BharatGPT, PolicyGPT, Jugalbandi, LawBot Pro, Lexi, and PolicyGPT.

Sustainability Technologies impacting businesses and society

India announced its target to achieve net zero by 2070 at COP 26 in November 2021. Moreover, a recent survey suggests that 79% of investors surveyed consider ESG management as an important factor in investment decisions. With the collaborative efforts of the government, industry, and citizens to embrace technology, continuous focus on research innovation across industries, and right skilling of people; India has the potential to be a self-reliant sustainable technology powerhouse in 2024.

According to the International Energy Association, India will soon become one of the world's largest markets for clean energy technologies, with huge demand for renewable energy, battery technology, green hydrogen, and carbon capture, among other areas and we expect companies in these verticals to take giant strides in 2024. Continued emphasis on sustainability shall also drive the Indian innovation ecosystem, encompassing a variety of development schemes in social, clean energy, clean water, and even sustainable agriculture.

Apart from these three overarching themes, we are also optimistic and would be closely monitoring developments around Web 3.0, Quantum and Edge computing, AR/VR, DevOps, RPA, IoT, Blockchain, Digital twins, and Machine Learning in India.

06 – Aerospace and Defence

Towards a collaboration-oriented and technology-driven future

In 2023, the increasing geopolitical challenges as well as the surge in domestic and international air travel, have both fueled a heightened demand for new aircraft, new weapons as well as aftermarket for both. In the defence sector, the confluence of new geopolitical challenges and a strategic focus on military modernization contributed to robust demand throughout 2023, particularly in the realms of advanced weaponry and next-generation capabilities.

Anticipating a continuation of this trend, the demand for A&D products and services is poised to extend into 2024 and possibly beyond as well. On the commercial aerospace front, the trajectory of travel is expected to maintain its upward momentum. In the defence segment, the persistent global geopolitical instability is forecasted to sustain and potentially elevate demand for cutting-edge products and niche technologies. Moreover, companies operating in emerging markets, are projected to advance their efforts in testing and certification, aligning with their strategic preparations for commercialization. This collective outlook underscores the resilience and forward-looking dynamics characterizing the A&D industry as it charts its course into the year 2024.

Global Collaborations and Strategic Agreements: India, recognizing the need for interoperability and shared security interests, is actively engaging in strategic agreements with key global players. The number of bilateral and multilateral defence agreements signed by India reached a record high in 2023. This trend is expected to continue in 2024, further strengthening India's A&D capabilities through joint development partnerships, technology transfers and knowledge sharing.

Indigenous Manufacturing Surges Ahead: The 'Make in India' initiative has been a cornerstone of India's defence policy, and the results are becoming increasingly evident. Indigenous manufacturing in the defence sector has witnessed a substantial boost. This surge not only bolsters self-reliance but also creates a robust ecosystem for innovation and job creation within the country.

Stealth Technology and AI & ML: With features like advanced avionics and radar-absorbing materials, India is making significant progress in creating stealth capabilities. The AMCA (Advanced Medium Combat Aircraft) program is a major example, aiming to develop a fifth-generation stealth, multi-

role combat aircraft. A&D sector is embracing AI & ML technologies to enhance intelligence in defence deployments, assisting in surveillance, data analysis, and logistics, autonomy in ISR (Intelligence, Surveillance and Reconnaissance).

Robotics & Unmanned Systems Take Center Stage: One of the defining trends of 2024 will be the increasing prominence of robotics and unmanned systems in India's defence strategy. These systems, ranging from drones to UGVs, are witnessing accelerated development and deployment. The Indian Armed Forces, in collaboration with domestic and international partners, are actively integrating these advanced capabilities into its operations, enhancing situational awareness and response times.

Cybersecurity and Space Dominance: As the world becomes increasingly interconnected, India is also focusing on robust cybersecurity measures, along with the digitization of military operations and critical infrastructure.

Key areas which require focus to take on the challenges and capitalize on emerging opportunities with digitalization being the unifying theme across all the trends:

- **Supply Chain:** The intricate global supply chain landscape is necessitating a multifaceted approach to ensure robustness and adaptability to tackle challenges like increased prices, production and delivery delays.
- **Digital Transformation:** Realizing the potential for growth and efficiency, the industry is embracing digital technologies as key drivers of transformation.
- **Innovative Product Development:** Technological advancements and a heightened focus on sustainability are propelling a wave of product innovations in response to market dynamics.
- **Talent:** Rising demands, evolution of the required skillset and changing workforce expectations are creating a new talent landscape which therefore requires a very carefully thought of way-forward towards having a much larger skilled workforce.



07 – Healthcare

Technology will keep reshaping healthcare

India has had a very eventful year in 2023. Post the pandemic, the country accelerated its agenda of developing strong global partnerships, especially in the field of healthcare. The G20 Presidency came at a strategic time where India was able to showcase its progress across the sectors and set the agenda for initiatives that project India in the position of leadership. The emphasis on development and integration of the Global South for Pandemic Preparedness initiatives in the presidency gave opportunity to India to cultivate strong international relations for collaboration and investments in the Indian healthcare ecosystem. India's strong commitments towards Climate and Health Initiatives with the Net Zero 2070 vision, adoption of the Green Development Pact by the G20 nations and launch of the Green Credit Initiative at COP28 UAE, further projects India as a country with a progressive outlook for healthcare.

For the better part of the last decade, India has been making long strides in the field of healthcare technology and pioneering with delivery models like telemedicine and e-pharmacy. The e-Sanjeevani platform has been integrated with the Ayushman Bharat Digital Mission and has served over 117 million patients. The Tele-MANAS platform that deliver mental health counselling via teleconsultation has received over 10,000 calls. During the years of the pandemic, India emerged as the champions for innovation and mass manufacturing in pharmaceuticals and medical products. In the last 5 years, India has taken strong steps towards attracting investments in the healthcare with 100% FDI in Greenfield projects, creation of Medical Devices Parks, promotion of Public Private Partnerships in healthcare infrastructure development and startups in healthtech under AtmaNirbhar Bharat Mission. In the last year, two important initiatives Heal In India and Heal By India were released to popularize India's thriving Medical Tourism Industry and further strengthen international collaborations for medical treatments, research and development.

The future of the healthcare industry in India looks promising with technology being the central feature of innovation in the sector. As per reports by NITI Aayog, about 18% of the urban population and 14% of the rural population is covered by some kind of health insurance. These statistics are expected to change as the income levels in the urban population improve and the penetration of the PMJAY scheme increases in the states. Insurance coverage will enable the population to access and afford secondary and tertiary level treatments in the facilities.



The wearable devices market is expected to grow to a value of \$1.6 billion by 2025 with the use of Generative AI used for predictive analysis for personalised medicine



The Indian Surgical Robotics Market is expected to expand at a CAGR of 20% to reach the size of \$350 Mn by 2025



Over \$200 Bn to be spent on medical infrastructure by 2024 and various schemes under the AatmaNirbhar Bharat Abhiyaan



AI applications in healthcare are expected to grow at an annual rate of 45% by 2024 in personalized medicine, virtual health assistants, intelligent ambulances etc.



The pharmaceutical industry in India is expected to reach \$65 Bn by 2024 and to \$130 Bn by 2030. The PLI schemes and focus on Research and Innovation to give a boost

08 – Financial Services

Driven by innovation, supported by economic growth and accelerated by inclusive growth

As we bid farewell to the transformative year of 2023, it's time to reflect on the significant events that shaped the Indian financial markets. From IPO euphoria to strategic mergers & global recognitions, the landscape underwent notable changes. Looking ahead, we also delve into what might be on the horizon for 2024.

IPO Extravaganza: The IPO market stole the limelight in 2023, with a surge in companies going public across sectors. Total number of IPOs in India grew by 56% YoY, being the highest in the world. The IPO frenzy brought both excitement & liquidity to the markets. The record-breaking listings not only marked a shift in fundraising strategies for businesses but also provided investors with new avenues for wealth creation.

M&A Chronicles: As we reflect on the past year, the M&A landscape becomes a canvas illustrating the adaptability & resilience of businesses. Some of the major M&A deals in 2023 in India were as follows:

- Govt of India acquired the largest share in Vodafone.
- Axis Bank acquired Citibank's India Retail Business.
- Paytm acquired a stake in Alibaba.
- Adani Group Acquired Stake in NDTV Group.
- Kotak Mahindra and Sonata Finance.
- Central Depository Services acquired Bombay Stock Exchange.
- IDFC First Bank Merger with IDFC Ltd.

Mutual Funds: The resilience of mutual funds was a reassuring aspect of 2023. Amid market volatility, mutual funds proved to be a steady investment choice, guided by adept fund managers navigating the ever-changing financial terrain. The insights garnered from mutual fund performances provide valuable lessons for investors seeking stability & growth in their portfolios.

Measures proposed in the Union Budget 2023-24:

- **The Union Budget 2023-24 increased municipal bond issues** to improve finances & set up an Urban Infrastructure Development Fund for creation of urban infra in tier-II & tier-III cities. These cities will be given incentives to improve their credit worthiness for municipal bonds, through property tax governance reforms & ring-fencing user charges on urban infra.

- Revamping of the credit guarantee scheme for MSMEs via corpus of INR 9,000 crores for enabling additional collateral-free guaranteed credit of 2 lakh crore.
- Amendment of The Banking Companies (Acquisition and Transfer of Undertakings) Act, 1970 & the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1980 to allow the government for privatizing 2 public sector banks & 1 general insurance company.
- Setting up of National Financial Information Registry as the central repository of financial & ancillary information for efficient flow of credit, promoting financial inclusion and fostering financial stability.

Reserve Bank of India (RBI) had made significant moves by not only tightening norms on consumer lending but also placing a specific focus on unsecured loans. Banks & non-banking financial companies (NBFCs) are now required to increase reserves & establish board-approved policies for managing exposure limits in consumer lending. The RBI has raised the risk weights for consumer credit exposure in commercial banks.

What Lies Ahead for 2024?

As we step into the new year, it's essential to gaze into the crystal ball to anticipate what the future holds for Indian financial markets. While predictions are inherently uncertain, certain trends & factors may shape 2024:

- **Regulatory Developments** that might influence market dynamics & investor behaviour.
- **Technology Integration:** The continued integration of technology, including blockchain & artificial intelligence, is likely to reshape how financial markets operate.
- **Sustainable Investing:** With a growing emphasis on ESG considerations, sustainable investing may gain more prominence.

As we look back at the highlights of 2023 and peer into the uncertainties of 2024, one thing remains certain—the financial markets will continue to evolve. Whether it's the IPO landscape, M&A activities market resilience, or global recognition, the Indian financial market is set for another intriguing chapter.



09 – Impact

Sustainability – all paths lead to the same destination!

As the science for climate change caused by human activities becomes undisputable, the countries around the world are grappling for solutions to address the biggest threat to the continued existence of humankind. With every foregone year, the reports on climate change brings out the 'dismal' state of affairs, highlighting the worsening environmental conditions, poor data metrics on sustainability and keeps signaling the 'red flags' for the urgent need to act and respond immediately.

Climate Sustainability: Measures taken by India

Climate sustainability essentially refers to the practices, policies, and initiatives aimed at comprehensively addressing the issue of climate change while ensuring the long-term health and stability of the planet. Key aspects of climate sustainability solutions are focused on - mitigation, adaptation, conservation, restoration and sustainable consumption.

India, being one of the major countries to be affected by climate change, has shown unwavering commitment towards tackling the effects of climate change and plans to achieve 'net-zero' target by 2070. India committed during COP 26 that by 2030 India would meet 50% of its energy demand through renewable sources, installation of renewable energy capacity will reach 500 GW.

Below are some of the major actions/initiatives taken by India, to address the issue of climate change across various industries:

- **Agriculture: National Mission for Sustainable Agriculture (NMSA)** has been launched with the aim of making Indian Agriculture more resilient to climate change. In addition, schemes such as *Pradhan Mantri Krishi Sinchayee Yojana*, focus on improving water- use efficiency in agriculture, whereas *Paramparagat Krishi Vikas Yojana*, encourages organic farming practices, minimizing chemical inputs and promoting biodiversity.
- **Energy:** There is also increased momentum towards carbon capture and storage solutions and steadily increasing renewable energy capacity, which currently constitutes about 42% of country's total capacity. India also announced the **National Green Hydrogen Mission (GHM)** with the aim to produce 5mn mtpa green hydrogen

by 2030.

- **Addressing Biodiversity Loss:** Indian Government has invested in large-scale afforestation and reforestation programs, such as the **Green India Mission** and has taken concrete steps for the conservation of endangered species, sustainable land management and has established a vast network of protected areas
- **Circular Economy:** To expedite the transition of the country from a linear to a circular economy, 11 Focus Areas have been identified that indicate end-of-life products/recyclable materials/wastes that must be dealt with in a holistic manner. Some of these include- Municipal Solid Waste and Liquid Waste; Scrap Metal, Electronic Waste, Lithium-Ion Batteries, etc.

Future Outlook: Areas to lookout for

- **Evolving Policy Framework:** As the governments around the world devise plans to move towards climate-neutrality, significantly more laws and legislations can be expected, especially in the Transportation, Energy-Intensive Industries such as Coal, Oil & Gas etc. Global Momentum has been growing on **strengthening Carbon Tax** focusing on the importance of putting a price on carbon, as a tool to mitigate climate change.
- **Climate Finance and Investments:** As per reports, almost a quarter of all the VC funding in 2022 has gone to the climate technology sector, with a large chunk of corporate money going into finding solutions related to cutting carbon emissions, clean energy and revolutionizing supply chains. Analysis has shown that prompt climate action can bring in an \$11tn opportunity for India, while the current investments in climate tech was estimated to be \$3.7bn in 2022.
- **Corporate Sustainability Commitments:** Increased corporate responsibility and commitments to sustainability is emerging as a key trend in the sector. Companies are setting ambitious goals to reduce carbon footprints, adopt renewable energy, and improve supply chain sustainability.
- **Resilience and Adaptation Strategies:** Increased attention is shifting towards building resilience against climate impacts through infrastructure improvements, climate-smart urban planning, and development of early warning systems for extreme weather events.

Anita Marangoly George

- Former Senior Director, Energy and Extractives Global Practice, World Bank Group

- Former Executive Vice President and Head of Emerging Markets, Caisse de Dépôt et Placement du Québec (CDPQ)

Anita has served at various leadership and strategic positions across institutions like the World Bank, the International Finance Corporation and Caisse de Dépôt et Placement du Québec (CDPQ). She has donned several roles

across countries and continents leveraging her expertise while providing direction in the sustainable development of energy and extractive industries.

You have witnessed the planned gradual transition globally from non-renewable to renewable sources. Given that India has extended the directive for all import-based coal power plants to run at full capacity until June 2024, from October 2023 previously, realistically how do you see the next decade panning out?

Over the past decade, India has made impressive achievements in renewable energy (RE) deployment. India achieved its original RE target of 176GW of RE capacity (inc. large hydro) by mid-2023. Given the country's economic growth, the energy demand is set to double by 2030. Therefore, achieving a delicate equilibrium is crucial to ensure a reliable and uninterrupted power supply to support this growth is critical. India will need to work on the following over the coming years:

A Strategic Approach to Coal: India needs to develop a roadmap for the future of coal in its energy mix. India has taken measures to reduce the emission profile of thermal power plants by mandating 5% bio-fuel blending to reduce emissions. India can accelerate the phase-out of thermal power by tapping into Just Transition financing for coal-related industries. The Indonesian project supported by the Singapore government serves as an example of successful transition finance, which will retire 660MW of coal-fired power plants 7 years ahead by using transition financing and developing clean energy.

Technologically Agnostic Bidding: To further accelerate the adoption of renewable energy, India can undertake policy measures such as technologically agnostic bidding allowing for a competitive evaluation of different energy sources, ensuring that the most cost-effective and sustainable options are chosen. It facilitates an unbiased selection process, driving innovation and efficiency across the energy sector.

Energy Storage and Grid Balancing: Given the current technological constraints on affordable energy storage solutions, the grid relies on thermal power generation during periods when solar power is unavailable. This needs to be balanced with cost-effective storage solutions. A push on storage and expanded transmission capacity to help balance the grid will be important.

The coming years in India's energy transition will be marked by the delicate challenge of scaling up renewable energy while maintaining grid stability on the supply side. Balancing intermittent renewable sources with stable baseload power remains a priority, necessitating a strategic and flexible approach. On the demand side, India has done well on improving energy efficiency and should continue to intensify efforts and incentivize private industries to improve energy efficiency. The adoption of innovative financing models, integration of biofuels, and a technologically agnostic bidding

framework will be instrumental in steering India toward a low-carbon, sustainable energy future.

Today there is a lot of discussion towards clean energy and most of the companies are preparing roadmaps towards going green. What are the top 3 challenges to scaling up green financing in India?

Despite India's progress and momentum in clean energy, a lot more needs to be done for India to achieve its ambitious targets. India's current run rate of 12 GW (Solar + Wind) of annual additions is far short of 50 GW annual addition required to achieve the target of 500 GW by 2030. Addressing challenges for green financing is crucial to unlock the full potential of sustainable energy initiatives.

Non-availability of Energy Transition Capital: Green financing requires dedicated funds specifically earmarked for supporting the transition to clean energy sources. Establishing mechanisms that facilitate cost-effective energy transition capital, including public-private partnerships and green investment funds, can bridge this gap. Governments can play a pivotal role in creating incentives and reducing risks for financial institutions to allocate funds to green projects.

Non-availability of Blended Financing and Green Bonds: Green projects often have technologies which are not fully scaled and require a mix of blended financing, tailored to suit the specific risk profiles of the project. However, regulations limit blended financing for equity through funds, limiting the global pool of concessional capital that can be directed to India. Similarly, the development of a robust green bond market is important to provide cost-effective debt solutions. Currently, Green bonds issuances are limited and lack liquidity, making them less attractive to investors. On the issuer side as well, only 15 Indian firms have raised approximately \$550mn in the domestic green bond market since 2017. The establishment of standardized frameworks, certification processes, and regulatory incentives can stimulate the growth of green bonds.

Stable Policy Implementation and Direction: The uncertainty surrounding policy implementation and the lack of a clear direction pose substantial challenges to scaling up green financing in India. Governments must provide a consistent and transparent policy framework that encourages green investments.

Green Credits Initiative: India has recently developed the Green Credits Initiative, which is an effort to create a market-based incentive for different kinds of environment-positive actions, not just for carbon mitigation. However, workings and calculations for trading of such Green Credits are currently awaited.

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The establishment of such framework can further align financial interests with sustainability goals. This can help connect doers with capital providers. However, it will require some work to get the program rolling:

- Standardized Impact and Verification frameworks and independent agencies to monitor the compliance.
- Incentives and regulations to promote participation in Green Credit market.
- Price discovery and market stabilization mechanism for green credits.
- Registry and claim utilisation mechanism for transfer / utilisation of green credits.

How can governments support the capacity building of financial institutions and other stakeholders in the green finance ecosystem while at the same time ensuring that green financing is used to support a just and equitable transition to a low-carbon economy?

Governments will play a pivotal role in supporting the capacity building of financial institutions and stakeholders in the green finance ecosystem, ensuring that green financing contributes to a just and equitable transition to a low-carbon economy.

Financial Capacity Building:

Developing a Comprehensive Taxonomy: India should put its taxonomy out. This taxonomy could be integrated into existing reporting standards like the Business Responsibility and Sustainability Reporting (BRSR). This will help facilitate standardization of reporting of green economy.

Support for Smaller Companies: Governments should help enable smaller companies to become green. This can be achieved through the provision of transition capital, grants, and incentives specifically designed for smaller enterprises.

Green Economy white paper: India should come out with a green economy white paper showing how a zero carbon economy could look like. This will facilitate businesses in taking long term decisions and capex decisions towards green projects.

Physical Asset Creation:

Public-Private Partnership in Infrastructure Projects: Governments can stimulate physical asset creation by adopting a public-private partnership model. Projects like the REWA Solar Park in Madhya Pradesh, where the public sector handles land acquisition and evacuation infrastructure while the private sector bids, builds, and operates, showcase effective collaboration. This model ensures efficient use of resources and expertise, accelerating the development of renewable energy infrastructure.

Supply Chain Strengthening and Greening: Supply Chains for green economy are evolving. These needs to be incentivized so that RE projects do not face supply chain bottlenecks. Further, the entire supply chain needs to be greened – building green corridors etc need to be accelerated.

Adaptation Measures: Governments should incorporate climate resilience into planning and development. This will ensure the long-term sustainability and effectiveness of green investments.

What are the major risks with respect to green financing and how can a more enabling environment be created?

Green financing plays a pivotal role in transitioning towards a sustainable future. However, it faces several challenges that can hinder its effectiveness. Addressing these risks and creating a more enabling environment is crucial for the success of green

investments.

High perceived risk: Green solutions are relatively young and therefore face the perception of high risk. Governments can play a crucial role in reducing this gap and coming out with policies that promote both development and deployment of green technologies. Both Customers and Financiers need to have mechanisms that promote use of green technologies and provide adequate comfort to them for any potential losses in the initial years. India has several templates for this through its good work on Renewable Energy, Energy efficiency – some of these need to be taken up at an accelerated pace in all emerging areas of green economy.

Greenwashing: The issue of greenwashing, where investments are falsely presented as environmentally friendly, poses a significant risk to the credibility of green financing. Transparent reporting mechanisms and stringent penalties for greenwashing can further safeguard the integrity of green investments, ensuring that funds are channelled towards genuinely sustainable projects.

Investing in Research and Development: Affordable Green technologies are required to accelerate the pace of deployment across emerging economies. This can only happen with robust research and development ecosystem. Governments should encourage such research and development by offering tax breaks, grants, and subsidies. Establishing research partnerships between academia, industry, and government bodies can foster innovation and accelerate the development of sustainable technologies, making green financing more attractive for investors.

Government-led Initiatives: Drawing inspiration from successful models like the Infrastructure Bank setup by United Kingdom and National Investment and Infrastructure Fund by India, India could establish green infrastructure banks. These banks can serve as intermediaries, mobilizing global capital for just transitions and green financing. By leveraging public funds to attract private investment, governments can catalyse the development of sustainable projects. Additionally, regulatory frameworks that incentivize green investments, such as tax incentives and favourable lending conditions, can encourage businesses to align with sustainable practices.

Lack of Knowledge: A critical barrier to green financing is the lack of knowledge among investors and businesses. Governments, educational institutions, and industry associations should collaborate to establish sustainability schools and training programs to develop subject matter expertise on sustainability. As an example, Kotak Mahindra Bank and IIT Kanpur recently announced the launch of the Kotak School of Sustainability at IIT Kanpur. Development of such institutions can provide education on green finance, environmental management, and sustainable business practices. By nurturing a skilled workforce with a deep understanding of sustainability, stakeholders can make informed decisions, driving the adoption of green financing across sectors.

In conclusion, creating an enabling environment for green financing requires a multifaceted approach. Governments, financial institutions, and businesses must collaborate to address hinderances. By implementing these measures, nations can build a sustainable financial ecosystem that fosters green investments, contributing to a cleaner and more resilient future.

About Primus Partners

Primus Partners has been set up to partner with clients in ‘navigating’ India, by experts with decades of experience in doing so for large global firms. Set up on the principle of ‘Idea Realization’, it brings to bear ‘experience in action’. ‘Idea Realization’— a unique approach to examine futuristic ideas required for the growth of an organization or a sector or geography, from the perspective of assured on ground implementability.

Our core strength comes from our founding partners, who are goal-oriented, with extensive hands-on experience and subject-matter expertise, which is well recognized in the industry. Our core founders form a diverse cohort of leaders from both genders with experience across industries (Public Sector, Healthcare, Transport, Education, etc.), and with varied specialization (engineers, lawyers, tax professionals, management, etc.).



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for providing solutions to help clients achieve their goals

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