

• Impacting infra development in emerging economies •

SUSTAINABILITY RATINGS FOR INFRA PROJECTS



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Executive Summary

India is expected to march forward on its economic, social, and environmental leadership aspirations in the next few decades, strongly underpinned by investments in infrastructure projects. This whitepaper recommends a 'Sustainability Ratings' mechanism that would aid sustainable development of infrastructure projects and minimize conflict in the achievement of economic, social, and environmental goals.

India is in the midst of a strong economic transition that is expected to propel the nation to a \$5 trillion economy by 2025. India is also expected to become the third largest economy globally by 2035, after USA and China. On the social and environmental front, India has made international commitments to achieve the goals as set in the Sustainable Development Goals (SDGs) and the Paris Agreement respectively. India's economic rise is strongly dependent on investments in infrastructure creation by way of new roads, ports, railways, energy and other social infrastructure. And infrastructure development has inherent potential to cause significant negative social and environmental impact.

Economic growth based on infrastructure creation could lead to direct conflict in the achievement of social and environmental goals, unless a sustainable infrastructure development model is adopted for projects. In the sustainable infrastructure development model, projects are planned, designed, constructed, operated & decommissioned in a manner that ensures economic and financial, social, environmental (including climate resilience) and institutional sustainability over the entire lifecycle.

Sustainability considerations can be built into the infrastructure project development lifecycle and project specific adoption of these considerations can be measured objectively through a 'sustainability rating'. Similar sustainability ratings such as BREEAM, BCA Green mark, Envision, GRESB, Infrastructure Sustainability, PIERS and Green roads have been adopted in many countries abroad to improve the integration of social and environmental goals in infrastructure projects. The proposed sustainability ratings mechanism for infrastructure projects in India is expected to benefit a wide set of stakeholders in the following ways:

1. Governments / Project sponsors: Aid in meeting economic, social and climate goals, assist in mobilizing green finance, minimize stakeholder conflicts and conserve common property resources.
2. Developers: Enable higher access to preferential multilateral funding, improve transparency for project stakeholders, assist in providing 'license to operate' and minimize long-term E&S risks
3. Investors: Help meet responsible investment goals by integrating environmental and social factors in investment decisions through risk assessments, facilitate project comparison for green capital allocation, measure and mitigate climate risk of portfolio and minimize negative environmental and social impact

4. Project users: Improved user experience, improved accessibility and equity, enhanced safety and higher recognition & protection of citizen rights

We propose the sustainability ratings mechanism as part of a larger 'sustainable infrastructure development' framework that encompasses the following:

1. Sustainability infrastructure policy and regulatory framework
2. Sustainability ratings mechanism to embed E&S considerations in the project lifecycle
3. Ratings governance mechanism including rating ownership and accreditation, applicability, promotion of adoption of ratings and the ratings process

The policy and regulatory framework for sustainable infrastructure development has evolved over the last decade. Many related initiatives such as Green National Highways Corridor, 100% green airports, and the National Centre of Excellence for Green Port & Shipping (NCoEGPS) are already being implemented.

This whitepaper has proposed S-I Ratings, an infrastructure sustainability ratings mechanism for projects on the basis of environmental, social and governance related Key Performance Indicators (KPIs) that would assist in objective assessments of the sustainability considerations embedded in projects. The mechanism as detailed has incorporated 102 KPIs across 15 themes. The themes covered include Access and equity; Biodiversity and Ecology; Construction Activity, Emissions and Climate Change; Energy efficiency; Human capital; Impact assessment; Land use and efficiency; Leadership, Materials and Resources; Policy and Management; Risk and Resilience; Stakeholder Engagement; Waste and Circularity; Water use and Management.

For the ratings to aid the original objective of developing sustainable infrastructure, an institutional framework with the following roles and responsibilities has been proposed:

1. Creation of 'Sustainable Infra Development Cell' or SIDC under the aegis of the National Bank for Financing Infrastructure and Development (NaBFID) for administration of ratings, ownership of the ratings process and promotion of adoption of ratings in infrastructure projects. As NaBFID is the principal Indian Development Finance Institution (DFI) for infrastructure, we believe that it is the appropriate body to take forward the development and implementation of the sustainability ratings.
2. The SIDC would develop an accreditation framework for 'S-I Ratings Service Providers' (SIRPs), the third parties who would undertake sustainability ratings of individual projects based on the ratings mechanism and criteria.
3. S-I Ratings framework has been designed to rate projects on a 100 points scale across 5 bands from S-I 1 (Low sustainability maturity) to S-I 5 (Sustainability leader).
4. SIDC is proposed to undertake further development and rollout of S-I across projects in India.
5. It is also proposed that once SIDC gains more traction on ratings adoption, the cell can be structured as an independent entity entrusted with the ownership of the S-I Ratings framework and ratings mechanism.

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1. INTRODUCTION

India is at the cusp of an economic transition to become the third largest economy in the world by 2030. Looking ahead to 2030, India has set goals to achieve growth across multiple sectors wherein infrastructure is expected to grow at an annual rate of 12% throughout the decade. India is also committed to social and environmental goals as a signatory to the UN Sustainable Development Goals (SDGs) and the Paris Agreement. This whitepaper envisages a model of sustainable infrastructure development aimed to balance economic, social and environmental goals.

According to the Annual Budget 2023, every rupee spent on infrastructure has a multiplier effect of INR 2.45 in the immediate year, and INR 3.14 in the following years, illustrating the significant economic impact of infrastructure. Infrastructure development also entails negative environmental and social impact, and unless the impacts are assessed and mitigated, infrastructure-driven economic growth would lead to serious impediments in the way of achieving environmental and social goals. This whitepaper proposes a model of 'sustainable infrastructure' development that has the potential to create the right balance for achieving economic, environmental and social goals.

To enable stakeholders to make decisions on sustainable infrastructure projects, an objective framework is needed for measurement and analysis. The whitepaper discusses a Key Performance Indicators (KPI) based framework where objective responses can be provided for gauging the sustainability maturity. The KPIs themselves have been gleaned from sustainability themes and topics across existing relevant global rating frameworks, and contextualized for India.

Infrastructure development involves multiple stages in a project life cycle such as site selection, project planning, Detailed Project Report (DPR) preparation, procurement, financing, construction, operations and maintenance. The whitepaper proposes that the ratings be adopted at the pre-construction stage and on an ongoing basis in the construction and post-construction stage. In this manner, sustainability principles can be built early on in the project and successive evaluations with action plans would help in improving sustainability performance.

The success of sustainability rating system requires a well-defined institutional structure to lead the framework development, accreditation of third parties for evaluation and for driving adoption across projects in India. The scope of sustainability rating also requires institutional collaboration, innovation and incentive structures to facilitate action and accountability across projects. NaBFID has outlined its mission to be the principal enabler for infrastructure financing with emphasis on innovation, environment, and sustainability. As the principal Development Finance Institution (DFI) for infrastructure development in India, it is proposed that NaBFID own the development and promote adoption of infrastructure sustainability ratings.

This whitepaper is organised as follows: Need for a sustainability infrastructure rating in India; review of existing global sustainability rating frameworks; S-I Ratings, the infrastructure sustainability ratings framework proposed for India; and the implementation and governance mechanism for the ratings process.

1. <https://indianexpress.com/article/business/market/india-to-become-third-largest-economy-stock-market-by-2030-8257182/>

2. <https://www.livemint.com/economy/indias-economic-growth-at-risk-due-to-reform-and-policy-barriers-warns-moodys-11684855133357.html>

3. <https://www.orfonline.org/expert-speak/budget-2023-inside-infrastructure-spending/>

2. ENVIRONMENTAL, SOCIAL & ECONOMIC GOALS: SETTING THE CONTEXT

This chapter looks at India’s environmental, social and economic goals, the strong dependence of India’s economic growth on infrastructure projects and the inherent conflicts that the model poses towards the achievement of these goals.

2.1.1 Understanding India’s climate risks

India is one of the global hotspots identified in the IPCC AR6 in terms of climate risks and socio-economic vulnerabilities. The Climate Vulnerability Index (CVI) study conducted by CEEW as shown in **Figure 1** is an indication of climate extreme hotspots and its resulting damage to the adaptive capacities. It illustrates that three out of four districts in India fall under extreme climate hotspots.

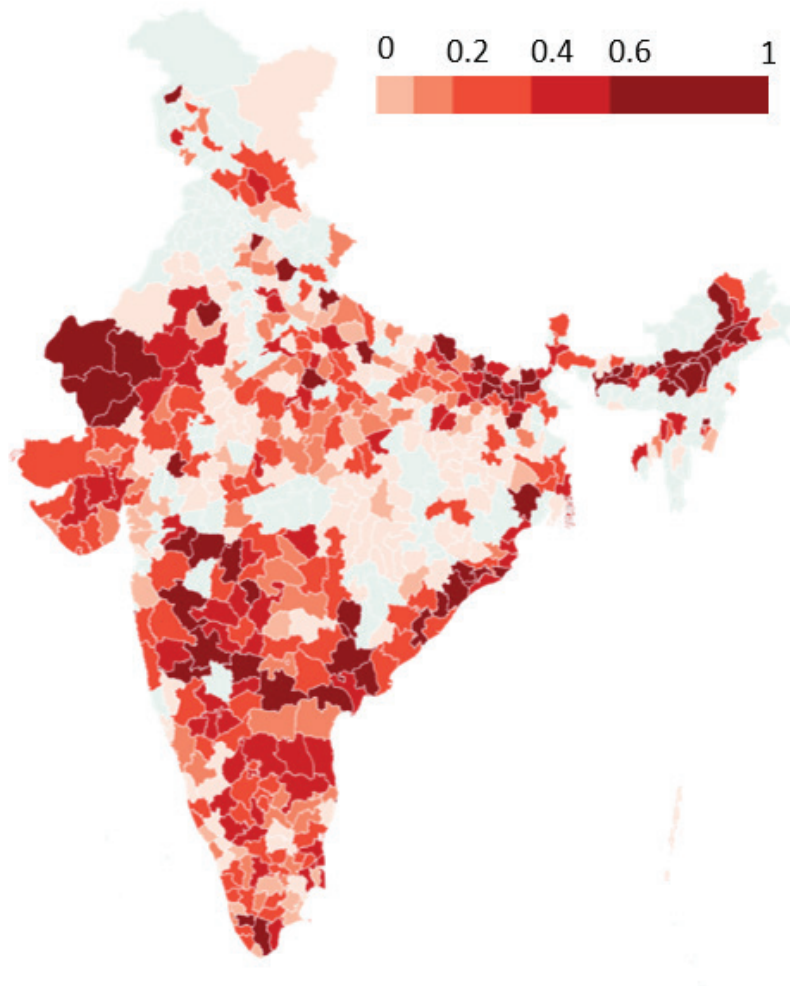


Figure 1 Climate Vulnerability Index (CEEW, 2021)

A study conducted by G20 on ‘Climate impact, policy, and economics 2050’ report states a forecasted GDP loss of 2 – 5% due to extreme climate events. This in turn is expected to result in a labor productivity decline of 13 – 24% due to heat related impacts.

2.1.2 Environmental & social development goals

India has pledged to long-term goal of achieving net zero emissions by 2070. To aid the net zero transition, India has also committed to multiple short-term climate goals to be targeted by 2030.

India updated its Nationally Determined Contribution (NDCs) under the Paris Agreement in August 2022. The NDC aims to achieve the below mentioned targets by 2030:

- Meet 50% of energy requirements from renewable source
- Achieve 500 gigawatts (GW) of non-fossil energy capacity
- Reduce emission intensity of GDP by 45%
- Create additional carbon sinks to reduce projected carbon emissions by one billion tonnes from current scenario till 2030

At the COP 27, India released a 'Long-Term Low Emissions Development Strategy (LT-LEDS) for achieving the NDC goals by 2030 and net zero emissions by 2070.

India became a signatory to the UN Sustainable Development Goals (SDGs) in 2015. India's infrastructure development is linked to at least 11 SDGs across the infrastructure types such as transport, buildings, energy, water, and sanitation. The infrastructure types as shown in **Table 1** has a direct impact on four SDGs as follows:







- SDG 6: Clean water & Sanitation
- SDG 7: Affordable and clean energy
- SDG 9: Industry, innovation and infrastructure
- SDG 11: Sustainable cities and communities

Infrastructure development also results in environmental and social risks associated with material resource extraction, land degradation, land acquisition and displacement, labour and working conditions, and irreversible environmental damage such as the air/water pollution. Thus, infrastructure development has an indirect impact on five SDGs as follows:

- SDG 1: No poverty
- SDG 8: Decent work and economic growth
- SDG 12: Responsible Consumption and Production
- SDG 13: Climate Action
- SDG 15: Life on land

Sustainable infrastructure development aims minimize the environmental and social risks associated with resource extraction, land use degradation, and labour and working conditions. The framework considered for sustainable infrastructure, explained in the following pages, has mapped individual Key Performance Indicators (KPIs) to the relevant SDGs. For instance, sustainable procurement of materials has an impact on SDG 12, and development of a soil management plan has an impact on SDG 15.

Table 1 SDG alignment to infrastructure assets

Infrastructure type	SDG (Direct impact)	Minimize E&S impact with stakeholder involvement (Indirect impact)		
		Environmental	Social	Institutional
Transport, Housing and Building, Industry				
Energy				
Water and Sanitation				

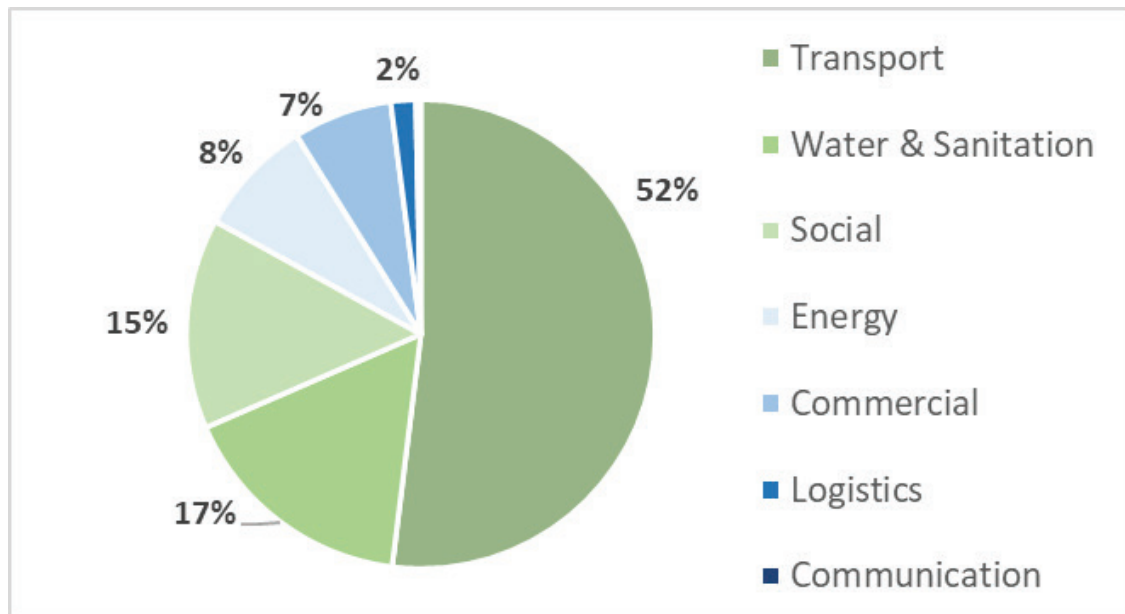
2.2 India’s economic goals and infrastructure

India has the potential to become a \$5 trillion economy by 2026 at a projected growth rate of 6.5 - 7%. In the longer-term India aspires to be \$10 trillion economy by 2035 and the third largest economy in the world by 2035.

India’s transition from a developing nation to a developed country depends strongly on the economic growth which in turn is linked to infrastructure development. According to the Annual Budget 2023, every rupee spent on infrastructure has a multiplier effect of INR 2.45 in the immediate year, and INR 3.14 in the following years, illustrating the significant economic impact created by infrastructure development. The National Infrastructure Pipeline (NIP) is the Indian Government’s short-term infrastructure roadmap plan to achieve a \$5 trillion economy by 2025. NIP has estimated capital expenditure of 111 lakh crores on infrastructure projects across 12 sectors in the 2020 to 2025 period.

The NIP has planned for more than 9,000 infrastructure projects and the sectoral breakdown of those projects is shown in Graph 1. Transportation sector contributes the maximum to NIP at 52% (i.e., 4,657 projects). Of this total transportation projects, roads and highways alone contribute to 76% (3562 projects), railways 15% (684), urban public transport 5% (220), shipping 2% (96) and aviation at 2% (95).

4 <https://economictimes.indiatimes.com/news/economy/finance/india-to-be-usd-5-trillion-economy-by-fy2026-cea-anantha-nageswaran/articleshow/97500680.cms>
 5 <https://economictimes.indiatimes.com/news/economy/policy/india-to-become-10-trillion-economy-by-2035-cebr/articleshow/96526283.cms?from=mdr>
 6 <https://www.orfonline.org/expert-speak/budget-2023-inside-infrastructure-spending/>



Graph 1 NIP infrastructure sector wise project breakdown

The FY 2023-24 budget announced a capital expenditure outlay up to INR 10 lakh crore, or 3.3% of GDP on infrastructure development. The budget also allocates INR 35,000 crore to 'priority fund' green energy transition.

2.3 Infrastructure's environment & social externalities

Infrastructure development, especially large projects have lasting negative impact on the environment and society, even in cases where mitigation efforts are adhered to in letter and spirit. Project development involves increased consumption of resources such as steel and cement resulting in emissions and global warming, air and water pollution, and loss of biodiversity. Social impacts can range from rehabilitation and resettlement issues to unfair labour conditions and conflicts associated with land acquisition. Few examples of environmental and social impacts are illustrated in Table 2.

Table 2 Negative externalities of infrastructure projects development

Environmental impact	Social impact
<p>Increase in resource consumption = Increase in CO2 emissions</p> <ol style="list-style-type: none"> By 2050, there will be 6 times increase in CO2 emissions from current 300 Mt CO2e and 250 Mt CO2e, corresponding to steel and cement demand respectively 	<p>Resettlement of communities: From 1947 -2004, 60 million people were displaced from 25 million ha. of land due to land acquisition for infrastructure development projects (Raavalee, 2021).</p>

<p>Excessive resource usage: Non-linear resource extraction results in excess material consumption</p>	<p>Loss of livelihood: Development- induced displacement or forced relocation results in loss of livelihood for local communities (Raavalee, 2021).</p>
<p>Energy usage: Over 80%of India’s energy needs in 2021 were met from coal, oil and solid biomass,⁷ with increasing demand from infrastructure projects.</p>	<p>Regulatory approval delays: In 2018, as per Lok Sabha 435 infrastructure projects were delayed due to land acquisition & regulatory approvals⁸</p>
<p>Poor infrastructure & land-use planning: In 2016, ~10,000 hectares of land was approved for infrastructure projects, resulting in deforestation</p>	<p>Poor labour conditions: According to India’s National Commission for Enterprises, 92% of labourers work in informal economy such as construction sites with harsh working conditions⁹</p>

Infrastructure development boosts economic growth and is an imperative for India. However, if the adverse impacts on environment and social factors due to infrastructure development are not addressed or mitigated, these could pose a risk to India’s climate and social goals as committed to under the Paris Agreement and the SDGs respectively.

7 <https://www.iea.org/reports/india-energy-outlook-2021>

8 <https://constructiontimes.co.in/meeting-challenges-in-land-acquisition-for-infra-projects/>

9 <https://www.ritimo.org/Informal-Labour-and-Dynamics-of-the-Construction-Sector-in-India>

3. SUSTAINABLE INFRASTRUCTURE – APPROACH AND IMPERATIVES

The previous chapter established the need for infrastructure development, as a key determining pillar for India’s economic growth. At the same time, the chapter also highlights the fact that infrastructure development has an adverse impact on the environmental and social factors, thereby posing a threat to SDG and climate goals. A ‘sustainable infrastructure’ development model could potentially address these conflicting goals. The two aspects to sustainable infrastructure development include, (1) Approach that leads to project level evolution on sustainability maturity and (2) Objective measurement of sustainability maturity at a project level.

3.1 The sustainable infrastructure development approach

The seemingly conflicting economic, environmental, and social goals of growth based on infrastructure creation can be addressed by the adoption of a ‘sustainable infrastructure’ development approach. “Sustainable infrastructure refers to infrastructure projects that are planned, designed, constructed, operated, and decommissioned in a manner that ensures economic and financial, social, environmental (including climate resilience), and institutional sustainability over the entire life cycle of the project” (Amar Bhattacharya, 2019).

Figure 2 depicts transition of an infrastructure project across three stages, from the basic stage of being compliant to regulations, to the intermediate stage of minimizing the environmental & social adverse impacts and to the advanced and aspirational sustainability stage.

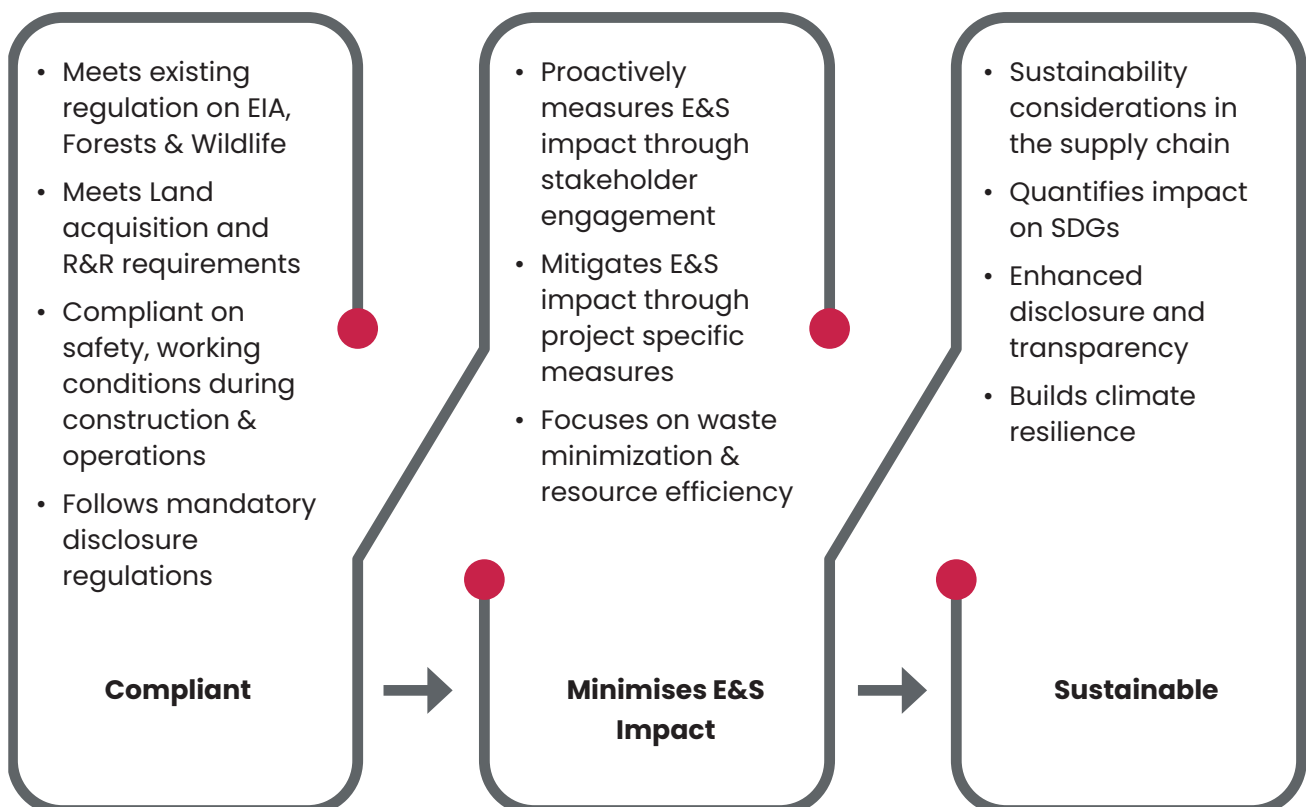


Figure 2 Sustainability maturity of projects

Stage 01: Compliant: This basic stage of infrastructure project development considers compliance to existing regulations such as the Environmental Impact Assessment (EIA), Social Impact Assessment (SIA), labour working conditions and relevant legislations. In case of non-compliance status, the project is either revoked or paused by relevant authorities until all the requisite conditions are met. This stage also plans for environmental and social risk assessments during the planning phase to identify and minimize compliance related risks during project development.

Stage 02: Minimises E&S Impact: The intermediate stage after achieving compliance status is environmental and social (E&S) risks mitigation through project specific measures. Here, the identified E&S risks from the compliant stage are prioritized by means of incorporating Environmental and Social Management Systems (ESMS) as part of the project development process. The E&S impacts are monitored by relevant stakeholders not only to minimize E&S risks but also to adopt best practices. The stakeholders are informed of roles, responsibilities, and a timeframe to mitigate risks, that becomes part of an Environmental and Social Action Plan (ESAP).

Stage 03: Sustainable: The previous two stages ensure that the projects meet the mandatory regulatory compliances and adhere to risk minimization approaches to mitigate risk across the project life cycle. However, the E&S risks are not quantified as there is no evaluation methodology to score performance levels or compare projects based on sustainability performance. The sustainable stage involves infrastructure project planning around relevant Key Performance Indicators (KPI) and the alignment of KPIs to SDGs. The information collected in this stage is disclosed to all stakeholders including the public in the spirit of transparency, for a more inclusive decision-making process. In addition to KPI x SDG alignment, this stage also considers future scenarios such as climate resilience, population growth and social needs in the project planning phase. The sustainable stage is an enhancement to stage 1 and 2, offering a better balance between economic, environmental, and social goals.





3.2 The measurement imperative

Sustainability considerations at a project level need to be quantified in an objective manner to aid stakeholders decision making process. The current project evaluation methods take financial or economic return into consideration, while evaluating environmental and social aspects at largely a 'compliance' level. These methods offer a binary compliance-based view and do not necessarily assess a project on the level of negative or positive impact that it could have on the environmental and social factors.

While there are multiple disclosure and assessment frameworks for determining sustainability maturity at an entity level, project level frameworks are much fewer. The next Chapter explores in detail project level sustainability rating frameworks that have been adopted in other geographies.

A rating system with a transparent and clearly documented methodology could consider project level parameters or indicators at any stage of project development to assess and determine the sustainability maturity of that project. Stakeholders of such ratings could include the government or project sponsors, developers, investors, and project users, who would benefit in different ways from such objective measures of sustainability maturity as shown in Table 3.

Table 3 Stakeholders of Sustainability Ratings

Stakeholders	Benefits
 Government/Project sponsor	<ul style="list-style-type: none"> • To meet climate, development, and economic goals of SDG and NDCs • Resilience and adaptation strategy to climate change is adopted in project plan • To mobilize green finance from MDBs, equity and debt investors • Helps minimizing stakeholder conflicts due to deployment of sustainability in the procurement phase • To conserve common property resources of the public amenities to optimize waste and pollution
 Developer	<ul style="list-style-type: none"> • Improve transparency for key stakeholders through sustainable procurement practices • Sustainability rating as a 'gatekeeping' to provide 'license to operate' status for asset operation • Gains access to higher preferential multilateral funding • Minimizes long term E&S risks as the action plan recommendations are monitored through-out project life cycle
 Investor	<ul style="list-style-type: none"> • Meets Responsible Investment goals by integrating sustainability consideration in investment decisions • Evaluation facilitates project comparison for responsible green capital allocation to ensure better return • Measure and mitigate climate risk of investor portfolio through ESMS and sustainability rating criteria • Minimises negative E&S impact by risk mitigation strategies
 User	<ul style="list-style-type: none"> • Improves user experience due to transparency in the process • Enhanced safety to workers with better working conditions and to users • Recognition and protection of citizen rights by ongoing sustainability evaluation

4. SUSTAINABILITY RATING MECHANISM

This Chapter explores the existing sustainability rating systems prevalent in the infrastructure sector globally and proposes a mechanism for developing a sustainability rating for infrastructure projects in India.

4.1 Sustainability ratings in developed countries

Sustainability ratings are used for a wide range of infrastructure projects ranging from general civil infrastructure, physical infrastructure (PPP), and transport infrastructure. The global ratings selected for this study provide insights for the development of an infrastructure sustainability rating framework for the Indian context. The characteristics considered for the rating frameworks are as follows:




- Rating applicability across infrastructure types
- Project phases covered
- Guidelines for sustainable infrastructure design
- Sustainability criteria or themes addressed
- Government endorsement, if present

Table 5 summarizes the existing sustainable infrastructure rating systems across the above characteristics.

4.1.1 Peer benchmarking

The objective of the benchmarking exercise was to shortlist a set of themes, topics and corresponding Key Performance Indicators (KPIs) to be used for arriving at a quantitative and objective evaluation framework. Peer selection criteria was based on project phase applicability, rating users, infrastructure asset types covered, and SDG alignment with the Key Performance Indicators (KPI). Seven global rating frameworks were selected for the peer benchmarking as illustrated in Table 4.

Table 4 Global rating frameworks considered for peer benchmarking

	<p>1. UNECE PIERS is a self-assessment platform to score infrastructure projects against SDG outcomes and the Public Private Partnership (PPP) projects considering SDGs. Themes covered include: Access and Equity, Economic effectiveness, Environmental Sustainability and Resilience, Replicability and Stakeholder engagement.</p>
	<p>2. Envision provides sustainability performance information on infrastructure to decision makers and project teams. The five sustainability themes considered are: Quality of life, Leadership, Resource allocation, Natural world, and Climate risk.</p>
	<p>3. BREEAM infrastructure assesses the environmental, economic, and social elements of sustainability by driving best practices. Encourages best practice scoring approach across eight themes such as: Management, Resilience, Communities and stakeholders, Ecology, Landscape and historic environment, Pollution, Resources and Transport.</p>



4. **Infrastructure Sustainability** design and as-built rating helps identify environmental, economic, and social opportunities and benefits in the design and construction phase. It also considers asset life cycle, including operation and decommissioning. The key themes identified are Leadership, Sustainable Procurement, Resilience, Energy, Water, Green Infrastructure, Ecology, Stakeholder engagement, Resource efficiency and Workforce sustainability.



5. **BCA Green Mark** evaluates the environmental friendliness of infrastructure asset during design and operations. The themes considered are landscape, ecology and efficiency, energy efficiency, renewable energy, water, project management, waste management and environmental protection.



6. **GRESB** assesses ESG performance at an asset level for infrastructure projects. The assessment provides basis for reporting and scoring, applicable to ESG management and performance component of infrastructure asset. Investors use GRESB outcome on management, performance, and development components of a project, for their investment decision making



7. **Green Roads** measures and manage sustainability on transportation projects. The themes covered are Project requirements, Access and Equity, Construction activity, Environment and water, Materials and Resources, Pavement technologies.

Table 5 Characteristics of global rating sustainability framework

	PIERS	Envision	BREEAM	Infrastructure Sustainability	BCA Green Mark	GRESB	Green Roads
Year	2020	2012	2003	2012	2005	2015	2007
Country	Developed by UNECE	United States	UK and Ireland	Australia	Singapore	Validation approach developed by PwC	United States
Asset types covered	Physical infrastructure*	General civil infrastructure					
Rating evaluators	Self-assessment	Independent third-party verifiers					
Project phase covered	Identification, development, and implementation	Planning, Design, Construction, O&M	Planning, Design, Construction	Planning, Design, Construction, O&M	Planning, concept, and detailed design	Design, Construction	Planning, Design, Construction
Rating users	Government, policy makers, PPP planners, PPP lenders and investors	Infrastructure owners, designers, procuring entity, regulators, and policy makers	Client, design team and contractors	Developers, designers, planners, constructors, owners, and operators	Developers	Investors, fund managers and asset operators	Public & private roadway owners, design consultants, and contractors
Government endorsed (Y/N)	No	No	Yes	Yes	Yes	No	Yes

Note: * Physical infrastructure refers to PPP models

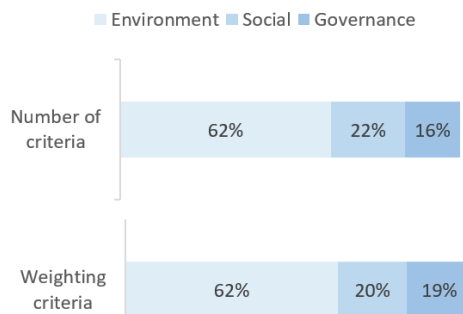
4.1.2 Case study: Envision rating

Project brief

- Envision rating tool developed by Institute for Sustainable Infrastructure is used for the project assessment
- The Samuel De Champlain Bridge Corridor is a PPP project with a total corridor length of 8 kms located in Canada
- The sustainability categories assessed are Quality of life, Leadership, Resource allocation, Natural World, Climate & Resilience

Sustainability criteria*

5 categories, 14 sub-categories and 64 criteria



Project highlights

- Environmental considerations were **integrated** into the entire life cycle of the project through EIA
- Design criteria considering climate risks were considered in the **project agreement**
- **Workforce Inclusion Plan** was developed to increase the inclusion of indigenous people in project planning
- Various levels of Govt. included for informed decision making and **accountability**

*Data adapted from (International Standards for Sustainable Infrastructure: An overview, 2020)

Case study analysis

The Samuel De Champlain Bridge Corridor project earned 67% of the total available points, i.e., it exceeds the 50% performance required thereby receiving **Envision Platinum award** in 2018. The project is one of the largest transportation infrastructure projects in North America.

From the sustainability criteria considered by Envision rating tool, environmental and social factors are given higher priority because of its strong environmental commitments and the improvement in Human Development Index. These countries follow stringent social rehabilitation and resettlement packages for a development project with a strong governance mechanism. However, while developing a rating framework for a developing country like India, the number of criteria and weightage is bound to vary for environmental, social and governance factors.

4.2 S-I Ratings Framework for India

S-I Rating, the proposed infrastructure sustainability ratings framework for projects in India has followed a three stage process for development.

1. Stage 1: Shortlisting of themes, topics and KPIs from peer benchmarking
2. Stage 2: Classification of KPIs and definition of scoring criteria
3. Stage 3: Assessment bands

4.2.1 S-I Ratings – Themes, Topics and Key Performance Indicators

Step 01: Exhaustive listing of themes, topics and KPIs: The rating frameworks as mentioned in Table 4 were used to assess themes, topics and KPIs widely used on a global level. The three level delineation with respect to themes, topics and KPIs is a commonly followed practice across frameworks that helps define a broad theme with specific and measurable indicators, thus lending objectivity to the measurements.

A long list of more than 65 themes encompassing 340 topics with corresponding 577 KPI was created. For instance, the theme of ‘Climate and Resilience’ would have under its topics such as ‘Improve Infrastructure Integration’, ‘Evaluate Risk and Resilience’, ‘Establish Resilience Goals and Strategies’ and ‘Assess Climate Change Vulnerability’. An example of a measurable KPIs pertinent to the theme is, ‘Has the project developed a climate change vulnerability assessment to determine the vulnerability of the project and community to climate change threats?’.

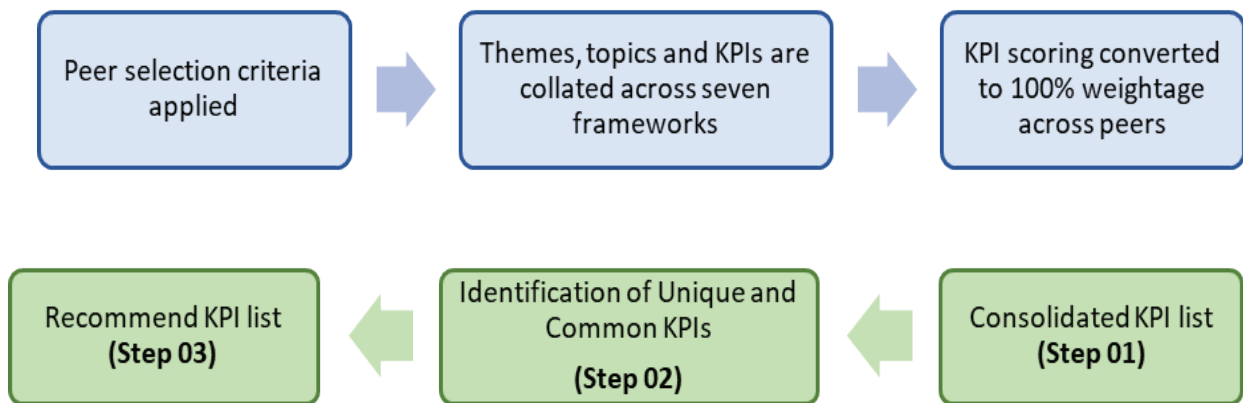


Figure 3 Peer benchmarking methodology flow chart

Step 02: The KPIs identified from seven frameworks were then consolidated at an intermediate stage by addressing with respect to two characteristics. Firstly, those KPIs that had the same intent across frameworks but were worded differently were consolidated to reduce the overall number of KPIs while keeping the assessment objectives intact. Secondly, those KPIs that were unique across frameworks were also kept separately to ensure that no important KPI was missed from the analysis. For instance, the theme ‘GHG emissions’ as reported in GRESB rating and ‘Environmental Sustainability and Resilience’ in PIERS rating, have the same KPI intent ‘Can the entity report of GHG emissions annually? Considering the KPI intent to be same across two rating frameworks, a mutually exclusive theme named ‘Emissions and Climate change’ was formed.

Step 03: In the final stage, the identified unique and common KPIs were consolidated to a list of 68 KPIs depending upon its relevance to construction stage, project life cycle, SDG alignment and the ability to mitigate E&S risks. The E&S risk frameworks considered here are ADB Safeguard Policy Statement 2009 (ADB Safeguard Policy Statement, 2009) and the World Bank Environmental and Social Framework (The World Bank Environmental and Social Framework) These frameworks were chosen considering its relevance to Indian regulations and its ability to assess environmental and social risks.

The safeguards consider a range of risk assessment topics such as: Assessment and Management of E&S risks and impacts; Labour and Working conditions; Resource Efficiency and Pollution prevention; Community health and safety; Land acquisition restrictions, land acquisition and involuntary resettlement; Biodiversity conservation and sustainable management of living natural resources; Cultural Heritage and Stakeholder engagement.

Annexure A, Annexure B and Annexure C illustrate the details of the KPIs at the pre-construction, construction and post-construction stage respectively. The recommended KPIs are also mapped to relevant SDG outcomes and to the E&S frameworks of ADB and the World Bank.

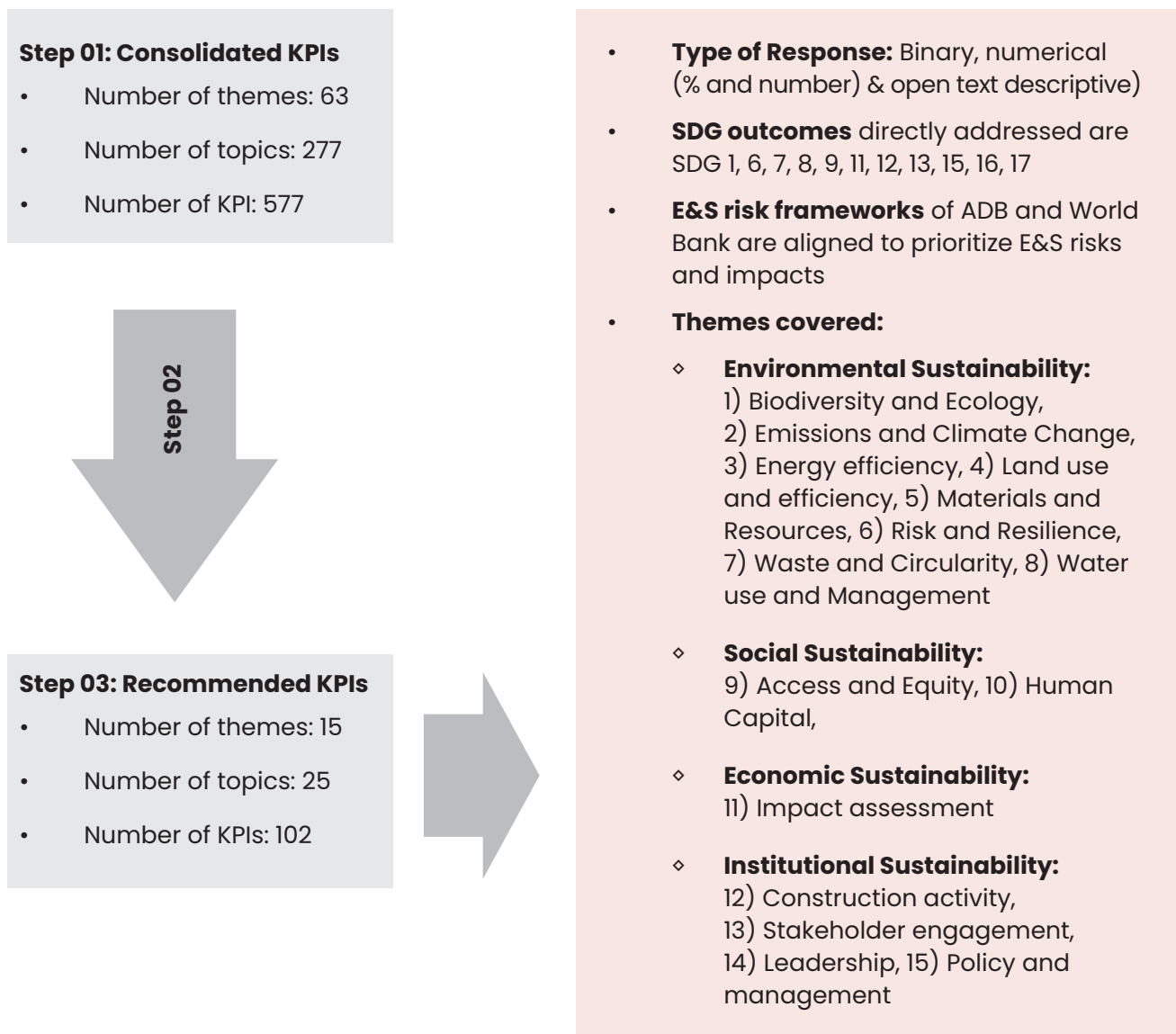


Figure 4 Summary of Peer benchmarking outcome

4.2.2 S-I Ratings – KPIs classification and scoring criteria

The evaluation methodology has been divided into three project phases of (1) Pre-construction, (2) Construction and (3) Post-construction / O&M phase. All the KPIs have been classified according across four levels, starting with the most critical ones in the project development or operations context:

1. Pre-requisite KPIs: Related to statutory and legal compliances, especially those related to environmental and social aspects.
2. Basic KPIs: A step above the compliance KPIs, these relate to basic planning and the systems and processes in place to achieve project objectives.
3. Intermediate KPIs: Address aspects on project impact and risk assessment.
4. Advanced KPIs: Metrics that are aspirational in nature and consider impacts over a longer time horizon, such as carbon mitigation plans.

A total of 100 points have been allocated to the KPIs with individual Basic KPIs carrying the maximum weightage followed by successive decreasing allocation to the Basic, Intermediate and Advanced KPIs. The weights for the KPIs can be customized in later versions as per the needs of specific infrastructure sectors and based on evolving policy and regulation.

Table 5 KPI weightages

KPI Classification	Pre-Construction		Construction		Post-Construction	
	Total KPIs	Weight per KPI	Total KPIs	Weight per KPI	Total KPIs	Weight per KPI
Pre-requisite	3	6%	1	7%	1	10%
Basic	9	4%	16	3%	8	5%
Intermediate	16	3.0 / 2.5 %	17	2%	15	3%
Advanced	4	1.5 / 1.0 %	9	1.5 / 1.0 %	3	2.0 / 1.5 %
Total	32	100%	43	100%	27	100%

For each KPI, a three-point scoring criteria has been provided to aid in objective assessment. The three-point scoring criteria is used as follows:

Table 6 KPI scoring criteria

KPI Scoring Criteria	Score	Example A	Example B
KPIs has not been responded to or the KPI conditions are not met	0.0	The project has no policy applicable for diversity, equity or inclusion	The project has not developed any biodiversity management plan
Partial meeting of KPI conditions or a confirmation that criteria would be met in a defined timeframe	0.5	The project has a policy applicable for diversity, equity and inclusion but no measures have been identified for implementation	The project has not developed a biodiversity management plan but plans to prepare the same in the next 6 months
KPI conditions are completely met	1.0	The project has a policy applicable for diversity, equity and inclusion with identified measures for implementation	The project has developed a biodiversity management plan with initiatives to conserve biodiversity

4.2.3. S-I Ratings – Assessment bands

The final S-I Rating is proposed to be across five bands based on the overall weighted average score for a particular project.

Table 7 S-I Ratings assessment bands

S-I Rating	Score band	Infra Sustainability Maturity
S-I Rating 5	Above 85	Exemplar
S-I Rating 4	70 – 85	Leader
S-I Rating 3	55 – 70	Aspirer
S-I Rating 2	35 – 55	Adopter
S-I Rating 1	Less than 35	Beginner

The assessment bands are illustrative and have been proposed to categorize projects along their sustainability maturity evolution. These could be modified in the future version of ratings based on real-time market feedback on the ratings methodology and process.

5. RATINGS INTEGRATION AND GOVERNANCE

5.1 Integration of ratings process

The rating process and governance mechanism for sustainable infrastructure development shown in Figure 5 is built on three pillars of (1) policy and regulation, (2) evaluating sustainability performance across project lifecycle, and (3) an institutional setup to own and promote the ratings framework.

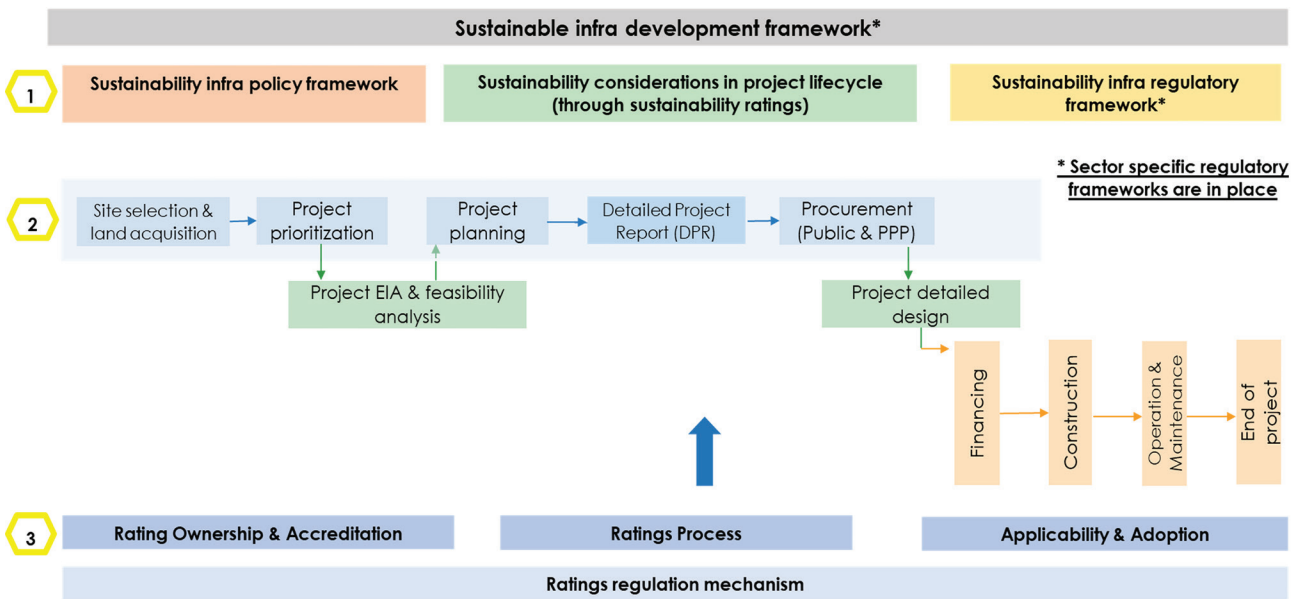


Figure 5 Policy frameworks and Sustainability rating integration in project life cycle

Pillar 1: Policy and regulation covers the ambit of all applicable laws and rules pertaining to environmental and social factors during the project lifecycle. Considering the long duration of infrastructure projects, integrating regulations such as EIA and SIA are of paramount importance to mitigate E&S risks at the planning and design stage of the project. Project-level sustainability evaluations would need to consider the status of compliance as a basic condition for all projects and the bedrock on which aspirational sustainability targets could be planned for.

Pillar 2: The ratings process is proposed throughout the project lifecycle to ensure that sustainability condensations identified at each stage get embedded and the project develops on sustainability maturity. Ratings could be accompanied environmental and social (E&S) action plans to be integrated with the overall project plans. A baseline sustainability evaluation post preparation of the Detailed Project Report (DPR) is proposed to ensure that initial sustainability considerations are known to all stakeholders and projects with higher sustainability ratings get preference for development. Ongoing sustainability evaluation during project development offers stakeholders with the view of how sustainability ratings are changing with respect to time, and whether the project is progressing as per the original plans is shown in Figure 6.

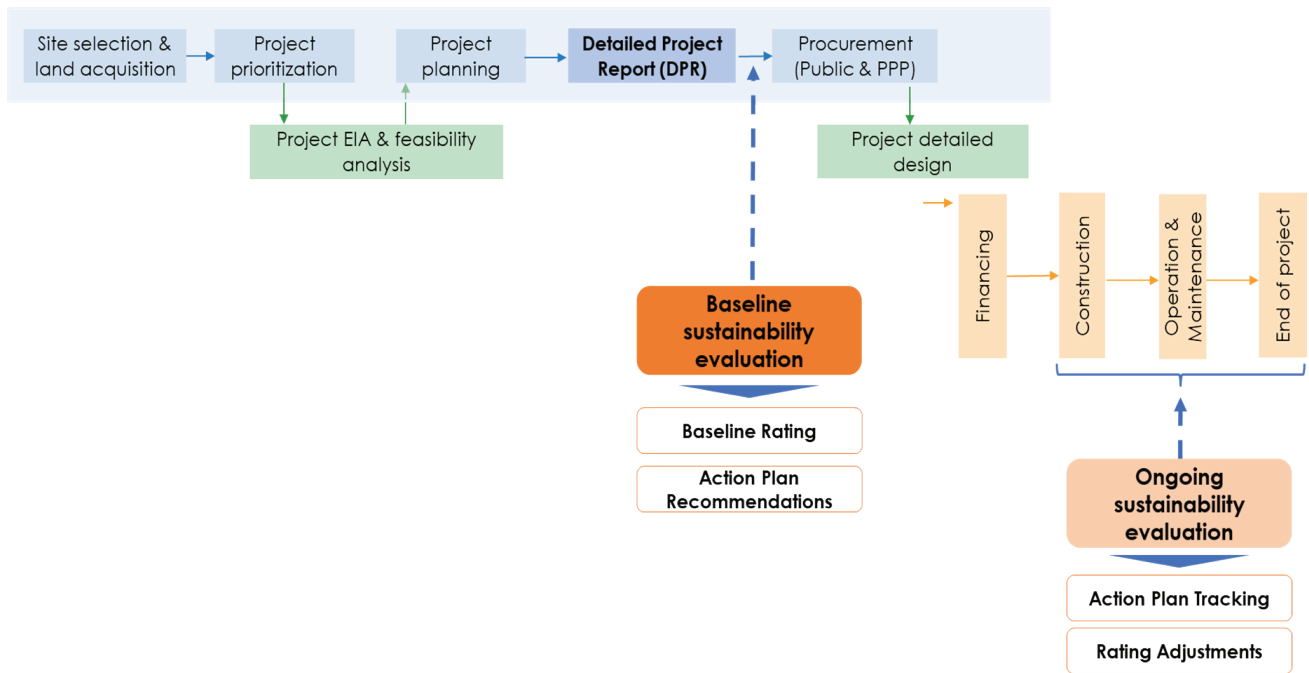


Figure 6 Sustainability evaluation methodology integration post-DPR

Pillar 3: Governance of ratings is critical in developing market to assure and protect the interest of stakeholders. Oversight on the ratings process will ensure transparent and consistent evaluation across project stages and lend sanctity to project level comparisons. The next section explores the institutional mechanism for ownership and promotion of ratings.

5.2 Ratings ownership and promotion

Framework owner and promoter: A 'Sustainable Infra Development Cell' (SIDC) is proposed under NaBFID, India's principal Development Finance Institution (DFI) for the ownership and promotion of adoption of the sustainability infra ratings. SIDC is expected to set guiding principles for projects to undertake sustainability ratings and ensure the project being verified and monitored by an independent third-party agency. It is proposed that SIDC decide on sustainability themes, topics and KPIs for evaluation and the monitoring mechanism for the baseline and ongoing evaluation methods.

Rating Intermediary: The S-I Ratings Service Provider (SIRP) is an independent third-party verifier to assess the sustainability performance of a project by conducting due diligence and site visits. They help conducting baseline and ongoing evaluation methodology as shown in Figure 6 to enhance project sustainability outcomes. The rating agency needs to be accredited by SIDC so that the developers can choose a rating provider for receiving the sustainability ratings.

Rating User: The ratings issued by the SIRPs will be used by governments, project sponsors and investors for decision making process. The rating assessment will help project sponsors to compare projects during the bidding process to prioritize sustainable development aligning with SDGs as shown. The governance mechanism flow chart is shown in Figure 7.

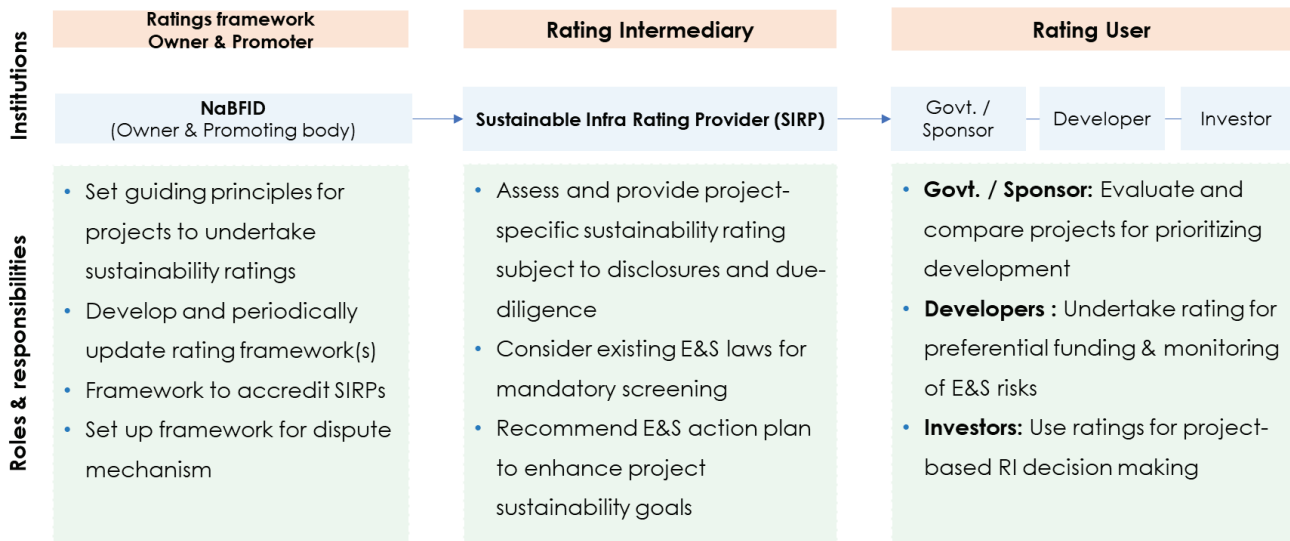


Figure 7 Institutions framework for rating ownership and promotion

6. CONCLUSION

As India enters a strong infrastructure-led economic development phase, a sustainability ratings mechanism for infrastructure projects is expected to provide the much-needed objective framework for evaluating projects not only on their economic goals but also on the environmental and social considerations. The KPIs based approach for sustainability ratings aligns individual projects to the SDGs and can act as enabling framework for India to achieve its environmental and social goals as committed for the nation. The whitepaper has outlined the approach for the KPI based assessment framework and the institutional structure needed for finalization, rollout and adoption of ratings.

The following actions are recommended over the short-term to take the process forward:

1. Discussions with NaBFID and subsequent buy-ins from concerned central government authorities like RBI for finalizing the proposed institutional structure for the sustainability ratings.
2. Finalization of the proposed KPI based evaluation structure incorporating feedback from wider set of stakeholders.
3. Piloting rollout in one sector, for e.g. roads with a customized evaluation framework.

7. ANNEXURE

7.1 Annexure A: Pre-construction KPI list

Themes	Topics	KPI	SDG alignment	ABD	WB	IFC - PS
Policy impact assessment	Identification of risk and impact	Has the project conducted Environmental Impact Assessment (EIA)?	SDG 17.14	Yes	Yes	
Policy impact assessment	Identification of risk and impact	Has the project conducted Social Impact Assessment (SIA)?	SDG 17.14	Yes	Yes	
Policy impact assessment	Identification of risk and impact	Describe project risks and impacts identified based on environmental and social impact assessment baseline studies.	SDG 17.14			Yes
Policy impact assessment	Identification of risk and impact	Does the risk and impact identification process consider outcomes of the engagement process with affected/vulnerable communities?	SDG 17.14			Yes
Access and Equity	Provide essential services	Does the project identify economic and social needs of community/people before project construction?	SDG 1.3	Yes	Yes	
Access and Equity	Compliance	Does the project consider feasible alternative project designs to avoid or minimize physical and/or economic displacement?	SDG 1.3			Yes
Access and Equity	Compliance	Does the physical and economic displacement of people adhere to land acquisition act, where land acquisition is unavoidable?	SDG 1.3	Yes	Yes	

Themes	Topics	KPI	SDG alignment	ABD	WB	IFC - PS
Access and Equity	Adaptability	Are potential future risks to project performance in terms of affordability, accessibility, and equitability evaluated?	SDG 9.1	Yes	Yes	
Emissions and Climate Change	GHG emissions	Has the project considered resource efficiency measures and alternatives to reduce project-related GHG emissions during the design of the project?	SDG 11.6			Yes
Water use and Management	Water use	Has the project considered potential impacts of project development on water resources during design stage?	SDG 6.4	No	No	
Waste and Circularity	Management approach	Describe waste management plan to reduce waste and promote circularity within the project site	SDG 12.5	Yes	Yes	
Materials and Resources	Management approach	Describe project's soil management plan to ensure soil sustainability during design stage	SDG 15.3	No	No	
Materials and Resources	Management approach	Describe resource efficiency strategies to optimize resources during design stage	SDG 9.4	Yes	Yes	
Materials and Resources	Management approach	Has the project incorporated Carbon Management approach to achieve net-zero carbon targets?	SDG 9.4	No	No	

Themes	Topics	KPI	SDG alignment	ABD	WB	IFC - PS
Construction activity	Management approach	Has the project implemented Quality Control Plan (QCP) to ensure construction quality?	SDG 9	No	No	
Construction activity	Management approach	Has the project implemented Construction Management Plan (CMP)?	SDG 9	No	Yes	
Construction activity	Management approach	Does the project design promote equal and universal accessibility design principles?	SDG 9			
Impact assessment	LCA	Has the project conducted Life Cycle Assessment (LCA) on construction materials used? If yes, provide LCA calculation sheet	NA	No	No	
Risk and Resilience	Risk assessment and mitigation	Has the project established stormwater management plan to manage run-off?	SDG 13.1	No	No	
Risk and Resilience	Risk assessment and mitigation	Has the project developed flood resilience and adaptation plan in project design to manage flood and surface water run-off?	SDG 13.1	No	No	
Risk and Resilience	Risk assessment and mitigation	Has the project established a natural buffer zone around wetlands and waterbodies on or near the site?	SDG 13.1			

Themes	Topics	KPI	SDG alignment	ABD	WB	IFC - PS
Risk and Resilience	Risk assessment and mitigation	Are material risks identified during project design stage? If yes, list the identified material risks	SDG 13.1	Yes	Yes	
Risk and Resilience	Risk assessment and mitigation	Describe the systematic process to identify physical and transition risk that could have a material financial impact on the project	SDG 13.1	Yes	Yes	
Land use and efficiency	Land use efficiency strategy	Percentage of project development that is located on previously developed land (grey field)	SDG 15	Yes	Yes	
Land use and efficiency	Management approach	Describe remediation strategies implemented on a brownfield site to mitigate contamination	SDG 15	No	No	
Human Capital	Enhance employment	Does the project conduct skill gap analysis and provide capacity building training for the local workforce?	SDG 9.2	No	Yes	
Human Capital	Protecting the workforce	Does the project ensure that the contractors appointed have obtained all applicable Environmental and Social permits?	SDG 8.8			Yes
Stakeholder engagement	Management approach	Does the project develop Stakeholder Engagement Plan (including affected community) and incorporate their feedbacks to mitigate environmental and social risk identified?	SDG 17.16	Yes	Yes	Yes
Stakeholder engagement	Grievance mechanism for affected communities	Does the project establish grievance mechanism for affected and/or vulnerable communities?	SDG 8.8	Yes	Yes	Yes

Themes	Topics	KPI	SDG alignment	ABD	WB	IFC - PS
Stakeholder engagement	Health and Safety	Does the project maintain an emergency preparedness and response system to affected people and/or the environment?	SDG 8.8			Yes
Leadership	Sustainability leadership	Does the project contractor/supplier selection criteria include past environmental and social performance achievements?	SDG 16	No	No	
Leadership	Sustainability leadership commitments	Does the project team appoint a senior management/member to monitor environmental and social risks during each project stage?	SDG 16	Yes	Yes	

7.2 Annexure B: Construction KPI list

Themes	Topics	KPI	SDG alignment	ABD	WB	IFC - PS
Policy impact assessment	Management approach	Has the project established Environmental and Social Action Plan (ESAP) to mitigate environmental and social-related risks during construction stage?	SDG 15.9	Yes	Yes	
Policy impact assessment	Compliance	Is environmental degradation from baseline quality (air quality, surface water quality, ground water quality, land) being monitored as a result of project development?	SDG 15.9			Yes
Access and Equity	Compliance	Does the project offer compensation to displaced communities, when displacement is unavoidable?	SDG 1.3			Yes
Access and Equity	Compliance	Does the project establish Resettlement and Livelihood Restoration plan, where involuntary resettlement is unavoidable?	SDG 1.3			Yes
Emissions and Climate Change	Pollution Prevention Plan	Describe strategies or initiatives to mitigate noise impact during construction stage of project	SDG 11.6	Yes	Yes	
Emissions and Climate Change	Pollution Prevention Plan	Describe strategies or initiatives to reduce light pollution during construction stage of project	SDG 11.6	No	Yes	
Emissions and Climate Change	Pollution Prevention Plan	Describe strategies or initiatives to reduce air pollutant emissions during construction stage of project	SDG 11.6	Yes	Yes	

Themes	Topics	KPI	SDG alignment	ABD	WB	IFC – PS
Emissions and Climate Change	Pollution Prevention Plan	Describe strategies or initiatives to prevent water pollution during construction stage of project	SDG 11.6	Yes	Yes	
Emissions and Climate Change	Pollution Prevention Plan	Has the project incorporated pollution prevention plan to mitigate adverse impacts of project development on surrounding communities during construction stage?	SDG 11.6	No	Yes	
Emissions and Climate Change	GHG emissions	Has the project assessed annual greenhouse gas emissions during construction stage of the project? (in MT of CO2e)	SDG 11.6	No	Yes	
Water use and Management	Water use	Total water quantity withdrawn during construction of the project (in ML)	SDG 6.4	Yes	Yes	
Water use and Management	Water use	Total water quantity discharged during construction of the project (in ML)	SDG 6.4	Yes	Yes	
Water use and Management	Water use	Has the project evaluated embodied water of construction materials to reduce water use?	SDG 9.4	No	No	
Water use and Management	Management approach	Percentage reduction in potable and overall water use as a result of water efficient strategies during construction (in units or ML)	SDG 6.4	Yes	Yes	
Waste and Circularity	Waste generation	Total quantity of hazardous waste generated during construction stage of project	SDG 11.6	Yes	Yes	
Waste and Circularity	Waste generation	Total non-hazardous waste generated during construction stage of project	SDG 12.4	Yes	Yes	
Waste and Circularity	Waste recovery	Total quantity of waste diverted and/or disposed to landfills (in tons) during construction stage of project	SDG 11.6	Yes	Yes	

Themes	Topics	KPI	SDG alignment	ABD	WB	IFC – PS
Waste and Circularity	Waste recovery	Percentage (by volume) of suitable material from Construction & Demolition waste retained/re-used on project site	SDG 12.5	Yes	Yes	
Waste and Circularity	Management approach	Has the project considered licensed contractors and licensed disposal sites to dispose hazardous waste?	SDG 11.6			Yes
Materials and Resources	Responsible material sourcing	Describe project's sustainable procurement approach to reduce environmental impact of products and services used during construction	SDG 9.4	Yes	No	
Materials and Resources	Responsible material sourcing	Percentage (by volume) of materials sourced from responsible manufacturers/suppliers in accordance with sustainable procurement approach	SDG 9.4	Yes	Yes	
Materials and Resources	Responsible material sourcing	Percentage of total cost of locally sourced materials to the total materials cost to promote regional materials	SDG 9.4			
Materials and Resources	Responsible material sourcing	Does the project procurement stage adhere to anti-corruption policy or Zero Tolerance Approach to Corruption (ZTC)?	SDG 16.5	No	No	
Construction activity	Management approach	Has the project conducted training to construction personnel to identify environmental issues during project construction?	SDG 9			
Risk and Resilience	Risk assessment and mitigation	Describe material risk reduction strategy to reduce/mitigate identified material risks during project construction stage	SDG 13.1	Yes	Yes	
Risk and Resilience	Risk assessment and mitigation	Has the project established risk management and resilience strategies to mitigate natural hazards and climate change threats in accordance with ISO 31000:2018?	SDG 13.1			

Themes	Topics	KPI	SDG alignment	ABD	WB	IFC – PS
Risk and Resilience	Risk assessment and mitigation	Does the project have a risk reduction strategy to manage supply chain risks?	SDG 12.7	No	No	
Biodiversity and Ecology	Management approach	Has the project assessed and reported on biodiversity and habitat loss/gain during project construction stage? (in hectares)	SDG 12.2	Yes	Yes	
Biodiversity and Ecology	Management approach	Describe the initiatives taken by the project to conserve biodiversity and ecology during construction stage	SDG 12.2	Yes	Yes	
Land use and efficiency	Management approach	Describe land use efficiency strategy to optimize land use change during project construction	SDG 15	No	No	
Land use and efficiency	Management approach	Describe the steps taken to preserve/restore historical and cultural resources during project construction	NA	No	No	
Human Capital	Enhance employment	Total number of jobs created during project construction stage	SDG 8.8	No	Yes	
Human Capital	Enhance employment	Does the project commit to ethical labour practices in accordance with national labour laws?	SDG 8.8	Yes	Yes	
Human Capital	Enhance employment	Does the project provide direct and contract workers with documented information related to hours of work, wages, overtime, compensation and benefits?	SDG 8.8			Yes
Human Capital	Enhance employment	Are there commitments for the protection of workers rights that include: 1) women's rights, 2) non-discrimination, 3) prevention of workplace harassment, and 4) fair compensation?	SDG 8.8	No	Yes	

Themes	Topics	KPI	SDG alignment	ABD	WB	IFC – PS
Human Capital	Diversity and Inclusion	Has the project established Diversity, Equity and Inclusion (DEI) action plan?	SDG 8.8	No	Yes	
Human Capital	Health and Safety	Does the project identify potential hazards to workers in accordance with ISO 45001?	SDG 8.8			Yes
Human Capital	Health and Safety	Does the project offer training to workers on occupational health and safety practices?	SDG 8.8			Yes
Human Capital	Working conditions	Does the project provide accommodation arrangements to both migrant and non-migrant workers consistent with the principles of non-discrimination and equal opportunity?	SDG 8.8			Yes
Human Capital	Working conditions	Does the project establish grievance mechanism for workers to raise workplace concerns?	SDG 8.8			Yes
Human Capital	Protecting the workforce	Does the project restrict child and forced labour in their construction sites?	SDG 8.8			Yes
Human Capital	Protecting the workforce	Does the project assess safety issues related to supply chain workers?	SDG 8.8			Yes
Stakeholder engagement	Monitoring and Review	Describe mitigation measures established during construction to monitor environmental and social risks and impact on community	SDG 8.8			Yes

7.3 Annexure C: Post-construction KPI list

Themes	Topics	KPI	SDG alignment	ABD	WB	IFC - PS
Policy impact assessment	Management approach	Does the project monitor Environmental and Social Action Plan (ESAP) to mitigate environmental and social-related risks during O&M stage?	SDG 15.9	Yes	Yes	
Policy impact assessment	Management approach	Has the project established end of life plan to evaluate opportunities, cost, salvage value during project's deconstruction/ decommissioning stage?	SDG 15.9			
Access and Equity	Compliance	Does the project monitor Resettlement and Livelihood Restoration plan, during O&M stage of the project?	SDG 1.3			Yes
Access and Equity	Monitoring and Review	Does the project resettlement professionals conduct completion audit to review resettlement mitigation measures?	SDG 1.3			Yes
Emissions and Climate Change	Pollution Prevention Plan	Describe strategies or initiatives to mitigate noise impact during operation stage of project	SDG 11.6	Yes	Yes	
Emissions and Climate Change	Pollution Prevention Plan	Describe strategies or initiatives to reduce light pollution during operation stage of project	SDG 11.6	No	Yes	
Emissions and Climate Change	Pollution Prevention Plan	Describe strategies or initiatives to reduce air pollutant emissions during operation stage of project	SDG 11.6	Yes	Yes	
Emissions and Climate Change	Pollution Prevention Plan	Describe strategies or initiatives to prevent water pollution during operation stage	SDG 11.6	Yes	Yes	

Themes	Topics	KPI	SDG alignment	ABD	WB	IFC - PS
Emissions and Climate Change	Pollution Prevention Plan	Has the project incorporated pollution prevention plan to mitigate adverse impacts of project development on surrounding communities during operation stage?	SDG 11.6	No	Yes	
Emissions and Climate Change	GHG emissions	Has the project assessed annual greenhouse gas emissions during O&M stage of the project? (in MT of CO2e)	SDG 11.6	No	Yes	
Water use and Management	Management approach	Describe project initiatives or strategies to reduce water consumption during operation stage of the project	SDG 6.4	Yes	Yes	
Water use and Management	Management approach	Percentage reduction in potable and overall water use as a result of water efficient strategies during operation stage of project (in units or ML)	SDG 6.4	Yes	Yes	
Energy efficiency	Energy use	Has the project assessed annual energy consumption and generation during operation stage of the project? (in MWh)	SDG 7.1	Yes	Yes	
Energy efficiency	Energy use	Percentage reduction in energy consumption as a result of energy efficient strategies (in units or kWh)	SDG 7.3	Yes	Yes	
Energy efficiency	Energy use	Proportion of renewable or low/zero carbon energy in total energy consumption	SDG 7.2	Yes	Yes	
Energy efficiency	Management approach	Does the project adhere to Energy Management System (EMS) guidelines in accordance with ISO 50001?	SDG 7.3	Yes	Yes	
Energy efficiency	Management approach	Describe project initiatives or strategies to reduce energy consumption during operation of the project	SDG 7.3	Yes	Yes	
Waste and Circularity	Waste generation	Total quantity of hazardous waste generated during operation stage of project	SDG 11.6	Yes	Yes	

Themes	Topics	KPI	SDG alignment	ABD	WB	IFC - PS
Waste and Circularity	Waste generation	Total non-hazardous waste generated during operation stage of project	SDG 12.4	Yes	Yes	
Waste and Circularity	Waste recovery	Total quantity of waste diverted and/or disposed to landfills (in tons) during operation stage of project	SDG 11.6	Yes	Yes	
Impact assessment	Monitoring and Review	Has the project established long-term monitoring and maintenance plan during O&M stage to monitor sustainability performance?	NA	No	No	
Risk and Resilience	Risk assessment and mitigation	Describe material risk reduction strategy to reduce/mitigate identified material risks during project operation stage	SDG 13.1	Yes	Yes	
Risk and Resilience	Risk assessment and mitigation	Has the project developed Community Driven Development (CDD) or community engagement program to manage climate risks?	SDG 11.b	Yes	Yes	
Biodiversity and Ecology	Management approach	Has the project assessed and reported on biodiversity and habitat loss/gain during project operation stage? (in hectares)	SDG 12.2	Yes	Yes	
Biodiversity and Ecology	Management approach	Describe the initiatives taken by the project to conserve biodiversity and ecology during operation stage	SDG 12.2	Yes	Yes	
Human Capital	Enhance employment	Total number of jobs created during project operation stage	SDG 8.8	No	Yes	
Stakeholder engagement	CSR	Does the project have partnership link programs (CSR) to demonstrate client engagement with the community organisations?	SDG 16	No	No	

