



SUSTAINABILITY STANDARDS FOR INDUSTRIAL PARKS IN INDIA

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1. INTRODUCTION

The industrial sector is an important sector for the Indian economy. The industrial parks and the industrial investment regions in their new form have started assuming important role in the country's development. India today has nearly 3,000 designated industrial zones, some of which are very large, such as the industrial corridors, investment regions, and manufacturing zones. These industrial areas are growing in number and size with the Government of India's vision to enhance the manufacturing sector's contribution to the gross domestic product to 25 percent over the course of a decade. Also, "Make in India" programme launched in September 2014, which has been devised to transform India into a global design and manufacturing hub, is opening doors to bigger investments.

Industrial development is associated with environmental risks and negative environmental impacts, which need to be addressed well in time, starting from the conception, planning, and siting stages. 43 industrial areas have already been classified as critically polluted by the Central Pollution Control Board way back in 2009 and some of the 150 polluted river stretches have direct relevance to industrial pollution.

The Central Pollution Control Board (CPCB) and the State Pollution Control Boards/Pollution Control Committees have been striving to prevent and control pollution from industrial development. In 2009-10, a study was conducted by CPCB in collaboration with the Indian Institute of Technology, Delhi, and a Comprehensive Environmental Pollution Index (CEPI) was developed based on which 43 industrial clusters were identified in 16 States having CEPI score of 70 as critically polluted industrial areas. After consideration of various suggestions and feedback received from the stakeholders, CPCB came up with draft revised CEPI index in 2015. This index has been helpful to strengthen regulatory mechanisms and combat pollution.

While CEPI helps in identifying polluting industrial areas, it does not assess the extent of environmental infrastructure available and its functioning. Benchmarks for provisioning or measuring such infrastructure provisions in industrial clusters do not exist in the country today. In the absence of such benchmarks, it is not only difficult to assess the adequacy of infrastructure, but also difficult to plan and arrive at an objective oriented action plan for an industrial area to come out of critically polluted CEPI index.

A well planned and organised industrial area, defined by set of quality parameters such as economic quality, environmental quality and social quality, is an answer to sustainability. These criteria and quality parameters are referred to as Sustainability Standards. In addition to safeguarding environment, application of these Sustainability Standards is expected to support sustainability of individual industries housed in industrial parks with high performance workplaces so as to enable industries strive for efficiency and profitability, reduced environmental litigation risks and improved market image as well as public image.

2. NEED FOR SUSTAINABILITY STANDARDS

Well defined benchmarks or criteria or "Sustainability Standards", as they may be called as, do not exist today in the country to guide planning, retrofitting and operating/managing industrial areas. The need for such "Sustainability Standards" is also seen from the following:

- **National Environment Policy, 2006:** Environment protection and sustainable development have been the corner stones of the policies and procedures governing the industrial and other developmental activities in India. The National Environment Policy, 2006 provides for integration of environmental concerns in all relevant development processes. There is a need to define criteria to ensure that the environmental concerns are integrated into in all relevant development processes
- **Environmental Impact Assessment:** The notification on Environmental Impact Assessment (EIA) for development projects issued under the provisions of the Environment Protection Act, 1986 makes EIA mandatory for establishment of certain categories of developmental projects including industrial estates/parks/areas/complexes, Export Promotion Zones, Special Economic Zones, Biotech Parks, Leather Complexes etc. EIA enables integration of environmental protection aspects and mitigation measures to deal with any negative impacts at the planning stage by the project developers. Clearly defined criteria would help integration into the development projects at planning stage itself.

- ❑ **Comprehensive Environmental Pollution Index (CEPI)**¹ was developed by the Central Pollution Control Board to identify polluting industrial areas. However, this index does not necessarily identify gaps in planning of an industrial area and its infrastructure. It needs to be supplemented with a system of comprehensive interventions that can help in overcoming its polluting status.
- ❑ The **National Manufacturing Policy 2011**² of the Government of India states that the green technology is not a choice but an imperative for sustainable development. This necessitates the specification of clear definitions and eligibility criteria for what can be categorised as 'Clean and Green'. The policy states that the objective criteria will be prescribed by a Committee called the Green Manufacturing Committee (GMAC) comprising representatives from the concerned Ministries/Departments of the Central Government and relevant sectoral experts from outside government.
- ❑ **International commitments:** India plays an important role in several significant international initiatives concerned with the environment. It is a party to the key multilateral agreements, and recognises the interdependencies among, and transboundary character of, several environmental problems. Sustainable Development Goals (SDG) 2030, to which India is committed, has relevant actions to be taken towards industry, innovation and infrastructure, besides measures for decent work and economic growth, gender equality and climate action. SDG 9 aims to significantly raise industry's share in employment and gross domestic product, by 2030, and retrofit industries to make them sustainable with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes. SDG 7 confirms aims amongst others at doubling the rate of energy efficiency improvement and significantly increasing share of renewable energy, both by 2030. SDG 8 targets sustained per capita economic growth at 7 per cent per annum, SDG 13 focuses on climate actions and SDG 5 on gender equality.
- ❑ **Pollution abatement and resource efficiency:** The Indian industry has not only been resource intensive but has also been polluting and generating billions of tonnes of solid and hazardous wastes with no proper management system. Most of these industries consume a large quantity of water and as a result the waste water discharge also is very high. To quote some of the statistics, most major industrial sectors in India consume 25% to 100% more energy than the global best practices. And for every cubic meter of water consumed, the value addition in India is just 7.5 US\$³. This figure is much lower in comparison to Korea, UK, Sweden and other industrialized countries. Such a model of industrialization is not sustainable.
- ❑ **Others:** The other important considerations defining the need for Sustainability Standards are:
 - For achieving development objectives – industrial growth, investments, employment etc.
 - For achieving competitiveness, profitability for industries, and making industrial parks attractive to investors.
 - For ensuring effectiveness, efficiency, and no negative impacts.
 - For addressing the aspects of climate change, gender, resource efficiency, and pollution reduction.
 - For ensuring that adequate common infrastructure and services are in place to support particularly the SMEs.

While different countries are using new instruments and techniques for eco innovation including fiscal measures, one innovative way is to introduce "Sustainability Standards" for better planning of new industrial areas and retrofitting the existing industrial areas systematically.

¹http://cpcb.nic.in/upload/Latest/Latest_120_Directions_on_Revised_CEPI.pdf

²[http://www.meity.gov.in/writereaddata/files/National%20Manufacturing%20Policy%20\(2011\)%20\(167%20KB\).pdf](http://www.meity.gov.in/writereaddata/files/National%20Manufacturing%20Policy%20(2011)%20(167%20KB).pdf)

³http://niti.gov.in/writereaddata/files/Report_SDG-9.pdf

3. SUSTAINABLE INDUSTRIAL PARKS

Industrial parks are known by different names and covers industrial parks, industrial regions, industrial areas, industrial zones, industrial investment regions, special economic zones, industrial corridors etc. that are planned and developed for the purposes of industrial activities and supportive commercial, infrastructure and service activities.

An “Industrial Park”, as defined under the Industrial Park Scheme 2008 means a project in which plots of developed space or built up space or a combination with common facilities and quality infrastructure facilities is developed and made available to the units for the purposes of industrial activities or commercial activities⁴.

The Department of Industrial Policy and Promotion (DIPP) of the Ministry of Commerce and Industry (MoC&I) of the Government of India (GoI) states the following objectives to be fulfilled by a project to be considered as an industrial park:

- An ‘Industrial Model Town’ for the development of industrial infrastructure for carrying out integrated manufacturing activities, including research and development, by providing plots or sheds and common facilities within its precincts.
- An industrial park for development of infrastructural facilities or built-up space with common facilities in any area allotted or earmarked for the purposes of industrial use.
- A ‘Growth Centre’ under the Growth Centre Scheme of the Government of India provided that the scheme referred in this clause is implemented by an undertaking and the ‘Growth Centre’ is distinctly developed as a separate profit centre.

A “Sustainable Industrial Park” can be defined as an earmarked area for industrial use at a suitable site that ensures sustainability with integration of social, economic and environmental quality aspects into its siting, planning and management. The Sustainable Industrial Parks go far beyond the environmental domain. It is an area that-

- integrates the site with natural environmental and surroundings without any negative impacts;
- addresses the aspects of climate change, gender, resource efficiency, and pollution reduction;
- ensures resource efficiency and cleaner production in individual industries;
- supports symbiosis and synergies amongst different industries;
- ensures adequate common infrastructure and services for ensuring ease of doing business, addressing economic aspects, environmental aspects and social aspects;
- that complies with legal and regulatory requirements; and
- has a well-defined management structures to effectively manage and operate it.

The Sustainability Standards are aimed at paving a way for achieving sustainable industrialization that India needs.

The Prime Minister of India, while delivering his maiden Independence Day speech in 2014 said, “Let’s think about making our product which has ‘zero defect’ so that it does not come back (get rejected) from the world market and ‘zero effect’ so that the manufacturing does not have an adverse effect on our environment”. The proposed Sustainability Standards will not only support in achieving the Government of India’s ambition for “Make in India: Zero defect and Zero effect”, but also will support the clean and green industrial development targeted under India’s National Manufacturing Policy 2011 and the targeted SDGs.

⁴<https://www.bcasonline.org/files/Circulars/circfiles/it08not003.pdf>

4. PROPOSED 'SUSTAINABILITY STANDARDS' FOR INDUSTRIAL PARKS IN INDIA

The proposed "Sustainability Standards" have the following quality criteria that help plan sustainable industrial parks:

- Economic Quality
- Environmental Quality
- Social Quality
- Infrastructure & Services Quality
- Management Quality
- Legal Compliance Quality

Some of the key aspects covered by the Sustainability Standards are environment, higher investments, infrastructure & services, effective park management, women employment and local employment, cleaner production, climate change, resource efficiency, renewable energy, waste and wastewater etc. Details are given in Annexure 1. Brief summary is given below.

□ Economic Quality Criteria:

For an industrial park to attain economic quality, it should be attractive for the businesses and ensure returns on investments. Economic benefits from an industrial park range from profit generation, tax revenue generation, job creation, and competitiveness as well as investment safety for the resident industries. The key criteria are:

- Investments & revenues
- Employment
- Competitiveness
- Investment safety & branding

□ Environmental Quality Criteria:

Environmental quality criteria not only ensure minimisation of negative footprint of the industrial park but also provides low cost means to deal with water, wastewater, waste and resources. Further, it can hedge the risks against the losses due to disasters through disaster preparedness and disaster management, as well as address the climate change issues and effects on local and global environment. The key criteria are:

- Cleaner production and resource efficiency
- Water preservation measures
- Storm water management
- Waste water management
- Waste management
- Emissions control
- Resource efficiency
- Climate change adaptation
- Biodiversity preservation
- Disaster risk management

□ Social Quality Criteria:

The Socio-cultural Quality Criteria deals with the needs of community and employees including gender aspects and, the necessary social infrastructure and management & monitoring systems. It also deals with the local community well-being and community outreach. The key criteria are:

- Social management system
- Social infrastructure
- Gender equity
- Local community well-being and community outreach

□ **Infrastructure & Services Quality**

Industrial parks have to be developed with adequate infrastructure and services, which include forecasted provisions for mobility, logistics, environmental infrastructure and business facilities. The key criteria are:

- Location suitability
- Site master plan
- Logistic support provisions
- Art and architecture
- Building design
- Mobility infrastructure
- Power and energy systems
- Plantation & landscaping
- Common infrastructure

□ **Management Quality Criteria:**

The Management Quality Criteria ensures proper management and monitoring of the industrial park. It includes ensuring of associated infrastructure, application of national/international standards, organizing and managing services including industrial park disaster risk management, marketing of the park etc. The key criteria are:

- Administrative & management infrastructure
- Application of standards
- Quality assurance and monitoring
- Environmental stewardship

□ **Legal Compliances Quality Criteria:**

The Legal Compliance Quality Criteria is to ensure that the industrial parks assessed under this system complies with all binding laws of the land including the national environmental laws and social laws, and compliance with various international commitments and sustainability aspects. The key criteria are:

- Compliance with environmental laws
- Compliance with social laws
- Compliances with international commitments
- Sustainability aspects

5. APPLICABILITY AND BENEFITS OF SUSTAINABILITY STANDARDS

5.1 Applicability of Sustainability Standards

The Sustainability Standards are applicable for:

- **Site Master Planning of new industrial parks-** Site master plans are prepared for industrial parks for earmarking various land uses and infrastructure. Site master plans forms a basis for the development of the industrial park. Hence, it is very important to integrate Sustainability Standards into the site master plan of **the industrial estate**.
- **Retrofit Planning of existing industrial parks:** Many old industrial parks have problems of pollution and also sick and non-performing industries. To retrofit such industrial areas with proper infrastructure that enables reduce pollution problems as well as to revive the industries through cost-effective common infrastructure & services, there is a need to prepare a retrofit site master plan. The Sustainability Standards help to assess the gaps in the existing industrial parks and to make provisioning accordingly into the retrofit site master plan.
- **Monitoring of performance of existing industrial parks:** To assess the adequacy of the provisions and performance of the industrial park, the sustainability standards act as benchmarks. From the assessments, gaps can be identified objectively and corrective measures planned accordingly.

5.2 Target Audience

The target audience for the application of the Sustainability Standards include:

- **Park planners and developers (GIDC, APIIC etc.):** Can adopt the Sustainability Standards and apply them for planning new industrial areas or retrofitting the old ones. These standards can be made a part of the terms of references of the consultants if site master planning is outsourced.
- **Industries:** In the case of new industrial parks, the industries can decide on their setting up business depending on the adequacy of the infrastructure and other provisioning in the industrial park. In the case of existing industrial parks, the industries could benefit from new infrastructure provisioning and retrofitting.
- **Governments at national, state and local levels:** Can adopt and promote the Sustainability Standards in industrial areas through guidelines, or promotional programmes and schemes for meeting with the economic and social developmental objectives or environmental protection objectives. Could consider bringing out awards for best performance or providing grant support for planning or retrofitting industrial areas to achieve sustainability.
- **Regulatory agencies (CPCB, SPCBs etc.):** Can use the Sustainability Standards for assessing the performance of industrial areas, identifying gaps and seeking comprehensive actions plans for improvement of the industrial areas. Can also consider providing incentives in the case of regulatory clearances.
- **Financial sector and funding agencies:** The financing of the development of the industrial infrastructure, in particular the grants, can easily be linked to integration of Sustainability Standards and checking the before and after situations. The funding schemes of the government such as the Industrial Infrastructure Upgradation Scheme (IIUS) of the Government of India can be linked to Sustainability Standards for undertaking systematic gap analysis and prioritisation of the infrastructure to be upgraded.

5.3 Benefits from Application of Sustainability Standards

There are several benefits from application of Sustainability Standards for industrial parks. One of the most significant drivers being business competitiveness. Industries operating in well-designed and well-managed industrial parks are in a better position to take advantage of various provisions made including infrastructure, management aspects, legal compliance aspects and various other sustainability aspects that add a lot of value for the businesses while also helping them reduce risks. Benefits from application of the Sustainability Standards are summarised below.

- Providing the best possible business environment.
- Minimizing operating costs and improving productivity.
- Addressing rightly the issues and concerns of resource efficiency, energy security, negative environmental impacts and climate change.
- Sustainability Standards provide guide to the industrial park & industrial infrastructure developers, decision makers and planners on assessing performance of the existing industrial parks and planning retrofitting measures in a systematic manner. For the new industrial parks, the Sustainability Standards help objectively discuss with various stakeholders and make adequate provisions into the site master plans.
- The application of Sustainability Standards in the industrial park can give tangible cost savings and minimize negative environmental and other impacts, besides bringing in lots of synergies among resident industries and investment safety.
- Old industrial parks can be reactivated with influx of new infrastructure & services thereby enabling especially the sick and under-performing industries to revive.
- The donors and funding agencies can objectively ensure that their financial support to industrial parks meet the minimum thresholds.
- The governments could bring out guidelines to ensure that the targeted investments are directed towards well planned industrial parks with 'zero effect and zero defect'.
- The application of Sustainability Standards provides a marketing advantage and reputational benefits for attracting quality investments.

- The application of standards helps bring harmony among various stakeholders including the public and private agencies, investors and local communities.
- The available resources of land, water, energy etc. can be put to better use. For retrofitting of old industrial areas, financial resources can be better planned and allocated.

Benefits to various key stakeholders are given below.

Industries:

- Cost savings from common infrastructure and services
- Improved marketing for the products
- Competitive edge in international market
- Improved productivity & profitability
- Reduced risks and investment safety

Industrial Park Developers:

- Achieve targets of investments and employment
- Attractiveness to local/foreign investments
- Professional planning and retrofitting of industrial parks
- New avenues of investments for infrastructure & services

Environmental Regulatory Agencies (MoEFCC, CPCB, SPCBs):

- Integrate standards into EIA clearances
- Ease of permits and incentives for compliance
- Comprehensive assessments (beyond CEPI) and Action Plans
- Improved environmental compliance and reduced pollution load
- Improved resource efficiency and conservation

Ministry of Commerce & Industry, Government of India:

- Fulfil the vision of “Make in India – Zero effect, Zero defect”
- Exemplary positioning of India in the international community
- Promote sustainability
- Objectivity to schemes/programmes (e.g. IIUS)
- Beginning of a new era in industrial development

Development Partners and Donors:

- Can ensure that development priorities are met while providing soft loans or funding through other mechanisms.
- Achieve sustainable industrial development.
- Address global sustainability issues, including SDGs and Climate Change.

6. METHOD OF ASSESSMENT OF INDUSTRIAL PARKS

a) Existing Industrial Parks

- **Step 1:** For existing industrial parks, check the Sustainability Standards as a basis for assessing an existing industrial park and update them if necessary.
- **Step 2:** Collect and compile all available information on the industrial park based on the Sustainability Standards. Undertake preliminary field visits.
- **Step 3:** Undertake preliminary assessment of the industrial park for its sustainability based on the Sustainability Standards.
- **Step 4:** Conduct a stakeholders meeting.
 - Present the preliminary assessment findings.

- Discuss on issues/infrastructure/services/management aspects etc. to be addressed.
- **Step 5:** Undertake detailed assessment of the industrial park for the purpose of preparing a retrofitting Site Master Plan. The important thematic layers to be prepared to assess the existing situation and undertake gap analysis are given below.
 - **Base map** including natural and man-made features on site and in its immediate surroundings, in an appropriate scale.
 - **Land use plan** showing all the uses of the land within site as per the standards area distribution.
 - **Zoning plan** showing demarcation of zones for different industrial uses wherein units producing similar products and needing similar infrastructure are co-located in a zone and optimal block/zone size and sub-zone sizes and orientation at the site as per the site development objectives, topography and climate.
 - **Transportation plan** including road network showing hierarchies of road-widths as per the estimated passenger car units (PCU) counts, turning radii of suitable width for the commercial vehicles, typical geometric design for each road cross sections or roundabouts, standard road cross sections for all hierarchies including utility corridors (foot paths, bicycle tracks, sewage, storm water drainage, broad band lines, waste-bins, toilets, street lights etc.) where required, provision of bus stops for internal mobility of the employees and visitors from public spaces to identified zonal drop points, parking plan for commercial and domestic (motorised and non-motorised) vehicles, railways and terminal facilities, if required, pedestrian and bicycling routes and infrastructure.
 - **Storm water management plan** including storm water drains as per natural drainage flow, rain water harvesting systems, ground water recharge systems etc.
 - **Wastewater management plan** including provisions for conveyance lines for industrial waste water effluent to CETP, contour based location of CETP, decentralised waste water treatment systems.
 - **Environmental infrastructure plan** including provisions for waste collection, common disposal points, disposal points for hazardous waste etc., sites for composting facilities as per estimated bio-degradable waste, distribution of parks, buffer zones along the site boundary, surrounding highly polluting industries and also surface water bodies, landscape design of the parks, road avenues and rain water harvesting ponds with biodiversity preservation, selection of indigenous species of flora and fauna, provisions for urban heat island mitigation and fresh air corridors, usage of green spaces for functional use with economic value, example restaurants, kiosks, horticulture, commercial plantation.
 - **Energy infrastructure plan** including provisions for power infrastructure, energy efficiency and usage of non-renewable sources of energy at industry and industrial park level.
 - **Social infrastructure plan** showing provisions for medical facilities, training facilities, specific provisions for promoting women in industrial park, child-care centres, public toilets, fire and disaster management services, canteens, driver and worker accommodation etc.
 - **Business and other specific infrastructure plan** like warehouses, decentralised waste water treatment plant, steam distribution, piping racks for solvent, pipelines for treated water for reuse, high TDS & low TDS pipelines for industrial wastewater, fire hydrant lines, incubators, training centres, meeting rooms, conference halls, guest houses, weigh bridges, automobile service stations, product testing facility etc.

Mapping should preferably be done in GIS (Geographic Information System) with spatial and attribute data. This will make analysis and future updating of the maps and master plan easy.

- **Step 6:** Conduct a stakeholder meeting.
 - Discuss the findings of the assessment undertaken.

- Discuss on the new provisions to be made in the site master plan.

If the stakeholders have not sufficient understanding of the upgradation/modernisation needs of the industrial park, organise knowledge & learning sessions for the stakeholders so that they have a better understanding of the requirements for retrofitting the industrial park.

- Field visits to case examples and best practices (master planning, technologies – energy, water etc.)
- Workshops, conferences, seminars on relevant topics
- Training programmes

- **Step 7:** Prepare a draft retrofitting Site Master Plan for the industrial park in an appropriate scale as may be prescribed by the local authorities for the purpose of statutory approvals. The site master plan shall have all the provisions as required by the Sustainability Standards. The plan shall adhere to all statutory/legal requirements.

The site master plan should have set of thematic layers/maps, design concepts for constructing the infrastructure & services, and texts with descriptions and explanations.

- **Step 8:** Conduct a stakeholder meeting.
 - Discuss the draft site master plan
 - Identify changes/modifications and additional provisions to be made in the site master plan.
- **Step 9:** Prepare the final Site Master Plan with various updated thematic layers as in Step 5.
- **Step 10:** Detail out design concepts that can be used during implementation of the site master plan. 2D/3D visualisations to be provided. This includes for example:
 - Landscaping concept
 - Building concept
 - Streetscape
 - Energy and renewable energy systems
 - Infrastructure & services
 - Passive design - Passive design maximises the use of 'natural' sources of heating, cooling and ventilation to create comfortable conditions inside buildings. It harness environmental conditions such as solar radiation, cool night air and air pressure differences to drive the internal environment.
 - Art & design – this can make a decisive contribution to the quality and significance of buildings and industrial districts alike. Recommendations may be expressed by the Industrial Park Management paired with a fixed percentage of the construction costs to be spent for art. Local artists or design colleges in close proximity can help to maintain a high level of creativity while keeping costs low.
 - Design quality - design of open space / amenity, design of architecture, art on location, design of all measures that are to be implemented etc.
 - Unique skyline - skylines serve as unique fingerprints. A district's unique skyline, comprising buildings with different heights, designs, uses, as well as parks or mountains etc., may be of great benefit to the district by attracting tourism and thereby increasing land value and creating job opportunities.
- **Step 11:** Detail out financial viability aspects and infrastructure and services delivery mechanisms for various provisions made in the site master plan. Example: Sources of funding, PPP, public funding, private funding etc. Prepare an Action Plan for implementation of the Site Master Plan.
- **Step 12:** Conduct a stakeholder meeting. Discuss the final site master plan, design aspects, financial aspects, and implementation aspects.
- **Step 13:** Submission of the final site master plan

Important aspects in the site master plan:

- Prepare all maps in an appropriate scale as required for statutory approval from the local authorities.
- Create GIS based database.
- Ensure urban integration - Industrial park within an urban area should be designed with the urban context in mind. For example, the overall site should be designed with good connectivity to public transport and other social and commercial infrastructure. The site should also be respectful of surrounding urban facilities with regards to public realm design, waste management, noise and activity levels.
- Ensure that all the six Quality Parameters are included in the Site Master Plan, viz. Legal Compliance Quality, Management Quality, Economic Quality, Environmental Quality, Social Quality, Infrastructure & Service Quality.
- Integrate planning concepts - soil protection concept, biotope networking concept, integrated water concept, concept of functional mix of uses, integrated traffic concept, integrated energy concept etc.
- Logistics concept - logistic support provisions for factories and employees, including business centre, one-stop-services, administrative building, information centre, warehouses/raw material depots, training centre, design centre, product/material testing facility, commercial zone etc.
- Ensure space utilisation efficiency
- Business clustering/zoning - when similar businesses or production facilities cluster, supporting services often follow, such as legal, accounting, raw materials and technical services. The groupings of these like-minded businesses and their supporters can lead to opportunities for increased efficiency and the more rapid development of new ideas.
- Green buildings, building standards, building orientation
- Mobility management, appropriately sized roads, hierarchies traffic connectivity, bicycle tracks, pedestrian networks, signage, maps, traffic alert displays, access to mass transportation, freight and cargo management, employee transport, parking etc.
- Energy efficiency, renewable energy systems

b) New Industrial Parks

In the case of new industrial parks, the following steps apply:

- **Step 1:** Check the Sustainability Standards and update them if necessary.
- **Step 2:** Conduct a stakeholders meeting and discuss on infrastructure/services/management aspects etc. to be provided.
- **Step 3:** Prepare a draft Site Master Plan for the industrial park in an appropriate scale as may be prescribed by the local authorities for the purpose statutory approvals. The site master plan shall have all the provisions as required by the Sustainability Standards. The plan shall adhere to all statutory/legal requirements. The site master plan should have set of thematic layers/maps, design concepts for constructing the infrastructure & services, and texts with descriptions and explanations.
- **Step 4:** Conduct a stakeholder meeting.
 - Discuss the draft site master plan
 - Identify changes/modifications and additional provisions to be made in the site master plan.
- **Step 5:** Prepare the final Site Master Plan with various updated thematic layers as in Step 5 of the 'existing industrial parks' above.
- **Step 6:** Detail out design concepts that can be used during implementation of the site master plan. 2D/3D visualisations to be provided. Ref. to Step 10 of the 'existing industrial parks' above.
- **Step 7:** Detail out financial viability aspects and infrastructure and services delivery mechanisms for various provisions made in the site master plan.
- **Step 8:** Conduct a stakeholder meeting.
 - Discuss the final site master plan, design aspects, financial aspects, and implementation aspects.

□ **Step 9:** Submission of the final site master plan

Preparation of site master plan is a multi-disciplinary and technical task. It requires a set of architects, engineers and urban planners.

Industrial parks developers need to consider appropriate staffing concepts or consultancy requirements to take up the task of site master planning of industrial parks. Such investments are essential at early stages to prevent larger retrofitting costs and liabilities later.

7. PERFORMANCE ASSESSMENT

An industrial park can be evaluated based on the Sustainability Criteria (ref. to tables in Annexure) and grouped into Gold or Silver or Bronze rating. The compliance with Legal Quality Criteria is a must for an industrial park to be eligible for certification. Depending on the level of performance, an industrial park may be grouped as follows:

Gold rated 'Sustainable Industrial Park'	>85% points from the 5 quality criteria
Silver rated 'Sustainable Industrial Park'	65 - 85% points from the 5 quality criteria
Bronze rated 'Sustainable Industrial Park'	50 - 65% points from the 5 quality criteria

The certification may be undertaken by a competent independent agency.

Eligibility requirement: Any industrial park shall have full legal compliance with the applicable laws and commitments to be eligible for certification. The legal compliance quality criteria are given below.

Legal Compliance Quality		
LEGAL COMPLAINECE QUALITY	Compliance with National Environmental Laws	Air emissions compliance Waste management Waste water management: Natural environment and biodiversity Other relevant environmental laws and rules
	Compliance with National Social Laws	Labour laws Occupational safety and health Human rights Anti-corruption Violence and crime prevention Discrimination
	Compliance with international commitments	Environmental commitments Social commitments
	Sustainability aspects	SDGs Climate change

The weightages assigned to various quality criteria and parameters are given in Annex 2. An example of evaluation and detailed criteria sheets for each of the quality criteria are annexed (Ref. Annex 2).

8. ANNEX. SUSTAINABILITY STANDARDS FOR INDUSTRIAL PARKS IN INDIA

Economic Quality

S.No.	Parameter	Explanation	Performance Indicator
1	Investments & revenues	Total investments: The total targeted investments at the industrial park must be significantly higher than the land costs.	Meets 100% of government targets
		Tax revenues for the government: Tax revenues for the government (national, state, local) from the industrial park must meet government targets.	Meets 100% of government targets
		Revenues for the industrial park management: Revenues generated from infrastructure and services in the industrial park so as to support in management of the industrial park with adequate infrastructure & services. [Example, from access control at entry/exit gates, revenues from parking facilities, revenues from leasing of commercial spaces, revenues from allotment/ outsourcing of services, revenues from outsourcing social infrastructure, including kiosks, canteens, guesthouses, training centre, crèche etc.]	Self-sustaining (revenues at par with expenditures)
		FDI in the industrial park: Industrial park attracts FDI and has operating companies.	At least 3 companies are operating.
2	Employment	Total employment: The total employment generated by the industrial park (direct and indirect).	Meets 100% of government targets
		Employment to local residents of the surrounding habitation (municipalities/panchayats)	At least 20% of total workers employed in industrial park are local residents
		Nature of employment: Permanent employment contract with all statutory benefits vs temporary.	At least 25% of total company workers in industrial park employed through permanent contracts
		Employment of women: % of women that form part of the total workforce in the industrial park is a measure of how much gender equity is being considered.	Women form atleast 25% of the total workforce in the park.
3	Competitiveness	Adequate infrastructure & services: Adequate common infrastructure & services, ease of licenses/ permits, support from governments. Adequacy and reliability of infrastructure and services, including water, environmental services etc. Service delivery mechanisms.	Very well established.
		Saleable cost of plots in the industrial park: The saleable cost or lease cost of individual plots is an important parameter for attracting businesses. The industrial park shall have basic infrastructure including roads, electricity, water, security, common infrastructure & service provisioning.	The saleable cost or lease cost is < Rs 5,000 per sq.m.
		Maintenance costs: Maintenance costs towards common services deployed for the benefit of the individual industries housed in the industrial parks shall be in acceptable ranges. Regular common overhead/maintenance costs in the case of vacancy (or shut down) of a company are minimal.	< Rs 10 per sq.m. of plot area per month Overhead/maintenance costs are minimal and are full acceptable to plot holders/industries - 80% of the resident

		<p>Cost stability guarantee on services, taxes etc.</p> <p>Costs are comparable in the region</p>	<p>industries show satisfaction upon survey.</p> <p>Fully guaranteed.</p> <p>Yes, fully comparable.</p>
		<p>Cost cutting for businesses: Cost cutting for businesses refers to, a) lowering production costs through common infrastructure and services etc., b) reduced liabilities (ex. CCA adaptation measures implemented in the park).</p>	<p>Cost cutting measures are adequately implemented and are well acknowledged by at least 80% of the resident industries.</p>
		<p>Proximity to input supplies: Proximity of the industrial park to input supplies (raw materials, labour, transport, water etc.).</p>	<p>75% of the demands are met within 50 km.</p>
4	Investment safety and branding	<p>Investment safety: Are there any liabilities due to litigation risks, environmental regulatory risks, climate change/disaster risks, local unrests, lacking government support etc. Such liabilities pose threat to the survival of the businesses.</p>	<p>No liabilities and known risks. Fully supported by government and other public and private agencies.</p>
		<p>Branding and identity: The branding and identity of the industrial park is a key aspect of its success, both in terms of the positioning of its industries, products and the mind-set and values of employees. An industrial park with an identity can motivate employees and draw talent to the companies. The branding and identity can come in the form of any national or international certification system.</p>	<p>Industrial park has a recognised international and national certification system. The industrial park has special status (example, Green Industrial Park, Eco Industrial Park, Special Economic Zone, National Manufacturing Zone etc.).</p>
		<p>Spatial efficiency: An industrial park operates with a minimal amount of space, which must be utilized for a range of requirements, such as infrastructure, production and services. Spatial efficiency refers to how much of the land is put to economic/productive use.</p>	<p>> 75% of the total area is put to economic/productive use</p>
		<p>Reputation of the industrial park developer: Experience with previous industrial parks developed by the developer.</p>	<p>Very high reputation with successfully running industrial parks. No regulatory or legal or environmental problems exist in the developed parks.</p>
		<p>Incentives and recognition for “green”/ “sustainability” measures: The industrial park has government incentives/grants for promoting green buildings, resource efficiency etc.</p>	<p>The industrial park has incentives/grants for promoting green buildings, resource efficiency etc. and an award/recognition.</p>

Environmental Quality

S.No.	Parameter	Explanation	Performance Indicator
1	Cleaner production and resource efficiency in individual industries	Cleaner production processes by industries: Company level resource efficiency and cleaner production by the industries housed in the industrial park.	> 50% of the resident industries are engaged in resource efficiency, lean manufacturing and cleaner production
		Lean manufacturing by industries: Lean Manufacturing is a business improvement tool that seeks to eliminate waste within the manufacturing process. The school of thought seeks to reduce all the “unnecessary” portions of a process or product, to focus on what adds the most value for the customer. The essence of “lean” manufacturing is both understanding customer interests and delivering the product efficiently and profitably.	
		Waste/wastewater recycling by industries: Pro-active recycling/reuse measures of waste and wastewater are adopted by the industries housed in the industrial park. Measures should ensure reduced wastewater disposal, water use and waste disposal.	> 50% of the resident industries are engaged in waste and wastewater recycling/reuse
		Industrial symbiosis and synergies: By-products are secondary products produced during industrial or destructive processes. Companies should consider whether there is a viable commercial or operational use for these by-products, whether on the market or as materials of value to collaborators or supply chain partners. Percentage of companies in the industrial park which are engaged in industrial synergies - supply chain, utility, by-product and service synergies.	> 50% of the resident industries are engaged in industrial symbiosis and synergies
		Circular economy by industries: The Circular Economy refers to systems which are designed to be restorative in nature, keeping products in use for as long as possible and utilizing the principles of recovery and regeneration. The principles of the Circular Economy, preserves resources, reduces waste and can lead to higher quality products.	> 50% of the resident industries are engaged in circular economy measures
		Sustainable procurement by industries: Sustainable Procurement indicates a business’ commitment to use a sustainable supply chain. Alongside considering price and quality, Sustainable Procurement considers other environmental, social and economic factors in the purchase and use of supporting products and services.	> 50% of the resident industries are engaged in sustainable procurement
2	Water preservation measures in the industrial park	Sustainable water supply: Total water demand from companies in industrial park does not have significant negative impact on local water sources or local communities. <ul style="list-style-type: none"> • E.g. Extraction from local water sources (e.g. rivers, groundwater) occurs at sustainable levels 	Extraction from local water sources (e.g. rivers, groundwater) occurs at minimal levels without affecting other users (e.g. agriculture, human habitat). Dependency is <10% of the total demand.
		Limit ground water extraction: Groundwater extraction is the process of using groundwater for industry, irrigation, flood control or treatment. A natural resource particularly valuable in regions with limited surface water,	Zero dependency on groundwater.

		<p>groundwater can be found between soil particles and in rock. Ground water risks are posed from:</p> <ul style="list-style-type: none"> • Low ground water potential/availability • Poor water quality 	
		<p>Water preservation: Water conservation is critical to the design of a sustainable industrial district. Strategies include water reuse, water recycling systems, conservation measures and system optimization through the incorporation of water-efficient technologies. By preserving water, an industrial district will lower external water consumption, improving resource efficiency and providing savings for operations.</p>	<p>Water conservation measures are in place and there is marginal external dependency for fresh water.</p> <p>> 65% demands met from reuse of treated waste water, rainwater harvesting etc.</p>
3	Storm water Management	<p>Storm water management systems: Rainwater usage, or rainwater harvesting, is an important part of any storm water management strategy. The practice comprises capturing, filtering and utilising any rainwater on-site, whether for irrigation, water features, or domestic use after proper treatment. Rainwater harvesting provides an independent water supply, reducing water usage and making the most of naturally available resources.</p> <p>Adequacy of provisions for rain water management, including storm water drainage, collection, treatment, recycle/reuse for industrial production or cooling or for fire protection or irrigation of green spaces etc.</p> <ul style="list-style-type: none"> • Storm water drainage network. • Collection of first rains @ 1hr peak rainfall and 80% run-off coefficient and treatment to prevent contamination risks. • Ponding of treated rainwater or development of wetlands and integration into landscapes. • Recycle/reuse of treated rain water. • Permeable pavements, green roofs. • Rainwater harvesting facilities. 	<p>Fully existing and atleast 50% of rainwater is harvested within the industrial park. Remaining water is integrated into the urban or regional drainage system for a safe disposal.</p>
4	Wastewater management	<p>Sewerage network: Sewerage network for municipal/domestic sewage</p>	Fully existing
		<p>Conveyance systems: Industrial wastewater collection network, conveyance systems</p>	Fully existing
		<p>Sewage treatment: Treatment of municipal/domestic waste water through centralised and decentralised treatment systems (technically viable, financially viable, easy to operate and manage)</p>	Fully existing
		<p>Waste water treatment: Treatment of industrial waste water through centralised and decentralised treatment systems (technically viable, financially viable, easy to operate and manage)</p>	<p>Fully existing</p> <p>100% of the wastewater generating industries in the industrial park are connected to water treatment and sewer system or have zero liquid discharge system.</p>

		<p>Safe disposal: Disposal not to cause pollution of receiving water bodies or alter the quality of water making it unfit for designated use.</p>	100% compliance with permissible discharge limits before disposal.
		<p>Treated wastewater recycling/reuse: Percentage of industrial effluents from companies in park which are reused responsibly within or outside industrial park. For industrial wastewater – recycle/reuse for industrial use – cooling, process, washings, toilets, irrigation etc.</p>	Atleast 50% of treated waste water is reused. Or 100% of treated wastewater is recycled and reused.
		<p>Non-potable water: Non-potable water is water, which cannot be used for drinking, but which may be used for other purposes, such as irrigation or industry. For example, grey water can be captured through own measures on the industrial park site such as stormwater management systems, treated and re-used for toilet flushing or plant watering. Every industrial district should consider how non-potable water can be re-used, to diversify water supply and contribute to broader goals for water conservation.</p>	Atleast 50% non-potable water demands met from own sources.
		<p>Skilled personnel: Having skilled personnel for operation and management of waste water treatment, operation & management of infrastructure etc.</p>	Skilled personnel exist.
		<p>Waste water monitoring systems: Monitoring systems exist for the wastewater generated in the industrial park, especially to check the discharges that are used for recycle/reuse or for outside disposal.</p>	Online and offline monitoring systems, lab facilities, data display facilities and data reporting systems fully exit.
5	Waste management	<p>Hazardous waste management: Hazardous/toxic waste, whether including lead, chromium or other chemicals, is material that can cause disease, disability or death to humans, animals or plants. Hazardous waste contaminates its surroundings and poses long-term risks to the environment and surrounding communities.</p> <ul style="list-style-type: none"> • Waste avoidance measures • Waste collection system • Waste storage • Waste treatment • Safe waste disposal • Resource recovery, recycle/reuse 	<p>Hazardous waste management systems are fully existent in compliance of legal requirements.</p> <p>Resource recovery, waste-to-energy etc. solutions exist for atleast 25% of waste generated.</p>
		<p>Industrial solid waste management: Solid wastes, other than hazardous wastes:</p> <ul style="list-style-type: none"> • Waste avoidance measures • Waste collection system • Waste storage • Waste treatment • Safe waste disposal • Resource recovery, recycle/reuse <p>Resource recovery/reuse: Paper recycling, plastics recycling, packaging material, containers/drums reuse etc.</p>	<p>Industrial waste management systems are fully existent in compliance of legal requirements.</p> <p>Resource recovery, waste-to-energy, recycle/reuse etc. solutions exist for atleast 25% of waste generated.</p>
		<p>Municipal/domestic solid waste management:</p> <ul style="list-style-type: none"> • Waste avoidance measures • Waste collection system • Waste storage • Waste treatment • Safe waste disposal • Resource recovery, recycle/reuse <p>Organic composting involves collecting green</p>	<p>Municipal/domestic solid waste management systems are fully existent in compliance of legal requirements.</p> <p>Resource recovery, waste-to-energy, recycle/reuse etc. solutions exist for</p>

		<p>and food waste, to decompose and recycle as a soil amendment or fertiliser. Rich in nutrients, compost can be very beneficial for gardens, landscape or organic farming, and can also reduce overall waste.</p> <p>Resource recovery/reuse: Paper recycling, plastics recycling, packaging material (cardboard, including packing boxes and packaging materials), containers/drums reuse, construction debris etc.</p>	atleast 25% of waste generated.
		Minimised non-recyclable goods/materials: E.g. plastics	Policy exists for the industrial park and fully implemented.
6	Emissions and air pollution control	<p>Air pollution control systems:</p> <ul style="list-style-type: none"> Measures for compliance with legal requirement are to be fully in place. Restrictions on unsuitable air polluting industries. Measures for reduction of emissions, viz. eco-efficient mobility with battery operated vehicles, CNG buses for internal/external transport, bicycling tracks, pedestrian pathways that do not cause pollution, usage of clean fuels, common steam and power plants. 	Air pollution control systems are fully existent in compliance of legal requirements.
		<p>Air pollution monitoring systems: Monitoring systems exist for the atmospheric emissions generated in the industrial park.</p>	Online and offline monitoring systems, lab facilities, data display facilities and data reporting systems fully exist.
7	Resource efficiency	<p>Energy efficiency: Usage of energy efficiency measures and renewable energy infrastructure</p>	<p>Energy efficiency and renewable energy policy exists.</p> <p>Reduced energy demands at the industrial park by 20% due to energy efficiency measures.</p> <p>Atleast 20% of energy demands of the industrial park are met through renewable energy sources.</p>
		<p>Resource-saving infrastructure:</p> <ul style="list-style-type: none"> Resource-saving building material choice Use of recycled materials Materials from renewable raw materials Local and regional materials Certified building products Plant material of regional origin 	<p>Policy for resource saving infrastructure exists.</p> <p>Atleast 25% of the buildings are Green Buildings.</p> <p>Resource saving materials are extensively used for construction.</p>
		<p>Resource efficient infrastructure: Resource efficient infrastructure is established in the industrial park, viz. sustainable building materials, earthworks management; recycle and reuse of treated wastewater and rain water; recycle and reuse of wastes; recycle and reuse of chemicals and materials; reduced demands of fresh water use etc.</p>	

		<ul style="list-style-type: none"> • Green Factory Buildings and Green Buildings • Usage of eco-friendly building materials for roads, fencing, buildings etc. • Renewable energy, energy efficiency and resource efficiency fixtures/installations • Recycles/reuse of wastes, wastewater, rainwater and materials • Smart material selection and usage of local materials with low carbon footprint and low environmental impacts. 	
8	Climate change mitigation and adaptation	<p>Minimisation of GHGs: Global Warming, or climate change, is described by many as the biggest environmental and social crisis underway in the world today. Carbon emissions are the most prominent cause of global warming, and industrial districts should seek to minimise these emissions.</p>	Carbon footprint (GHG emissions) calculations have been undertaken for industrial park. Reduction targets are set yearly and achieved.
		<p>CCA adaptation measures: Adaptation means anticipating local effects of global climate change and taking action to prevent or minimise the damage they can cause. It has been shown that well planned, early adaptation action saves money and lives later.</p> <p>Provisions for climate change adaptation due to increasing temperatures, increased flood, reduced water reserves etc.</p> <ul style="list-style-type: none"> • Risk and vulnerability analysis to climate change is undertaken. • Assessment of heat islands and provisions for appropriate land use in such areas; • Assessment of flooding areas and provisions of appropriate land use and drainage, river embankment, flood protection structures; • Landscaping and greenery provisions; • Appropriate internal and external transportation provisions; • Provisions for micro climate control. 	Adaptive infrastructure and services are identified and are <u>adequately</u> in place for industrial park to protect against climate change impacts.
9	Biodiversity preservation	<p>Biodiversity preservation: Biodiversity is the variety of plant and animal life in any particular ecosystem or setting. Individual measures to protect species:</p> <ul style="list-style-type: none"> • Preservation and additional provisions for retaining and promoting biodiversity in the industrial park. Local habitat to be encouraged. • Preparation of habitat objectives, mapping of habitat functions and implementation of measures. • Conservation of existing plantation, water bodies and other natural features on site. • Provisions for greenery and buffer zones. Hierarchical greens - central greens, green belts at the periphery, vertical and horizontal stretches of greens across the industrial park, avenue plantation, plantation at plot level. 	Biodiversity preservation plan exists and is fully implemented.
10	Disaster risks management/ preparedness	Natural disasters: Comprehensive risk assessment covering earthquake, flood and other potential risks and disaster risk management is essential for industrial parks.	Disaster risk management plan is in place. Mock drills are conducted

		<p>time to time.</p> <p>Infrastructure for managing impacts is <u>fully</u> in place (e.g. chemical spills into flooded water).</p> <p>Collaborative arrangements made with public agencies.</p> <p>Provisioning for immediate relief and basic survival needs of the effected people is in place (basic medical care, food, clothing, identification, shelter).</p>	
		<p>Industrial disasters: Risk assessment and provisions, including fire station, disaster management team etc. Disaster Risk Management includes identifying, understanding and addressing possible risks, to maximise resiliency and the overall likelihood of objectives being achieved. In the industrial context, Disaster Risk Management addresses all issues related to relevant industrial and manufacturing processes, considering both production and economic risks and addressing them.</p>	<p>Disaster risk management plan is in place.</p> <p>Mock drills are conducted time to time.</p> <p>Infrastructure for managing disasters is <u>fully</u> in place (e.g. fire brigade, disaster management team, safety equipment, first aid etc.).</p> <p>Collaborative arrangements made with public agencies.</p>

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Social Quality

S.No.	Parameter	Explanation	Performance Indicator
1.	Social Management System	Management team: Functioning system(s) in place for ensuring social infrastructure provisioning, its operations and performance, as well as collect, monitor, and manage key social aspects and impacts relevant to industrial park.	Dedicated personnel exist as a part of the industrial park management team to plan and manage social quality standards.
		OH&S management system: All companies in the industrial park should have an OH&S management system in place (based on ISO18001 standard) and keep records on rates of injury, occupational diseases and total number of work-related fatalities.	All companies in the industrial park with more than 250 employees to have a well-functioning OH&S management system in place.
		Grievance management: Mechanism should be in place and accessible to receive and address grievances from within the industrial park as well as outside from external stakeholders. Examples include: help desk; complaint box; hotlines (phone booths) inside and outside the industrial park.	Grievance management system in place. 100% of the grievances are addressed within 90 days. All companies in the industrial park with more than 250 employees have a code of conduct system in place to deal with grievances.
		Harassment redressal: Harassment prevention and redressal system, especially sexual harassment against women, with clear complaint and redressal procedure in place. for example (not exhaustive): <ul style="list-style-type: none"> • Harassment prevention and redressal team • Sexual harassment redressal committee to deal with reported cases • Special transport provisioning for women workers during night when returning home from work 	Harassment prevention and redressal system is in place. 100% of the complaints are addressed within 90 days.

2	Social infrastructure	<p>Primary social infrastructure: Primary social infrastructure has been provided in the industrial park and/or in its close proximity is operational. For example (not exhaustive list):</p> <ul style="list-style-type: none"> • Medical services, health centre • Lavatories, public toilets • Drinking water fountains • Transportation access – internal and external transport • Restaurants/kiosks within reach of the employees • ATM, banks, shops • Recreational facilities, such as play grounds, gym, club • Handicap access to buildings, infrastructure & services • Provision of dormitories/rest houses for truck drivers 	
		<p>Industrial park security: The industrial park has provisions of security systems and services and are operational. For example (not exhaustive list):</p> <ul style="list-style-type: none"> • Appropriate lighting systems in and around park • Unauthorized public access to be avoided by security control • Appropriate fencing around industrial park • CCTV systems • Access control system for vehicles entering the park • Centralised security office at the main entrance. In addition, security cabins at the exit and other strategic points. 	<p>Security systems and services are fully operational.</p> <p>Over 80% of the surveyed employees show full satisfaction.</p>
		<p>Capacity building: Programme for skills training and development by employee category in place with particular emphasis on equal opportunity for men and women. For example (not exhaustive list):</p> <ul style="list-style-type: none"> • Training and skills development centre • Entrepreneurship development centre • Incubation centre 	<p>Supporting infrastructure/ programmes for skills development are available.</p> <p>Atleast 30% of the benefited workforce from such programme are women.</p>
3	Gender equity	<p>Gender equity promotion: Programme/mechanism in place to address gender equality of workers in park. For example (not exhaustive list):</p> <ul style="list-style-type: none"> • Hiring procedures • Comparable pay • Selection procedures for trainings and events 	<p>Programme/ mechanism is fully in place to address gender equality of workers in park.</p> <p>Over 80% of the surveyed women employees (sample size minimum 100) show full satisfaction.</p>
		<p>Women safety: Programme/mechanism in place to ensure safety of women. For example (not exhaustive list):</p> <ul style="list-style-type: none"> • Special transport provisioning for women workers during night when returning home from work • Sexual harassment redressal teams 	<p>Programme/ mechanism is in place to ensure safety of women and is fully implemented.</p> <p>Over 80% of the surveyed women employees (sample size minimum 100) show full satisfaction.</p>
		<p>Special infrastructure provisioning: Special infrastructure provisioning is made in the industrial park for women employees. For example (not exhaustive list):</p> <ul style="list-style-type: none"> • Kindergarten, Child Care • Dormitories in the park for overnight stay 	<p>Special infrastructure provisioning for women employees is made and is fully operational.</p> <p>Over 80% of the surveyed women employees (sample size minimum 100) show full satisfaction.</p>

4	Local community well-being and community outreach	<p>Community dialogue: Community communication and dialogue mechanisms are in place to maintain a permanent dialog with community.</p> <ul style="list-style-type: none"> • Dedicated staff/team is in place attached to the industrial park management. • Hotlines/intercoms are placed at strategic locations inside and outside the industrial park • Community representative team (reps. of local communities and NGOs) is in place that regularly exchanges information with the CSR Team of the park management • Information display boards placed at strategic locations inside and outside the park • Information is made available: Web site, News bulletin, media releases regularly 	<p>Communication platforms are accessible and are fully operational.</p> <p>Community dialogue mechanisms are fully in place.</p> <p>Over 80% of the surveyed residents from the community (sample size minimum 100) show full satisfaction.</p>
		<p>Community services: The park management and the companies in the park engage in community service activities and has respective documentation maintained. For example (not exhaustive):</p> <ul style="list-style-type: none"> • Drinking water supply • Water harvesting • Toilets • Health camps • Community development activities 	<p>The park management implements atleast four community service measures in a year.</p> <p>Atleast 25% of the housed industries (sample size minimum 100) in the industrial park implement CSR measures in a year.</p>
		<p>Outreach: Community outreach activities are organised that provide an opportunity to interphase entrepreneurs, employees, the community and various related stakeholders. For example (not exhaustive list):</p> <ul style="list-style-type: none"> • Annual day/festival day is earmarked and celebrated inside the park with people from the park and the communities around • Clean up drives, health camps, public service activities are organised in the community areas by the park management 	<p>Community outreach activities are organised.</p> <p>Over 80% of the surveyed residents (sample size minimum 100) from the community show full satisfaction.</p>

Infrastructure & Services Quality

S.No.	Parameter	Explanation	Performance Indicator
1	Location suitability	<p>Site selection: A site selection study has been undertaken to select optimal location of industrial park which meets economic development objectives while also considering risks to the environment and society.</p> <p>Relevance to urban/local/ regional master plan: Selected site is a part of an approved urban/local master plan or regional plan.</p> <p>Environmental Impact Assessment: EIA (Environmental Impact Assessment) has been undertaken, site suitability ensured and cleared by the concerned authorities for the selected site.</p>	<p>Site is fully suitable. Has no public complaints. All legal clearances obtained.</p>

		Social Impact Assessment: SIA (Social Impact Assessment has been undertaken, site suitability) ensured and cleared by the concerned authorities for the selected site.	
2	Site master plan	<p>Site master plan: Site master plan and different thematic layers to be prepared in appropriate scales:</p> <ul style="list-style-type: none"> • Site master plan. • Land use plan. • Transportation plan (e.g., roads, parking, service station, petrol pump, mobility plan, pedestrian pathways, bicycle tracks/stations etc.). • Storm water and wastewater management plan. • Landscaping/green/buffer/ open space plan. • Social infrastructure plan. • Environmental infrastructure plan. • Soil protection concept with post-closure plan, Biotope networking concept, Concept of functional mix of uses, Integrated Energy concept • Zoning and grouping of industries • Urban integration – road connectivity, buffer zones, land use compatibility etc. • Other provisions as per the green criteria detailed in the present document - Regulatory Compliance Quality, Management & Process Quality, Economic Quality, Environmental Quality, Social Quality, Infrastructure & Service Quality. 	Site master plan is in place. Pre-assessment shows compliance with Gold rating.
3	Logistic support provisions	<p>Logistic support provisions for factories and employees.</p> <ul style="list-style-type: none"> • Business centre, One-stop-services, Administrative building • Information centre • Warehouses/raw material depots • Training centre • Incubation centre • Design centre, product/material testing facility • Commercial zone 	Logistic support provisions are adequate.
4	Art and architecture	<p>Art & Design can make a decisive contribution to the quality and significance of buildings and industrial districts alike. Recommendations may be expressed by the Industrial Park Management paired with a fixed percentage of the construction costs to be spent for art. Local artists or design colleges in close proximity can help to maintain a high level of creativity while keeping costs low.</p> <p>Design quality:</p> <ul style="list-style-type: none"> • Scenic integration <ul style="list-style-type: none"> • Functional integration • Design of open space • Design of architecture • Art on location • Design of open spaces/ amenities • Design of all measures that are to be implemented 	Excellent design quality.

		<p>Unique skyline: City skylines serve as unique fingerprints. A district's unique skyline, comprising buildings with different heights, designs, uses, as well as parks or mountains etc., may be of great benefit to the district by attracting tourism and thereby increasing land value and creating job opportunities. A skyline could be created by a city's overall structure, by human intervention in a non-urban setting or in its relation to the natural surroundings.</p>	
		<p>Scenic views: Industrial parks should allow for scenic views of natural or man-made beauty and help create distinctive communities. The district could benefit from better reputation and increased revenue from tourism. Places with scenic views have higher recreational value leading to more holistic living standards. A strong scenic view program preserves the beauty of the district, it protects the community's character and provides more economic opportunities.</p>	
		<p>Passive design: Passive design maximises the use of 'natural' sources of heating, cooling and ventilation to create comfortable conditions inside buildings. It harnesses environmental conditions such as solar radiation, cool night air and air pressure differences to drive the internal environment. Passive measures do not involve mechanical or electrical systems.</p>	
5	Building design	<p>Green buildings: Green building is the design of environmentally sustainable and resource-efficient structures. The design of green buildings should consider their entire life cycle, including building planning, siting, construction, operation and maintenance. Energy efficiency, use of water, materials and waste management are all issues relevant to green building design, as well as green industrial district design.</p> <p>Building standards: A set of guiding principles for commercial/industrial buildings in place that reflect the achievement of a level similar to a Green Star building</p> <ul style="list-style-type: none"> • Energy and environment, indoor environmental quality, materials and resources 	Buildings are properly oriented, applicable building standards are followed and atleast 50% of the buildings in the industrial park are designed as Green Buildings and are certified.
		<p>Building orientation: Building design should always consider orientation, ensuring that building layout is compatible with the pathway of the sun and wind direction. When building orientation is optimised, buildings can take advantage of passive solar technologies, minimise use of artificial lighting and create spaces with better day light, ventilation and natural cooling. Building ventilation is critical to employee comfort. Natural ventilation can improve indoor environmental quality, reduce Indoor or other sources of discomfort, and reduce energy consumption by minimising the use of artificial climate control. Natural ventilation systems comprise an airflow circuit through a building, including windows, doors and other openings to circulate airflow.</p>	

6	Mobility Infrastructure	<p>Roads and road hierarchies: Hierarchy of roads and road cross sections as per standards are provided.</p>	<p><u>Excellent</u> provision of hierarchies of roads considering present and future needs and are very well integrated with various services and utilities.</p>
		<p>Integration to services/utility corridors: Designated utility corridors beneath or along the roads should be taken into consideration. These can house electrical cables, water pipes, district heating or cooling in a duct system that allows for easy maintenance and replacement. This avoids the need for digging up the ground or disturbing the traffic above for routine or emergency maintenance works and eliminates the need for above ground masts for power lines.</p>	
		<p>Travel connectivity: Connectivity is key to the success of an industrial district, including air, road and rail connectivity. Proximity to an airport can be particularly useful for both logistical access and for traveling employees, collaborators and clients.</p>	<p>The industrial park has <u>excellent</u> travel connectivity, highway access, access to mass transport, employee transport infrastructure, and freight and cargo transport infrastructure.</p>
		<p>Highway access can enable efficient freight access to the industrial parks, and also ensures regional linkages to partners, suppliers and customers elsewhere in the region.</p> <p>Access to mass transport: Internal and external public transportation systems are required for the industrial parks. [internal transport from entry gates to discourage private vehicular movement, eco-friendly internal transport – battery operated vehicles, external transport – CNG buses, battery operated vehicles, automobile service stations, signage etc].</p> <p>Location in close proximity to mass transport eases access to the industrial district for employees, external partners, clients and other visitors. Whether a bus, tram or rail connection, all of these options offer visitors a more environmentally sustainable and efficient means of reaching the district, easing traffic congestion in the process.</p>	
		<p>Employee transport: Providing employee transport can both improve efficiency of operations and employee quality of life. Some business parks may choose to provide transport on site, between key facilities or destinations. Others may also choose to offer or subsidise some form of transport from nearby mass transport stations to improve employee commutes.</p>	
		<p>Freight and cargo transport: Transport, logistics and storage are key aspects of industrial operations and must be monitored for safety and security. The transport of goods by truck, air or rail is a critical part of most industries’ supply chains and the overall industrial process. Industrial district managers should develop a cargo</p>	

<p>management strategy, ensuring ease of access for cargo vehicles onto the industrial premises, while also considering spatial efficiency, fuel use, public realm design and employee safety.</p>	
<p>Supporting mobility infrastructure:</p> <ul style="list-style-type: none"> • Entry and exit gates with access control [provisions at the entry/exit gates (security cabin, Information centre, map of the industrial park, parking facility, public toilets, drinking water facility etc.)]. • Adequate parking facilities - parking for goods vehicles, private vehicles; parking for overnight stay of vehicles; parking for loading and unloading; parking for vehicles transporting hazardous/toxic chemicals/goods; parking at entry/exists; centralised parking, zone level parking, plot level parking. • Signage: <ul style="list-style-type: none"> - Maps - Traffic alert displays - Signage explaining and guiding pathways through the district and its facilities, allows people to explore the district in a comfortable and safe way. Outdoor sidewalk signs offer several benefits to the district and small business owners. They create connectivity, provide information at hand and help in district marketing. • Provisions for drivers: Dormitories, toilets, canteens • Service stations: Service station/workshop for trucks, vehicles • Spare parts: Shops with spare parts • Fuel stations: Petrol, diesel, gas • Weigh bridge: For goods weighing 	<p>The industrial park has <u>excellent</u> supporting mobility infrastructure, including entry & exist gates with security arrangements parking facilities, signage, provisions for drivers etc.</p>
<p>Environment-friendly transport:</p> <ul style="list-style-type: none"> • Efficient vehicles: Electric mobility, or e-mobility, refers to the use of electric vehicles, plug-in hybrids and other electric-powered technologies. This low-carbon transportation method presents tremendous opportunities for the future, as it is less dependent on fossil fuels and produces fewer emissions. E-mobility can be tested by a company with pilot projects such as electric car shares, delivery vehicles or service fleets. • Battery vehicles: Battery based systems, including electric vehicles, offer an alternative to fossil fuel-based systems and thus can be an attractive part of a sustainability strategy. 	<p>The industrial park has <u>excellent</u> environment-friendly infrastructure, including electrical/battery vehicles, pedestrian pathways, bicycle tracks etc.</p>

		<ul style="list-style-type: none"> ● Bicycle tracks: Bicycling is well-known to be one of the healthiest, cheapest and most environmentally friendly ways to travel. Industrial districts can facilitate employees' bike commutes through incentives, whether financial or otherwise. Provisions for cycling, such as bike racks and bike lanes, should also be considered in the design of the public realm. <ul style="list-style-type: none"> ● Bicycle tracks ● Bicycle stations for renting ● Bicycle parking ● Way finding systems ● Pedestrian network: Provisions for pedestrians; safety and comfort; street crossing aids; way finding systems. <ul style="list-style-type: none"> ● Extensive safe pedestrian pathways ● Pedestrian pathways along roads ● Greenways along green belts and green landscapes 	
7	Power and Energy Systems	<p>Clean energy strategy: Industrial Parks should create a park-wide clean energy strategy, considering how the park as a whole can utilise renewables and decrease carbon emissions. Some technologies may be more affordable or implementable when considered on a Park-wide scale, as opposed to for a single company. The strategy should also consider how to encourage sustainable behaviour among employees.</p> <p>Energy efficiency: Energy efficiency comprises the management and reduction of energy consumption. A sustainable industrial district must strive to achieve energy efficiency, reducing overall greenhouse gas emissions and producing the necessary products or services with minimal wasted energy outputs.</p> <ul style="list-style-type: none"> » Energy efficiency fixtures (BEE star rated) » Energy efficient utilities » LED for exterior lighting <p>Energy efficient utilities - To achieve energy efficiency, any industrial district must monitor utilities use to ensure an overall efficient use of resources. Efficient utility use can be achieved through the use of energy-efficient products, as well as through monitoring overall facilities use to ensure optimal spatial and organisational strategy. Implementing energy efficiency measures will not only reduce carbon outputs but should also lower costs.</p> <p>LED for exterior lighting: LED (Light-Emitting Diode) is a lighting system which uses a semiconductor to emit light when activated by an electric current. LEDs are more environmentally friendly and long-lasting than incandescent bulbs, and do not require toxic materials or mercury. The technology is also cooler, has a lower usage cost and can be incorporated into communications technology. However, with</p>	<p>Clean energy strategy exists and is fully implemented.</p> <p>Programme/ mechanism in place to set and achieve targets on energy efficiency for the industrial park, including supporting programmes to improve energy efficiencies of tenant companies.</p> <p>Energy efficiency measures are adequately implemented.</p>

		rare	
		<p>Renewable energy: The industrial park has adequate renewable energy provisions, on-site/off-site.</p> <ul style="list-style-type: none"> » Solar street lamps and external lighting fixtures » Solar panels (PVs) on roof tops of factory buildings » Solar energy generation in public/common areas » Renewable energy storage systems » Off-site renewable energy provisions <p>Solar PV: Solar panels, or photovoltaic (PV), generate electricity by catching the sun's energy. This renewable energy source not only cuts down on a facility's carbon footprint, but also can lower electricity bills.</p> <p>Wind power: Wind Power extracts energy from air ow, harnessing this through wind turbines or sails. This renewable energy an alternative to fossil fuels, produces no greenhouse gases and can be locally generated. Currently the world's fastest growing energy sector, wind power is also relatively cost effective in comparison to other renewable technologies.</p> <p>Renewable energy storage: The storage of renewable energies can allow for continuous energy provision by renewables for times when the sun is not shining or the wind is not blowing. Large scale storage facilities can help districts to be more resilient to power shortages as well as making the district more resilient towards increased electricity prices etc.</p> <p>Off-site renewable energy installations: Park planning to allow for development of on-site renewable energy facilities (e.g. wind, biomass, geothermal, solar, hydro) over time to meet energy demand of companies operating in park.</p>	<p>Renewable energy provisions in the industrial park are elaborately made.</p> <p>The total renewable energy use in industrial park relation to national average energy mix is significant.</p>
		<p>Additional own power/energy sources: The industrial park should have its own environment-friendly power/energy sources that helps in reducing carbon foot print and also ensures continuous power supply. Many companies are unprepared for business disruptions caused by power blackouts.</p> <p>They are often unaware of the true costs and impact that these can have on their operations and important machinery. Own sources of power would be beneficial.</p> <ul style="list-style-type: none"> » Waste to power » Grid gas » Onsite cogeneration (power) plant <p>Waste to power: Waste to Power is the process of creating energy through waste incineration. Waste to Power plants can produce heat as well as electricity, and often produce combustible fuels, such as ethanol, methane of methanol. The process is both a method for disposal of "clean trash" and a promising renewable energy source.</p>	<p>The industrial park has adequately installed own environment-friendly power/energy sources.</p>

		<p>Grid gas: A gridded gas system is a transmission infrastructure that passes gas energy from suppliers to consumers. The infrastructure is likely to include transmission lines and pipes, built at a regional scale. Industrial districts should check with their providers to ensure availability for the Industrial District.</p> <p>Onsite cogeneration (power) plant: Combined steam and power plant generates usable steam and power together in a highly-efficient, on-site process.</p>	
8	Plantation & landscaping	<p>Plantation & landscaping: The industrial park should have adequate plantation and landscaped areas catering to multiple functions:</p> <ul style="list-style-type: none"> » Aesthetics » Ventilation » Pollutant absorption » Buffers to neighbouring areas <p>The plantation and landscaping include:</p> <ul style="list-style-type: none"> » Adequate tree cover, e.g. 10 to 20% of the industrial park, including a buffer zones along the periphery of the industrial park. » Landscaped areas. » Fresh air corridor provisions with tree cover, open spaces, parks etc. » Urban gardening. <p>Tree cover: Trees offer numerous benefits to their surrounding environments, such as carbon sequestration, soil erosion prevention and storm water management. Equally importantly, trees create pleasant environments for their surrounding communities, while providing natural cooling through tree canopy. Industrial district site design should accommodate existing trees, and select new ones appropriate to local habitats and water availability.</p> <p>Landscaped areas: Designing public spaces and outdoor areas with native plants not only contributes to local biodiversity but also saves water and requires less maintenance. These efficient, cost-saving and resource-saving landscapes contribute to the public realm and atmosphere of an industrial district, providing employees spaces to enjoy fresh air and the local environment. Landscapes should have functions of pollution absorption, climate change adaptation, aesthetics, shade, buffer etc.</p> <p>Fresh air corridor provisions: The site layout of the Industrial Park should consider the micro climate and allow for fresh air to enter, improving the quality of the open spaces as well as the well-being of employees. A fresh air corridor provides the site with sufficient air circulation and regulates the temperature in a natural way. Proper building orientation and sufficient building density can further increase the impact and effectiveness of fresh air corridors.</p>	<p>Adequate plantation and landscaping provisions have been made in the industrial park, including over 20% land area earmarked for green spaces.</p>

		<p>Urban gardening: Urban gardening focuses on the functional use of horticulture to maintain and improve the surrounding urban areas. It is a great opportunity for inner city areas and wastelands currently not in use. Urban gardens are commonly built on empty lots, the tops of buildings, steep slopes or river banks - all examples of spaces that would improve in quality. The soil condition needs to be checked to avoid hazards and owner agreements should be requested for interstitial use.</p> <p>Buffer zones: Green buffers to surroundings and in between different zones inside the industrial park.</p> <p>Recreational and sports areas: Parks, gardens, sports areas, festival zones etc.</p>	
9	Common infrastructure	<p>The common infrastructure in the industrial parks helps reduce costs by creating economies of scale and create increased opportunities for the individual companies housed in the industrial park.</p> <p>Fire services: Fire service is an elementary service that helps to prevent higher risk for people and the environment. A factory or Industrial park fire service unit should be able to reach any location within the boundaries of the industrial park in at least five minutes. Fire service is by no means a replacement for a proper re prevention, which can provide high protection with very simple measures.</p> <p>Equipment rental: Renting equipment or vehicles is an attractive option that can help to reduce larger investments in equipment that is rarely needed. It provides more benefits than an outright purchase, and allows for the widest variety of equipment towards an added job versatility.</p> <p>Mechanical loading and unloading equipment: The effective management of loading and unloading is an essential component to be ahead of competitors. Mechanical unloading can allow for more efficient loading procedures and reduce the risk of accidents/ pollutant exposure and product damage.</p> <p>IT infrastructure- Broad band infrastructure, Mobile phone connectivity, Industrial district WiFi Systems connectivity (grids, IT tools).</p> <p>Other infrastructure: such as Product Testing Centre, Recycling Centres, Incubator, Marketing Centre, Information Centre, Business Centre, Administrative & Facilitation Centre, Disaster Management Services, Social Infrastructure (ref. Social Quality criteria) environmental infrastructure (ref. Environmental Quality), infrastructure related to Economic Quality etc.</p> <p>Investment ready park for companies: Industrial park is "investment ready" for companies to locate and operate in the park. Essential infrastructures, utilities, and services are ready to be used by companies. No uncertainties for companies with regards to access to water, energy, roads, service corridors, etc.</p>	<p><u>Excellent</u> provisioning of common infrastructure & support services in the industrial park.</p> <p>More than 80% of the surveyed industries express satisfaction on the common infrastructure & support services.</p>

Management Quality

S.No.	Parameter	Explanation	Performance Indicator
1.	Administrative & management infrastructure	<p>Administrative & management infrastructure provisioning: Provisioning of infrastructure for administration and management of the industrial park.</p> <ul style="list-style-type: none"> • Administrative building • One stop service centre • Product display/exhibition and marketing centre • IT based industrial park information system 	Provisions in site master plans as well as <u>excellent</u> physical infrastructure exists in the industrial park for ensuring proper administration and management.
		<p>Industrial Zone Management: Industrial Zone Management is a management entity within an industrial park, which not only leads on operations and maintenance but also evaluates and provides leadership on broader governance issues. Industrial zone managers are aware of the environmental performance of a district, can make the case for expansions or renovations and can otherwise introduce innovations to facilities or processes. A distinct unit is responsible for the management of the industrial park.</p> <ul style="list-style-type: none"> • Managing the industrial park property • Managing the group of companies in park • Engagement with park stakeholders • Establishment of companies in park • Determine optimal location for new industries based on infrastructure/service needs, risk profile, industrial synergies • Service delivery mechanisms: Elaboration of business and management models for common infrastructure and services. • Facility management: Industrial park management may contract service companies (PPP, private investments etc.) for all support services and oversee their functioning. Facilitate agreements with member industries for services. Make plot allotment to investors. • Maintenance management: functioning system(s) in place to maintain the facilities and infrastructures in the industrial park, and financing for these services is ensured. Regular Maintenance is critical to maintain building conditions and cut costs for long-term building improvements. Consistent inspections, maintenance tasks and repairs allow building managers to be aware of a building's condition and address problems before pressing structural and safety issues emerge. • Training: Park management provides fit-for-purpose training services to companies <ul style="list-style-type: none"> • E.g. Waste management, cleaner production, health and safety procedures 	<p>Excellent industrial zone management systems.</p> <p>Atleast 80% of the surveyed companies in the industrial park show full satisfaction.</p>

		<p>Active marketing of park: Management carries out an active marketing of the park</p> <p>Risk, accident, incident management: Functioning system(s) in place on risk, accident, and incident management in park</p> <ul style="list-style-type: none"> • Based on Plan-Do-Check-Act management system principles • Including monitoring risks, accidents and incidents\ • Including emergency preparedness, response plan, and practice drills • Covering risks, hazards and emergencies to people and environment • Including engagement with key external stakeholders (e.g. emergency services, local government agencies) <p>Emergency plan exists</p> <p>Specialised Unit for safety, security and environment: Located at a central location within the Industrial Park, it provides a link to police, security services and immediate environmental protection enforcement. All events related to infringement of the law will be noted, reported and subsequently be assessed and stopped – if needed with the support of the local police and other governmental authorities.</p> <p>Environment management systems: Functioning system(s) in place to collect, monitor, and manage key environmental aspects and impacts relevant to industrial park</p> <ul style="list-style-type: none"> • Natural environment and biodiversity: Pollution hazards, biodiversity, landscaping, drainage • Waste: Types, amounts, and disposal of wastes produced by companies in park, listing of waste types and designated disposal practices to assist the identification of by-product connections both within and outside the park. • Energy: Types and amounts of energy use by companies in park • Water: Types and amounts of water use by companies in park • Air emissions: Types and concentrations of air pollutants (e.g. CO, NOx, SO2, PM) • Dust, noise, odour and light nuisances <p>Energy management systems: Energy management systems in place to monitor energy consumption and to ensure renewable energy & energy efficiency.</p>	
2	Application of standards	<p>ISO standards: All companies with significant (potential) environmental impacts and all companies with more than 250 employees in the park to be certified by ISO 14001 Environmental Management Standard</p> <p>Sustainability certification: Park Certification measures the sustainability of a district in globally recognized terms. Internationally known rating systems such as IGBC, LEED, BREEAM and DGNB district sustainability ratings, with DGNB the only certification for industrial districts. This system is appropriate for districts designed for high environmental</p>	<p>The industrial park has nationally and/or internationally recognised certified standards for the whole of the industrial park as well for at least 50% of the individual companies.</p>

		<p>performance, and can lead to international recognition and marketing opportunities.</p> <p>Awarding system for compliance with Park Charter: Awarding system for compliance with Park Charter is in place.</p>	
3.	Quality Assurance and Monitoring	<p>Industrial park information system, monitoring system and exchange mechanisms, and quality assurance systems are in place.</p> <p>Knowledge sharing and facilitation between companies: Park management to pro-actively facilitate knowledge sharing and collaboration between companies in industrial park</p> <ul style="list-style-type: none"> • E.g. Resource efficiency and cleaner production, industrial synergies <p>Resource monitoring: Monitoring – whether for economic performance, quality management, or operational process – is a critical aspect of running any business. An industrial district should monitor and record inputs and outputs, financials, energy usage and environmental performance, to maintain operational efficiency and provide opportunities to learn from past scenarios.</p> <p>Green tree register: Keeping a record of all major green areas and trees in the district which regulate air quality and climate, reduce energy consumption by countering the warming effects of paved surfaces, recharge groundwater supplies and protect lakes and streams from polluted run-off. When paired with a forestation strategy, all new trees can be planted in a way to maximize their positive impact.</p> <p>Cloud based information systems: Accessed via the Internet, cloud-based systems comprise data sets or applications connected via remote servers and software networks. Using “the Cloud” enables centralised data storage, and connectivity to resources from different locations. Cloud-based systems can increase capacity and allow for greater flexibility in terms of online access to servers, storage and applications from multiple locations.</p> <p>Geographic information systems for park management: GIS systems are available with all infrastructure and service data, environmental data, industrial data etc.</p>	<p><u>Excellent</u> quality assurance and monitoring systems are in place in the industrial park.</p>
4.	Environmental stewardship	<p>Environmental stewardship is acknowledging responsibility towards the environment, and fostering sustainable and ethical business practices to minimise environmental impact. Environmental stewardship should be an important aspect of any industrial district management strategy, and also has a role to play in the company culture imparted to employees. Recycling programs, use of renewable energy and water conservation are all aspects of a visible environmental stewardship strategy.</p>	<p>Industrial park has <u>excellent</u> measures towards environmental stewardship.</p>

	<p>Corporate Social Responsibility: CSR activities are undertaken inside and outside of the industrial park.</p> <p>Collaboration among industries: Collaboration, among industries and within project teams, is a critical aspect of good governance and people management. An iterative process, collaboration includes working together and exchanging ideas in pursuit of shared goals. The approach is not only effective but also likely to increase employee satisfaction with the workplace.</p> <p>System(s) in place to facilitate optimal and synergistic mix of companies in industrial park, including anchor tenants which can attract synergistic companies.</p>	
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Legal Compliance Quality

S.No.	Parameter	Explanation	Performance Indicator
1	Compliance with National Environmental Laws	<ul style="list-style-type: none"> • Air emissions: <ul style="list-style-type: none"> • Compliance with emission limits for pollutants from various industries, DG sets etc. (e.g. SO_x, NO_x, particulate matter) • Compliance with ambient air quality limits (e.g. SO_x, NO_x, particulate matter) • Compliance with the Noise Pollution (Regulation and Control) Rules, 2000 • Compliance with various provisions of the Air (Prevention & Control of Pollution) Act, 1981 and rules made thereunder. • Compliance with relevant provisions of the Environment (Protection) Act, 1981 and rules made thereunder • Compliance with the Ozone depleting Substances (Regulation) Rules, 2000 	All national environmental laws are fully complied with.

		<ul style="list-style-type: none"> • Waste water management: <ul style="list-style-type: none"> • Compliance with various provisions of the Water (Prevention & Control of Pollution) Act, 1974 and rules made thereunder. • Compliance with relevant provisions of the Environment (Protection) Act, 1981 and rules made thereunder • Treatment and disposal of industrial wastewater as per national regulations • Treatment and disposal of domestic/municipal sewage as per national regulations • National regulations on water discharge limits (e.g. heavy metals, COD, BOD, pH); • Waste water discharge quantities limits as per national regulations • Discharge locations of wastewater as per national regulations 	
		<ul style="list-style-type: none"> • Waste management <ul style="list-style-type: none"> • Compliance with prohibitions on import of hazardous wastes • Compliance with the open burning of waste oils. • Compliance with the Manufacture, Use, Import, Export and Storage of Hazardous Micro Organisms, Genetically Engineered Organisms or Cells Rules 1989 • Compliance with the Hazardous Wastes (Management & Handling) Rules, 1989 • Compliance with the Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 • Compliance with the Plastics Manufacture, Sale and Usage Rules, 1999 • Compliance with the Municipal Solid Wastes (management & Handling) Rules, 2000 • Compliance with the Batteries (management and Handling) Rules, 2001 <p>Other relevant environmental laws and rules as may be applicable.</p>	
2	<ul style="list-style-type: none"> • Compliance with National Social Laws 	<ul style="list-style-type: none"> • Labour laws: National labour laws/regulations (e.g. working hours, child labour) are complied with. • Occupational safety and health: The national regulations on Occupational Health and Safety (e.g. protective clothing and equipment, safety features of machines) are complied with. • Human rights: National regulations on human rights (e.g. gender equity and women rights) are complied with. • Anti-corruption: National regulations on anti-corruption (e.g. access to information, accountability, bribery, conflict of interest) 	All national social laws are fully complied with.

		<ul style="list-style-type: none"> • Violence and crime prevention: National regulations on violence and crime prevention (e.g. cybercrimes, theft, violence against women, children, elderly) • Discrimination: National regulations on addressing discrimination (e.g. based on caste, religion) 	
3	Compliance with international commitments	<ul style="list-style-type: none"> • Environmental: <ul style="list-style-type: none"> • Stockholm Convention on Persistent Organic Pollutants • Basel Convention on the Control of Transboundary Movements of Hazardous Wastes • United Nations Framework Convention on Climate Change (UNFCCC) – New York (1992) and Paris (2016) • International conventions on the protection and preservation of wild life, marine and land environments, native forests, protected flora and fauna • Volatile Organic Compounds Protocol • Vienna Convention for the Protection of the Ozone Layer • Emission thresholds from World Health Organisation 	All international commitments are fully complied with.

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		<ul style="list-style-type: none"> • Social: <ul style="list-style-type: none"> • The International Bill of Human Rights; • UN Guiding Principles for Business and Human Rights; • International Covenant on Economic, Social and Cultural Rights; • Right to work and to fair conditions of employment. Employment Policy Convention; • Declaration on Social Progress and Development; • Freedom of Association and Protection of the Right to Organize Convention; • Convention on the Rights of the Child; • Declaration on Fundamental Principles and Rights at Work (International Labour Organization); • International Labour Standards on Child labour (International Labour Organization); • Standard Rules on the Equalization of Opportunities for Persons with Disabilities; • Declaration on the Rights of Indigenous Peoples; • International Convention on the Elimination of all Forms of Racial Discrimination; • Convention on the Elimination of All Forms of Discrimination against Women; • International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families. 	
4	Sustainability aspects	<ul style="list-style-type: none"> • SGDs: Sustainable development Goals • Climate change mitigation adaptation 	Sustainability aspects are fully complied with.

Annex. Sustainability Standards for Industrial Parks: Example of Calculation Sheet

A	B	C	D	E	F	G	H	I	J
	Value		Weightage		Weightage	Value (0 to 100 out of 100)	Weighted Value (Column F)	Weighted Value (Column D)	Weighted Value (Column B)
ECONOMIC QUALITY	100	Investments & revenues	25	Total investments	25	100	25.0	20.63	76.00
				Tax revenues for the government	25	80	20.0		
				Revenues for the industrial park management	25	100	25.0		
				FDI in the industrial park	25	50	12.5		
		Employment	25	Total employment	25	60	15.0	14.38	
				Employment to local residents	25	60	15.0		
				Nature of employment	25	60	15.0		
				Employment for women	25	50	12.5		
		Competitiveness	25	Adequate infrastructure & services	20	80	16.0	20.50	
				Saleable cost pf plots	20	80	16.0		
				Maintenance costs	20	80	16.0		
				Cost cutting for businesses	20	80	16.0		
				Proximity to inputs suppliers	20	90	18.0		
		Investment safety and branding	25	Investment safety	20	50	10.0	20.50	
				Branding and identity	20	60	12.0		
				Spatial efficiency	20	100	20.0		
				Reputation of the industrial park developer	20	100	20.0		

				Incentives and recognition for green/sustainability measures	20	100	20.0			
Sub total			100	Sub total				76.00		
ENVIRONMENTAL QUALITY	100	Cleaner production and resource efficiency in individual industries	10	Cleaner production processes	20	100	20.0	5.38	69.05	
				Waste/waste water recycling by industries	20	30	6.0			
				Industrial symbiosis and synergies	20	0	0.0			
				Circular economy by industries	20	70	14.0			
				Sustainable procurement by industries	20	69	13.8			
		Water preservation measures in the industrial park	10	Sustainable water supply	40	55	22.0	5.86		
				Limited ground water extraction	30	46	13.8			
				Water preservation	30	76	22.8			
		Storm water Management	10	Storm water management system	100	34	34	3.40		
		Wastewater management	10	Sewerage network	10	99	9.9	8.43		
				Conveyance systems	10	65	6.5			
				Sewage treatment	15	78	11.7			
				Waste water treatment	15	88	13.2			
				Safe disposal	10	100	10.0			
				Treated wastewater recycling/resuse	10	78	7.8			
Non-potable water	10			99	9.9					
Skilled personnel	10			76	7.6					
Waste water monitoring systems	10	77	7.7							

		Waste management	10	Hazardous waste management	25	90	22.5	8.63
				Industrial solid waste management	25	98	24.5	
				Municipal/domestic solid waste management	25	100	25.0	
				Minimised use of non-recyclable goods/materials	25	57	14.3	
		Emissions and air pollution control	10	Air pollution control systems	70	67	46.9	7.00
				Air pollution monitoring systems	30	77	23.1	
		Resource efficiency	10	Energy efficiency	50	90	45.0	9.00
				Resource saving infrastructure	50	90	45.0	
		Climate change mitigation and adaptation	10	Minimisation of GHGs	50	100	50.0	10.00
				CCA adaptation measures	50	100	50.0	
		Biodiversity preservation	10	Biodiversity preservation	100	56	56.0	5.60
		Disaster risks management/preparedness	10	Natural disasters	50	55	27.5	5.75
				Industrial disasters	50	60	30.0	
		Sub total			100	Sub total		
INFRASTRUC TURE QUALITY	100	Location suitability	10	Site selection	100	90	90.0	9.00
				Relevance to urban/regional master plan				
				Environmental impact assessment Social impact assessment				
Site master plan	10	Site master plan	100	100	100.0	10.00		
Logistic support provisions	10	Logistic support provisions	100	70	70.0	7.00	50.73	

	Art and architecture	10	Art & design Design quality Unique skyline Scenic views Passive design	100	80	80.0	8.00
	Building design	10	Green buildings Building standards Building orientation	100	76	76.0	7.60
	Mobility infrastructure	10	Roads and road hierarchies Integration of services/utility corridors	100	87	87.0	9.13
			Travel connectivity Highway access Access to mass transport Employee transport Freight and cargo transport	100	98	98.0	
			Supporting mobility infrastructure: Entry and exit gates Parking facilities Signage Provisions for drivers Automobile service stations Spare parts Fuel stations Weigh bridge	100	89	89.0	
Environment friendly transport	10	Efficient vehicles Battery vehicles	100	35	35.0	3.50	

				Bicycle tracks, bicycling system Pedestrian network						
		Power and Energy Systems	10	Clean energy strategy	10	60	6.0	8.55		
				Energy efficiency (energy efficient utilities, LED for lighting)	30	75	22.5			
				Renewable energy (solar PV, Wind power, RE storage) Off site RE installations	30	90	27.0			
				Additional own power/energy sources (waste to energy, grid gas, onsite power plant)	30	100	30.0			
		Plantation & landscaping	10	Plantation and landscaping Tree cover Landscaped areas Fresh air corridor provisions Urban gardening Buffer zones Recreational and sports areas	100	45	45.0	4.50		
		Common infrastructure	10	Fire services Equipment rental Mechanical loading and unloading IT infrastructure Invest readiness of the park Other infrastructure	100	75	75.0	7.50		
		Sub total	100	Sub total				50.73/100		
SOCIAL QUALITY	100	Social management systems	25	Management team	25	75	18.8	21.88	80.63	

				OH&S management systems	25	80	20.0		
				Grievance management	25	100	25.0		
				Harassment redressal	25	95	23.8		
		Social infrastructure	25	Primary social infrastructure	50	76	38.0	17.19	
				Industrial park security	25	89	22.3		
				Capacity building	25	34	8.5		
		Gender equity	25	Gender equity promotion programme	25	55	13.8	16.56	
				Women safety measures	25	50	12.5		
				Special infrastructure for women employees	50	80	40.0		
		Local community well-being and community outreach	25	Community services	50	100	50.0	25.00	
				Community dialogue	25	100	25.0		
				Outreach	25	100	25.0		
Sub total			100	Sub total			80.63/100		
MANAGEMENT QUALITY	100	Administrative & management infrastructure	25	Administrative & management infrastructure provisioning	25	60	15.0	16.88	81.88
				Industrial zone management Unit					
Active marketing of the park									
Risk, accident, incident management									
Emergency plan exists	75	70	52.5						
Specialised unit for safety and security exists									
Environmental management systems									
Energy management systems									
Application of standards	25	ISO standards	100	80	80.0	20.00			
		Sustainability							

			certification Awarding system for compliance						
	Quality Assurance and Monitoring	25	Knowledge sharing and facilitation between companies Resource monitoring Green tree register Cloud based information systems Geographic information systems for park management	100	100	100.0	25.00		
	Environmental stewardship	25	Environmental stewardship Corporate Social Responsibility Collaboration among industries	100	80	80.0	20.00		
Sub total		100	Sub total				81.88/100		
Grand total		500	Grand total				71.66/100 Silver Rating		

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