



ESG assessments for cities in India

**CWAS-CRDF-CEPT University
PwC India**

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CWAS CENTER
FOR WATER
AND SANITATION
CRDF CEPT
UNIVERSITY



pwc

About the collaborators

CWAS: Center for Water and Sanitation (CWAS) is a part of CEPT Research and Development Foundation (CRDF) at CEPT University. CWAS activities are designed to enable governments strengthen delivery of urban services. Acting as a thought catalyst and facilitator, CWAS works closely with all levels of governments - national, state and local to support them in delivering water and sanitation services in an efficient, effective and equitable manner. CWAS undertakes action-research, implementation support, capacity building, advocacy and advisory services to deliver systemic, scalable and sustainable interventions. Its experience in the domain of monitoring through its project on Performance Assessment System for urban water and sanitation (PAS Project) spans over 12 years with a recent focus on WASH Governance. Strengthening Municipal Governance is a core focus area of research at CWAS.

PwC India: PricewaterhouseCoopers (PwC) is a global network of firms that together constitute the largest professional services network in the world, and with over 130 years of experience, PricewaterhouseCoopers Private Limited (PwC India), is one of the largest providers of advisory and consulting services in India. PwC India's Responsible Development Services (RDS) team specializes in providing advisory services to government and private clients in areas of climate resilience, disaster risk reduction and management, urban and rural infrastructure planning and investment, economics, finance and related services with its unique 'making it happen' approach and end-to-end cross-functional service offerings. Through its ESG platform, PwC is supporting clients on their ESG journey covering strategy, transformation and reporting across aspects such as climate change, sustainable supply chains, responsible investments and sustainable finance.

Preface

In recent years, Environmental, Social and Governance (ESG) disclosures have become popular in the corporate world. In India, trends for urbanisation, environment degradation, and municipal finances suggest that city governments will need to look outward into the open market and seek funds for development. Just as much of corporate financing is increasingly based on ESG performance, so will financing of cities.

In India, fundraising through Municipal bonds has tripled in the last five years. Government has also announced plans to raise US\$2 billion to support green infrastructure projects through Sovereign Green Bonds. The Securities and Exchange Board of India (SEBI) requires that Municipal Governments obtain credit rating from at least one registered agency before issuance of municipal bond. This market environment presents an opportunity for Indian municipal authorities to link with a new source of capital that is focused on ESG outcomes. ESG assessments for cities will identify improvement opportunities and attract a diverse range of investors.

This collaboration between CWAS and PwC India has developed a framework for city-level ESG assessments. It is expected that this would encourage Indian cities to become ESG-ready and attract investments. The concept and framework were first presented at a roundtable meeting held in Delhi during January 2023. We would like to express our gratitude to all the participants of the roundtable meeting for providing their feedback and industry expertise on the subject. At CWAS, the research team included Dhruv Bhavsar, Aditi Dwivedi and Priyadarshini Choudhary under the guidance of Dinesh Mehta and Meera Mehta. At PwC India, the research team included Aarsi Desai and Adyasha Mohanty under the guidance of Nidish Nair and Sangeetha Raghuram.

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List of Acronyms

AFD	Agence Française de Développement (“French Development Agency”)	eV	Electric Vehicle
ADB	Asian Development Bank	ESF	Environmental and Social Framework
AMC	Asset Management Company	ESGMS	ESG Policy and ESG Management System
AMPLIFI	Assessment and Monitoring Platform for Liveable, Inclusive and Future-ready India	ERP	ESG Rating Provider
AUM	Asset under Management	EU	European Union
BRSR	Business Responsibility and Sustainability Reporting	ETF	Exchange-traded funds
BRR	Business Responsibility Report	FCDO	Foreign, Commonwealth & Development Office
CDP	Carbon Disclosure Project	FY	Financial Year
CWAS	Center for Water and Sanitation	GISR	Global Initiative for Sustainability Ratings
CRDF	CEPT Research and Development Foundation	GRI	Global reporting Initiative
CDSB	Climate Disclosure Standards Board	GG	Good Governance
CSCAF	Climate Smart Cities Assessment Framework	GHG	Green House Gases
COP	Conference of the Parties	GDP	Gross Domestic Product
CSR	Corporate Social Responsibility	HCL	Hindustan Computers Limited
CEEW	Council on Energy, Environment and Water	ISS	Institutional Shareholder Services Inc.
CRISIL	Credit Rating Information Services of India Limited	ICMA	International Capital Market Association
DMAF	Data Maturity Assessment Framework	IFC	International Finance Corporation
DPR	Detailed Project Report	IIRC	International Integrated Reporting Council
EoL	Ease of Living Index	ISO	International Organization for Standardization
EES	Economic, Environmental and Social	JJM	Jal Jeevan Mission
EAS	Economic Advisory Services	JICA	Japan International Cooperation Agency
EIU	Economist Intelligence Unit	KfW	Kreditanstalt für Wiederaufbau (KfW Development Bank “Credit Institute for Reconstruction”)

KPI	Key Performance Indicator	RWH	Rain-water Harvesting
KPMG	Klynveld Peat Marwick Goerdeler	SEBI	Securities and Exchange Board of India
LEED	Leadership in Energy and Environmental Design	SEC	Securities and Exchange Commission
MCA	Ministry of Corporate Affairs	SME	Small and medium-sized enterprises
MoHFW	Ministry of Health and Family Welfare	SRI	Socially Responsible Investing
MoHUA	Ministry of Housing and Urban Affairs	SWM	Solid Waste Management
MSCI	Morgan Stanley Capital International	S&P	Standard & Poor's
MDB	Multilateral Development Bank	SWOT	Strength Weakness Opportunity Threat
MPI	Municipal Performance Index	SASB	Sustainability Accounting Standards Board
NGRBC	National Guidelines on Responsible Business Conduct	SDG	Sustainable Development Goal
NIUA	National Institute of Urban Affairs	SSEI	Sustainable Stock Exchange Initiative
NITI Aayog	National Institution for Transforming India Aayog	TCFD	Task Force on Climate-Related Financial Disclosures
NVG	National Voluntary Guidelines	UNGC	UN Global Compact
NGO	Non-governmental organization	UNEP	United Nation Environmental Program
ODA	Official Development Assistance	UNEP-FI	United Nation Environmental Program's Finance Initiative
O&M	Operation and Maintenance	UNFCC	United Nations Framework Convention on Climate Change
OECD	Organization for Economic Cooperation and Development	USA	United States of America
PAS	Performance Assessment System	ULB	Urban Local Body
PwC	PricewaterhouseCoopers Private Limited (PwC India)	VC	Venture Capitalist
PPP	Purchasing Power Parity	WW	Wastewater
PRI	Principles for Responsive Investment	WASH	Water, sanitation and hygiene
PE	Private Equity	WRI	World Resources Institute
RBI	Reserve Bank of India		



Executive summary

Environmental, Social, and Governance (ESG) is a framework used to assess the impact of an organisation on society and the sustainability of its investment across three central pillars. In the corporate sector, ESG assessments are a rapidly growing trend and investors now apply non-financial, sustainability and ethical considerations to drive investment decisions.

In India, the key aspects of ESG have been traditionally covered under standalone laws such as the Environment (Protection) Act, 1986 and the Minimum Wages Act, 1948. However, over the last two decades, there have been a stream of reforms that led to the inclusion of ESG in Indian organizations. The mandates for corporate social responsibility as well as business responsibility and sustainability reporting are pivotal in building a culture for ESG. Additionally, various investable indices such as the S&P ESG India Index and the MSCI India ESG leaders Index are also available.

Globally, there is a momentum for reporting ESG in cities with the examples of Toronto rolling out a debt issuance programme linked

to ESG outcomes, Vancouver adopting TCFD-recommended actions in its financial reporting and organizations like ISS Muni rating cities across the US bond market. Many countries are now adopting monitoring frameworks linked with ESG outcomes for reporting on sustainability.

There is an emerging market for ESG with municipalities in India as well. Rapid urbanisation, deteriorating environment and the state of municipal finances in India suggest that cities will need to reduce their dependence on grant funds and seek funds from the open market. In this scenario, ESG assessments become relevant to identify improvement opportunities and build credentials for attracting a diverse range of investors. Fundraising through Municipal bonds has tripled in the last five years. The Government has also announced plans to raise US\$2 billion to support green infrastructure projects through Sovereign Green Bonds. The Securities and Exchange Board of India (SEBI) requires that Municipal Governments obtain credit rating from at least one registered agency before issuance of municipal bond. However,

investors including philanthropic and development agencies now also increasingly place importance on ESG assessments. Many of them list priority topics which share common themes with ESG relevant topics. This need is further reflected in the trend of municipalities going for ISO certifications for various functions. This market presents an opportunity for Indian municipal authorities to link with a new source of capital that is focused on ESG outcomes. The recent municipal bond issue (Rs 150 crore) of Ghaziabad is the first municipal green bond issue and many more cities are likely to follow this path.

The Center for Water and Sanitation at CRDF - CEPT University and PWC India have developed a framework for ESG assessment of cities. A range of national and international frameworks were reviewed to identify common themes for ESG in the context of Indian cities. This ESG framework includes indicators on global development goals and national commitments in addition to the municipal functions mandated for local governments. 19 themes and 62 indicators were finalized under the three pillars covering topics such as emissions, energy, green cover and waste management under the environment vertical; city services such as WASH, housing, education, health, safety, economy, gender and social

inclusion under the social vertical; and responsible financial management, human resource capacity, transparency and accountability under governance.

Indian cities are already being assessed on various nationally agreed frameworks such as Service level Benchmarking, Ease of living Index, Swachh Survekshan, Good Governance Index, Municipal Performance Index, etc and a wealth of information is available in public domain. This framework makes use of these publicly available datasets.

An ESG rating is derived for each city, to reflect its level of development in comparison to peers by placing in categories of - Leaders, Achievers, Performers, Aspirants and Initiators. The rating is calculated by using scores for each indicator and theme and giving each equal weightage to the three pillars.

The framework was discussed at a roundtable meeting on “Making Cities ESG Ready”, organized on 13th January 2023, in New Delhi. Participants included representatives from financial institutions, government, researchers and regulators, who actively discussed the framework.

For testing the framework, 20 cities were selected which represented a geographic mix and range of population classes as well as had adequate data availability on these public platforms. A dashboard tool for generating customized city reports and detailed analysis is also developed. The results show that most cities have a strong performance in the social pillar, indicating their commitment towards recent government programs for addressing social issues and improving the well-being of their citizens. Additionally, cities have performed well in the governance pillar, showcasing compliance and efforts towards transparency, accountability, and citizen engagement. However, in the environment pillar, the performance needs improvement. Here, the indicators reflect a need to address the gap between policy and implementation.

It is not enough for cities to perform well on indices and report on goals. Cities need investments, both from the government as well as from the market. As cities are mandated to provide services spanning several ESG-related aspects, they attract ESG investments from a range of potential investors. In the context of this

framework, a city with a higher score along a certain parameter would attract emerging businesses, start-ups and private equity, as it provides a favourable climate for the business to expand its market and offerings. Impact investors and multilateral organisations, on the other hand, may use the framework to identify deficit regions and sectors by assessing which parameters a city has a low score on. The ESG score of cities along particular parameters can inform the potential impact of these investments, as well as how city administrators can target and attract potential user groups for investment.

Beyond financing, ESG assessment of cities is also a way for city governments to create awareness on how cities can respond to both existing government programmes and, through appropriate investment plans, mobilize additional funds to meet the ESG mandates. It is also an important mechanism for municipal governments to report back to citizens on how they are meeting the challenges of climate change, inclusion and development.

1. Emergence of ESG

1.1. ESG as a concept for sustainable development

Environmental, Social, and Governance (ESG) aspects form the three central pivots for measuring the impact of an organisation on society and sustainability of its investment. They are used as a basis to assess an organization's operational integrity and its contribution towards sustainable development, socioeconomic growth, and risk management.

ESG disclosures have increasingly become popular in the corporate world with investors applying non-financial and ethical considerations to drive investment decisions. This is a shift from the traditional approach of only looking at financial indicators for making investment decisions such as cashflow trends, debt load, etc.

ESG acts as a strategic lever with benefits such as investment stability, lowered regulatory and legal risk, social returns, credibility with stakeholders and cost reductions. Conscious investors including philanthropic and development agencies are increasingly giving preference to ESG related projects and organisations that align with these values.

ESG assessments are a rapidly growing trend in the corporate sector, both in terms of the capital they represent and the number of investments. ESG has opened a range of business and investment opportunities in sectors which were otherwise not considered for being high on risk or low on margin.

Box 1: Value creation and investing with ESG

Value Creation

86% of investors believe that an ESG focus enables long-term value (PwC, 2022)

Reporting

80% of N100 companies worldwide reporting on sustainability. (KPMG, 2020)

150 mentions of "ESG" in S&P 500 companies' quarterly evening calls in 2021. (*The Economist*)

Investing

3821 signatories to the Principles for Responsible Investment in 2021. (PRI)

\$2.72 Trillion USD

Assets under management in ESG mutual funds and exchange-traded funds (ETFs) in 2021. (*The Economist*)

\$1151 Billion USD

total issuance of green, social and sustainability bonds in 2021. (*Moody's Investor Service*)

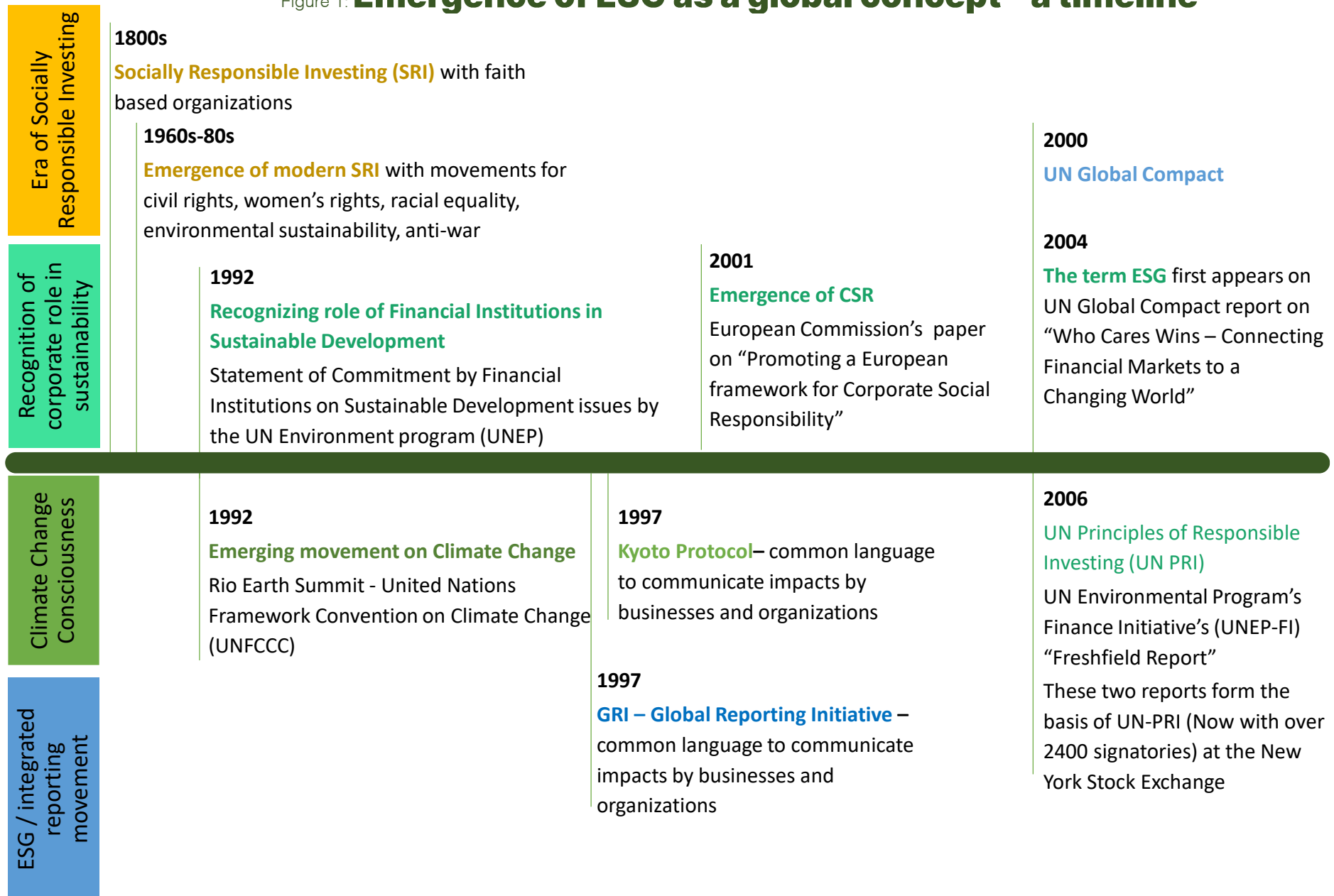
1.2. Global context and history

The concept of ESG has roots in the notions of Socially Responsible Investing (SRI) which has existed due to faith-conscious investing practices. This led to a recognition of the role of corporate organisations and financial institutions in achieving sustainability as well as a burgeoning movement for addressing climate change and increasing environmental consciousness. The establishment of the Global Reporting Initiative (1997), Rio Earth Summit (1992), emergence of the concept of Corporate Social Responsibility (CSR) in the European Commission's paper on "Promoting a European framework for Corporate Social Responsibility", and the Kyoto protocol (1997) were landmark events in this context.

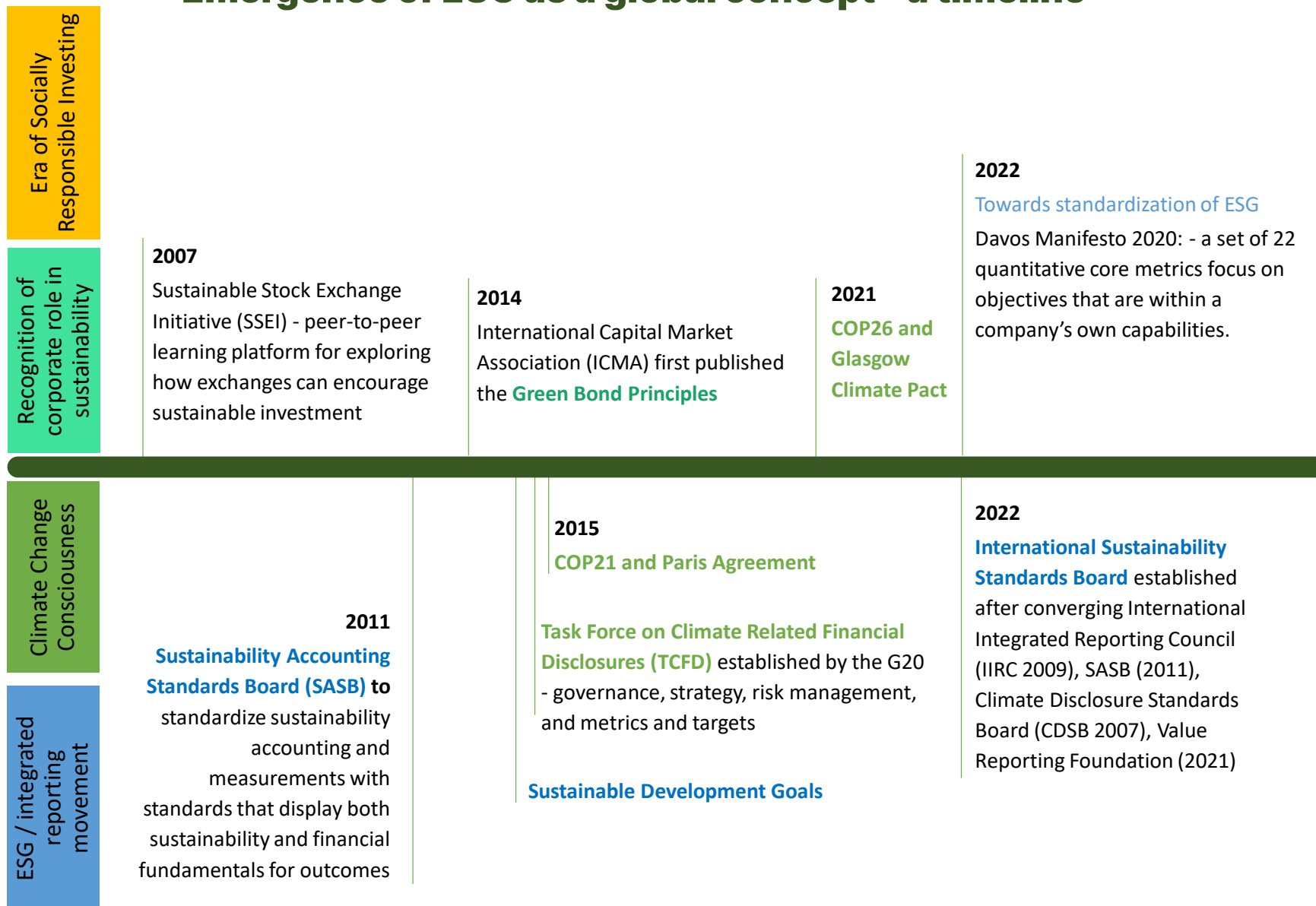
The term ESG first appeared in 2004 in the report "Who Cares Wins – Connecting Financial Markets to a Changing World". (IFC, 2004). This was facilitated by the UN Global Compact and endorsed by a group of 20 financial institutions. "This report developed guidelines and recommendations on how to better integrate environmental, social and governance (ESG) issues in asset management, securities brokerage services and associated research functions". This report was followed by UN Environmental Program's Finance Initiative's (UNEP-FI) "Freshfield Report" and together these two reports form the basis of the UN-Principles of Responsible Investing at the New York Stock Exchange. The principles were launched in April 2006 at the New York Stock Exchange. Since then, the signatories have risen from 100 to over 2,300.

Regulators around the world are increasingly asking for ESG related data, and ESG investing is also becoming mainstream. So, disclosure requirements would need to adapt to this change and this is reflected in the recent trend of integrated reporting and calls for a standardization of ESG reporting framework.

Figure 1: **Emergence of ESG as a global concept - a timeline**



Emergence of ESG as a global concept - a timeline



1.3. Corporate adoption worldwide

United Kingdom has mandatory climate related financial disclosures based on the Task Force on Climate-Related Financial Disclosures (TCFD) framework. Pension Schemes also mandate social and environmental considerations.

European Union (EU) "Non-Financial Reporting Directive", which requires ESG disclosures from companies with more than 500 employees doing business in the EU.

Canada's federal government is considering climate disclosures in alignment with TCFD framework.

USA has no mandatory disclosures yet. However, US Securities and Exchange Commission (SEC) is considering "amendments to rules and reporting forms to promote consistent, comparable, and reliable information for investors concerning funds and advisers' incorporation of ESG factors."

China has issued voluntary guidelines - Guidance for Enterprise ESG Disclosure.

Thailand has opted for submission of sustainability reporting using a framework that is "proportionate to the company's size and complexity and meets domestic and international standards."

Hong Kong: ESG reporting for listed companies, with both mandatory disclosure requirements and 'comply or explain' provisions is required.

Taiwan has mandated sustainability disclosures for companies above a certain threshold of paid-up capital.

Philippines: Submission of sustainability information along with annual report on a comply-or-explain basis for all publicly listed companies.

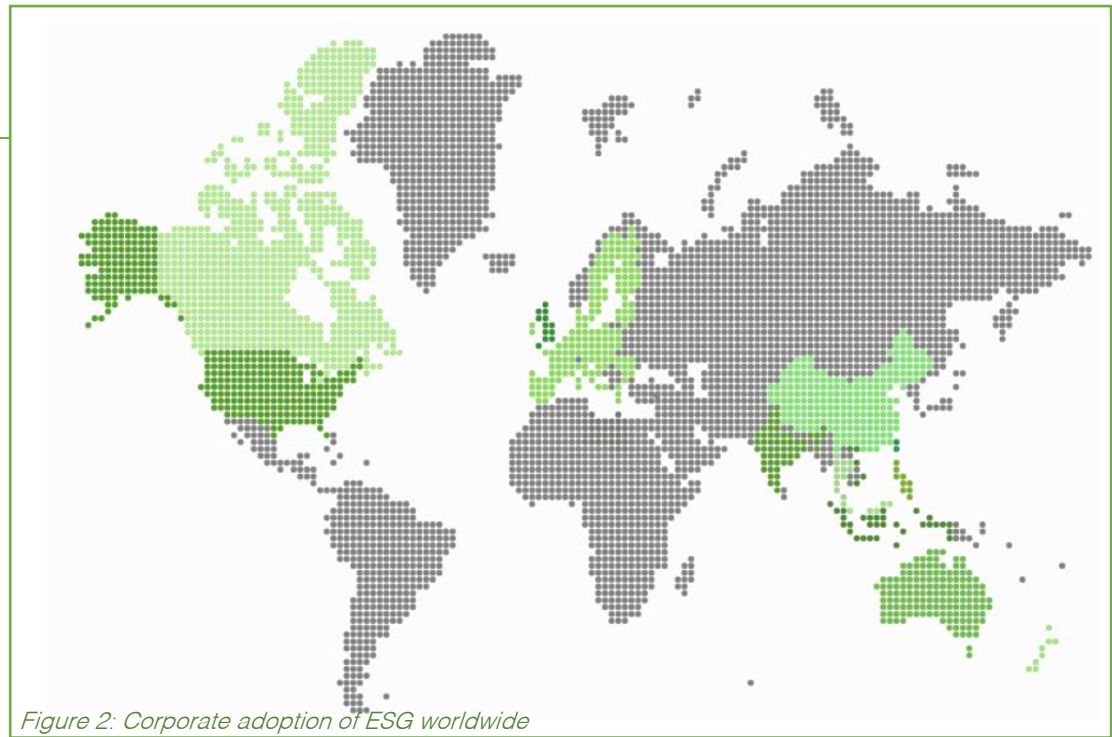


Figure 2: Corporate adoption of ESG worldwide

Malaysia: Mandatory disclosure of economic, environmental, and social (EES) risks and opportunities for issuers in their annual reports along with information of governance structure.

New Zealand has announced mandatory climate-related disclosures, based on the TCFD framework, for all listed equity and debt issuers from 2023

Indonesia has mandated for all listed companies to publish Sustainability Reporting starting from 2020.

Australia: ESG reporting remains voluntary, though certain entities have mandatory reporting obligations under various ESG-related acts.

Vietnam: Public companies have to produce an annual report disclosing their environmental and social impact, and objectives regarding corporate sustainability.

Singapore: Every listed issuer has to prepare an annual sustainability report on a comply-or-explain basis

1.4. ESG in India

In India, the key aspects of ESG have been traditionally covered under standalone laws such as the Environment (Protection) Act, 1986 and the Minimum Wages Act, 1948. However, over the last two decades, there have been a stream of reforms that led to the inclusion of ESG in Indian organizations.

Corporate Social Responsibility: In 2007, Reserve Bank of India (RBI) recommended all commercial banks to report on their role on sustainable development, non-financial matters and Corporate Social Responsibility (CSR). In 2009, CSR guidelines were issued by the Ministry of Corporate Affairs (MCA). It mentioned six major elements – proper functioning, care for stakeholders, respecting the environment, respecting workers’ welfare, and rights, respecting human rights and working towards social and inclusive development. In the year 2011, these became the National Voluntary Guidelines (NVG) addressing Social, Environmental and Economic Responsibilities of business. CSR became a law in 2014, through the Companies Act, 2013, which mandated that companies of certain profitability and scale should devote 2% of average profit of preceding years for CSR.

Sustainability reporting: In 2012 “Business Responsibility Report” (BRR), was made compulsory by the Securities and Exchange Board of India (SEBI) for the 100 largest listed companies based on the NVGs. This was expanded to the largest 500 companies in 2015. “Business Responsibility and Sustainability Reporting” (BRSR) was proposed in 2018 by SEBI. BRSR became a mandatory requirement from financial year (FY) 2022-23 for the top 1000 listed Indian companies. In July 2023, SEBI mandated disclosures along a subset of BRSR, namely, BRSR Core. This is a set of key performance indicators (KPIs) under nine attributes of ESG – (i) Greenhouse gas (GHG) emissions; (ii) water footprint; (iii) energy footprint; (iv) embracing circularity for waste management; (v) enhancing employee wellbeing and safety; (vi) enabling gender diversity in business;

Box 2: ESG in India - A timeline

2008	Launch of the ‘S&P ESG India Index’, first investable index of companies
2009	CSR guidelines by Ministry of Corporate
2011	National Voluntary Guidelines (NVGs) on CSR by Ministry of Corporate Affairs
2012	SEBI mandated to file Business Responsibility Report (BRR) based on NVGs for top 100 listed companies
2013	MSCI India ESG leaders Index was introduced
2014	CSR mandated with the Companies Act
2015	SEBI regulations to facilitate issuance of municipal bonds BRR filing extended from 100 to 500 top listed companies Priority sector lending by banks for renewable energy and social infrastructure
2016	Green Bond guidelines SEBI advised top 500 companies to adopt Integrated Reporting, required to prepare BRR on voluntary basis
2017	Kotak Committee on Corporate Governance Green Bond disclosures
2018	Business Responsibility and Sustainability Reporting (BRSR) proposed
2019	National Guidelines on Responsible Business Conduct (NGRBC)
2021	Task Force on Sustainable Finance - NITI Aayog and the Ministry of Environment, Forests and Climate Change
2022	BRSR mandatory for top 1000 companies. Voluntary reporting for others with BRSR Lite Consultation paper by SEBI on ESG rating providers for the securities market
2023	SEBI mandates disclosure of BRSR Core, Transition scores, and ERP registration and certification. New category of ESG investing by Mutual Fund schemes and related disclosures

(vii) inclusive development; (viii) fairness in engaging with customers and suppliers; and (ix) openness of business. Listed companies are also required to ensure that the BRSR Core undergoes reasonable assurance. For easier global comparability, SEBI has also made provisions for intensity ratios based on revenue adjusted for Purchasing Power Parity (PPP). Furthermore, starting from FY 2024-25, the top 250 listed entities (by market capitalisation) are required to provide disclosures for the KPIs in the BRSR Core for their top upstream and downstream partners (i.e., partners that cumulatively make up 75% of their purchase value and sales value, respectively). Mandating reasonable assurance can provide a sense of comfort to investors, regulators, as well as ESG rating providers (Srivats, 2023). Moreover, bringing in value chain partners to the same regulatory oversight presents an opportunity to start-ups and small and medium-sized enterprises (SMEs) to set ESG targets, integrate ESG best practices in their key business decisions, and differentiate themselves from competitors (Jain, 2023).

Investing: In the year 2008, CRISIL, S&P, KLD Research and Analytics launched the S&P ESG India Index, the first investable index of companies whose business strategies and performance demonstrate a high level of commitment towards meeting ESG standards. The MSCI (Morgan Stanley Capital International) India ESG leaders Index was introduced in the year 2013. Further in the year 2015, RBI encompassed two major sectors in the requirement for banks in the priority sector lending namely, renewable energy and social infrastructure. India has also witnessed the launch of several dedicated ESG funds by asset management companies (AMCs). Although the first such fund was launched by SBI Mutual Fund in 1991, ESG funds have risen in number in the post-COVID years (Samant & Singh, 2022) and are being continually regularised. In July 2023, SEBI announced that mutual fund houses (which so far could launch only one ESG scheme under the thematic category of equity schemes) will now be allowed to launch ESG schemes through six different strategies – (i) Exclusion; (ii) Integration; (iii) Best-in-class and Positive screening; (iv) Impact Investing; (v) Sustainable objectives; and (vi) Transition or transition related investments. Mutual fund houses would need to invest at least 80% of the Assets Under Management (AUM) of the ESG scheme in equity and equity related instruments pertaining to the strategy. They would also have to invest at least 65% of the ESG scheme's AUM in companies providing comprehensive BRSR disclosure and assured BRSR Core disclosure. Accordingly, mutual fund houses must also disclose the particular strategy in the name of the scheme and, subject to availability from

ESG rating providers (ERPs), the various ESG ratings of each of their securities. In addition, mutual fund houses must vote for resolution on their investee companies, provide quarterly disclosure of the voting decision, and specify if the decision is backed by an ESG-related reason.

Bonds: In 2015, SEBI passed regulations to facilitate issuance of municipal bonds by municipalities. This requires that municipalities obtain credit rating from at least one registered agency before issuance of municipal bond. Further in the year 2016, green bond guidelines were issued by SEBI. India was the second country to issue national-level guidelines after China. Also in 2017, the Green Bond Disclosure requirements were released by SEBI.

Towards standardization: The Task Force on Sustainable Finance of the NITI Aayog and the Ministry of Environment, Forests and Climate Change constituted a working group in January 2021 to help create a taxonomy of sustainable activities. In January 2022, SEBI launched a consultation paper on ESG rating providers for the securities market. Among the first of its kind in the world, the paper proposed a framework to regulate ERPs in the country. SEBI argued that “since the activities of ERPs are typically not subject to regulatory oversight at present, increasing reliance on such unregulated entities in securities markets raises concerns about the potential risks it poses to investor protection, the transparency and efficiency of markets, risk pricing, and capital allocation, among others. Moreover, a lack of transparency in this area gives rise to the risk of greenwashing and misallocation of assets which could lead to infirmity in such ESG rating and a consequent lack of trust thereof”. This was an important first step towards regulating a rapidly evolving and dynamic new industry and creating thought leadership in establishing industry best practices for regulation.

The regulatory environment around ERPs tightened in July 2023, when SEBI mandated all entities with a predetermined net worth (other than credit rating agencies) which are looking to provide ESG rating services, to obtain its certification. This also includes foreign ERPs promoting an applicant entity, provided they have at least five years of ESG rating experience. Obtaining the certificate is subject to the entity fulfilling several conditions, including incorporation under the

SEBI Green Bond Disclosures

SEBI has broadly classified projects under the Green Bond parameter. Projects related to renewable and sustainable energy, clean transportation, sustainable water management, climate change adaptation, energy efficiency (green buildings), sustainable waste management, sustainable land use, and biodiversity conservation are considered as green projects.

The disclosures required are statement on environmental objectives, brief details of decision-making process, the details of the system/procedures for tracking the deployment, details of the project and/or asset proposed to utilize the proceeds. An independent third-party reviewer/certifier may be appointed for the same.

Continuous disclosures are required along with the half yearly and annual financial results, which are i) Utilization of the proceeds of the issue, ii) Details of unutilized proceeds, iii) List of project(s), iv) Qualitative and quantitative performance indicators, v) Methods and vi) the key underlying assumptions.

Companies Act 2013, declaring ESG rating as its main objective, submission of a business plan, requisite infrastructure, and a prescribed skillset in its employees. Existing ERPs are allowed to continue their operations for six months from the day the regulation came into force (i.e. 3rd July 2023), “or such other period as may be specified by the Board”, or the period between application and its disposal (within the specified period). After certification, an ERP is expected to disclose its rating methodology and its clients’ ESG ratings on a publicly accessible website and report any change in methodology and the resulting change in ratings. The ERP must have the internal resources as well as written policies, procedures, and internal controls needed to carry out the ESG rating activity rigorously and systematically. It is expected to carry out annual (or more frequent, as needed) reviews of the published ratings. The ERP must also appoint a compliance officer who would monitor and report any non-compliance of relevant laws by the ERP to SEBI. SEBI has provided further operational guidelines on the registration and certification process, the rating process, disclosure, and internal audits of ERPs. Other than ESG ratings, the following ESG rating products are also to become part of ERPs’ offering – an ESG Transition (or “Parivartan”) score and its combined score with the entity’s general ESG ratings, as well as a Core Transition (“Parivartan”) score and its combined score with the entity’s Core ESG rating. The Core ESG rating must be based on third-party audited data such as BRSR Core. Transition scores account for the pace and investments of a firm towards achieving Net Zero goals and improving their ESG risk management.

1.5. Growing ecosystem with a host of solution providers

Although, ESG assessments were earlier sought by niche institutional and corporate clients, now it has turned mainstream, and a host of solution providers are available for ESG performance measurement on the global platform. The Global Initiative for Sustainability Ratings (GISR) estimated that there are over 100 organizations collecting some form of ESG data. Other studies count about 500 ESG rankings (Branding Institute, 2016), 170 ESG indices (Lydenberg and White, 2015), 100+ ESG awards, and 120 voluntary ESG standards (Bowen, 2014; Mooij, 2017). They can broadly

Governing Principles



Reporting Frameworks



Rating Agencies



be classified as i) organizations which provides the governing principles related to ESG; ii) organizations which provide reporting frameworks on ESG; and iii) organizations which provide ratings based on ESG parameters.

Organizations providing governing principles

- UNGC: UN Global Compact has ten principles. By adopting these, companies can uphold their basic responsibilities to people and planet.
- SDG: The Sustainable Development Goals (SDGs) or Global Goals are a collection of 17 interlinked global goals designed to be a "blueprint to achieve a better and more sustainable future for all".
- UNPRI: Principles for Responsive Investment works with signatories to identify key environmental, social and governance issues in the market, and coordinates engagements, publications, webinars, podcasts, and events to address them.
- WB: World Bank – Sovereign ESG Data Framework incorporates data relevant to all 17 SDGs, which are crucial for financial sector representatives to consider when assessing the contribution of investments or policies to sustainable development.

Reporting frameworks

- GRI: The Global Reporting Initiative is an international, independent body that helps businesses, governments and other organizations understand, develop and communicate sustainability metrics. GRI relies on voluntary disclosure.
- SASB: The Sustainability Accounting Standards Board is a non-profit organization. It has developed a global standard for identifying, managing and communicating financially-material sustainability information to investors. This can be used in conjunction with other frameworks.



- TCFD: The Task Force on Climate-Related Financial Disclosures was created to improve and increase reporting of climate-related financial risks.
- CDP: The Carbon Disclosure Project is an international non-profit organization which helps companies and cities disclose their environmental impact.
- IIRC: International Integrated Reporting Council, established in 2010, framework with periodic integrated report by an organization about value creation over time and related communications regarding aspects of value creation.
- CDSB: The Climate Disclosure Standards Board is an international consortium of NGOs that are set to help organizations integrate information related to climate change in their financial reporting.

ESG rating agencies

- MSCI: Morgan Stanley Capital International provides third party reports based on data from various sources.
- S&P: S&P Indices are designed to track the global green bond market, which maintains stringent standards to finance only environmentally friendly projects.
- ISS: Institutional Shareholder Services Inc. provides differentiated data, analytics, and insight to the institutional investor and corporate issuer communities.
- ESG Book: Makes sustainability data more widely available via digital platform, ESG information in real-time, and promotes transparency.
- EIU: Economist Intelligence Unit provides ESG rating service based on 90 indicators for 150 countries across the globe.



2. Rationale for ESG assessment of cities

2.1. Urban Local Governments as logical candidates for ESG

Indian cities account for nearly two-third of the country's GDP. Cities are increasingly seeking investment from capital market, private investors, and development finance institutions. In line with global trends, cities will need to prepare themselves for ESG assessments.

Already reporting on many indices and tracking national/ global commitments

Cities are mandated to provide many obligatory and discretionary functions spanning several ESG-related aspects. While data reporting across cities has not been uniform in the past in India, there is a significant shift towards increased collection of information on cities. Indian cities have started to report on such aspects with the introduction of indices such as Ease of Living Index (EoL) and Municipal Performance Index (MPI), Climate Smart Cities Assessment Framework (CSCAF), Data Maturity Assessment Framework (DMAF) and Swachh Survekshan. IT platforms such as Performance Assessment System (PAS) of CWAS, Open Government Data Platform, India Urban Data Exchange, etc. are also driven by the government.

Leveraging on the fact that cities are already reporting on various indices and a plethora of information/ data is available, an ESG framework for cities can be formulated as a tool to plan their investments around the environmental, social and governance fabric.

Box 5: Indices and reporting frameworks

Service Level Benchmarking

Municipal Budget and Accounting Disclosures

Swachh Survekshan

Pey Jal Survekshan

Sustainable Development Goals

Ease of Living Index

Municipal Performance Index

Climate Smart Cities Assessment Framework

Good Governance Index

Mission LIFE

Paris Agreement and Nationally Determined Contributions

It is also necessary to place the actions and projects at the ULB level in alignment with national/ global commitments. At COP 26 in Glasgow, India made two significant commitments: (a) meeting 50% of energy needs from renewable fuels by 2030 and (b) transitioning to a net zero carbon economy by 2070. At COP 27 in Egypt, India reiterated its updated Nationally Determined Contributions and the ethos around Mission LIFE. India is also committed to the SDGs. ESG framework provides a basis for meeting a large number of these global commitments at the city level.

Building city credentials

It is not enough for cities to perform well on indices and report on goals. Cities need investments, both from the government as well as from the market. Raising funds from the capital market requires cities to build their credentials for potential investors. There is a need to build standardised credentials, not just for investors and funding agencies, but also to improve confidence and transparency with citizens.

Investors, including philanthropic and development agencies, are now increasingly giving preference to ESG-related institutions and projects that align with their values. Many of them list priority topics which share common themes with ESG-relevant topics.

This emerging need is reflected in the trend of Indian cities opting for ISO certifications. ISO standards represent the international consensus on best practice in a wide range of areas that contribute to making a city function better. A wide range of ISO certifications, aligned with sustainable development, are available for cities to be certified on procedural efficiency and service quality.

A uniform approach to standards enables cities to seamlessly compare where they stand in relation to other cities. This information can in turn be used to identify best practices and learn from one another. This inclination for standardizing city systems, was the motivation to build an integrated ESG framework.

Indian municipalities with ISO certifications

ISO 9001 for Quality management systems - Agra (City Admin), Bhubaneshwar (FSSM), Kavrapatti (Govt. School)

ISO 14001 for Environmental management - Namakkal (Provision and Maintenance of Water Supply, Solid Waste/Sewage Management, Town Planning, Lighting)

ISO 37120 for Sustainable cities and communities - Jamshedpur, Surat, Pune, Ahmedabad and Vijayawada (standardization of urban data)

The Bond Market

Attracting Investments

India has the second largest urban population in the world with 11 percent of the total global urban population living in Indian cities (NITI Aayog, 2021). Urban growth is expected to contribute to 73 percent of the total population increase by 2036 (MoHFW, 2019), further aggravating the pressure on a city's infrastructure. To meet the rising demand, a World Bank report estimates that India will need to invest US\$840 billion over the next 15 years—or an average of US\$55 billion per annum—into urban infrastructure if it is to effectively meet the needs of its fast-growing urban population. (World Bank, 2022).

Cities and parastatal agencies have two main sources of financing: own-source revenues and inter-governmental transfers. These are insufficient to bridge the large infrastructure financing gap. A recent RBI report suggests that cities should explore different innovative bonds and land-based financing mechanisms to augment their resources. (RBI, 2022). The Union Budget 2022 talked about raising Rs.24,000 crore through Sovereign Green Bonds. The market of municipal bonds, green bonds, social bonds, blue bonds, impact bonds, etc., can act as major funding mechanisms for strengthening municipal finances. The Securities and Exchange Board of India (SEBI) circulated detailed guidelines in 2015 for cities to raise funds by issuing municipal bonds. The green bond market also has regulations regarding categories of projects which can be included and mandatory disclosure requirements. However, the green bond market still requires a credible assessment framework which measures not only the city's fiscal health but also assesses its sustainability parameters. In this scenario, ESG assessments for cities becomes important. A good ESG rating will signify judicious use of funds by the city, low investment risk and consequently easier borrowing from banks, capital markets and bi/multilateral funding agencies.

Municipal Bonds

Debt instruments issued by municipalities or other state agencies which use the money for public good



Green Bonds

The proceeds of a Green Bond offering are 'ear-marked' for use towards financing 'green' projects



Sustainability Bonds

Bonds where the use of proceeds will be exclusively applied to a combination of both social and green projects



Blue Bonds

A debt instrument that is issued to support investments in healthy oceans and blue economies



Social Bonds

Bonds where the use of proceeds is applied to raise funds for new or existing projects with positive social income



Impact Bonds

A debt instrument to finance social services. In India, impact bonds have been successfully launched in the health and education sector



Municipal Bond Eligibility / Criteria as per SEBI:

- Credit rating from at least one credit rating agency registered with the Board
- The municipality should not have negative net worth for the last three financial years
- The municipality should not have defaulted in repayment of debt securities or loans

2.2. City-level adaptation of ESG across the world

Environmental, Social and Governance (ESG) initiatives have risen high on the corporate agenda amid growing public awareness and expectations. Cities also have a critical role to play in driving progress on the ESG front. Governments' adoption and implementation of ESG is becoming an important ethical value in jurisdictions across the globe. Countries/ cities such as Toronto in Canada, USA and New Zealand are aligning their cities with ESG mandates.

The **City of Toronto, Canada** takes an integrated ESG approach, with responsible practices embedded across the City to build a sustainable and resilient foundation for delivery of quality services and value over the long term. It focused on both opportunities and risks across activities, such as investment management, debt issuance, infrastructure investment, financial planning, procurement, and internal operations. Between 2018 and 2022, the city has issued green bonds worth almost US\$800 million and social bonds worth almost US\$320 million. The City of Toronto releases its annual ESG report to monitor the development over the period and continues to be a pioneer in advancing ESG objectives within the Canadian government sector.

The **ISS ESG Muni Quality Score** (formerly ACRE Data) provides ESG scoring for the **U.S. municipal bond market**. Detailed assessments are provided of socio-economic risks faced by upwards of 29,000 cities, 3,141 counties, and 13,500 school districts across all states. Currently, by utilizing 72 scores from the respective datasets, the individual scores determine the ranking for each city or town, country, state, and school district, both statewide and nationally, for each data input.

New Zealand has developed "Indicators Aotearoa New Zealand". While it is dubbed as a social indicators' framework, the themes and indicators reflect categories across the ESG domain. The framework contains wellbeing indicators that reflect an internationally growing vision to provide a more holistic view of wellbeing and sustainable development. Central and local governments, businesses, community organizations, and individuals use these to make decisions for investment,



improvement, or development. The indicators are broadly categorised into environmental, cultural, economic and social parameters.

Australia has Infrastructure Australia, which is its independent infrastructure advisory service, established under the Australian government legislation. It provides research and advice to governments, industry and the community on infrastructure investments and reforms that will benefit all citizens. Its features include a) The Australian Infrastructure Plan – to set out the infrastructure solutions required to drive productivity growth, maintain and enhance standard of living, and ensure that cities and regions remain world class; b) The Australian Infrastructure Audit – to strategically assess Australia’s nationally significant infrastructure needs over the next 15 years; c). Infrastructure Priority List – a prioritized list of nationally significant investments; and d). Infrastructure Australia’s Assessment Framework – to outline what Infrastructure Australia does and how initiatives and projects are assessed, to enable proponents to develop their submissions. The sustainability principles are based on Social, Economic, Environmental and Governance components to guide the approach to sustainability.

South Africa has developed the National Framework for Sustainable Development. The purpose of this framework is to enunciate South Africa’s national vision for sustainable development and indicate strategic interventions to reorient South Africa’s development path in a more sustainable direction. It describes in broad terms how the existing activities of the government and its social partners will be strengthened, refined, and realigned in a phased manner to achieve inter-related sustainable development goals relating to the economy, society, and the environment, and how governance systems will be capacitated to facilitate this process.

Ireland has developed the National Planning Framework – Project Ireland 2040. The document is a planning framework to guide development and investment over the coming years. It empowers each region to lead in the planning and development of their communities, with a set of national objectives and key principles.



3. CWAS-PwC Framework for ESG Assessments in cities

The CWAS-PwC ESG assessment framework for cities is designed to encourage cities to become ESG-ready and create an enabling environment for investors to make decisions about their investments in cities. The framework aims to assess city performance on ESG parameters and can be used to identify interventions required for ESG-related impact.

3.1. Methodology for framework development

The methodology adopted for developing the ESG Framework was done in two phases. In Phase I – a detailed desk review on ESG literature was carried out. During Phase II, the ESG framework for cities was developed. Phase II comprised of tasks such as identification of indicators based on widely used themes, availability of data, and applicability to the Indian context. Based on this, an exhaustive data collection process was carried out for a selected sample of cities.

Box 8: CWAS-PwC India collaboration for ESG

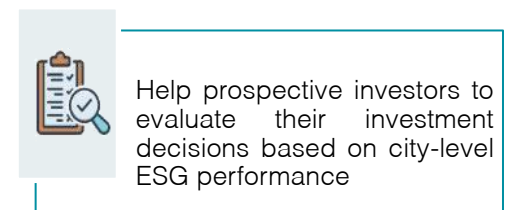
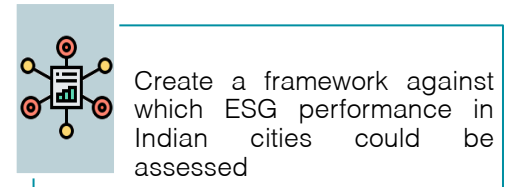
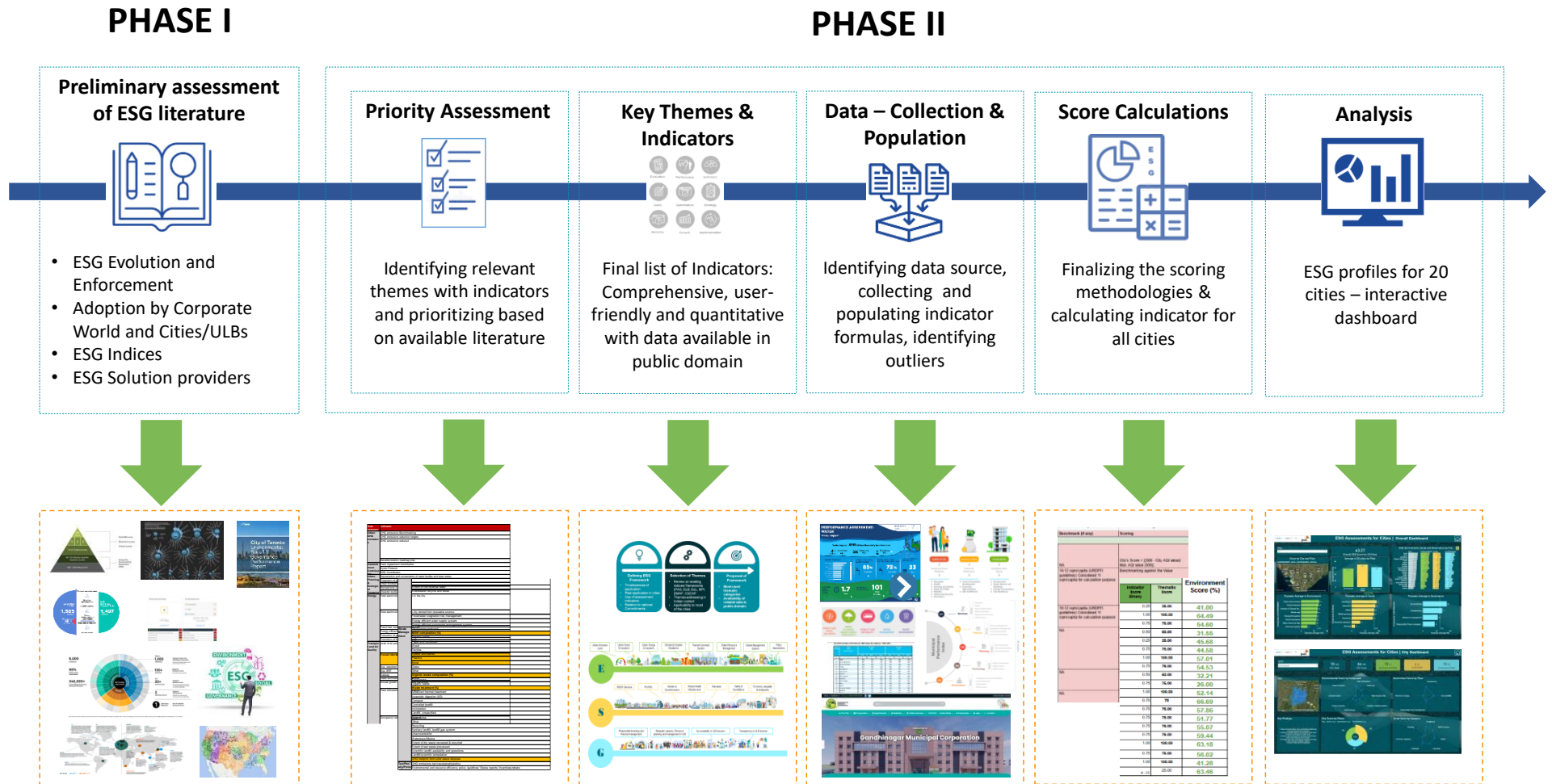


Figure 3: Methodology for Framework Development



3.3. Selection of key themes and indicators

Based on the review, 19 themes and 62 indicators were finalized under the three pillars. See [Annexure 1 – Indicator definitions](#) for more details.

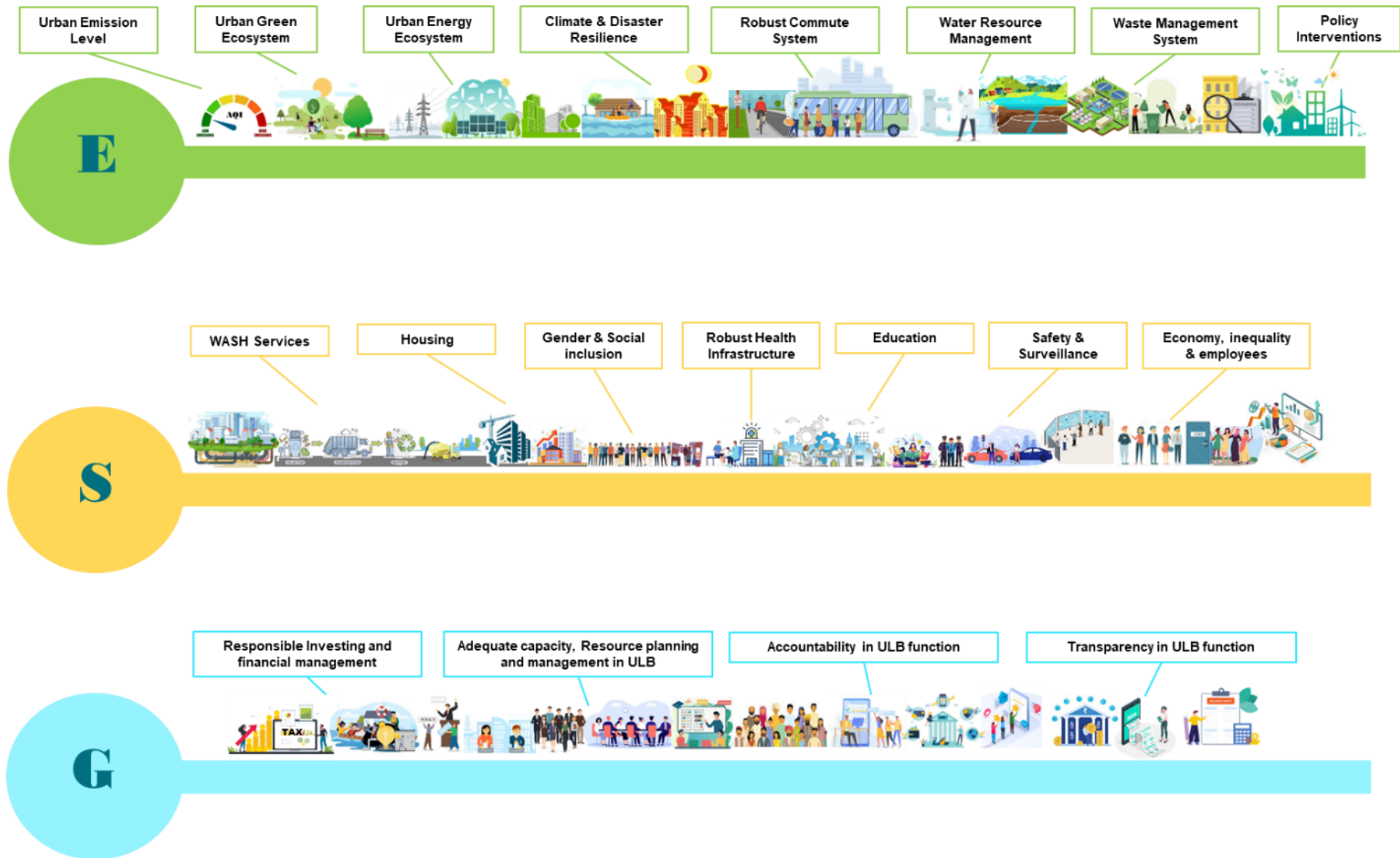
Table 2: Key Themes and Indicators

	Theme		Indicator
Environment			
1	Urban Emissions	1.1	Air Quality Index
2	Urban green ecosystem	2.1	Green cover per capita
		2,2	Open space per capita
3	Urban Energy Ecosystem	3.1	Gross electricity consumption in the city
		3.2	Subsidies on renewable sources
		3.3	Green buildings adoption
4	City's resilience towards disaster and climate change	4.1	Disaster and climate preparedness
		4.2	Climate Vulnerability Index
5	Sustainable and robust commute system	5.1	Cycle lane coverage in road network length
		5.2	Footpath coverage in road network length
		5.3	Availability of Public Transport
6	Water Resource Management	6.1	Quality of Water Supplied
		6.2	Non-revenue water
		6.3	Baseline Water Stress
		6.4	SMART systems deployed in water supply management
		6.5	Rejuvenation and conservation of water bodies and open areas
7	Efficient Waste Management system	7.1	Collection efficiency of wastewater networks
		7.2	Adequacy of WW treatment capacity
		7.3	Extent of reuse and recycling of treated wastewater

	Theme		Indicator
		7.4	Extent of segregation of municipal solid waste
		7.5	Extent of municipal solid waste processed and recycled
		7.6	Extent of scientific disposal of municipal solid waste
		7.7	SMART systems deployed in waste management
8	Policy Interventions to encourage sustainable development	8.1	Presence of policy interventions - Environmental status report / Policy for alternative vehicles / eV infrastructure rules / RWH in building byelaws
Social			
9	WASH services	9.1	Coverage of water supply connections
		9.2	Coverage of toilets
		9.3	Coverage of WW network services
		9.4	Coverage of SWM services
10	Housing	10.1	Housing Price Index
11	Gender and Social Inclusion	11.1	Percentage of houseless people
		11.2	Sex ratio at birth
		11.3	Slum areas covered through basic services
12	Robust Health Infrastructure	12.1	Municipal primary healthcare institutions
13	Education	13.1	Literacy rate
		13.2	Retention Rate - Standard I to V / Standard VI to VIII
14	Safety and Surveillance	14.1	Average Crime Rate
		14.2	Road accident fatality rate
		14.3	SMART systems deployed / Integrated Command and Control Centre
15	Economy, inequality and employees	15.1	Unemployment rate
		15.2	Female Labour force participation rate
		15.3	Economic Ability

	Theme		Indicator
Governance			
16	Responsible Investing and financial management	1.1	Own revenue vs Total revenue
		1.2	Extent of cost recovery in urban services (water, sanitation, SWM)
		1.3	Expenditure Per Capita
		1.4	Utilisation ratio of actual expenditure to budgeted expenditure
		1.5	WSS services to slums
		1.6	Equity in connection charges and user charges
		1.7	Reserve funds for disaster management / climate resilience
17	Adequate capacity, resource planning and management in ULB	2.1	Gender and social parity in decision makers
		2.2	Municipal staff adequacy for services
		2.3	Establishment Expenditure Vs Total Expenditure
		2.4	General body meetings
		2.5	City investment plan / city development plan in public domain
18	Accountability in ULB function	3.1	Platforms for citizen engagement
		3.1	Citizen charter
		3.1	Efficiency in redressal of customer complaints
		3.4	Complaint mechanisms
		3.5	e-governance initiatives
19	Transparency in ULB function	4.1	Data maturity certification
		4.2	Credit rating score of the ULB
		4.3	Efficient municipal accounting practices
		4.4	Transparent municipal accounting practices

Figure 4: Key themes

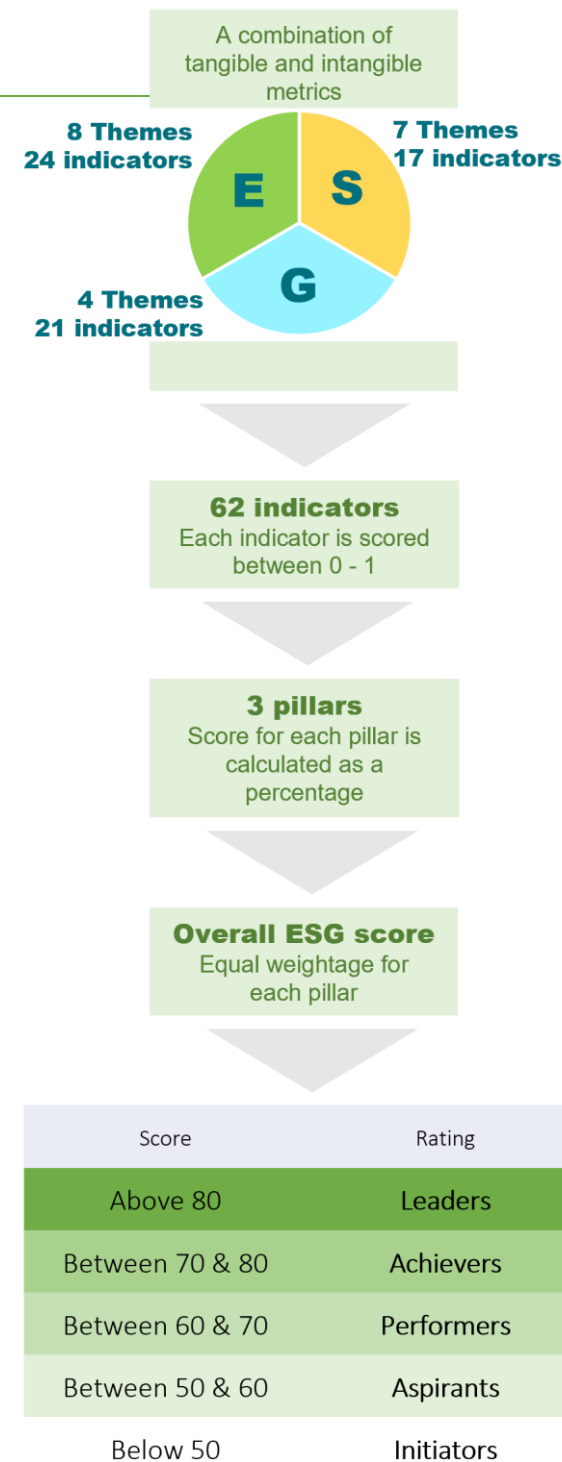


3.4. Scoring and rating methodology

The set of 62 indicators that form the ESG Assessment Framework are a combination of tangible and intangible metrics. Each indicator is scored between 0 - 1 based on the unit of the data set available (See Annexure 1 – Indicator definitions for more details on the calculation of indicators). Score for each pillar is then calculated as a percentage. The overall ESG score is calculated using all three pillars by giving each equal weightage. Finally, an ESG rating is derived using the categorization matrix give in Figure 5 and Table 3.

Table 3: Rating system

Score	Rating	Description
Above 80	Leaders	Cities that showcased exemplary performance on E, S, and G parameters
Between 70 & 80	Achievers	Cities that are actively addressing E, S, and G concerns with consistent results
Between 60 & 70	Performers	Cities that have succeeded in moderate implementation of E, S, and G actions
Between 50 & 60	Aspirants	Cities that have taken actions on several E, S, and G parameters
Below 50	Initiators	Cities that have indicated their intent to undertake a few actions on E, S, and G fronts



3.5. Context of city mandates

A key argument for ESG assessment at the city level is that cities provide many functions spanning several ESG-related aspects. These are listed in the Twelfth Schedule of the 74th Constitutional Amendment Act of 1992. However, the 18 functions listed under the 12th Schedule are suggestive in nature and it is the State Government's decision to include them in respective municipal legislations. Thus, many indicators used in the ESG framework may be under the purview of the state government, parastatal agencies, etc. Due to this, there are various indicators for which information is available only at district or state level. As mandates differ between cities in different states, the framework needs to be contextualised. Additionally, diversities in geography and population size need to be considered. The ESG framework reported here provides a structured approach for cities, local governments, and investors to assess and address the challenges which the city faces irrespective of the institutional mandates.

74th Amendment and 12th Schedule

Power, authority and responsibilities of urban local governments -

1. Urban planning including town planning
2. Regulation of land-use and construction of buildings
3. Planning for economic and social development
4. Roads and bridges
5. Water supply for domestic, industrial and commercial purposes
6. Public health, sanitation conservancy and solid waste management
7. Fire services
8. Urban forestry, protection of the environment and promotion of ecological aspects
9. Safeguarding the interests of weaker sections of society, including the handicapped and mentally retarded
10. Slum improvement and upgradation
11. Urban poverty alleviation
12. Provision of urban amenities and facilities such as parks, gardens, playgrounds
13. Promotion of cultural, educational and aesthetic aspects
14. Burials and burial grounds; cremations, cremation grounds; and electric crematoriums
15. Cattle pounds; prevention of cruelty to animals
16. Vital statistics include registration of births and deaths
17. Public amenities including street lighting, parking lots, bus stops and public conveniences.
18. Regulation of slaughterhouses and tanneries.

4. ESG analysis for pilot cities

4.1. Pilot cities and data sources

A range of indicators and related data sources are available for Indian cities such as Census of India, Ease of Living Index (EoL), Municipal Performance Index (MPI), Climate Smart Cities Assessment Framework (CSCAF), Data Maturity Assessment Framework (DMAF) and Swachh Survekshan. Mandatory disclosures from urban local bodies are also useful public domain sources. These include published Service Level Benchmarks (SLBs), budget documents, development plans and composition of elected bodies. Similarly, IT platforms such as Smart Cities Open Data Platform, AMPLIFI portal, Performance Assessment System (PAS) of CWAS, India Urban Data Exchange etc. are also driven by the government.

For testing the framework, 20 cities were selected which represented a geographic mix and range of population classes as well as had adequate data availability on these public platforms.

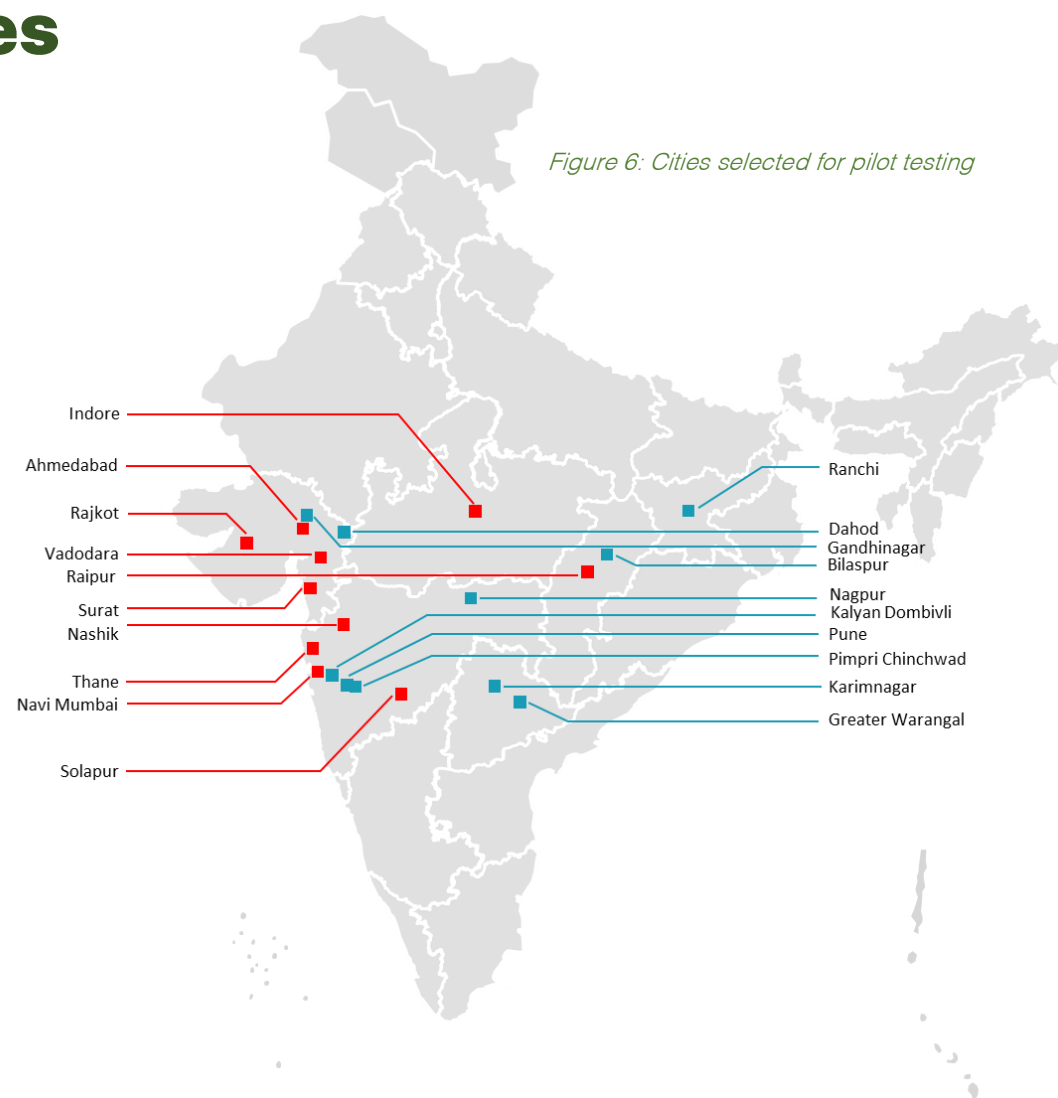


Table 4: Data sources for pilot testing

Source	Data/ Framework/ Dashboard	Data Source/ Links
CWAS-CRDF-CEPT	PAS Framework	https://cwas.org.in/cwas-resources/performance-assessment-toolkit
MoHUA	Amplifi (MPI/EoL, DMAF)	https://amplifi.mohua.gov.in/
MoHUA	Catalog	https://smartcities.data.gov.in/
MoHUA + NIUA	Climate Data Observatory (CSCAF CDoT – C-cube)	https://niua.org/c-cube/CDoT
Census	Census data Demographic data	https://censusindia.gov.in/2011-common/censusdata2011.html
WRI	India Water Tool	https://www.indiawatertool.in/index.html
CEEW	Climate Vulnerability Index	https://www.ceew.in/publications/mapping-climate-change-vulnerability-index-of-india-a-district-level-assessment
ULB Resources	City Website Budgets and Financial Statements Development Plans	Multiple sources. Refer Annexure 1
Others	Housing and Land Rights Network, District Report Card etc.	Multiple sources. Refer Annexure 1

4.2. City ratings

Based on available data and the scoring methodology, ESG ratings were calculated for all pilot cities.

Table 5: ESG ratings for 20 cities

City	Overall Rating	Environment Rating	Social Rating	Governance Rating
Surat	Achiever	Achiever	Achiever	Achiever
Pune	Achiever	Performer	Achiever	Achiever
Vadodara	Achiever	Performer	Leader	Performer
Pimpri Chinchwad	Achiever	Performer	Achiever	Achiever
Thane	Performer	Performer	Achiever	Performer

City	Overall Rating	Environment Rating	Social Rating	Governance Rating
Indore	Performer	Achiever	Achiever	Aspirant
Nagpur	Performer	Performer	Achiever	Performer
Nashik	Performer	Performer	Achiever	Performer
Navi Mumbai	Performer	Achiever	Achiever	Aspirant
Ahmedabad	Performer	Aspirant	Achiever	Aspirant
Solapur	Performer	Initiator	Achiever	Achiever
Raipur	Performer	Performer	Performer	Performer
Rajkot	Performer	Performer	Achiever	Aspirant
Gandhinagar	Performer	Aspirant	Achiever	Aspirant
Kalyan Dombivili	Aspirant	Initiator	Performer	Performer
Bilaspur	Aspirant	Aspirant	Aspirant	Aspirant
Greater Warangal	Aspirant	Initiator	Aspirant	Performer
Karimnagar	Aspirant	Initiator	Performer	Aspirant
Ranchi	Aspirant	Initiator	Aspirant	Aspirant
Dahod	Initiator	Initiator	Aspirant	Initiator

The results show that most of the cities have a strong performance in the social pillar, indicating their commitment towards recent government programs for addressing social issues and improving the well-being of their citizens. Additionally, cities have performed well in the governance pillar, showcasing compliance and efforts towards transparency, accountability, and citizen engagement.

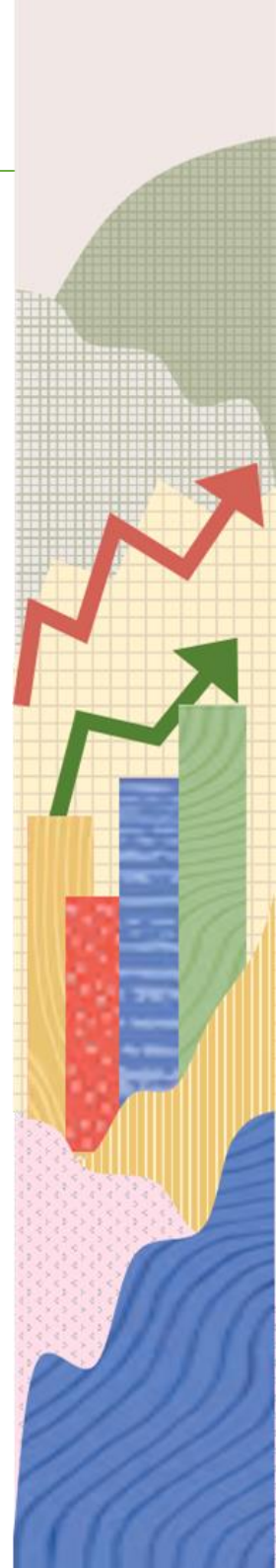
However, in the environment pillar, the performance needs improvement. It was observed that while the cities have shown positive progress, under the theme of "Policy interventions to encourage sustainable development," the cities still score low under themes like "sustainable and robust commute system," "green ecosystems" and "water resource management". This indicates that while policy measures seem promising on paper, the actual implementation needs attention.

To address this gap between policy and implementation, the cities need to align their infrastructure development with the existing policy framework. This means putting in place the necessary infrastructure to support alternative modes of transportation such as pedestrian-friendly

pathways and dedicated cycle lanes. Additionally, investing in a well-connected and efficient public transportation system is essential to reduce reliance on private vehicles and lower carbon emissions. To support these initiatives, innovative financial tools like green bonds and Public-Private Partnership (PPP) models can be utilized. By combining policy measures, infrastructure development, and innovative financing methods, the cities can work towards a more sustainable future and improve their performance in the Environment pillar.

Under the Social pillar, an inclusive and equitable approach adopted by the cities in terms of providing services has enabled them to achieve high scores. For example, the theme "Robust health infrastructure," where national programs such as the National Urban Health Mission, has been instrumental for such results. As a result, the cities have been able to provide better healthcare services to their citizens, thereby contributing to improved health outcomes and quality of life.

Under the governance pillar, the cities have performed moderately, with certain areas showing exceptional progress while others lag. Under the theme "Accountability in ULB functions," the cities have demonstrated fair achievements. They have implemented indicators such as civil/citizen engagement platforms, citizens' charters, efficient redressal of customer complaints, mechanisms for complaint registration, and e-governance. These efforts highlight the cities' commitment to bridging the gap between citizens and city governments. Transparent and accountable public institutions are crucial for achieving sustainable development results, as they foster trust, cooperation, and active participation from the citizens in governance processes. However, in the theme "Responsible Investing and financial management," the cities have scored low. This theme comprises indicators related to the city's fiscal health, which is a critical aspect of effective governance. The major source of finances for Indian city is its own revenues thus better utilization of the same by improved administration of the property taxes, and collection of user charges would help cities to strengthen their fiscal health. This can be achieved via regular revisions in property taxes, fast track arrears recovery system, proper penalizing – incentivizing mechanisms, along with capacity building & reform-based policy framework initiatives.



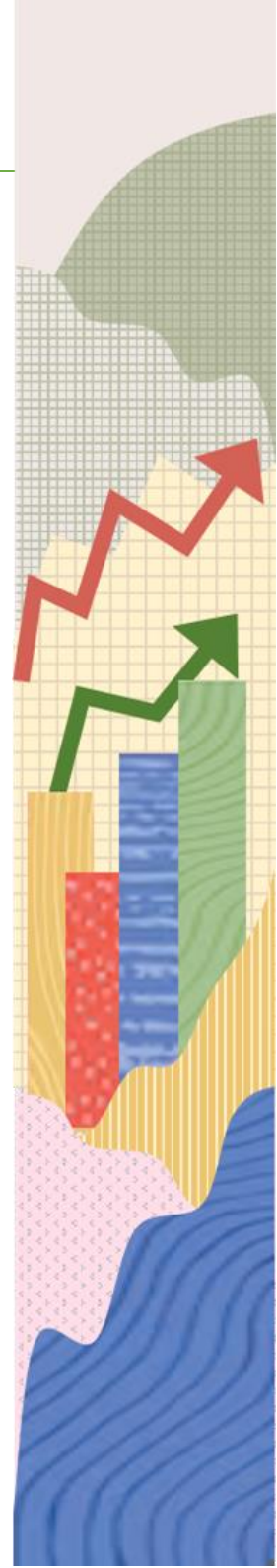
Across the different rating categories, it is possible to identify measures that enable different cities to achieve good performance, and areas in which further efforts are needed. Some examples are demonstrated below -

Achievers:

- Surat has consistent performance in all the three pillars and strikes a balance across all three ESG aspects, with particularly high scores in WASH services and safety parameters under social pillar, as well as transparency and accountability parameters under governance.
- Pune has performed well in the social and governance pillars, which is attributed to its exemplary performance in healthcare, WASH services, and all governance indicators. But it lags behind in the environment pillar, due to low performance in its urban emissions parameter, waste management, commute system, and water resource management.
- Vadodara has outperformed with a Leader rating in the social pillar (with exemplary performance in healthcare, WASH services, as well as safety and surveillance). It has also performed well in the environment pillar, however, in governance pillar the city scored significantly lower with poor performance in responsible fiscal management and resource management parameters.
- Pimpri-Chinchwad, with its good performance in healthcare, education, and WASH services, has exhibited high performance in the social pillar. It also shows very good performance in the governance pillar (particularly the transparency of ULB function). However, it lags behind in the environment pillar due to underperformance in its commute system and emission indicators.

Performers

- Thane has performed well in the social pillar but lags behind to some extent in the other two pillars (with very low performance in its commute system and ULB-level resource management).
- Indore, with its urban emissions in check and well-performing green ecosystem indicators, performs very well in the environment pillar, but exhibits underperformance in the governance pillar due to its low scores along responsible fiscal management and resource management.



- Nagpur performs well on the social pillar, with high scores along healthcare and safety and surveillance. However, its poor performance along its green ecosystem and commute system brings down its rating on the environment pillar.
- Nashik has generally high scores along the social pillar (particularly healthcare) but has some scope for improvement along the environmental and governance pillars (low scores along indicators under commute system and resource management in ULB).
- Navi Mumbai performs well in its environmental and social pillar (with very high scores in policy interventions for sustainable development, green ecosystem, healthcare, and safety), but fares quite low in the governance indicators under responsible fiscal management and resource management.
- Solapur has gained Achiever-level scores in social and governance pillars but has several areas of improvement in the environment pillar, such as its commute system and disaster and climate resilience.
- Rajkot's performance in the social pillar is the best among the three pillars (with very good performance in safety and surveillance), but its low performance along responsible fiscal management and resource management (governance pillar) and commute system (environment pillar) bring its overall ESG rating down.
- Ahmedabad is an achiever in the social pillar but has low scores along governance indicators in resource management and responsible fiscal management, as well as environment indicators such as its commute system, energy ecosystem, emissions, and green ecosystem.
- Raipur has performer-level scores across all pillars but has very low performance in housing and economic adequacy (social pillar) and disaster and climate resilience (environment pillar).
- Gandhinagar has high scores in several social indicators (WASH services, healthcare, education), but its low scores in environmental indicators under commute system and water resource management and governance indicators under responsible fiscal management and resource management give it an overall performer-level ESG rating.

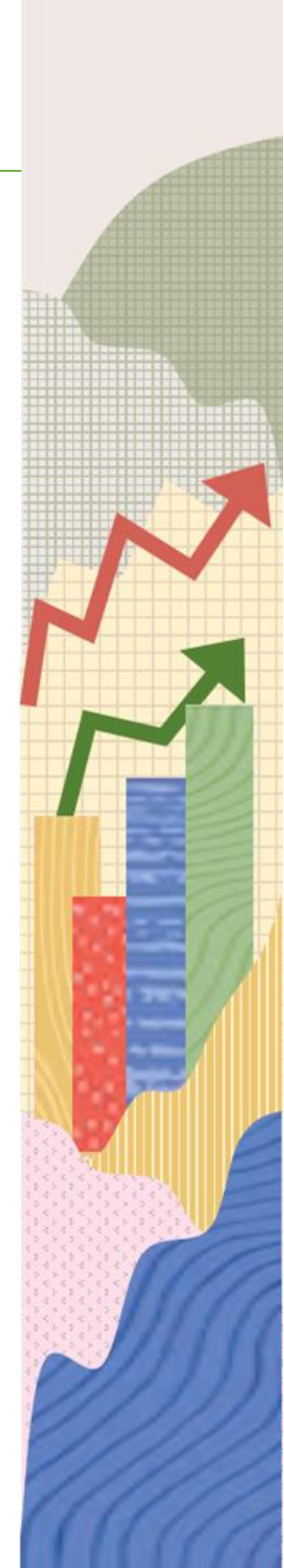


Aspirants

- Kalyan Dombivili has performer-level ratings in the social and governance pillars (with very good performance in education and ULB accountability). However, its relatively poor performance along environment pillar indicators (especially under its commute system) places it in the Aspirants category overall.
- Bilaspur is consistently an Aspirant in all three pillars, with some outperformance in a few themes – urban emissions, healthcare, and accountability of the ULB.
- Both Greater Warangal and Karimnagar have overall moderate performance in the social pillar (with very good performance in healthcare) and good performance in the accountability indicators under governance. Yet they lag significantly behind on the environment pillar, which is explained by their low scores along indicators under waste management and commute system.
- Despite its initiator-level ratings in the environment pillar (with poor performance in several indicators including waste management), Ranchi performs moderately well in the social and governance pillars (with very high scores in education, health, and accountability of ULB function) and thus has an overall aspirant rating.

Initiators

- While Dahod exhibits low performance in the environmental and governance pillars (very low in terms of its green ecosystem and waste management, as well as ULB resource management), its moderate (aspirant-level) performance under the social pillar resulted in an Initiator rating.



4.3. Interactive dashboard for ESG assessment

An interactive dashboard with four different interfaces has been developed with the results of the ESG assessment to enable various stakeholders explore the findings as applicable.

- The first interface gives an overview of the ESG performance across cities and the three main pillars, which enables any new investor to understand the overall ESG scenario across cities.
- The second interface is a city-level dashboard which shows detailed theme and indicator wise performance for each city individually. This interface enables city administration to visualize and identify projects/areas to improve their ESG score.
- The third interface is a city comparator through which cities, businesses or investors can compare the thematic performance between selected cities.
- The fourth interface provides a detailed indicator-level analysis, wherein stakeholders can choose to select a few relevant pillars, themes, and/ or indicator for targeted analysis. For example, if an investor is looking to invest in cycling infrastructure in a city with high pollution levels, the relevant indicators can be filtered to view how cities perform against those indicators alone.

Figure 7: Interactive dashboard - city



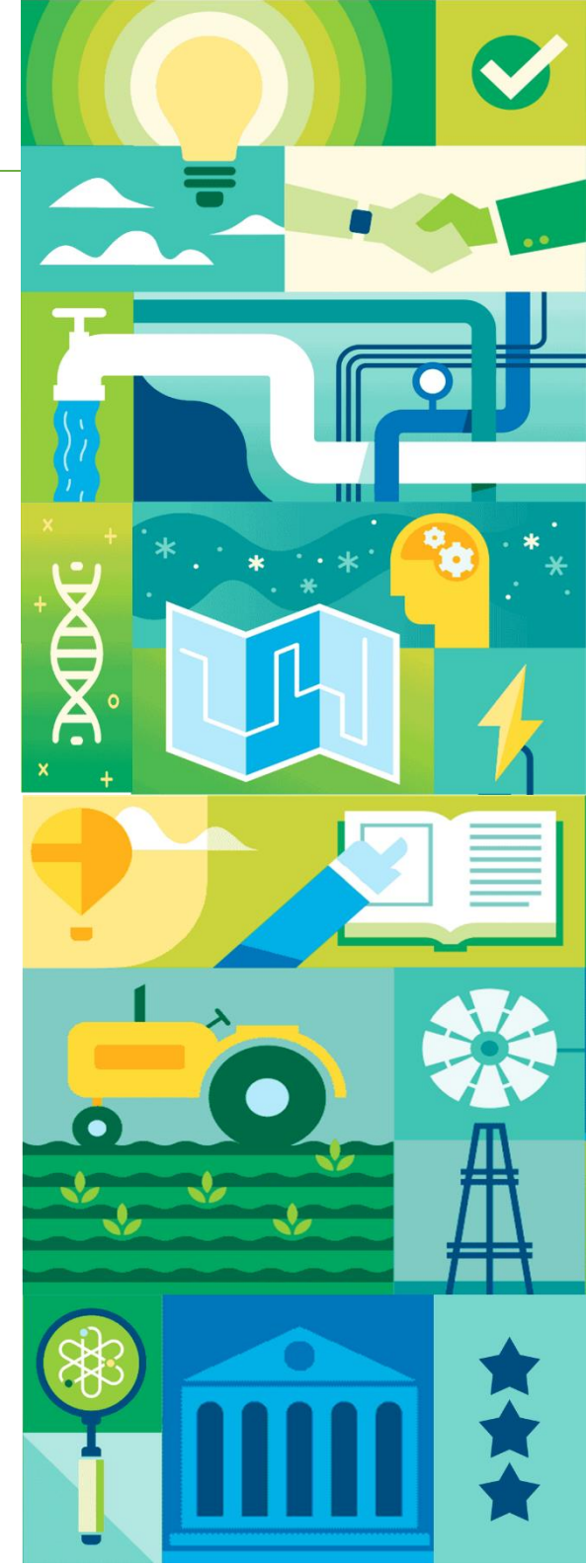
To explore this dashboard further, please send a request to cwas@cept.ac.in.

5. Potential for ESG investing in cities

5.1. Investors focusing on cities and on ESG-related aspects in their decision-making

ESG-based investment decisions focus on long-term value development for business and society whereas SDGs are founded on globally shared values, social expectations and sustainable and inclusive approach to economic growth and well-being. Although SDGs evaluate cities/ countries and ESG rates entities, the target areas are similar and therefore mapping of ESG investments also includes mapping of SDG related measures. As cities are mandated to provide services spanning several ESG-related aspects, they attract ESG investments from a range of potential investors. This ESG framework could aid such investors in assessing the suitable geographies/ sectors for their investment.

In the context of this framework, a city with a higher score along a certain parameter would attract emerging businesses and start-ups (private investment) as it provides a favourable climate for the business to expand its market and offerings. Similarly, a private equity firm backing high growth firms would be attracted to such a city. Impact investors, on the other hand, may use the framework to identify deficit regions and sectors by assessing which parameters a city has a low score on. For example, IFC's SME Ventures provides equity to small and medium-sized enterprises in regions with developmental needs, which can include cities with lower scores along certain parameters (IFC, 2023d). Foundations looking to maximise their impact can also identify the beneficiaries and regions requiring improvement along a certain ESG parameter using the framework.



Multilateral organisations such as the World Bank and Asian Development Bank (ADB) can extend their technical and financial assistance to cities currently performing poorly along certain ESG indicators.

The ESG score of cities along particular parameters can inform the potential impact of these investments, as well as how city administrators can target and attract potential user groups for investment. An illustrative example of the how various investors might approach their investments in these cities is given in Figure 8.

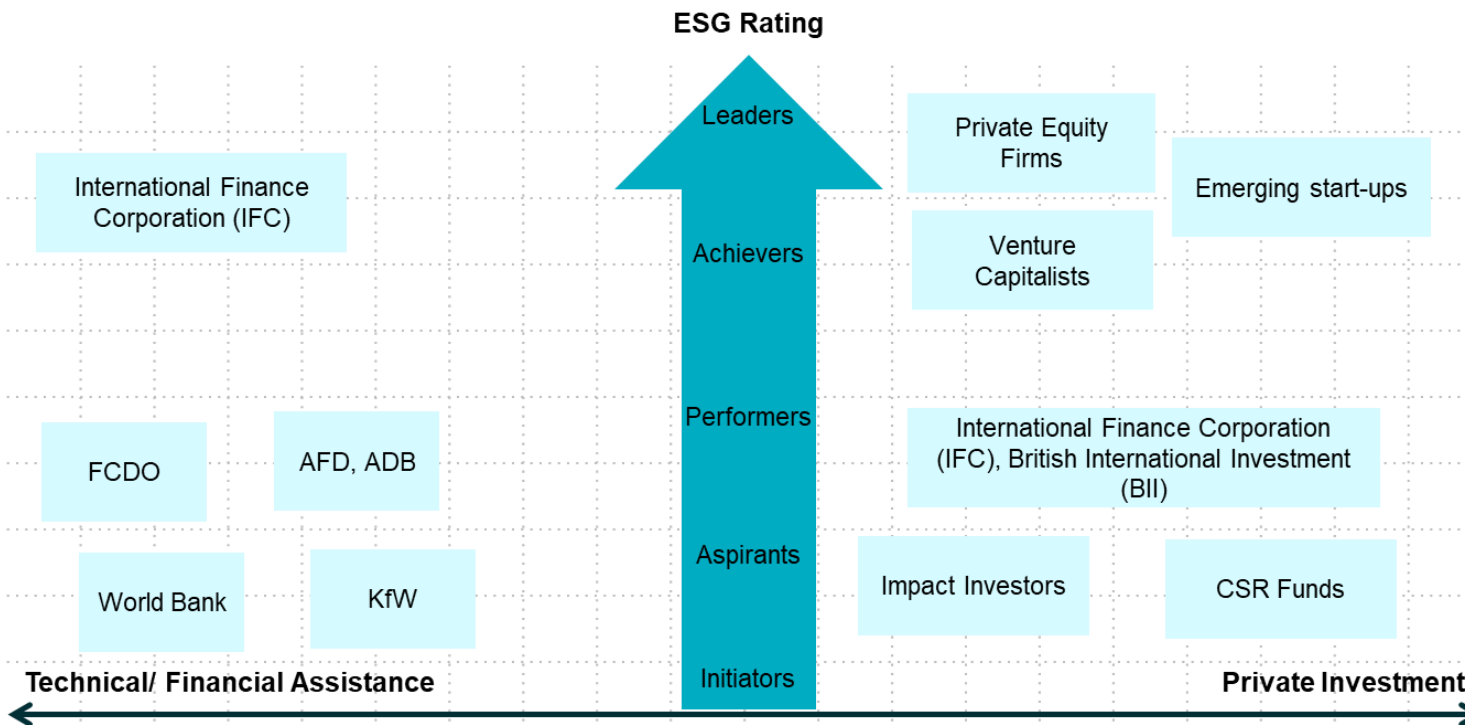
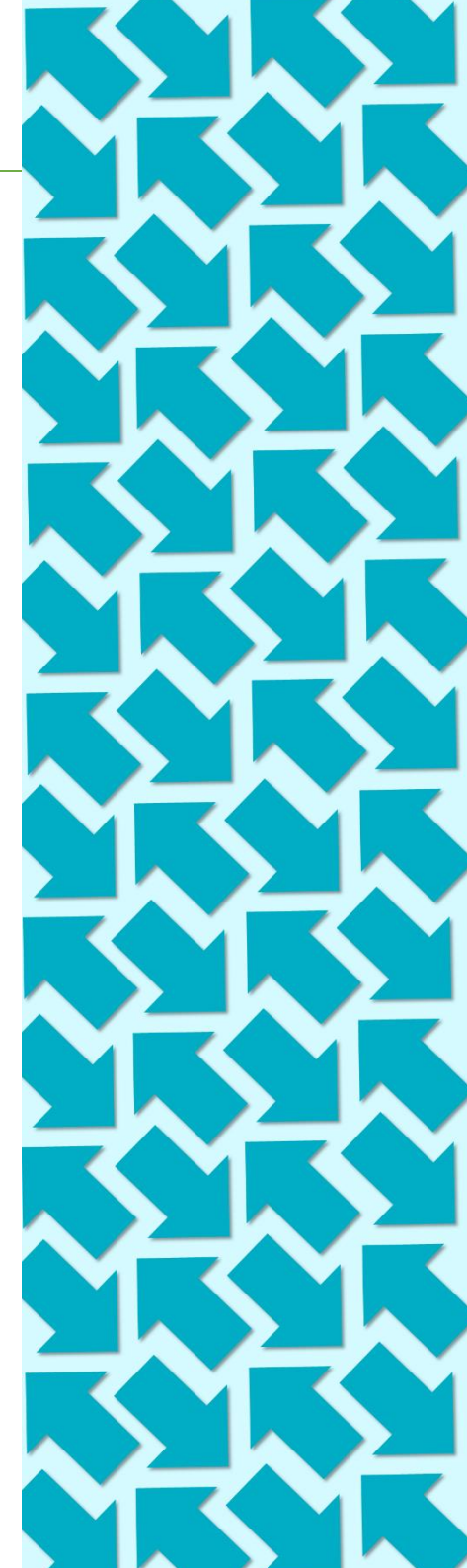


Figure 8: An illustrative example of investment positioning across ESG scores



5.2. Donor agencies and multilateral organizations

Multilateral organisations such as the World Bank Group and ADB, external state-owned development banks such as Germany’s KfW Development Bank, as well as Official Development Assistance (ODA) agencies such as the Japan International Cooperation Agency (JICA) are increasingly investing in various sustainable development areas. Depending on their core operating model and target beneficiaries, development banks’ investments can range from low-interest loans and grants (World Bank, 2023a) to debt securities and equity investments through private equity firms (IFC, 2023a). Official development assistance consists of concessional loans and grants (OECD, 2021). The strategy adopted for the urban sector by such organizations has gradually transitioned from low-cost investment projects in basic service delivery to also include composite themes such as business development and housing finance. As shown in Figure 9, investment decisions by these organizations (irrespective of the type of instrument or assistance) are generally driven by ESG-related or sustainability commitments. In most cases, ESG-focused due diligence is completed before any investment is finalised. Examples of investments made in urban development by these organizations in specific countries, projects, and enterprises, and their linkages with various ESG pillars and indicators, are listed in **Annexure 2 – Investments in urban development: Investments made by donor agencies and development banks.**

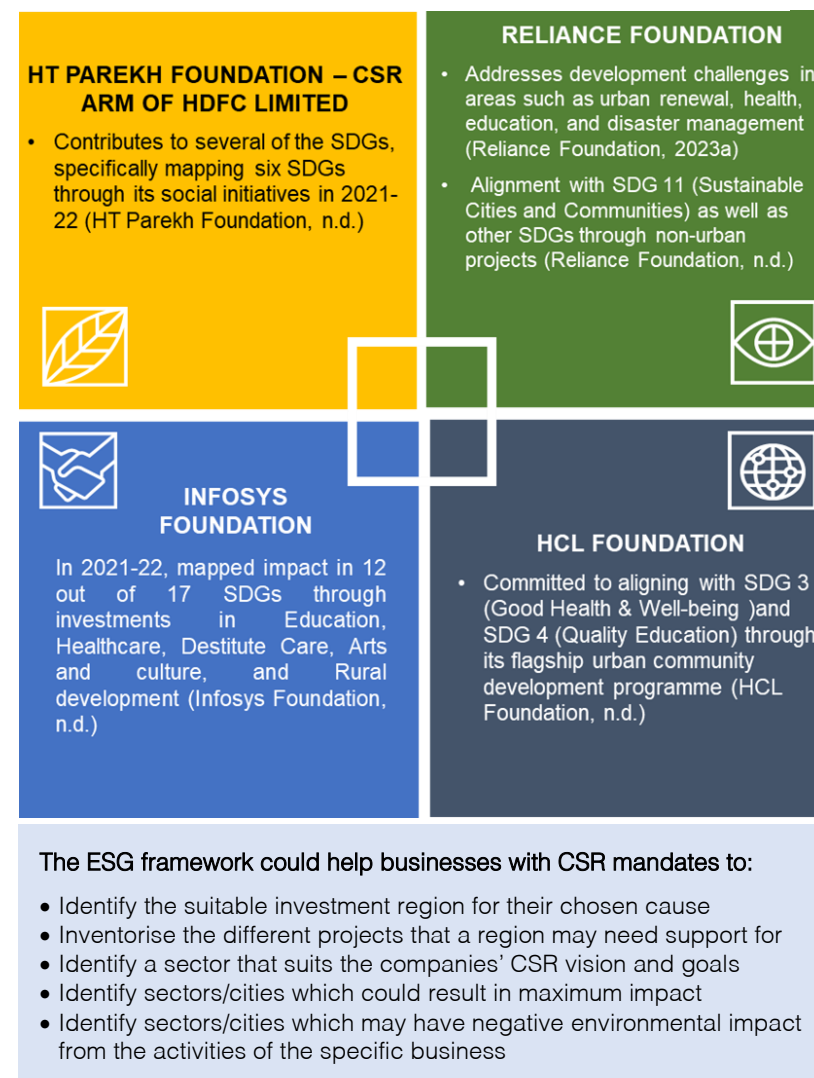
Figure 9: Donor Agencies & Multilateral Organisations: ESG & Sustainability Commitments



5.3. Corporate Social Responsibility (CSR)

As per the mandate for CSR, companies are required to spend a minimum of 2% of their net profit over the preceding three years on philanthropic endeavours. The CSR rules give companies the choice of implementing such activities through a registered trust or society with a minimum of three years' experience in an area, a foundation established by the company (foundations are a Section 25 company) or a subsidiary/associate company. Companies with large amounts set aside as funds for CSR usually set up their own foundations for better control over their CSR activities while many adopt a mixed model where they execute some projects themselves as well as set up a foundation and work through non-profits. Increasingly even companies with smaller budgets are choosing to set up foundations. For CSR activities, many companies in India follow an ESG or sustainability mandate with a clear intention to align with the UN SDGs. A few have integrated their parent company's ESG priority into their own – For instance, water conservation is one of the key focus areas in the CSR activities carried out by 'Anandana' – Coca Cola Foundation (India CSR, 2022) and Hindustan Unilever Foundation (Hindustan Unilever Foundation, 2023). Examples of ESG and sustainability-related commitments by leading foundations in the country, particularly those that are active in urban development activities, are presented in Figure 10. Some of their CSR activities are elaborated **Annexure 2 – Investments in urban development: Investments made by CSR Foundations.**

Figure 10: CSR Funds - ESG and Sustainability Commitments



5.4. Private Equity (PE) funds

Private Equity (PE) firms rely on capital received from high-net-worth individuals and institutional investors. They usually invest in companies that are already exhibiting a growth trajectory (TataCapitalBlog, 2022). In India, PE firms are increasingly focusing on integrating ESG criteria in selecting their AUM. ESG considerations constituted 39% of their AUM in 2017 and this number is set to grow to 90% by 2027 (Sheth et al., 2022). PE firms are increasingly driven by the Value-Creation view of ESG, and not just the lens of risk identification or risk mitigation (Radcliffe & Solaini, 2023).

Many of these PE firms follow an ESG Policy and/or abide by sustainability commitments that shape their investment decisions and portfolio. Figure 11 illustrates the commitments made by select PE firms operating in various sectors of urban India. Examples of their investments are elaborated in **Annexure 2 – Investments in urban development: Investments made by Private Equity firms.**

PE firms often acquire or have a majority stake in the unlisted companies they invest in. This puts them in a position to guide the business decisions of their investees, including geographical expansion and product/service diversification plans.

Figure 11: Private Equity Funds: ESG and Sustainability Commitments



5.5. Venture capitalists and impact investors

Venture Capital (VC) Funds usually invest in and act as accelerators to disruptive companies that show high potential for growth (Loo, 2022). In the Venture Capital-related module of the 2021 PwC Private Equity & Responsible Investing Survey, 76% of respondents are already considering ESG in their investments (PwC, 2023). Such trends are also seeping into the Indian VC ecosystem as ESG reporting and dedicated ESG leadership become increasingly common (Sheth et al, 2023). Venture Capitalists can play the important role of funding early-stage startups in untapped sectors and innovative business models.

Impact Investments are focused exclusively on enterprises that achieve a measurable social or environmental impact alongside a financial return (D'Souza, 2020). Thus far, Impact Investors in India have generally taken the VC approach and provided seed or early-stage capital to emerging eligible businesses (Pai & Pathak, 2023). With SEBI allowing the inclusion of impact investing as a strategy for ESG schemes by mutual funds, major ESG-compliant impact investors could become part of larger investment portfolios and thus gain more traction. As many VCs and impact investors also already have an ESG-driven or sustainability mandate (as shown in Figure 12), this ESG framework would be a useful guiding tool in the acceleration and incubation stages of the start-ups they are focusing on. The investments made by select VCs in the country, and their linkages with the themes and indicators forming this ESG framework, is elaborated in **Annexure 2 – Investments in urban development: Investments made by Venture Capitalists and Impact Investors.**

Figure 12: Venture Capitalists/ Impact Investors: ESG and Sustainability Commitments



5.6. City administrators

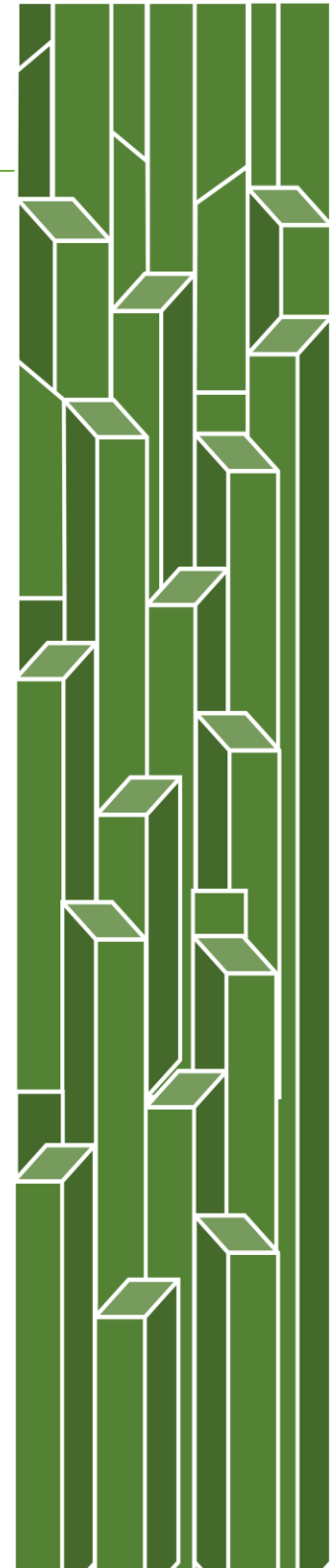
City administration consists of multiple stakeholders such as urban local bodies, special purpose vehicles, state organizations and parastatal organizations, amongst others. These stakeholders usually invest in different aspects of development. For instance, water is a state subject in states like Rajasthan, Haryana, Assam, etc. City administrators usually seek funding from different channels based on the demand or developmental goals in a particular area. This framework will help them gauge the as-is scenario on various parameters and thereby enable them to focus on aspects that need immediate action. For instance, it is known that AMRUT 2.0 / Jal Jeevan Mission (JJM) Urban focuses on water supply and disburse funds on based on fulfilment of certain conditions. For creating proposals to avail these funds, the city administrators could analyse the data from ESG dashboard and formulate the proposals. This ESG framework could also help city administrators in:

- Developing proposals to seek funding from grants and national missions
- Help a city understand how its peers are performing on specific themes and indicators
- Identify areas which could lead to immediate improvements to their rating

5.7. Businesses/ Start ups

The private sector involvement in urban service delivery used to be limited to construction and O&M of urban infrastructure. Over the past two decades, it has increased significantly and now the involvement ranges from being a service provider to a PPP partner, including niche local solutions being offered by start-ups. With SEBI mandating BRSR Core disclosures for businesses and their value chain partners, these firms have the opportunity to integrate ESG practices in their decisions and consequently, attract more investment. The ESG framework would thus be a useful tool to:

- Align their ESG priorities and evaluate options to expand their market or product/services in urban service delivery
- Understand the data maturity of a city
- Identify suitable cities for interventions/products





5.8. Stakeholder consultation

A roundtable meeting on “Making Cities ESG Ready” was organized on 13th January 2023, in New Delhi where the ESG framework for cities and key findings were discussed with invited participants. Ms. D Thara, Additional Secretary, Ministry of Housing and Urban Affairs chaired the event. Participants included representatives from financial institutions, government, researchers and regulators, who actively discussed the framework.

There was a general agreement for the emerging need for ESG rating framework for Indian cities. The participants agreed that ESG assessments will be critical for mobilizing market based and philanthropic funds for cities in the future.

One key aspect that emerged from the discussion was the need to focus on a framework for rating and ‘not ranking’ with respect to city mandates. There was robust discussion with regard to city functions and geographic diversity. The participants encouraged focus on ratings, as opposed to rankings, which would lead to unnecessary comparison and competition between cities of diverse geographic features, population classes and institutional ecosystems. Examples of cities were discussed where, institutionally, certain functions such as bus systems, housing and energy are state-run subjects. Similarly, it was pointed out that many city governments extend ecosystem services beyond administrative boundaries. The consensus was to approach the framework by focusing on city and municipal mandates.

All stakeholders were aligned with the suggestion of using this framework to work with cities and create impact on the ground. It was suggested that the framework should be used to identify priority projects and support exploring funding opportunities for these. The ESG assessment was acknowledged as creating new opportunities to mobilize funding for relevant projects from new sources at competitive rates. A good ESG rating would suggest more judicious use of funds as well as help demonstrate improved ESG performance.

Further details of this consultation can be accessed here – [Roundtable meeting](#).

“ESG implies that the city should be environmentally sustainable and services should reach everyone and for that we need strong Governance. There is a need to account for varying geographies of cities, complexities of data availability and city functions. A system with rating rather than ranking needs to be developed for meaningful work to make impact. AMRUT cities/projects can be the potential streams for further collaboration.”

“City mandates are already ESG oriented, however there are not enough analytics to capture them well or ways to assess their contribution to national goals. It is important to focus on parameters which are under the control of the city administration, as in many Indian cities certain sectors are under the purview of state or parastatal agencies.... Mapping of alternate financial source for the cities, scanning of availability of green funds is yet additional aspect which can be captured.”

6. Way forward

Provision of basic services and amenities in cities require large investments. Currently, cities depend on central and state grant funds. However, cities will increasingly need to mobilize funds from the capital market, as suggested by a recent report of RBI on municipal finance. Recent Government of India programmes such as AMRUT encourage cities to tap the capital market by providing incentives. At present, rating of bonds issued by cities is largely based on financial aspects. This attempt at developing an ESG framework for cities in India is not to develop yet another city ranking framework. It aims to use publicly available information to develop ESG assessment or ESG rating of cities for demonstrating the larger role of our cities in achieving the broader goals related to environment, social and governance.

In the United States, ESG rating of cities is regularly undertaken in response to an active municipal bond market and demand from bond investors. In India, fundraising through Municipal bonds has tripled in the last five years. Government has also announced plans to raise US\$2 billion to support green infrastructure projects through Sovereign Green Bonds. Additionally, SEBI has developed a

framework for ESG Rating providers (ERP), which is similar to Credit Rating Agencies for entities and securities, and mandated in July 2023 that ESG rating providers have to obtain certifications if they are to continue operations. Cities in India are currently attuned to develop “Detailed Project Reports (DPR)” for obtaining funds for infrastructure investment through government programmes. However, if cities are required to raise resources from a new set of funders and investors, it is important to move away from traditional reporting approaches and adopt such an ESG framework. In such a scenario, ESG assessments and ratings provided as a service to cities can help bridge the gap between city aspirations and investor needs.

The New Delhi Declaration signed at the G20 Leaders’ Summit in India in September 2023, also extends support to the “G20 Principles for Financing Cities of Tomorrow” which, albeit voluntary and non-binding, highlight the need for optimizing both private and public sources of finance to make urban investments more efficient and for creating a more favourable private investment climate in cities. As India moves towards becoming a “developed” country,

cities will play a major role in this trajectory. Some cities in Canada, such as Toronto, have prepared city plans to demonstrate how investments will improve liveability on the three pillars of Environment, Social and Governance. They also report progress to their citizens through annual ESG reports and highlight emerging priorities each year. Indian cities too will require demonstration of adequate performance on ESG aspects and such assessment frameworks will help cities in developing appropriate investment programmes, as well as in informing their citizens on how they are meeting the challenges of climate change, inclusion and development.

The interactive dashboard which has been developed based on this assessment can be used by cities themselves to identify areas in which they need to develop policies and plans to respond to wider concerns of E, S and G. It would also help city residents to know how their city has performed on these three pillars. An annual ESG report of cities can inform the city residents and investors about the progress. For new investors, this dashboard would help to identify geographies or sectors which could achieve impact outcomes aligned with their own ESG priorities. Businesses working in urban services and infrastructure, could also use this dashboard to identify

target geographies in a more informed manner in their business planning.

The next step for this collaboration, is to explore deep-dive ESG assessments with a few cities. This will involve looking at city priorities and investor interests to develop projects for debt financing and match cities with ESG Investors looking for suitable projects. The goal is also to position ESG as a strategic framework for project scrutiny. In the context of making cities climate resilient, it is suggested that State and National Governments adopt ESG framework. This will help assess contribution of cities to national/global commitments and champion well-governed cities for relevant social and environmental achievements.

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Annexure 1 – Indicator definitions

Environment Themes and Indicators: The Environment pillar portrays a city's physical wellbeing in terms of natural resource management, ecological balance, vulnerability to climate change and mitigate and adapt to its effects. It consists of 8 themes with 24 indicators.

1. Urban Emission level in the city: Urban areas are responsible for a substantial proportion of anthropogenic carbon emissions which are sourced majorly from industries, automobiles, generator sets, domestic fuel burning, roadside dust, construction activities etc.

1.1. Air Quality index (AQI): This indicator captures air quality based on six pollutants viz., PM 2.5 (Particulate Matter), PM 10, NO2 (Nitrogen Oxide), NH3 (Ammonia), SO2 (Sulphur Dioxide) and Ozone (as per CPCB) to assess impact on health.

- **Data Source:** Real-time AQI is captured by Central Pollution Control Board (CPCB), on National Air Quality Index portal - https://app.cpcbccr.com/AQI_India/
- **Benchmark:** AQI values measured between 0-500; 0 being least polluted and 500 severely polluted.

CPCB category	Quality
0-50	Good
51-100	Satisfactory
101-200	Moderate

201-300	Poor
301-400	Very Poor

- **Indicator Score** = $(500 - \text{City AQI value}) / 500$
 - **Assumptions:** If the city has more than one station, then the station situated at the CBD area has been selected for scoring.
- 2. Urban green ecosystem to address environmental challenges:** Urban green ecosystems help minimize the adverse impacts of urbanization on the environment and improve citizens' habitable experiences. Thus, the green cover and the open spaces act as the lungs of the city.
- 2.1. Green Cover per capita:** This indicator measures the area of natural or planted vegetation which functions as protection against soil erosion, protects the fauna and balances the temperature.
- 2.2. Open Space per capita:** The indicator measures recreational spaces, planned greens and green buffer zones in the city.
- **Data Source:** AMPLIFI - Assessment and Monitoring Platform for Liveable, Inclusive and Future-ready urban India by MoHUA -

<https://amplifi.mohua.gov.in/> captures the two indicators in its green cover analysis dashboard.

- **Benchmark:** The unit of measurement for both is sqm/person. As per the URDPFI Guidelines, 2014, 10-12 sqm/capita must be provided in a city for each indicator. For calculation purpose, guideline value is considered @ 11 sqm/capita.
 - **Indicator Score** = 1 if its green cover/open space per capita value is = 11 or > 11; otherwise, City's Score = (11-City value)/11,
- 3. Urban Energy Ecosystem:** Cities are known to be the centre stage for consumption of energy. Energy ecosystems are dependent upon natural resources, policy and human behaviour and are thus important for assessment.
- 3.1. Gross Electricity consumption in the city:** The amount of electricity that is used by the city for various purposes such as domestic, commercial, industrial and city infrastructure services (water/sewage pumping, streetlights etc.). If the primary source for generation of electricity is fossil fuels, less consumption implies better ESG performance. The unit of measurement is KWh/capita.
- **Data Source:** Climate Data Observatory (CDoT) by MoHUA and NIUA captures the indicator in its ClimateSmart Cities Assessment

Framework (CSCAF) under Energy and Green Buildings section -

<https://niua.org/c-cube/CDoT>

- **Indicator Score:** Categorised scoring based on ClimateSmart Cities Assessment Framework (CSCAF) score for Energy and Green Buildings - Electricity Consumption in the City.

Category	Indicator Score
CDoT Score 00-20	0
CDoT Score 21-40	0.25
CDoT Score 41-60	0.5
CDoT Score 61-80	0.75
CDoT Score 81-100	1

- 3.2. Provision of subsidies on opting renewable sources:** This indicator considers any government action that lowers the cost of energy production, raises the revenues of energy producers, or lowers the price paid by energy consumers
- **Indicator score:** If subsidies are provided, then indicator score = 1, otherwise = 0
 - **Data Source:** State level policy framework on provision of subsidies on opting renewable sources.
- 3.3. Green buildings Adoption:** Number of buildings certified through LEED certification, Bureau of Energy Efficiency (BEE), Leadership in Energy and Environmental Design (LEED), Excellence in Design for Greater Efficiencies (EDGE), Green Rating for Integrated

Habitat Assessment (GRIHA), Indian Green Building Council (IGBC) or Green and Eco-friendly Movement (GEM)

- **Data Source:** Climate Data Observatory (CDoT) by MoHUA and NIUA captures the indicator in its ClimateSmart Cities Assessment Framework (CSCAF) under Energy and Green Buildings section - <https://niua.org/c-cube/CDoT>

Indicator score = Categorized Green building score from CDoT/100

Category	Indicator Score
No adoption	0
Up to 10% adoption	0.25
Up to 40% adoption	0.50
Up to 60% adoption	0.75
100% adoption	1

4. **City's resilience towards disaster and climate change:** The ability to bounce back against natural or man-made calamities holistically
- 4.1. **Disaster and climate preparedness:** A Disaster Management Plan majorly includes understanding disaster risk, improving disaster risk governance, investing in disaster reduction and disaster preparedness. A Climate Action Plan focuses on mitigation and adaptation efforts on reducing GHG emissions.
- **Indicator score:** Binary scoring based on Y/N answers to multiple questions. Each affirmative will add the respective part score to the indicator score.

Question	Answer	Part Score
Does the city have a Disaster Management Unit or a Climate Resilience Unit?	Y	0.5
Has the city prepared a Disaster Management Plan?	Y	0.25
Has the city prepared a Climate Action Plan?	Y	0.25

- **Data Source:** AMPLIFI portal by MoHUA captures the indicator in its Disaster Management Analysis dashboard - <https://amplifi.mohua.gov.in/>
- 4.2. **Climate Vulnerability Index:** CVI helps to map critical vulnerabilities, plan strategies to enhance resilience, and adapt climate-proofing communities, economies and infrastructure. The Index has been calculated by Council on Energy, Environment and Water (CEEW) using information on aspects of exposure, sensitivity, and adaptive capacity.
- **Data Source:** A publication of CEEW on mapping climate change vulnerability index of India, a district level assessment- <https://www.ceew.in/publications/mapping-climate-change-vulnerability-index-of-india-a-district-level-assessment> (Council on Energy, Environment and Water)
 - **Indicator score** = (1-CVI)

- **Assumption:** District level data have been taken into consideration for climate change vulnerability index.
5. **Sustainable and robust commute system:** To reduce GHG emissions from transport sector and impact positively on global environment, every city needs to promote a sustainable and robust commute system.

5.1. Cycle Lane coverage in road network length

5.2. Footpath coverage in road network length

NMT is a highly cost-effective and environmentally efficient transportation strategy and brings about large health, environmental, economic and social co-benefits, particularly for the urban poor, thus presence of efficient cycle lane and footpath in city's commute system is extremely important in urban scenario. Both indicators are available as a percentage of the total road length.

- **Data Source:** AMPLIFI portal captures the indicator in its mobility dashboard - <https://amplifi.mohua.gov.in>
- **Benchmark:** For footpath coverage the benchmark is 100% as listed by the Service Level Benchmarks for Urban Transport.
- **Indicator score** = Coverage/100

5.3. **Availability of Public Transport:** The availability of public transport including bus, metro coach, suburban rail coach and ferries is a key factor to evaluate modal shift from private to public transport.

- **Data Source:** AMPLIFI portal by MoHUA captures the indicator in its Mobility dashboard - <https://amplifi.mohua.gov.in/>
- **Indicator score:** Categorized scoring based on public transport unit (PTU) per 1000 persons. $PTU/1000 \text{ persons} = \text{Fleet size of public transport} * 1000 / \text{Population of the City}$

PTU/1000 persons	Indicator Score
0	0
0-25	0.25
25-50	0.5
50-75	0.75
75-100	1

6. **Water Resource Management:** Water scarcity is a major issue in urban areas. Hence to harness the negative externalities of unprecedented population growth, cities need to focus on a robust water resource management system.

6.1. **Quality of Water Supplied:** The percentage of water samples that meet or exceed the specified potable water standards and sampling regime, at treatment plant outlet and consumer points as defined by the CPHEEO.

- **Data Source:** Service Level Benchmarks available from PAS Project <https://pas.org.in/>

- **Benchmark:** Service Level Benchmark is 100%.
- **Indicator score** = Number of samples that meet the specified potable water standards in the month/ Number of water samples taken for testing in the month

6.2. Percentage of non-revenue water: The quantum of water lost through physical leaks, unauthorized consumption, and authorized but unbilled consumption.

- **Benchmark:** Service Level Benchmark is 20%.
- **Indicator score:** If the NRW \leq 20, then the score is 1. Otherwise, the score = $[(100-NRW)/100]$
- **Data Source:** Service Level Benchmarks available from PAS Project <https://pas.org.in/>

6.3. Baseline Water Stress: The indicator measures total annual water withdrawals (municipal, industrial, agricultural) expressed at a percentage of the total annual available flow. Higher values indicate more competition among users.

- **Data Source:** India Water Tool developed by World Business Council for Sustainable Development (WBCSD) - <https://www.indiawatertool.in/>
- **Indicator score:** Category based scoring

City Score	Indicator score
No stress - 0%	1

Low - less than 10%	0.8
Low to Medium - 10 to 20%	0.6
Medium to High- 20 to 40%	0.4
High - 40 to 80%	0.2
Severe - more than 80%	0

- **Assumption:** District level data has been used.
- 6.4. SMART systems deployed in water supply management:** This binary value indicator captures the existence of IoT applications in water supply system to monitor, control, and regulate. Applications considered are - Digital output instruments / Supervisory control and data acquisition (SCADA) systems / Geographic information system (GIS) / Other software(s)
- **Indicator score:** If either of the applications are present, indicator score = 1, otherwise indicator score = 0
 - **Data Source:** For different cities data has been collected from various secondary sources. Ranchi – https://www.adb.org/sites/default/files/project-documents/52028/52028-004-sddr-en_0.pdf, Pune – https://pmc.gov.in/sites/default/files/reports_dpr/WaterSupplySystemForPuneCity-DPR_Final_R2_14-02-14_0.pdf and <https://www.pmc.gov.in/en/water-purification-at-parvati>, Gandhinagar – <https://gandhinagar.nagarmunicipal.com/mainprojects/index.htm>, Kalyan Dombivili –

<https://www.dnaindia.com/mumbai/report-tmc-kdmc-tomonitor-water-online-to-curb-leakage-2724420>, Pimpri Chinchwad - <https://ijtre.com/wpcontent/uploads/2021/10/2017040968.pdf> and https://mohua.gov.in/upload/uploadfiles/files/PCMC_Water_PPT_0.pdf, Nagpur - <https://www.orange-citywater.com/>, Dahod - <https://nationaltenders.com/tender/design-supply-installation-testing-s-dahod-tenders-24280312>, Bilaspur - <http://164.100.161.224/upload/tender/58d4c684c5cecBilaspur%20NIT%20final%2008.03.2017.pdf>

6.5. Rejuvenation and conservation of the water bodies and open area

helps to achieve a healthy environment and maintain biodiversity across the urban areas.

- **Data Source:** Climate Data Observatory (CDoT) by MoHUA and NIUA captures the indicator in its ClimateSmart Cities Assessment Framework (CSCAF) under urban planning, green cover and biodiversity- <https://niua.org/c-cube/CDoT>
- **Indicator score** = Categorized score from CSCAF / 100

Progression Level	CSCAF Score
No Action	0
Initiated Assessment of urban water bodies and open areas	25
Allocation of Budget and Implementation	75

Monitoring, Review and Maintenance	100
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7. Efficient Waste Management system: Waste management is one of the prime factors to achieve sustainable environment. Mismanagement of waste is a major problem that cities are facing due to rapid urbanisation. Hence, cities should take prompt action to build efficient waste management system.

7.1. Collection efficiency of wastewater networks: Total quantum of sewage collected through underground sewer network, effluent from septic tank flowing through settled sewer network or drains, septage collected through vacuum tank emptying vehicles and wastewater collected and treated through twin pit system as percentage of normative wastewater generated in city. This indicator is calculated based on weighted average of household's dependent on sewerage and onsite sanitation system.

- **Data Source:** SanBenchmarks available from PAS Project <https://pas.org.in/>
- **Benchmark:** SanBenchmark is 100%.
- **Indicator score:** SanBenchmark value / 100

7.2. Adequacy of WW treatment capacity: Adequacy is expressed as sewage treatment; septage treatment and effluent treatment capacity available in case of disposal by settled sewers/ drains as a percentage of normative septage and sewage generation, for

the same time period. This indicator is calculated based on weighted average of households dependent on sewerage and onsite system.

- **Data Source:** SanBenchmarks available from PAS Project <https://pas.org.in/>
- **Benchmark:** SanBenchmark is 100%.
- **Indicator score:** If SanBenchmark value >100, indicator score =1, otherwise indicator score= SanBenchmark value / 100

7.3. Extent of reuse and recycling of treated WW: Quantum of wastewater and septage that is recycled or reused after treatment, including treated effluent in case of disposal by settled sewer / drains as percentage of normative wastewater and septage generated in city. This indicator is calculated based on weighted average of households dependent on sewerage and onsite system.

- **Data Source:** SanBenchmarks available from PAS Project <https://pas.org.in/>
- **Benchmark:** SanBenchmark is 20%.
- **Indicator score:** If SanBenchmark value >20, indicator score =1, otherwise indicator score= (SanBenchmark value / 20)

7.4. Extent of segregation of municipal solid waste: Captures the segregation of waste, typically as dry and wet waste, but ideally

as bio-degradable and non-bio-degradable waste. Segregated waste enables increased efficiencies in treatment, recycling, and scientific disposal of waste.

- **Data Source:** Service Level Benchmarks (SLB) available from PAS Project <https://pas.org.in/>
- **Indicator score:** If SLB value >100, indicator score =1, otherwise indicator score= SLB value / 100

7.5. Extent of municipal solid waste processed and recycled:

Captures the quantity of waste that is recycled or processed at the treatment plant.

- **Data Source:** Service Level Benchmarks (SLB) available from PAS Project <https://pas.org.in/>
- **Indicator score:** If SLB value >80, indicator score =1, otherwise indicator score= SLB value / 80

7.6. Extent of scientific disposal of municipal solid waste: Captures the

quantum of waste that is disposed in scientific engineered landfills. This is an important indicator as it assesses the amount of waste that is safely disposed as against waste that is disposed in open dumps.

- **Data Source:** Service Level Benchmarks (SLB) available from PAS Project <https://pas.org.in/>

- **Indicator score:** If SLB value >100, indicator score = 1, otherwise indicator score = SLB value / 100

7.7. SMART systems deployed (WW management, SWM management):

This binary value indicator captures the existence of IoT applications in wastewater management and solid waste management system to monitor, control, and regulate. Applications considered are - Digital output instruments / Supervisory control and data acquisition (SCADA) systems / Geographic information system (GIS) / Other software(s)

- **Indicator score:** If either of the applications are present for wastewater or SWM, indicator score = 0.5; if present for both, indicator score = 1; otherwise = 0

- **Data Source:** Several secondary sources have been considered for this indicator - Karimnagar (SWM)

https://karimnagarcorporation.telangana.gov.in/assets/052/2020/12/mediafiles/SWM_BOM.pdf, KDMC (SWM) -

<https://smartcities.gov.in/node/120>, Bilaspur (WWS) -

<https://www.bmcbilaspur.com/SLIP-Bilaspur-Sewerage-2016-04-05.pdf> (SWM)- <https://www.bhaskar.com/chhattisgarh/>

<https://www.bhaskar.com/chhattisgarh-news-bilaspur-gets-smart-solid-waste-management-award-included-in-top-10-065507-5576592.html> ,

Warangal and Karimnagar (WWM)-

https://scbp.niua.org/sites/default/files/Telangana_1_0.pdf ,

<https://tspcb.cgg.gov.in/DPRs/30%20PDF%20single%20file%20submission%20jagtial%201-05-2017.pdf> , Gandhinagar (SWM) -

<http://npphardoi.co.in/solid-waste-management/index.html> , Ranchi (WWM, SWM) -

https://www.researchgate.net/publication/342059428_Design_and_study_of_Solid_Waste_Management_in_Ranchi_Jharkhand , Pune (WWM) -

<https://www.pmc.gov.in/en/drainage> (SWM) -

<https://www.pmc.gov.in/en/move-smart-garbage-collection-system>,

Nagpur (SWM)- <https://www.ijert.org/research/sustainable-solid-waste-management-case-study-of-nagpur-indiaIJERTV9IS110278.pdf>, PCMC

(SWM) - <https://docplayer.net/19037949-Solid-waste-management-gps-gis-enabled.html>

8. Policy Interventions to encourage sustainable development

8.1. Presence of policy interventions: For complex socio-ecological systems like cities, strong policy interventions are required for the successful implementation of sustainable development within the spatial planning paradigm.

- **Indicator score:** Scoring process is done based on binary system. The total number of points assigned to this theme is 1, with a maximum point value of 0.25 for each question.

Questions	Marks if "yes"	Marks if "No"
Is the Environmental Status Report prepared?	0.25	0

Is there any policy provision for alternative vehicles?	0.25	0
Is there provision of eV infrastructure in DCR?	0.25	0

Is there provision for Rain Water Management in building bye laws?	0.25	0
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Social Themes and Indicators: The second pillar of the framework is focused on social issues. It comprises of both tangible and intangible indicators which report on the quality of life for citizens of the city. It advances the economic well-being of the community and brings new business investments in the city. The pillar comprises 8 themes which are further categorised into 17 indicators.

9. WASH services: Access to clean water and sanitation are the basic necessities for every person in our society, that a city should provide in order to develop a healthier environment. For successful implementation of WASH service in every city, we need to have strong policy interventions and monitoring system.

9.1. Coverage of water supply connections at HH level: This indicator captures the extent of the household / individual water supply connections in the city.

- **Data Source:** Service Level Benchmarks (SLB) available from PAS Project <https://pas.org.in/>
- **Benchmark:** The Service Level Benchmark is 100%
- **Indicator score** = SLB value / 100

9.2. Coverage of toilets: This indicator captures the properties with access to toilets, either individual or community toilets, and assesses the level of sanitation services in the city.

- **Data Source:** Service Level Benchmarks (SLB) available from PAS Project <https://pas.org.in/>

- **Benchmark:** The Service Level Benchmark is 100%

- **Indicator score** = SLB value / 100

9.3. Coverage of WW network services: This indicator captures the property level connections to sewage network and is significant in estimating the safe sanitation levels of the city.

- **Data Source:** Service Level Benchmarks (SLB) available from PAS Project <https://pas.org.in/>

- **Benchmark:** The Service Level Benchmark is 100%

- **Indicator score** = SLB value / 100

- **Assumptions:**

9.4. Household level coverage of SWM services: This indicator captures the door-to-door collection of MSW. This is relevant as it

forms a major part in the quantum of waste that can be treated, and scientifically disposed.

- **Benchmark:** The Service Level Benchmark is 100%
- **Indicator score** = SLB value / 100

10. Housing: Demand for housing in cities is on the rise due to the rapid urbanization in recent years. Therefore, it is important to understand each city's housing scenario in order to assess the future growth of the city.

10.1. House Price Index (HPI): It provides an analytical tool for estimating changes in the rates of mortgage defaults, prepayments, and housing affordability. House price index (HPI) measures the price changes of residential housing as a percentage change from a specific start date (which has HPI of 100). Higher increase in HPI denotes increased process of properties, ability to buy houses among consumers, which in turn benefit the ULB. Scoring/Formula: HPI is a ratio which is calculated as difference between HPI of 2018 and 2015 to the HPI of 2015.

- **Data Source:** National Housing Bank (NHB - <https://residex.nhbonline.org.in/>) and the other sources (e.g.- <https://www.ceicdata.com/en/india/housing-price-index-national-housing-bank-assessment-price-20122013100-current-quarter>).

- **Indicator Score** = $\{HPI(2018) - HPI(2015)\} / HPI(2015)$

11. Gender and Social Inclusion: Every person in our society demands equal opportunity, rights, and responsibility. Gender equity, allocation of resources or any other decision making should be for all irrespective of any gender or social discrimination.

11.1. Percentage of Houseless people against the total population of the city: this indicator captures the social inclusion status of the city. The Census of India defines 'houseless people' as persons who are not living in buildings or 'census houses' (a structure with roof), but 'live in the open on roadside, pavements, in hume pipes, under flyovers and staircases, or in the open in places of worship, mandaps, railway platforms, etc.

- **Data Source:** Housing and Land Right Network <https://www.hlrn.org.in/homelessness>.
- **Indicator score** = $1 - (\text{Homeless population in the city} / \text{total population of city})$

11.2. Sex Ratio at Birth: Sex ratio is defined as the number of females per thousand males.

- **Data Source:** Census 2011
- **Indicator score:** If Sex Ratio > 1000 then indicator score = 1, otherwise, indicator score = Sex Ratio / 1000

11.3. Slum areas covered through basic services

- **Indicator score:** (Coverage of water supply connections in slums/100 + Coverage of individual toilets in slums/100 + Coverage of wastewater network services in slums/100 + Household level coverage of solid waste management services in slums/100) / 4
 - **Data Source:** PAS - SLB available from PAS Project <https://pas.org.in/>
 - **Assumption:** If slum population = 0, the city receives full marks in this indicator
- 12. Robust Health Infrastructure:** Access to affordable healthcare system, maintaining public health, and treating pressing health related problems are essentials that every city should aim to achieve. This theme focuses on population-based interventions based on national guidelines.
- 12.1. Municipal primary healthcare institutions/ per lakh of population:**
The indicator captures the city's efficiency to cater medical health care facilities.
- **Data Source:** ITC dashboard under the AMPLIFI portal of MoHUA (amplifi.mohua.gov.in)
 - **Benchmark:** According to the URDPFI Guideline 2 units should be provided per 50,000 population. For our selected cities we have considered our calculation based on 4 hospitals per 1 lakh population
- **Indicator score:**
- 13. Education:** Education plays such an important role to empower citizens of a society and helps reduce inequalities, prevent crime and boost the economy of a country.
- 13.1. Literacy rate:** The literacy rate is defined by the percentage of the population of a given age group that can read and write.
- **Data Source:** Census 2011
 - **Indicator score:** Literacy rate/100
- 13.2. Retention Rate:** The percentage of students retained to complete a particular school or college course.
- **Indicator score =** (100-Dropout Rate)
 - **Benchmark:** 100%.
 - **Data Source:** District wise data available from HRD Ministry
 - **Assumption:** District level data has been used
- 14. Safety and Surveillance:** Social safety and surveillance is an important aspect which can shield the residents from adverse effect of any kind of social catastrophe. It fosters the notion of living in a secure and liveable society among the citizens.
- 14.1. Average Crime Rate:** Crimes per 1,000 resident people as per the latest official Census over a selected time period.

- **Indicator score** = $(100 - \text{Crime rate})/100$
- **Data Source:** AMPLIFI portal by MoHUA - <https://amplifi.mohua.gov.in/> captures this indicator in its crime dashboard.

14.2. Road accident fatality rate / lakh population: Road accidents have emerged as an important public health issue which needs to be tackled by a multi-disciplinary approach. India roughly accounts for just about one percent of the global vehicle population. However, it accounts for about six percent of the total global road accidents.

- **Indicator score** = $(100 - \text{Road accident fatality rate per lakh population})/100$
- **Data Source:** Statista - <https://www.statista.com/statistics/703571/number-of-road-crash-deaths-by-selected-city-india/>

14.3. Establishment of Integrated Command and Control Centre (ICCC): An ICCC is a decision support system, which would take decisive action after analysing data collected from various sources. This indicator captures whether the city has established an ICCC in terms of the following features- (a) Intelligent traffic and transport management, (b) CCTV surveillance, (c) Early warning system, (d) Environment Sensors, (e) Reporting

- **Indicator score:** Binary method of scoring is being followed for scoring the cities. Each feature carries 0.1 marks if they are present in the city. A city can achieve highest marks of 0.5 if all the features are present. The city will score 0 against absence of any of the features.

- **Data Source:** Various secondary data sources have been reviewed for deriving data for our selected cities. SMART cities - <https://smartcities.gov.in/cities-profiles?q=cities-profiles&page=2> , Nagpur – <https://smartnet.niua.org/content/8932985-9-1a14-451f-b1cc-bf794e54eb2e> , Bilaspur - <https://www.primetenders.com/tenders/detail/2425315005766545669>

15. Economy, inequality, and employees

15.1. Unemployment rate: Unemployed individuals are those who are currently not working but are actively seeking work.

- **Indicator score** = $\text{Unemployed persons} / \text{Total labour force}$
- **Data Source:** Smart city open data portal- <https://smartcities.data.gov.in/>
- **Assumption:** District level data has been used.

15.2. Female Labour force participation rate: Female workforce participation rate (FWPR) is an important indicator of women's economic empowerment and is also reflective of women's agency at home and beyond.

- **Indicator score** = Total females in workforce/ total workforce
- **Data Source:** Various secondary data sources have been used for this indicator. Gandhinagar - https://censusindia.gov.in/2011census/dchb/DCHB_A/24/2406_PART_A_DCHB_GANDHINAGAR.pdf , Dahod - https://censusindia.gov.in/2011census/dchb/2418_PART_B_DCHB_DOHAD.pdf , Warangal - https://censusindia.gov.in/2011census/dchb/2809_PART_B_DCHB_WARANGAL.pdf , Karimnagar - https://censusindia.gov.in/2011census/dchb/2803_PART_B_DCHB_KARIMNAGAR.pdf , Ranchi - https://censusindia.gov.in/2011census/dchb/2019_PART_B_DCHB_RANCHI.pdf , Bilaspur -

https://censusindia.gov.in/2011census/dchb/2207_PART_B_DCHB_BILASPUR.pdf , Nagpur <https://www.nmcnagpur.gov.in/city-development-plan> , Pune and PCMC (District Data) - https://www.censusindia.gov.in/2011census/DCHB/2725_PART_B_DCHB_%20PUNE.pdf

- **Assumption:** District level data has been used.

15.3. Economic Ability is one of the three key pillars of Ease of Living Index. It includes two areas (a) Level of Economic Development, (b) Economic Opportunities

- **Indicator score** = City Score/100 (Available in Score)
- **Data Source:** Ease of Living Index

Governance Themes and Indicators: Governance in ULBs is concerned with accountable and transparent management of city's resource and planning. To address all these, Governance pillar has been broadly classified into 4 themes with 23 indicators.

16. Responsible Investing and financial management

16.1. Own revenue vs Total revenue: With increased own revenues and improved financial accountability, ULBs can access the capital markets through bond issuance and fund the creation of infrastructure. Own Revenue includes all sources of revenue at the disposal of local government, including property tax, user

charges, fees, and fines. Own revenue does not include GST compensation devolutions from states to cities.

- **Indicator Score** = Average of three years: [Total own revenue is {All revenue- (grants from centre and states)}/Total revenue]
- **Data Source:** City Finance Portal: <https://cityfinance.in/financial-statement/report/basic>; PAS data: <https://www.pas.org.in/>

[web/ceptpas/knowyourcity](https://www.pas.org.in/web/ceptpas/knowyourcity); Open budgets India: <https://openbudgetsindia.org/>

16.2. Extent of cost recovery in urban services (water, sanitation, SWM):

This indicator captures the revenues (taxes, user charges, fees) recovered by the ULB against the expenses incurred. This denotes the cost control measures, if any, that need to be considered by the ULB, and also a critical factor in tariff charges. It represents the percentage of total operating revenues from related charges to total operating expenses

- **Benchmark:** SLB is 100%
- **Indicator Score** = Extent of cost recovery in urban services / 100
- **Data Source:** PAS data:
<https://www.pas.org.in/web/ceptpas/knowyourcity>

16.3. Expenditure Per Capita: This indicator highlights the Municipal Finance approach in India for 14th FC. As per MoUD and Niti Aayog report, for Indian cities, revenue and capital expenditures per capita are far below the minimum level that must be incurred for delivering and maintaining services at basic minimum levels.

- **Benchmarking:** While there are no nationally-accepted expenditure norms for municipal services, a comparison of the current levels of spending with the operations and maintenance expenditure norms used by the High-Powered Expert Committee

HPEC suggest that ULBs in India spend about 27-28 percent of what they need for efficient delivery and management of services cities and towns.

- **Indicator Score** = Total Expenditure (Capital + Revenue) of ULB/ Total population of city
- **Data Source:** PAS data:
<https://www.pas.org.in/web/ceptpas/knowyourcity>; Open Budgets India: <https://openbudgetsindia.org/>

16.4. Utilisation ratio of actual expenditure to budgeted expenditure:

High utilisation ratio, of the ULB funds indicates good fiscal management for attracting investors (Private, multilateral and aid) as well as performance-based grants.

- **Indicator Score** = Actual ULB expenditure / (revised) budgeted expenditure by ULB
- **Data Source:** PAS data:
<https://www.pas.org.in/web/ceptpas/knowyourcity>; Open budgets India: <https://openbudgetsindia.org/>; City Finance Portal: <https://cityfinance.in/financial-statement/report/basic>

16.5. WSS services to slums: As per the 74th CAA, under the equity reform, ULBs are required to internally earmark for basic services for poor. ULB must provide security of tenure at affordable prices, improved housing, water supply and sanitation to ensure basic

services to the urban poor. This indicator captures the availability of policies to provide WSS service to urban poor. Further, there is a provision of 20-25 percent budget reservation for the poor by the urban local body constituting a 'basic services for urban poor fund'. Source: RAY Scheme Guidelines

Questions	Part score	
Does the ULB have a policy to provide individual WSS services to slums?	If yes, 0.5	If no, 0
What is the % expenditure for service provision in slums to total ULB expenditure?	If % is > 20, 0.5	If <= 20, (expenditure/20)/2

- **Data Source:** PAS data: <https://www.pas.org.in/web/ceptpas/knowyourcity>; Financial Statement of cities

16.6. Equity in connection charges and user charges - WSS charges for Urban poor:

This indicator captures the affordability of WSS service to urban poor by looking at connection charge and user charges for urban poor to non-poor HHs in water supply and wastewater vs general population.

- **Indicator Score** = 1-(connection charges for poor households/ connection charges for non-poor households); If there are no connection charges for the poor, Indicator score = 1
- **Data Source:** PAS data: <https://www.pas.org.in/web/ceptpas/knowyourcity>

16.7. Funds for disaster Management: Disasters affect the well-being and safety of people, communities and countries, as a whole. Globally, the most common hazardous events are road accidents, natural disasters, and industrial injuries. It is therefore important for cities to promote and expend for resilient cities.

- **Indicator: Does the city have reserve funds for disaster management?**
- Percentage fund allocated for climate resilience or disaster management in the city.
- **Definition:** This indicator captures the ULBs funds reserved for disaster management.
- **Scoring/ Formula:** Binary Marking
- **Indicator Score=** If "Does the city have reserve funds for disaster management " is No, then 0 marks. If yes, then 0.5 marks,
- **Ratio**
- **Indicator Score=** total expenditure on disaster/total budgeted expenditure
- **Data Source:** PAS data: <https://www.pas.org.in/web/ceptpas/knowyourcity>

17. Adequate capacity, resource planning and management in ULB -

State mandate for elected representatives for women in the council: Gender equality and the empowerment of women are both

a goal of, and a tool for, sustainable development. The first task of local governments is to act as a model of best practice for our communities. As major employers and service providers, local governments can have a significant impact on women's lives by using fair employment practices and ensuring non-discriminatory service provision to citizens. Local governments are on the frontline of tackling violence and harmful practices against women in both the public and private spheres. Local policing and urban planning, particularly the creation and maintenance of public spaces, are essential tools in tackling violence against women.

17.1. Gender and social parity in decision makers Indicator: Is the city achieving the state mandate % for elected representatives for women?

- Definition: This indicator captured Total number of women elected representatives with respect to total elected representatives?
- Scoring/ Formula: Ratio
- Total number of women and (SC, ST and OBC) ERs/ Total number of ERs
- Data Source: City Municipal website

17.2. Municipal staff adequacy for services - Municipal staff per 1000 connections: This indicator captures the staffing ratio for each city.

This is an important indicator for resource management comparisons across cities.

- Indicator: Number of municipal staff per 1000 water supply connections and WW connection.
- Definition: This indicator captures Total staff, including regular and contracted, employed in water supply per 1000 water supply connections.
- Scoring/ Formula: Ratio
- City Score= (Total staff employed in waste water and water/ 1000 waste water and water connections).
- Data Source: PAS data: PAS data checklist

17.3. Establishment Expenditure Vs Total Expenditure: Adequate expenditure on establishment includes salaries, medical expenses, wages, overtime allowances, foreign travel expenses, domestic travel expenses, office expenses, materials and supplies, publications, advertising and publicity, training, other administrative expenses.

- Indicator: Establishment Expenditure Vs Total Expenditure in the ULB
- Definition: This indicator captures Establishment Expenditure Vs Total Expenditure in the ULB.
- Scoring/ Formula: Ratio

- Indicator Score= Total establishment expenditure of ULB/ Total expenditure of ULB
- Data Source: PAS data: PAS data checklist
- Open budgets India: <https://openbudgetsindia.org/>
- City Finance Portal: <https://cityfinance.in/financial-statement/report/basic>

17.4. Monthly general body meetings: The City Government is expected to provide most of the basic services which are of utmost importance in the day-to-day activities of citizens. Committees that deliberate upon policy making and implementation of basic services need to therefore be proactive in discharging their functions. Hence, it is prudent that the committees meet at least once a month.

- Indicator: Are monthly general body meeting conducted on a regular basis? If yes,
- Are minutes of meetings of the council published on the website?
- Definition: This indicator captures frequency of monthly general body meetings, and its presence in the public domain.
- Scoring/ Formula: Binary marking (Full marks:1)
- City Score= "Are monthly general body meeting conducted on a regular basis?", If no=0; if Yes=0.5,

- City Score= If "Are monthly general body meeting conducted on a regular basis?", If no=0; if Yes=0.5; (where 0.5 is the full marks for each specific data point)

- Data Source: Municipal websites, News reports

17.5. City investment plans and City Development Plan: Under the JnNURM reforms it is mandated for the cities to prepare City Development plans in GOIS platform.

- Capital Investment plans can help cities operate more efficiently and help lower transaction costs, since Most cities lack the resources to fund an entire urban regeneration project from the existing municipal capital budget.
- Indicator: Has the council prepared a city investment plan in the public domain?
- Has the council prepared city development in GIS in the public domain?
- Definition: This indicator capture whether the city has updated CIPs and CDPs in place.
- Scoring/ Formula: Binary marking (Full marks:1)
- City Score= " Has the council prepared a city investment plan in the public domain?", If no=0; if Yes=0.5,

- City Score= If " Has the council prepared city development in GIS in the public domain?", If no=0; if Yes=0.5; (where 0.5 is the full marks for each specific data point)
- Data Source: Municipal websites, News reports, City Development plans

18. Accountability in ULB function

- 18.1. Platform for Civil Engagement:** Civic engagement is a key part of a city's evolution. Input from citizens can help define the dynamic of a city. This two-way interaction between members of the public and the local government gives citizens a voice and allows them to actively take part in the decision-making process on issues that affect the area. Thereby providing a platform to the general public are one of the efficient ways of citizen engagement.
- Indicator: Is there a Platform for civil engagement such as social media, participatory budgeting, updated citizen engagement platforms/ blogs/ newsletters/ applications
 - Definition: This indicator captures the engagement of ULB across several online platforms for engaging with citizens.
 - Scoring/ Formula: Binary marking (Full marks:1)
 - City Score= "Is there a Platform for civil engagement?"
 - "Social Media", If no=0; if Yes=0.33,
 - "Participatory budgeting", If no=0; if Yes=0.33,

- "Updated citizen engagement platform/ blogs/ newsletters/ applications", If no=0; if Yes=0.33,
- (Where 0.33 is the full marks for each specific data point)
- Data Source: Municipal websites, News reports, Social Media Sites

18.2. Citizen charter covering all services in public domain: A Citizens' Charter represents the commitment of the Organisation towards standard, quality and time frame of service delivery, grievance redress mechanism, transparency and accountability.

- Indicator: Does the city have a citizen charter covering all services in public domain?
- Definition: This indicator captures the Availability of citizen charter across all the services in the public domain.
- Scoring/ Formula: Binary marking (Full marks:1)
- City Score= " Does the city have a citizen charter covering all services in public domain?", If no=0; if yes=1,
- (Where 1 is the full marks for each specific data point)
- Data Source: Municipal websites

18.3. Efficiency in redressal of customer complaints - Complaint Redressal for citizens: As a service provider, City Government has a robust system to solve grievances and take feedback from citizens. The system needs to be digital, so that efficient tracking

and management of the grievances can be done. Such a system can be owned and operated by the City Government, and have an effective role in tuning the system as per requirements.

- The digitalised Grievance Redressal Mechanism (GRM) needs to be a centralised system with an ability to take in grievances registered through multiple modes. The modes can be a telephone number, mobile application, in-person office/kiosks/ward/zonal office visit by citizens, online system such as through website/portal etc. It should be ensured that there is only a single input system to process complaints registered through multiple modes, where each mode has singular input option.
- it is important that the complainant's final satisfaction should be taken into account. The complaint should not be auto closed by an official independently. Source: (UGI,Praja).
- Indicator:
- Does the ULB have centralized mechanisms to process complaints registered through multiple modes?
- Can the complainant view the track the complaint status and close it?
- Definition: This indicator captures the Availability of a centralised grievance redressal system, track it and close their grievance with satisfaction by the citizens.

- Scoring/ Formula: Binary marking (Full marks:0.5)
- "Does the ULB have centralized mechanisms to process complaints registered through multiple modes?", If No=0; if Yes=0.5, then
- Binary marking (Full marks:0.5)
- If "Can the complainant view the track the complaint status and close it?", If No=0; if Yes=0.5; (where 0.5 is the full marks for each specific data point)
- Data Source: Municipal websites

18.4. Complaint mechanisms Redressal of customer complaints: As a service provider, City Government has a robust system to solve grievances and take feedback from citizens especially for WSS utilities. The system needs to be efficient and be addressed within 24 hours to account for an Effective Redressal of customer complaints.

- Indicator: Efficiency in redressal of customer complaints.
- Definition: Total number of water supply related complaints redressed within time as stipulated in service charter of the ULB / Total number of WASH related complaints received in the year.
- Scoring/ Formula: Benchmarking (Benchmark =80%)
- City Score= ULB value/80

- Data Source: PAS data: <https://www.pas.org.in/web/ceptpas/knownyourcity>
- 18.5. E Governance initiatives:** Mandated under 87 CAA, Having a transparent administration, quick service delivery, effective MIS, and general improvement in the service delivery link is essential for deepening public participation through e-governance.
- Indicator: Does the ULB have the e-governance facility for: Updated website / Births and Deaths Registration / E-Procurement / Payment of Tax and bills / Building Plan Approval
 - Definition: The Indicator talks about the availability of E governance facilities to citizens for quick and efficient service delivery through an updated digital mechanism in the ULB.
 - Scoring/ Formula: Binary Marking:
 - Each question carries a mark of 0.2. A municipality that answers in the affirmative for each question will be marked 0.2; otherwise, 0. The maximum marks municipality can obtain is 1.
 - Data Source: Municipal Website
- 19. Transparency in ULB function**
- 19.1. Data maturity Certification:** "Transparency of data is a crucial aspect of Governance. The City Governments serve the urban citizens and hence, citizens have the right to know how their City Government is performing. This disclosure of information will help civil society and academia to identify gaps and provide feedback. With regard to this, open data portals need to be set up by every City Government that functions as a platform to access datasets, documents, services, tools and applications. The platform should be easily accessible through a portal/tab on the City Government's website." Source: (UGI, Praja). **Data maturity certification** At what level of certification is the smart-city in Data maturity Assessment Framework DMAF – Connected / Enabled / Explorer / Initiator / Beginner
- Definition: The Indicator captures the ULBs progress in data driven governance and service delivery in a transparent and accountable manner.
 - Scoring/ Formula: Categorised Scoring
 - Connected = 1mark
 - Enabled = 0.8mark
 - Explorer = 0.6mark
 - Initiator = 0.4mark
 - Beginner = 0.2mark
 - Data Source: Data maturity Assessment Framework DMAF portal: <https://dmaf.mohua.gov.in/>
 - Assumptions: ULBs with no rating in the DMAF portal get 0 mark

19.2. Credit rating score of the ULB: Credit Rating is a prerequisite for ULBs to raise money from Capital Markets and Financial Institutions. ULBs with Investment Grade Credit Rating (IGCR) can float Municipal Bonds to strengthen their financial capabilities. Credit rating work has been awarded in 482 AMRUT cities and completed in 366 cities.

- Indicator: Credit rating score of the ULB
- Definition: The Indicator captures the ULBs progress in its ability to raise money through bonds, Credit ratings etc.
- Scoring/ Formula: Categorised Scoring
- (AA+, AA, AA-) =1 mark; (A+, A, A-) = 0.8 mark; (BBB+, BBB, BBB-) = 0.6 mark; (BB+, BB, BB-) = 0.4 mark; (B+, B) = 0.2 mark;
- Data Source: Credit rating Scoring for AMRUT cities: <https://pib.gov.in/newsite/printrelease.aspx?relid=159952>
- Assumptions: ULBs with no rating in the DMAF portal get 0 mark

19.3. Efficient municipal accounting practices: Updated accounting and billing methods: Accrual-based accounting facilitates better knowledge of the “full” cost of services and helps in identifying the financial viability of rendering services. With accrual-based accounting, the cost incurred for providing specified services is more readily available and ascertainable, thereby enabling

decision makers to identify the subsidy granted and the extent of recovery of cost.

- Updated billing methods and systems are required by the ULB to ensure efficient cost recovery and collection efficiency of charges which in turn lead to good fiscal management.
- Indicator: Has the city adopted Accrual based accounting system?
- Are DCB tables linked to billing and collection system?
- Are billing and collection records regularly updated?
- Are billing records computerised or Manual?
- Definition: The Indicator captures the ULBs progress in updating its accounting and billing methods.
- Each question carries a mark of 0.2. A municipality that answers in the affirmative for each question will be marked 0.2; otherwise, 0. The maximum marks municipality can obtain is 1.
- Data Source: PAS data checklist

19.4. Transparent municipal accounting practices Updated accounting and billing methods: Citizens should know how the public money is being used and operationalised for the development of the city. Hence, City Government should ensure financial transparency through publishing of annual budget and accounts

- Indicator: Is regular (quarterly/annual) reporting of the financial statements conducted to state/central agencies?
- Does the council publish Annual financial reports and audit accounts in public domain?
- Are arrears segregated from current demand in financial statements/budgets?
- Extent of segregation of budget heads for urban services (Water, WW, SWM): Fully / Partially
- Definition: The Indicator captures the ULBs progress in efficiently managing and transparently uploading financial statement and budget audits in the public domain.
- Each question carries a mark of 0.2. A municipality that answers in the affirmative for each question will be marked 0.2; otherwise, 0. The maximum marks municipality can obtain is 1.
 - Data Source: PAS data checklist
 - City Municipal Website

Annexure 2 – Investments in urban development

Sr.No.	Name	Notable investments in urban development	Indicators relevant to existing themes / investments
Investments made by donor agencies and development banks			
1.	World Bank (International Bank for Reconstruction and Development)	<ul style="list-style-type: none"> Ahmedabad City Resilience Project: The World Bank has committed US\$ 280 Million to support the improvement of the institutional, financial and service delivery performance in Ahmedabad (World Bank, 2023d). Punjab Municipal Services Improvement Project: The World Bank provided a loan of US\$ 105 Million to support the improvement of urban finances and governance, and sustainable watery service delivery in Amritsar and Ludhiana (World Bank, 2023e) 	<p>Environmental</p> <ul style="list-style-type: none"> Quality of Water Supplied <p>Social</p> <ul style="list-style-type: none"> Coverage of WW network services Female labour force participation rate <p>Governance</p> <ul style="list-style-type: none"> Gender and Social Parity in Decision makers Own Revenue vs Total Revenue Extent of Cost Recovery in urban services
2.	International Finance Corporation (IFC)	<ul style="list-style-type: none"> Lead transaction advisor to Bhubaneswar Municipal Corporation in a street-lighting network upgradation project (IFC & DevCo, 2020) Joint Venture with Tata Capital Limited to form Tata CleanTech Capital (leading green financier in India focusing on renewable energy and e-mobility), to which it issued a sustainability-linked bond of INR 3,750 million in 2023 (IFC, 2023e) 	<p>Environmental</p> <ul style="list-style-type: none"> Air Quality Index <p>Social</p> <ul style="list-style-type: none"> Road Accident Fatality Rate
3.	Asian Development Bank	<ul style="list-style-type: none"> Chennai Metro Rail Investment Project: Loan of US\$780 Million (Asian Development Bank, 2023b) Supporting Access to Affordable Green Housing in Tier II and Tier III Cities for Women: Debt Security Financing of upto US\$58,000,000 to IIFL Home Finance Limited (Asian Development bank, 2023c) Jharkhand Urban Water Supply Improvement Project: Loan of US\$ 112 Million to improve treated piped 	<p>Environmental</p> <ul style="list-style-type: none"> Availability of Public Transport Air Quality Index Green Buildings Adoption <p>Social</p> <ul style="list-style-type: none"> Economic Ability Percentage of houseless population

Sr.No.	Name	Notable investments in urban development	Indicators relevant to existing themes / investments
		water supply to Ranchi and three towns located in socio-economically backward areas (Asian Development Bank, 2021)	<ul style="list-style-type: none"> ▪ Coverage of water supply connections ▪ Slum areas covered through basic services
4.	JICA (Japan International Cooperation Agency)	<ul style="list-style-type: none"> ▪ Kolkata East-West Metro Project: ODA Loan amount is 72,618 million yen and an additional loan of 25,903 million yen (through the President of India) to the Kolkata Metro Rail Corporation Limited (JICA, n.d.-b) ▪ Project for Construction of Chennai Seawater Desalination Plant (I): Total ODA Loan amount of 73.404 billion yen with 30 billion tranche 1 loan amount (Through the President of India) to Chennai Metropolitan Water Supply and Sewerage Board (JICA, n.d.-c) ▪ The Project for Implementation of Advanced Traffic Information and Management System in Core Bengaluru: Funding of Rs 72.86 crore (Belagere, 2018) 	<p>Environmental</p> <ul style="list-style-type: none"> ▪ Availability of Public Transport ▪ Baseline Water Stress <p>Social</p> <ul style="list-style-type: none"> ▪ Smart systems deployed/ Integrated Command and Control Centre ▪ Road Accident Fatality Rate
5.	Kreditanstalt für Wiederaufbau (KfW)	<ul style="list-style-type: none"> ▪ Funding towards Tamil Nadu Urban Development Fund: EUR 65 million loan with subsidised interest rates for projects in water supply, sewerage, and waste disposal and an IDA loan of EUR 10 Million for credit enhancement of pooled municipal bonds (German Missions in India, 2023) ▪ Climate-friendly metro system in Nagpur: Loan agreement of EUR 500 million towards city's metro which is fueled mainly by solar energy (KfW, 2023b) 	<p>Environmental</p> <ul style="list-style-type: none"> ▪ Various indicators under Water Resource Management ▪ Various indicators under Efficient Waste Management System ▪ Availability of Public Transport <p>Social</p> <ul style="list-style-type: none"> ▪ Various indicators under WASH services <p>Governance</p> <ul style="list-style-type: none"> ▪ Credit Rating Score of the ULB
Investments made by CSR Foundations			
1.	Infosys Foundation	<ul style="list-style-type: none"> ▪ Supports the Society for Assistance to Children in Difficult Situations (SATHI), which has rehabilitated 47,000 street children through shelters in all major cities of the country 	<p>Social</p> <ul style="list-style-type: none"> ▪ Various indicators under Gender and Social Inclusion ▪ Various indicators under Education

Sr.No.	Name	Notable investments in urban development	Indicators relevant to existing themes / investments
		<ul style="list-style-type: none"> ▪ Collaborated with the Gurgaon-based Vision for Health, Welfare and Special Needs (VISHWAS), to provide elementary education to 300 children, including those with disabilities (Infosys Foundation, 2023) 	
2.	Reliance Foundation	<ul style="list-style-type: none"> ▪ Sir H.N. Reliance Foundation Hospital supported Reliance Foundation's community health outreach in Mumbai and provided advanced and affordable medical care (Reliance Foundation, 2023b) ▪ Developed the Goda Park in Nashik, which comprised of the construction of a children's park, walkways, and jogging tracks in partnership with Nashik Municipal Corporation (Reliance Foundation, 2023c) ▪ Developed a park and horticulture circle around Vadodara International Airport to expand the city's green space 	<p>Environmental</p> <ul style="list-style-type: none"> ▪ Footpath coverage in road network length ▪ Green Space per Capita <p>Social</p> <ul style="list-style-type: none"> ▪ Robust Health Infrastructure
3.	HCL Foundation	<ul style="list-style-type: none"> ▪ HCL Uday: Flagship Urban CSR initiative working towards "equitable and sustainable development of the communities living below poverty line in the Urban area", with a focus on sustainable livelihoods, quality education, healthcare, WASH, green cover, waste management, child protective strategies and gender transformative approaches (HCL Foundation, n.d.) ▪ Clean Noida: Effective Solid Waste Management in Noida (HCL Foundation, 2020) 	<p>Environmental</p> <ul style="list-style-type: none"> ▪ Green Cover per Capita ▪ Various indicators for municipal solid waste <p>Social</p> <ul style="list-style-type: none"> ▪ Robust Health Infrastructure ▪ Various indicators under WASH Services ▪ Various indicators under Gender and Social Inclusion ▪ Various indicators under Education ▪ Various indicators under Economy, Inequality, and Employees
4.	HT Parekh Foundation	<ul style="list-style-type: none"> ▪ During 2019-20, it supported Shelter Associates in the construction of 1,450 individual household toilets in 43 slums of Kolhapur and Pimpri-Chinchwad, Maharashtra ▪ One of its CSR partners "Waste Warriors Society" provided capacity building to waste workers, helped 	<p>Environmental</p> <ul style="list-style-type: none"> ▪ Extent of segregation of municipal solid waste <p>Social</p> <ul style="list-style-type: none"> ▪ Coverage of toilets

Sr.No.	Name	Notable investments in urban development	Indicators relevant to existing themes / investments
		increase efficiency of waste segregation, and managed a material recovery facility in Dharamshala, Himachal Pradesh. The city's Swachh Survekshan rankings thus rose from 624 to 134 in the year 2021 (HT Parekh Foundation, n.d.)	
Investments made by Private Equity firms			
5.	Green Growth Equity Fund (Managed by Eversource Capital)	<ul style="list-style-type: none"> ▪ Green energy sub-sectors such as smart grids, renewable energy O&M companies, and energy efficiency services companies (Eversource Capital, 2019) ▪ Majority stake in Lithium Urban Technologies Pvt Ltd. – the country's largest operator of electric cars with an EV charging network spread over 15 cities (Mishra, 2022) 	Environmental <ul style="list-style-type: none"> ▪ Air Quality Index
6.	Blackstone	<ul style="list-style-type: none"> ▪ PPP investment of INR 50 Crore with Brihanmumbai Municipal Corporation in a street redevelopment project (Livemint, 2022) 	Environmental <ul style="list-style-type: none"> ▪ Cycle lane coverage in road network length ▪ Footpath coverage in road network length
7.	Ascendas India Growth Programme (Part of CapitaLand Investment Management)	<ul style="list-style-type: none"> ▪ Development of business parks in gateway cities of India - Chennai, Pune, NCR, Bangalore, etc. in a joint venture with Firstspace Realty, which is a major player in industrial real estate (CapitaLand, 2020) 	Social <ul style="list-style-type: none"> ▪ Housing Price Index Unemployment Rate
8.	Somerset Indus Capital Partners	<ul style="list-style-type: none"> ▪ Aims to make controlling or influential minority investments of approximately US\$7 to US\$10 million each in Indian healthcare companies (Somerset Indus Capital Partners, 2022b), with hospitals operating in various cities, including New Delhi (Somerset Indus Capital Partners, 2022c) and Pune (Somerset Indus Capital Partners, 2022d). These healthcare companies cater to low-income groups. 	Social <ul style="list-style-type: none"> ▪ Robust Health Infrastructure

Sr.No.	Name	Notable investments in urban development	Indicators relevant to existing themes / investments
9.	Morgan Stanley Private Equity Asia (Subsidiary of the Investment Bank Morgan Stanley)	<ul style="list-style-type: none"> ▪ Jana Small Finance Bank Ltd, a microfinance company (Jana Small Finance Bank, 2022) ▪ Ummeed Housing Finance (Ummeed Housing Finance, 2020a), which provides various loans to lower & middle income in urban and semi-urban areas (Ummeed Housing Finance, 2020b) 	Social <ul style="list-style-type: none"> ▪ Percentage of Houseless People ▪ Economic Ability
Investments made by Venture Capitalists and Impact Investors			
1.	Green Frontier Capital	<ul style="list-style-type: none"> ▪ BluSmart Mobility: it is India's first 100% electric cab ride hailing company, presently operating in Delhi-NCR and Bengaluru (Clean Mobility Shift, 2023) ▪ Battery Smart: It is India's largest network of battery swapping stations for electric two- and three-wheelers (BatterySmart, 2023a), currently operational in 11 cities including Delhi-NCR, Jaipur, Kanpur, and Meerut (BatterySmart, 2023b) 	Environmental <ul style="list-style-type: none"> ▪ Air Quality Index ▪ Gross electricity consumption in the city
2.	Aavishkaar Capital	<ul style="list-style-type: none"> ▪ In 2013, it invested in NEPRA (NEPRA, 2021a), India's leading waste management company operating material recovery facilities in Jamnagar, Ahmedabad, Indore, and Pune (NEPRA, 2021b) 	Environmental <ul style="list-style-type: none"> ▪ Extent of segregation of municipal solid waste ▪ Extent of municipal solid waste processed and recycled
3.	Circulate Capital	<ul style="list-style-type: none"> ▪ Focused on Circular Economy Solutions. ▪ Investments include RecyKal (India's first waste commerce company) that currently has partnerships with over 100 ULBs, over 150 brands, and about 500 aggregators (Circulate Capital, 2023b) 	Environmental <ul style="list-style-type: none"> ▪ SMART systems deployed in waste management
4.	LGT Impact	Ummeed Housing Finance, which provides various loans to lower and middle income Indian families in urban and semi-urban areas of India (Ummeed Housing Finance, 2020b)	Social <ul style="list-style-type: none"> ▪ Percentage of houseless people ▪ Unemployment rate ▪ Economic Ability ▪ Female Labour Force Participation Rate

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