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Investing in India's Green Economy

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Introduction



ROHIT KAPUR Managing Director Dezan Shira & Associates New Delhi Office

A mid mounting concerns about climate change and environmental impact, policymakers and investors are increasingly prioritizing sustainability goals. These factors not only impact pollution indices and the availability of clean resources but also influence workforce productivity.

Robust economic growth and high-quality development rely on equitable resource distribution and the adoption of emerging technologies, especially as India seeks to achieve net-zero emissions by 2070. Renewables, electric vehicles, resource-efficient buildings, lowcarbon transport, and waste management facilities are at the forefront of this paradigm shift, poised to drive future economic expansion.

In this edition of *India Briefing Magazine*, we offer a comprehensive overview of India's green economy, showcasing business opportunities and associated challenges. We discuss India's major environmental goals and opportunities for solution-driven investments as well as the legal and compliance landscape.

Leveraging our extensive experience in supporting foreign companies in Asia, Dezan Shira & Associates is well-positioned to assist your company in attaining its growth in green sectors. With strategically located offices across India, we offer invaluable local insights and expertise. For more information, please contact us at **india@dezshira.com**.

With kind regards,

Rohit Kapur



Credits

Publisher - Asia Briefing Media Ltd. Lead Editor - Melissa Cyrill Contributor - Neeraj Khatri Designers - Aparajita Zadoo, Nguyen Hoang Linh

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The Scope for Foreign Investment in India's Green Growth Challenge

The shift to a green economy offers businesses profitable opportunities by aligning with environmental sustainability through strategic investments in natural assets. India's support measures to reduce carbon emissions and advance sustainable development goals make it an attractive market for foreign firms.



Melissa Cyrill Deputy Managing Editor Asia Briefing

The green economy offers investment opportunities by aligning profitability with environmental goals. It focuses on sustainable development and poverty eradication, and values natural assets such as forests, water, and soil.

Success is defined by improving human wellbeing, social equity, and reducing environmental risks, thereby challenging the perceived trade-off between economic progress and environmental responsibility.

Green industries can be commercially viable and drive economic growth, innovation, and job opportunities, especially for small and mediumsized enterprises.

However, achieving this requires a shift in financial strategies for both public and private sectors, involving targeted policy reforms to protect natural capital and promote emerging sectors and technologies as well as investment in knowledge and intellectual property domains.

Foreign investment scope in India's green economy

Renewable energy

In India, foreign direct investment (FDI) in the renewable energy sector surged to US\$2.5 billion in FY23, a 56 percent YoY increase. Q1 FY23 alone attracted US\$949.4 million, with Q4 FY23 showing a notable 102 percent YoY increase at US\$838 million. As of December 2022, total FDI in the sector reached US\$12.47 billion, surpassing US\$78 billion since 2014. Key investor countries include Singapore, Mauritius, The Netherlands, and Japan.

India's renewable energy landscape is appealing due to abundant labor, access to affordable capital, streamlined regulatory clearances, green hydrogen mandates, and incentive schemes. The Bank of America projects up to US\$800 billion in investments in India's renewables over the next decade. The overall sector is expected to attract around US\$250 billion, batteries US\$250 million, and supporting

	Status of Schemes Supporting India's Renewables Industry			es Industry
S. No.	Issuance date	Issuing authority	Name of the policy	Summary
1	Sept. 28, 2022	Ministry of Power	Amendment to the Scheme for Flexibility in Generation and Scheduling of Thermal/Hydro Power Stations through bundling with Renewable Energy and Storage Power dated 12th April 2022 – Deletion of Paras 9.2 and 9.4.3 -reg.	The amendment involves the deletion of Paras 9.2 and 9.4.3 from the existing scheme for flexibility in generation, emphasizing changes in the thermal/hydro power station bundling with renewable energy and storage power.
2	Nov. 2, 2022	Ministry of New & Renewable Energy (Biogas Division)	Administrative approval for the implementation of Biogas Programme under the Umbrella scheme of National Bio Energy Programme for FY 2021-22 to 2025- 26- (Phase-I) regarding.	The Ministry of New & Renewable Energy has provided administrative approval for the Biogas Programme, continuing the National Bioenergy Programme for FY 2021-22 to 2025- 26, Phase-I, with a budget outlay of INR 8.58 billion.
3	Oct.6, 2022	Ministry of New & Renewable Energy	Extension of Phase-II of Grid Connected Rooftop Solar programme	The Phase-II of the Grid Connected Rooftop Solar program is extended until 31.03.2026 without any financial implication.
4	Aug.24, 2022	Ministry of New & Renewable Energy Grid Solar Power Division	Scheme for Solarisation of sun- temple town of Modhera, District – Mehsana, Gujarat	The scheme aims at 100% solarization of Modhera, Gujarat, fulfilling domestic and agricultural electricity needs with solar energy, setting up a pilot demonstration project for a town running completely on solar power.
5	Nov.2, 2022	Ministry of New & Renewable Energy Biomass Division	Administrative approval for implementation of Biomass Programme under the Umbrella scheme of National Bioenergy Programme for the duration of FY 2021-22 to 2025-26 (Phase-I)- Reg.	The Phase-I of the Biomass Programme is approved with a budget outlay of INR 8.58 billion, continuing the National Bioenergy Programme for FY 2021-22 to 2025-26.
6	Sept.30, 2022	Ministry of New & Renewable Energy Grid Solar Power Division	Production Linked Incentive Scheme (Tranche II) under 'National Programme on High Efficiency Solar PV Modules.	The Tranche-II of the Production Linked Incentive Scheme allocates a total capacity of 39,600 MW for domestic Solar PV module manufacturing capacity, with an expected operational capacity by October 2024, April 2025, and April 2026.
7	Oct.3, 2022	Ministry of New & Renewable Energy	Clarification on the applicability of central financial assistance (CFA) available under Rooftop Solar (RTS) Programme Phase-II for solar systems installed under Virtual Net Metering (VNM) arrangement.	The clarification addresses the applicability of central financial assistance for solar systems installed under Virtual Net Metering (VNM) arrangement in Rooftop Solar (RTS) Programme Phase-II.

S. No.	Issuance date	Issuing authority	Name of the policy	Summary
8	Aug. 1, 2022	Ministry of New & Renewable Energy	Extension of Pradhan Mantri Urja Suraksha evam Utthaan Mahabhiyaan (PM-KUSSUM)	The PM-KUSSUM scheme, aimed at boosting solar power installation in rural areas, has been extended till March 2026 under Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan.
9	June 28, 2023	Ministry of Power	Carbon Credit Trading Scheme, 2023.	The Carbon Credit Trading Scheme aims to establish a robust platform for trading carbon credits, encouraging entities to minimize their carbon footprint by reducing emissions.
10	June 16, 2023	Ministry of New & Renewable Energy National Solar Mission Division	Scheme for "Development of Solar Parks and Ultra Mega Solar Power Projects"-reg extension in scheme timeline.	The timeline of the Solar Park Scheme has been extended up to FY2025-26 without any additional financial implication.

Status of Schemes Supporting India's Renewables Industry

grid infrastructure and other segments like green hydrogen, equipment, and systems could garner US\$300 billion in total investment. Leading Indian corporates like Reliance Industries, Tata group, Mahindra Group, and the TVS Group have ambitious plans in the green energy sector. Reliance Industries, for example, aims for carbon-neutrality by 2035, and has made significant acquisitions of in solar, battery, and hydrogen projects, totaling over US\$1.5 billion.

Waste sector

The solid waste management market in India is segmented into collection, transportation, treatment, and disposal, with collection and transportation dominating due to inadequate infrastructure. While government initiatives aim to improve waste management, there is significant variation in technology adoption and processing capacity across states and union territories.

The estimated size of the Indian waste management market is US\$32.09 billion in 2023, projected to

reach US\$35.87 billion by 2028, with a CAGR of 2.25 percent during the forecast period 2023-2028. The market is fragmented, with various players working on waste reduction and recycling processes, and startups leading environmentally friendly waste disposal initiatives.

India generates over 62 million tons of municipal solid waste (MSW) annually, but only 43 million tons are collected and 12 million tons treated, leading to environmental and health challenges. Hazardous, plastic, electronic, and biomedical waste are increasing, with projections indicating a surge to 165 million tons by 2030.

Foreign enterprises interested in demonstrating their sustainability tech and meeting Indian business partners can participate in showcase events like the Clean India Expo in New Delhi from January 17-19, 2024.

Sustainability targets

India actively seeks foreign companies specializing

in sustainable technology for investment in key sectors, including smart cities, industrial corridors, affordable housing, waste management, water, transport infrastructure, renewable energy (solar, wind, biomass, small hydro), electric mobility, medical devices, healthcare, pharma, biotech, food processing (including agriculture), and textiles. The goal is to foster sustainable development and collaboration in these critical areas. Some Indian states have formulated sustainable development goals (SDG) vision documents, and the SDG India index—established in 2018 by the government's think tank Niti Aayog—tracks the progress.

India's environmental challenges

Air pollution

In recent years, anthropogenic air pollution has emerged as a significant challenge in India, impacting lifestyle, prompting social concerns, and disrupting the economy. It is identified as the second-largest factor affecting human health in the country. This issue is closely linked to energyrelated fuel combustion, the primary source of major air pollutants (NOX, SO2, PM2.5), and the leading contributor to India's CO2 emissions. Particulate matter levels often exceed recommended standards in many locations, posing serious implications for public health. Addressing these challenges is vital to mitigate adverse impacts on both the environment and population well-being.

India is home to 39 of the world's 50 most polluted cities, ranking eighth as the most polluted country globally in 2022.

Investment opportunities

Significant business opportunities arise from addressing India's air pollution challenge, particularly

in building sustainability and clean mobility solutions. Investments in innovations for efficient brick-firing and sustainable construction methods can reduce pollutant emissions, while the development of energy-efficient filtration systems for buildings offers growth and cost reduction opportunities. In the realm of clean mobility, there's a growing business potential in supporting electric vehicle (EV) production, establishing charging infrastructure, and transitioning public transportation fleets to carbon-neutral options as Indian cities strive to "decarbonize" transportation.

Access to clean water

India faces a severe water crisis marked by various challenges. Despite constituting 17 percent of the global population, the country has only 4 percent of the world's water resources, leaving 820 million Indians dealing with high to extreme water stress. The pressing concerns include the rapid depletion of groundwater levels and widespread water pollution, with 47 percent of monitoring stations indicating coliform concentrations exceeding 500mpn/100. Climate change has further intensified the crisis, causing delayed monsoons and drying up of reservoirs, compounding challenges related to water scarcity.

Investment opportunities

The water crisis poses multifaceted threats to the country's well-being, economy, environment, and food supply, with around 200,000 annual deaths attributed to health issues linked to inadequate water, sanitation, and hygiene. States particularly vulnerable to water scarcity include Uttar Pradesh, Madhya Pradesh, Karnataka, Bihar, Haryana, Gujarat, and Maharashtra. Private sector involvement presents diverse investment prospects to address India's water crisis, from fully privatized water sectors to public–private partnerships, corporate social responsibility, and impact investing. As water scarcity intensifies and existing infrastructures demand upgrades, private initiatives offer a viable solution to complement public efforts, meeting both social and environmental challenges.

India's global MoUs on matters of environmental sustainability

India has forged significant international collaborations through a series of Memoranda of Understanding (MoUs) spanning diverse fields of environmental protection and sustainability. These agreements play a pivotal role in fostering global cooperation on mutually beneficial initiatives. The partnerships extend to public authorities, companies, and organizations, facilitating the implementation of prioritized activities. Key MoUs include the 2010 agreement with Sweden focusing on renewable energy, the 2016 partnership with the European Union to enhance water management capabilities, and the 2018 collaboration with the Netherlands covering water management projects and sustainable technology introduction.

The year 2019 witnessed a Technical Cooperation MoU with Switzerland, encompassing climate change, sustainable water management, and urban development resilience. The following year, the agreement with Finland centered on preventing air and water pollution, waste management, and addressing climate change. A notable milestone occurred in 2020 with the India-Denmark Green Strategic Partnership, emphasizing knowledge exchange, technology sharing, and capacity building for sustainable lifestyles.

In 2022, a specific focus on smart water resources development marked the India-Denmark MoU. The 2023 India-France Partnership underscored

commitments to sustainability, combating climate change, and addressing sector-specific opportunities in energy transition, green transport, and infrastructure.

Post-2020, the India-Denmark Energy Partnership emerged, emphasizing capacity building and technology transfer in offshore wind and renewable energy integration. Sector-specific collaborations include water management and ports & waterways projects with Arcadis and Tata Consulting Engineers, sanitation initiatives with KPMG India, WASTE, and FINISH Society, and technology transfer with Nettenergy, Shrike Energy, Biosfera Foundation, and TERI.

Additionally, post-2018 initiatives encompass solar rooftop financing with FMO, Netherlands Development Finance Company, and Azure Rooftop (GENCO) Pvt. Ltd, supporting a portfolio of solar rooftop projects.

Key takeaways

India offers compelling opportunities for foreign investment in its sustainability, environmental, and clean energy sectors. The country has actively entered into MoUs with various European nations, aiming to foster collaboration in areas such as renewable energy, water management, waste reduction, and climate change mitigation.

These partnerships create avenues for businesses to engage in projects related to preventing air and water pollution, developing smart water resources, and promoting sustainable urban development.

Foreign investors can explore collaborations in India's rapidly growing market, contributing to the country's sustainable development goals and capitalizing on diverse opportunities in cleantech and environmental conservation.



India's Performance on UN Sustainable Development Goals

Source: Sustainability Development Report 2023

Low Performance on Sustainability Parameters

India ranked at the lowest position in the World Economic Forum's Environmental Performance Index (EPI) 2022 with a score of 18.9. In the 2020 iteration, India had ranked 168, with a score of 27.6. The EPI report assesses 180 countries and uses 40 indicators across 11 categories to evaluate countries' progress in environmental health, ecosystem vitality, and climate change mitigation. It is produced by the Yale Center for Environmental Law and Policy and the Center for International Earth Science Information Network, Columbia University.

In the 2022 report, India's scores significantly dropped under 'Ecosystem Vitality and Climate Policy', with major contributors being the species habitat index, loss of ecosystem services, unsustainable fishing, carbon emissions from land cover, and greenhouse gas emissions (GHG) per capita.

Notably, peer countries, such as Pakistan, Bangladesh, Myanmar, Turkey, and Sudan, outperformed India

in the EPI 2022 rankings. The top five ranked countries were Denmark, the United Kingdom, Finland, Malta, and Sweden.

Among the urgent challenges identified in the report are deteriorating air quality and rapidly rising GHG emissions. Fast growing emerging markets like India and Vietnam face a challenge as they pursue near term economic growth targets over sustainability measures. It is projected that India and China will be the world's largest emitters of greenhouse gases by 2050.

Business Opportunities in the Green Tech Market

India's population growth and expanding economy drive demand for technologies addressing resource consumption, carbon emissions, waste treatment, and environmental pollution, providing foreign enterprises with a growing market backed by government incentives.



Melissa Cyrill Deputy Managing Editor Asia Briefing

The expansion of green technologies in India, aimed at reducing carbon footprints, presents promising economic prospects. Green technology addresses environmental challenges through solutions like renewable energy systems, pollution control devices, waste management techniques, and water treatment processes. India's large population and economic growth drive demand for technologies that reduce resource consumption and minimize carbon emissions. Significant investments in solar, wind, and hydropower technologies have occurred over the past decade.

The market's attractiveness to investors also follows through from the rising global focus on environmental, social, and corporate governance (ESG) parameters as well as the potential for longterm savings through waste reduction and increased efficiency, contributing to a circular economy. As the costs of renewable energy decline due to newer technology-enabled efficiencies, an expected surge in businesses adopting clean energy technologies will boost green tech prospects. Growing awareness of environmental issues is already resulting in new governing policies and support for industries. Meanwhile, C-suite executives are increasingly ranking risks related to environmental concerns much higher than before, as they impact worker health and productivity.

Market for green technology and renewables

According to a report from the Boston Consulting Group (BCG), the green tech sector in India is projected to achieve a market size of US\$45-55 billion by 2027. In their 2022 report titled "The Next 'Digital': Unlocking a \$50 Billion Green Tech Opportunity," BCG highlights that the growth of green technology is spurred by the increasing adoption of sustainable applications across IoT (Internet of Things), cloud computing, data platforms & analytics, digital twin (digital model of an intended or actual real-world physical product, system, or process), and blockchain. This suggests clear indications of substantial annual business opportunities, with an anticipated annual growth rate of 25-30 percent over the next five years.

Green hydrogen market

Initiatives like the National Green Hydrogen Mission aim to position India as a global leader in green hydrogen production. Goals for 2030 include a green hydrogen production capacity of at least 5 million metric tonnes per year and adding 125 GW of renewable energy capacity. Investments exceeding INR 8 trillion (US\$95.95 billion) are expected to generate over 600,000 job opportunities and reduce fossil fuel imports, contributing to a cumulative reduction of nearly 50 million metric tonnes of greenhouse gas emissions annually.

The Bureau of Energy Efficiency (BEE), under the Ministry of Power, is the designated Nodal Authority responsible for accrediting agencies for monitoring, verification, and certification of green hydrogen production projects in India.

Renewables market

In the renewables market, India focuses on increasing the share of renewables in the energy mix, with ambitious targets, including 500 GW of non-fossil fuel-based energy by 2030 under the 'Panchamrit' initiative. The country occupies the 4th position globally in total renewable energy installed capacity, and there has been a 396 percent surge in installed non-fossil fuel capacity over the past 8.5 years, reaching an impressive 176.49 GW. India allows up to 100 percent foreign direct investment (FDI) under the automatic route for renewable energy projects.

Investment opportunities in the renewables market cover solar power, wind energy, energy storage solutions, and electric mobility. India's solar energy sector is growing rapidly, with 57 approved solar parks. The wind energy market is expanding, targeting 30 GW offshore by 2030. Energy storage solutions, including battery energy storage systems (BESS), are promoted through government schemes, aiming for 4000 MWh worth BESS projects by 2030-31. The electric vehicle market is gaining momentum, with projections indicating a surge from US\$2 billion in 2023 to US\$7.09 billion by 2025, and an estimated 10 million annual EV sales by 2030.

Conclusion

India's green technology market presents a dynamic and promising investment landscape. As the country continues its journey towards a sustainable future, early investments in innovative and scalable green technologies and the renewables market can provide investors with substantial returns while contributing to India's environmental goals. However, it is crucial for investors to conduct thorough due diligence, stay informed about market trends, and collaborate with strategic partners to capitalize on the vast opportunities that India presents.

BUILD YOUR ASIA BUSINESS WITH TURNKEY MARKET ENTRY AND CROSS-REGIONAL SUPPORT

Dezan Shira & Associates' Business Intelligence professionals have a deep understanding of market entry in India and can provide investors with the tools to clarify their commercial options in the green technology industry and the means to capitalize on available opportunities.

For more information, please contact our experts at india@dezshira.com.

EXPLORE MORE



Some Indian Startups in the Cleantech and Sustainability Space

Beco: Mumbai-based D2C startup, established in 2019, manufactures eco-friendly and sustainable products such as bags, tissue paper, reusable towels, and garbage bags.

MyONEarth: Delhi-based startup founded in 2020, offers a wide range of natural products made with bamboo, coconut shell, and coconut coir.

Proklean: Chennai-based startup, established in 2012, offers products made using renewable carbon-based raw materials.

Carragreen: Indore-based B2B startup, initiated in 2018, sells items such as pencils, pens, monthly calendars, and perforated biodegradable boxes that can be transformed into spoons and plates.

Aslee: Jaipur-based fashion startup, founded in 2017, produces durable and sustainable clothing using ethically sourced hemp, bamboo, and nettle. It collaborates with indigenous Himalayan communities in India and Nepal, involving them in every step of the supply chain—from harvesting to fabric manufacturing.

75F: Bengaluru-based startup, founded in 2012, offers smart building solutions, including wireless sensors, equipment controllers, and cloud-based software. It delivers predictive and proactive building automation, predicting, monitoring, and controlling hot and cold spots in a building to prevent damage. Key investors include Siemens AG, Breakthrough Energy Ventures, Climate Initiative, Building Ventures, Revolution, Clean Energy Trust, WIND Ventures.

altM: Founded in Bengaluru in 2012 by former Tesla employees, they produce sustainable materials from agricultural residues, reducing carbon footprints and promoting a circular supply chain. Lignocellulosic residues, including barley straw, corn stover, sorghum stalks, coconut husks, sugarcane bagasse, and banana leaves, are utilized. Noteworthy investors are Omnivore, Theia Ventures, Thai Wah Ventures, Sanjiv Rangrass, Neha Mudaliar, Maninder Gulati (OYO), Mirik Gogri (Spectrum Impact), and Paula Mariwala (Aureolis Ventures).

Inficold: Delhi-NCR-based startup established in 2015 that specializes in modular cold storage and instant bulk milk

coolers. With round-the-clock cooling achievable in just seven hours of grid/solar power, Inficold introduces retrofit thermal energy storage technology. Notable investors supporting Inficold's ventures include RVCF and Shell Foundation. The startup has installations in over 17 states, particularly in northeastern regions like Assam, Meghalaya, and Tripura.

CleanMax Enviro Energy Solutions: The Mumbai-based startup, founded in 2011, is a sustainability partner for over 150 clients, including Facebook, Adobe, Cargill Foods, Volvo, Tata Group, Mahindra Group, Grasim, MG Motors, and other corporations. It develops solar and wind projects using the Build Own Operate model, providing renewable electricity through long-term agreements that result in significant savings for end-users. Key investors include the Danish Investment Fund for Developing Countries (IFU), Warburg Pincus, UKCI, and the International Finance Corporation. Solar, wind, and hybrid projects are planned in Karnataka, Gujarat, Maharashtra, Haryana, Uttar Pradesh, and Tamil Nadu to meet corporate customer needs, with future global plans in the Middle East and South East Asia renewable markets.

Freyr Energy: Hyderabad-based startup founded in 2014, is a rooftop solar expert for residential and commercial solar solutions. It caters to micro, small, and medium enterprises (MSME) sectors across 22 states in India. Investors include Total Carbon Neutrality Ventures, Schneider Electric Energy Access Asia, and C4D Partners.

Greenko: The Hyderabad-based startup, founded in 2004, leads in providing sustainable and affordable energy with a net installed capacity of 7.5 GW across 15 Indian states. Utilizing green bonds for fundraising, Greenko focuses on utilityscale, clean, and cost-effective energy solutions. It is actively developing multi-gigawatt integrated renewable energy storage projects in Karnataka, Andhra Pradesh, and Madhya Pradesh. Notable investors are GIC, Abu Dhabi Investment Authority, Deutsche Bank, JP Morgan, DBS Bank, and Barclays. Greenko has partnered with ArcelorMittal for a round-the-clock renewable energy project, featuring 975 MW nominal capacity, and expected to be commissioned by mid-2024.

Companies Invested in India's Green Economy



ENVIRONMENT AND CLEANTECH

Dezan Shira & Associates has helped environment and cleantech investors across China, ASEAN, and India. From pre-investment studies and strategy development to setup and helping with requisite compliances, the firm has tailored its services to help foreign companies enter this emerging industry in Asia. For more information, please contact our experts at india@dezshira.com.

EXPLORE MORE

Environmental Compliance for Companies in India: Key Legislation and Reporting Norms

India's environmental scenario presents challenges due to inconsistent law enforcement, despite government efforts to streamline compliance. Businesses in polluting industries or sensitive ecosystems will face increased legal scrutiny, and top-listed companies must file and undergo audits for sustainability and ESG compliance initiatives.



Melissa Cyrill Deputy Managing Editor Asia Briefing Author



Neeraj Khatri Assistant Manager Business Advisory Services *Contributor*

Legal environment

India's environmental regulatory framework is underpinned by five key legislations: The Environment (Protection) Act, 1986; Forest (Conservation) Act, 1980; Wildlife (Protection) Act, 1972; the Water (Prevention and Control of Pollution) Act, 1974; and the Air (Prevention and Control of Pollution) Act, 1981. Other important laws are Public Liability Insurance Act, 1991; Biological Diversity Act, 2002; and the National Green Tribunal Act, 2010.

These laws collectively address a broad spectrum of environmental concerns in India, including pollution control, biodiversity protection, and sustainable resource management. Additionally, the National Green Tribunal (NGT), set up in 2010, facilitates more effective enforcement and adjudication of environmental matters.

The Environment (Protection) Act, 1986 is India's umbrella law, under which various rules and

notifications have been released to allow the central government to take various measures to improve the environment and mitigate environmental pollution. These include the E-Waste (Management) Rules 2016, as amended in 2018 (E-Waste Rules); Batteries (Management & Handling) Rules 2001 (and the proposed draft Battery Waste Management Rules 2020); Bio-Medical Waste Management Rules 2016; Plastic Waste Management Rules - 2016 and Amendment Rules of 2021 and 2022; Solid Waste Management Rules 2016; Construction and Demolition Waste Management Rules 2016; Hazardous and Other Waste (Management and Transboundary Movement) Rules 2016, as amended in 2019 (HW Rules); Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 (MSIHC Rules); Coastal Regulation Zone Notification 2019 (and related 2021 procedure for violation of the CRZ Notification); and Environment Impact Assessment (EIA) Notification 2006 (subsequent to which various EIA notifications and amendments have been issued).

Investment Opportunities in Sustainable Products and Practices in India

The Plastic Waste Management Rules, 2016, form the statutory framework for India's plastic ban, emphasizing environmentally sound management and disposal of plastic waste.

This was followed by the introduction of Guidelines on Extended Producer Responsibility (EPR) for plastic packaging in February 2022, which set ambitious targets for EPR, plastic packaging waste recycling, reuse of rigid plastic packaging, and the incorporation of recycled plastic content.

Meanwhile, the Plastic Waste Management Amendment Rules, 2021 was implemented starting July 1, 2022, which banned various single-use plastic items across India, with a particular focus on those with low utility and high littering potential.

The plastic ban restricts the manufacture, import, stocking, distribution, sale, and use of plastic carry bags with thickness less than 75 microns, further extended to 120 microns from December 31, 2022.

Stringent enforcement measures include the seizure of banned plastics and imposition of penalties. To monitor and enforce the ban effectively, the government has introduced online platforms, such as the National Dashboard, CPCB Monitoring Module, and the CPCB Grievance Redressal App.

This regulatory landscape presents significant investment opportunities for sustainable investors

and companies specializing in eco-friendly alternatives to single-use plastics. The Central Pollution Control Board (CPCB) has certified 196 manufacturers/sellers of compostable plastics, showcasing a growing market for environmentally conscious products.

Moreover, the federal government's support through central assistance to states/union territories under the Swachh Bharat Mission for solid waste management, including plastic waste management, in both urban and rural areas, provides an additional incentive for sustainable initiatives.

Regulatory environment

The Ministry of Environment, Forest and Climate Change (MoEFCC) plays a pivotal role as the federal agency responsible for the implementation and oversight of environmental laws in India.

The Central Pollution Control Board (CPCB) serves as the central regulatory authority, wielding the power to formulate standards and enforce regulations related to industrial pollution, waste management, and emissions nationwide. Enforcement is also decentralized to State Pollution Control Boards (SPCBs) or pollution control committees in union territories. This intends to promote localized governance, but has led to challenges, including inconsistent application of rules, transparency issues, weak regulatory compliance, and sporadic instances of corruption.

Collaborating with SPCBs and the Union Territory Pollution Control Committees (UTPCCs), the CPCB can issue directives, curtail operations, and impose penalties on non-compliant industries. SPCBs and UTPCCs, operating at the state level, are tasked with granting environmental consent to industries within their jurisdictions and ensuring ongoing compliance through regular monitoring and enforcement actions. Further, the NGT has mandated the strict enforcement of the Comprehensive Environmental Pollution Index (CEPI) by India's environmental regulatory authorities. CEPI assigns scores to various pollutants, ambient pollutant concentrations, receptors (i.e., the number of affected people), and additional high-risk factors.

Under the CEPI classification, industrial clusters are now designated as Polluted Industrial Areas (PIAs), each falling into one of the following categories:

- Critically Polluted Area (CPA)
- Severely Polluted Area (SPA)
- Other Polluted Areas (OPAs)

The CPCB and SPCBs are tasked with monitoring these CEPI-designated areas, pursuing compensation from polluting industries. Any plans for expansion or the development of new sites in these areas will be rejected by the authorities.

Environmental permits

India operates an integrated permit system, with a combined application process for a Consent to Establish (CTE) and subsequent Consent to Operate (CTO) under the Water Act and Air Act.

The Extended Producer Responsibility – Authorization for Producers, introduced by the E-Waste (Management) Rules 2016 simplifies the process by centralizing applications with the CPCB. Additionally, the CPCB has waived separate CTEs for industrial units requiring environmental clearance (EC), considering the EC as being equivalent to a CTE.

Companies may need multiple permits based on their activities. The Ministry of Environment, Forests and Climate Change categorizes industries into red, orange, green, or white, each assigned a pollution index score. The permit/consent process involves obtaining key environmental permits from the SPCB.

Central-level permits are required in specific cases from entities such as the CPCB, Ministry of Environment, Forest and Climate Change, Central Ground Water Board, and Petroleum and Explosives Safety Organisation.

The duration of consent varies based on industry categories. Initial CTEs are typically valid for one year, while CTOs under the Water and Air Acts range from three to five years. Renewals are granted before 60 to 120 days of expiry, with some states adopting auto-renewal for certain criteria. White category industries, considered non-polluting, may not need a CTO, while green category industries can obtain a 15-year initial CTO.

Consent orders and environmental clearances are transferable through a straightforward procedure involving a no-objection from the transferor and an application from the transferee, accompanied by necessary supporting documents.

Various penalties apply for non-compliance. Failure to obtain CTO or CTE may result in imprisonment and fines. The CPCB has a formula for environmental compensation based on severity, duration, scale, and location of violation. Courts, including the NGT, can impose penalties, with the NGT having jurisdiction over civil cases related to environmental laws. Penalties under the NGT Act are higher, and non-compliance may lead to imprisonment or fines for individuals and companies. The NGT can order relief, compensation, and restitution for environmental damage. Recent cases indicate a focus on fixing the environmental compensation regime.

Pollution Index of Industrial Sectors in India: Ministry of Environment, Forests and Climate Change		
Category	Pollution index (PI)	Industries
Red	PI score of 60 and above	60 industries. Examples: Asbestos, nuclear power plants, shipbreaking, oil and gas extraction
Orange	Pl score of 41 to 59	83 industries. Examples: Food and food processing, printing ink manufacturing, paint blending and mixing, and pharmaceutical formulations
Green	PI score of 21 to 40	63 industries. Examples: Saw mills, tyres/rube retreating, polythene and plastic products
White	PI score up to 20 This classification pertains to industries deemed non-polluting, eliminating the requirement for a Consent to Operate (CTO) or an Environmental Clearance (EC) under the Environmental Impact Assessment (EIA) Notification. Instead, a notification to the pertinent State Pollution Control Board (SPCB) is the sole prerequisite.	36 industries. Examples: Solar PV cells, wind power, mini hydroelectric power less than 25 megawatts

Environmental impact assessment

Environmental Impact Assessments are prerequisites for various activities, with some necessitating a comprehensive EIA, often involving public consultations.

The activities requiring such assessments include:

- Mining of minerals
- Offshore and onshore oil and gas exploration, development, and production
- Oil and gas transportation pipelines

- Thermal power plants
- Nuclear power projects and processing of nuclear fuel
- Metallurgical industries (ferrous and non-ferrous)
- Asbestos milling and asbestos-based products
- Chlor-alkali industry
- Chemical fertilisers
- Pulp and paper industry
- Sugar industry
- Building and construction projects
- Townships and area development projects (exempted from the public consultation phase)

Permits and regulatory processes are outlined in the EIA Notification 2006, categorizing activities into A and B based on potential impacts. For new projects and the expansion/modernization of existing ones:

- Category A activities require clearance from the Central Ministry of Environment, Forests, and Climate Change.
- Category B activities require clearance from a state-level EIA Authority.

Category B is further divided into B1 projects requiring an EIA and B2 projects not requiring either an EIA or public consultation. The clearance process involves four stages: screening (for Category B), scoping, public consultation, and appraisal.

Public hearings are exempt for certain projects, including modernization of irrigation projects, small-scale industrial undertakings in notified/ designated industrial areas, units in special economic zones (SEZ) and export processing zones (EPZ), highway road expansion not requiring additional land acquisition, etc.

The Expert Appraisal Committee (EAC) or State Level Expert Appraisal Committee (SEAC) must complete their assessment within 60 days, and the regulatory authority notifies its decision within 105 days of receiving recommendations.

Environmental clearance validity varies:

- Ten years for river valley projects.
- Project life estimated by the EAC or SEAC, up to 30 years for mining projects.
- Five years for other projects and activities.

Project management must submit half-yearly compliance reports. Transfer of environmental

clearance is possible within the validity period, subject to conditions, without needing EAC or SEAC reference.

Penalties for EIA Notification 2006 violations fall under the EP Act, with the Supreme Court sometimes imposing environmental compensation at 10 percent of the project cost. Some cases resulted in demolition orders for illegal constructions.

While a draft EIA Notification 2020 lapsed due to delays and extensive objections, there is government pressure to streamline and expedite the compliance process, potentially conflicting with sustainability and environmental protection objectives. The environment ministry has introduced a single-window online portal called PARIVESH for the streamlined issuance of environment, forest, and wildlife clearances.

In a memorandum issued on January 17, 2022, the ministry announced plans to implement a star rating system, assessing the efficiency and timeliness of states in the clearance-granting process.

The star rating system assigns states scores between one and seven (or more). States gain two points for completing a project in less than 80 days and one point for clearing in less than 105 days. If the clearance takes longer than seven days, the score is zero. This is converted to a star-based rating system for the state environment impact assessment authority (SEIAA), where a score of:

- 7 marks and more gets 5 stars
- 6-7 marks get 4 stars
- 5-6 marks get 3 stars
- 4-5 marks get 2 stars
- 3-4 marks get 1 star
- Less than 3 marks get no stars

The rating of an SEIAA will be a dynamic process, based on their performance during blocks of six months and assessing data captured from day-1 to the last day of that six-month period.

Non-compliance and judicial proceedings

Environmental compliance for companies in India involves adherence to a multitude of standards related to pollution control, waste management, and emission standards. Regulatory authorities possess extensive powers to conduct inspections, issue show-cause notices, and, if necessary, impose closure orders. Non-compliant entities are given opportunities to rectify violations and demonstrate compliance before facing stringent enforcement actions.

Companies found in non-compliance with environmental laws in India may face civil and criminal liabilities. Civil liability is imposed in the form of environmental compensation by the CPCB, SPCB, or UTPCC. This compensation may be subject to further review by appellate bodies such as the NGT or the Appellate Authority, ensuring a thorough examination of the case based on relevant considerations. Simultaneously, criminal prosecution can be initiated against individuals responsible for the operations of non-compliant industries.

The compliance process involves a series of steps, including inspections triggered by public complaints or regulatory initiatives. If non-compliance is detected through inspections, sample analyses, or online monitoring, regulatory authorities issue show-cause notices to the occupier or operator of the project. The project operator can respond, and if the response is deemed unsatisfactory, closure orders may be issued. Importantly, closure orders are only implemented after providing ample opportunity for the concerned parties to demonstrate compliance. The response should include substantiated reasons supported by scientific evidence, such as sample analysis reports, to prove adherence to environmental conditions and standards.

Regulatory authorities also have the power to issue directives, mandate pollution control measures, and disconnect essential services such as electricity or water for non-compliant industries. The enforcement process is designed to ensure a balance between stringent actions and opportunities for entities to rectify violations.

In cases of environmental law breaches, individuals have the option to file civil claims. Non-contractual claims can be submitted to relevant authorities or courts, seeking rectification of activities causing violations, compensation for environmental damages, and restoration of ecological harm.

Furthermore, contractual claims can be initiated through the appropriate court or tribunal to seek indemnification for environmental liabilities, provided such provisions are outlined in the contractual agreement.

During defense, exceptions to the 'strict liability' tort principle may apply, such natural disasters, the claimant's fault, the claimant's voluntary assumption of risk, or damage caused by a third party. However, the Supreme Court of India, in the landmark case of MC Mehta v Union of India (1987) 1 SCC 395, established the principle of 'absolute liability.' According to this principle, individuals engaged in hazardous or inherently dangerous activities are held absolutely liable for damages resulting from accidents related to such activities, without any exceptions, unlike the principle of strict liability.

Appeals in Environmental Cases

Regulatory decisions can be contested through an appeal process in India. Occupiers or operators of the affected projects can challenge directives before the Appellate Authority or the National Green Tribunal (NGT), filing within 30 days. Subsequent appeals can be made to High Courts and the Supreme Court. Grounds for appeal include violations of natural justice, unwarranted actions despite compliance, or disproportionate sanctions. In criminal cases, punishment is determined by relevant criminal courts not inferior to a Metropolitan Magistrate or Judicial Magistrate. Constitutional courts, such as High Courts and the Supreme Court, can adjudicate environmental law cases, providing remedies for parties affected by environmental violations. The appeal process ensures a thorough examination of each case's facts and circumstances.

ESG reporting in India

In May 2021, the Securities and Exchange Board of India (SEBI) introduced the Business Responsibility and Sustainability Report (BRSR), replacing the earlier Business Responsibility Report (BRR). The BRSR mandates reporting on environmental, social, and corporate governance (ESG) aspects, requiring the top listed entities to disclose their performance against the nine principles of the National Guidelines on Responsible Business Conduct (NGBRCs). Reporting under each principle is categorized into essential and leadership indicators. While essential indicators are mandatory, reporting on leadership indicators is voluntary (though encouraged).

Starting FY 2023, SEBI mandates the top 1000 listed entities in India by market capitalization to incorporate BRSR filings in their Annual Reports. In July 2023, SEBI expanded ESG metrics for mandatory disclosure under 'BRSR Core' for specific listed companies in India. The BRSR Core, a subset of the comprehensive BRSR, encompasses key performance indicators (KPIs) across nine ESG attributes. Tailored to the Indian/emerging market context, additional KPIs focus on aspects like job creation in small towns, business openness, and gross wages paid to women. To enhance global comparability, intensity ratios based on revenue adjusted for purchasing power parity (PPP) are included.

For easy reference, the BRSR Core provides a crossreference to disclosures in the BRSR.

Compliance timeline for BRSR Core

In its circular issued July 12, 2023 (SEBI/HO/ CFD/ CFD-SEC-2/P/CIR/2023/122), SEBI laid down the timeline for how the BRSR Core compliance will become mandatory for all listed companies in India. Starting FY 2023-24, SEBI mandates the top 150 listed companies in India by market capitalization to provide "reasonable assurance" on ESG metrics.

Multinational companies in India are advised to tread carefully in this regard as most regions at the forefront of ESG compliance, such as the European Union, only require limited assurance currently. By limited assurance, it is meant that auditors can be expected to rely on company management disclosures. However, under SEBI's direction in India, the company's auditors would need to check the organization's ESG metrics and verify its disclosures against actual protocols, performance, and standards.

Summary

Businesses aiming to achieve compliance with India's environmental laws should start by thoroughly understanding and identifying the applicable regulations at national, regional, and local levels.

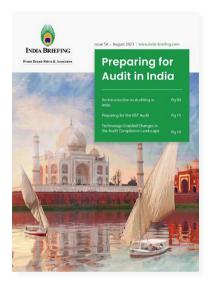
Conducting environmental impact assessments helps in identifying and addressing potential environmental risks associated with operations, especially if planned investments are in industries regarded as hazardous or polluting. Developing and communicating clear environmental policies, along with training employees on these policies, establishes a culture of responsibility. Monitoring and reporting mechanisms, including those tracking ESG compliance, should be established to track key environmental metrics regularly.

Businesses, overall, should implement waste management and recycling programs, promote energy efficiency, and engage in sustainable supply chain practices. Emergency response plans need to be in place to address potential incidents. Regular environmental audits and stakeholder engagement help assess and improve compliance efforts. Staying informed about evolving environmental laws and adapting policies accordingly ensures ongoing adherence to regulatory requirements.

Ultimately, a comprehensive and proactive approach is essential for businesses to operate in an environmentally responsible and sustainable manner.

RELATED READING

Preparing for Audit in India



Proper audits are vital for maintaining a company's financial stability and credibility. Whether conducted internally or by a third party to meet compliance and statutory needs, audits enable senior management and shareholders to assess performance, manage risks, identify errors, and ensure compliance with government, industry, and regulatory norms.

In this *India Briefing Magazine* issue, we provide an overview of India's audit types and processes, highlighting general requirements and materials. We discuss the role of auditors, explain different audit reports' significance in identifying irregularities, and cover recent developments, including streamlined audit requirements and increased scrutiny of audit professionals.

Additionally, we introduce technology-enabled changes in audit compliance, including the recent requirement to enable the audit trail function in business software.

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Example of Disclosures under BRSR Core and Cross-Reference to the BRSR			
Sr. No.	ESG attribute	Parameter	Cross-reference to the BRSR
1 <i>Greenhouse gas emissions may</i> 1 <i>be measured in accordance with</i> <i>the Greenhouse Gas Protocol:</i>	be measured in accordance with the Greenhouse Gas Protocol: A Corporate Accounting and	Total Scope 1 emissions (Break-up of the GHG into CO2, CH4, N2O, HFCs, PFCs, SF6, NF3, if available)	Principle 6, Question 7 of Essential Indicators
	Reporting Standard	GHG Emission Intensity (Scope 1 +2)	Principle 6, Question 7 of Essential Indicators
		Total water consumption	Principle 6, Question 3 of Essential Indicators
2	2 Water footprint	Water consumption intensity	Principle 6, Question 3 of Essential Indicators
		Water Discharge by destination and levels of Treatment	Principle 6, Question 4 of Essential Indicators
3 Energy footprint	Total energy consumed % of energy consumed from renewable sources	Principle 6, Question 1 of Essential Indicators	
		Energy intensity	Principle 6, Question 1 of Essential Indicators
		Specified types of waste – plastic, e-waste, bio-medical, construction and demolition, battery, radioactive, other hazardous waste generated	Principle 6, Question 9 of Essential Indicators
		Total waste generated	Principle 6, Question 9 of Essential Indicators
4	Embracing circularity – details related to waste management by	Waste intensity	Principle 6, Question 9 of Essential Indicators
1	the entity	Each category of waste generated, total waste recovered through recycling, re-using or other recovery operations	Principle 6, Question 9 of Essential Indicators
		For each category of waste generated, total waste disposed by nature of disposal method	Principle 6, Question 9 of Essential Indicators
5	Enhancing Employee Wellbeing and Safety	Spending on measures towards wellbeing of employees and workers – cost incurred as a % of total revenue of the company	Principle 3, Question 1(c) of Essential Indicators

Sr. No.	ESG attribute	Parameter	Cross-reference to the BRSR
5	Enhancing Employee Wellbeing and Safety	Details of safety related incidents for employees and workers (including contract-workforce e.g. workers in the company's construction sites)	Principle 3, Question 11 of Essential Indicators
6 Enabling Gender Diversity in Business	Enabling Gender Diversity in	Complaints on POSH (sexual harassment)	Principle 5, Question 7 of Essential Indicators
	Business	Gross wages paid to females as % of wages paid	Principle 5, Question 3(b) of Essential Indicators
7 Enabling Inclusive Development	Input material sourced from following sources as % of total purchases – Directly sourced from MSMEs/ small producers and from within India	Principle 8, Question 4 of Essential Indicators	
	Job creation in smaller towns – Wages paid to persons employed in smaller towns (permanent or non- permanent /on contract) as % of total wage cost	Principle 8, Question 5 of Essential Indicators	
8	8 Fairness in Engaging with Customers and Suppliers	Instances involving loss / breach of data of customers as a percentage of total data breaches or cyber security events	Principle 9, Question 7 of Essential Indicators
		Number of days of accounts payable	Principle 1, Question 8 of Essential Indicators
9	Open-ness of business	Concentration of purchases & sales done with trading houses, dealers, and related parties Loans and advances & investments with related parties	Principle 1, Question 9 of Essential Indicators

Example of Disclosures under BRSR Core and Cross-Reference to the BRSR

Note: For complete information on attributes, parameters, measurement, data & assurance approach, and cross-reference to the BRSR report, see <u>Annexure-I</u> of the SEBI Circular.

	BRSR Core Compliance Timeline for ESG Reporting in India
Financial year	Applicability of BRSR Core to top listed entities (by market capitalization)
2023-24	Top 150 listed entities
2024-25	Top 250 listed entities
2025-26	Top 500 listed entities
2026-27	Top 1000 listed entities



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Our Offices in India

Delhi +91 0124 4001785 delhi@dezshira.com

Unit No. 1101-A,11th Floor, Emaar Capital Tower 2, MG Road, Near Guru-Dronacharya Metro Station Gurugram-122002, Haryana, India Mumbai +91 22 6239 6004 mumbai@dezshira.com

Unit No. 405/A, B Wing, Kanakia Wall Street, Andheri Kurla Road, Andheri (East), Mumbai 400093, India Bengaluru +91 80 6185 2024 bengaluru@dezshira.com

Supreme Overseas Exports Building, 1st and 2nd Floor, Jayanagar, 7th Block, KR Road, Bengaluru, Karnataka 560070, India



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