

# 8



## Industrial Park Performance Evaluation

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In order to define industrial park success, it is necessary to establish a reference framework, i.e., a set of goals against which to measure performance, along with key performance indicators (KPIs). KPIs can be defined for an entire industrial park, an individual facility, or various processes at the park or an individual facility.

In line with the core ‘inclusive and sustainable industrial development’ (ISID) principles, these guidelines set forth three indicator categories comprising a total of 13 key industrial park performance indicators: economic performance indicators, social performance indicators and environmental performance indicators.

**Economic performance indicators relating to the ISID pillar “advancing economic competitiveness”:**

1. Good economic governance
2. Economically-enabling site & infrastructure ‘hardware’
3. Economically-enabling services ‘software’
4. Economically impactful nature\*

**Social performance indicators relating to the ISID pillar “creating shared prosperity”:**

1. Socially appropriate site & social infrastructure
2. Quality social management system & social services\*
3. Occupational health & safety\*
4. Good labour relations & welfare\*
5. Social inclusiveness

**Environmental performance indicators relating to the ISID pillar: “safeguarding the environment”:**

1. Environmentally appropriate site
2. Green infrastructure
3. Green systems\*
4. Efficient & clean production, emissions & waste management\*

\* Indicators not applicable to new sites that are not yet fully operational

Source: Developed by UNIDO

**Box 20: The 13 Key UNIDO Indicators of Industrial Park Performance<sup>113</sup>**

For reasons relating to ease-of-use and practicality, the following methodology has been adopted in the selection of UNIDO’s proposed performance indicators, which (due to the simplicity of their design)

can be utilized and applied by any civil servant with public management experience or, if preferred, by any experienced management consultant contracted to this end:

- Our approach is one of “Composite Indicators”, taking into account various quantitative “inputs”<sup>114</sup>. Each of the 13 indicators is measured on the basis of a two-digit performance score, composed of a set of measured and aggregated “inputs”<sup>115</sup>. Any positive result indicates the presence of a “good practice Industrial Park” performance characteristic. The distance below or above the median point of that two-digit performance score gives a general sense for “how the industrial park is doing” relative to a good practice Industrial Park, consistent with ISID principles. The “distance to the frontier” (the highest possible mark of performance for the indicator) gives a general sense for how much more the industrial park in question could still improve in order to become a truly “best practice” Industrial Park, from an ISID principles perspective as well as based on the reviewed literature on the subject.

<sup>113</sup> While these set of performance indicators, indicator with quantitative inputs and quantitative inputs scoring basis (see Table 11, 12 & 13) provide a reference framework to measure industrial parks performance, stakeholders are encouraged to tailor them based on the existing context and nature of industrial parks. For example, indicators measuring scale, distance, frequency, volume, etc. may vary based on the nature/type of industrial parks, available infrastructure, etc. and can be standardized based on specific needs of a country or industrial parks.

<sup>114</sup> As famously used, for instance, by the World Bank’s Doing Business Indicators methodology.

<sup>115</sup> Quantitative measures of various aspects of characteristics of these performance indicators (i.e., “sub-indicators” if one wishes).

- The proposed indicators *compare industrial park performance against national performance outside the park* (i.e., rather than the performance of other parks, other countries, the same park over time, etc.). The critical advantages of this approach are that data is easier to source, and that industrial park performance can be contrasted with an objective benchmark (national performance) to assess whether industrial park performance is better than the national standard<sup>116</sup>.
- For each of the three “indicator sets” (i.e., “Economic”, “Social” and “Environmental”), one can also aggregate the respective sub-indicators in order to get an overall performance score (for “Economic Performance”, “Social Performance”, and “Environmental Performance”). Once again, any result “greater than or equal to 1 or 51%” indicates the presence of a good practice Industrial Park performance characteristic, consistent with ISID principles, provided that the indicator represents a positive practice to be encouraged. A result “less than 1 or 49%” gives a general sense for how much more the industrial park in question could still improve in order to become a truly “best practice” Industrial Park as regards that “indicator set”. Any results that differs from the above two sets of performance scores (i.e. greater than or equal to 1 or 51%” or less than 1 or 49%) represent NA (Not Applicable).
- Indicators have been selected so as to provide a performance “snapshot” for measurement. An industrial park’s performance is thus captured based on the actual achievement of certain benchmarks, as opposed to being based on “reductions”, “increases” or “growth” in data-points. While the latter approach can indicate the presence of efforts and trends, it is also based on subjective data, including widely-variable industrial park baselines and scales, which are not comparable to benchmarks outside the industrial park, and supposes that data from several previous years’ industrial park results is available, it is thus (where even feasible) less meaningful as a source of performance metrics. Snapshots can, on the other hand, be tracked over time, enabling Project Managers to indirectly produce “year-on-year” time series if they so desire.
- Each of the chosen indicators are measured on the basis of a two-digit performance score, composed of a set of measured and aggregated “inputs” either at the level of the entire industrial park or an aggregate or aggregate-mean of the industrial parks’ resident firms and are measured both “hard” and “soft”, and “prerequisite” and “outcome” performance indicators are included.
- Proposed metrics have been retained only where data that can be sourced within the industrial park is *also be sourced outside of the industrial park* (i.e., nationally), in order to compare the industrial park against standard national performance.
- While some of these indicators (particularly those relating to site and infrastructure characteristics) are appropriate to new industrial parks, others (notably those relating to impact and services use) are not particularly informative until a park is fully operational. The methodology and its indicators should thus be viewed as “modular” and flexible in order to be “varied” depending on the state of operational readiness and implementation for the industrial park under assessment. Indeed, one can quite easily tailor and adapt the proposed performance measurement framework simply by omitting some of the proposed indicators, if they are less relevant to the industrial park’s current lifecycle stage.
- The selected indicators have screened out those providing “absolute” (but non-comparable) metrics; they have been designed or selected so as to be *comparable* regardless of the industrial park’s scale.

It should finally be noted, in order to avoid any doubt, that our understanding of the definition of the Industrial Parks whose performance the proposed

indicators are meant to measure rests on certain assumptions:

<sup>116</sup> The framework proposed is designed to be easily modified. Where a given quantitative input cannot be sourced, the row with the input in question can simply be omitted, with the overall aggregate scoring methodology easily adjusted correspondingly.



[% hours of interruption of water supply, quality or quality in INDUSTRIAL PARK/% hours of interruption of water supply, quality or quality nationally]	(≥1 =0; <1 =1)
<b>Economically-Enabling Site &amp; Hardware Score</b>	<b>(Scale of 0-11)</b>
<b>3. Economically-enabling services 'software'</b>	
Regular, Scheduled Maintenance of buildings, as well as dedicated Rapid-Response or Emergency Maintenance, Repair, Rectification & Restoration Service, including for utilities and superstructure assets	(Yes =1; No =0)
Dedicated or localized industrial park Business Support, Business Association Support, Incubation, Innovation or Competitiveness programs on effective offer	(Yes =1; No =0) (Depending on # of programs available)
Industrial park user enterprises have access to specific financial support programmes	(Yes =1; No =0)
Dedicated One-Stop Shop/Single-Window in industrial park	(Yes =1; No =0)
E-government services dedicated to the industrial park	(Yes =1; No =0)
[#services offered through One-stop shop in industrial park /# services offered through One-stop shop in nearest urban community]	(≥1 =1; <1 =0)
Formal industrial park B2B Gatherings held on formal Industrial Park B2B Platforms on regular basis	(Yes =1; No =0)
Operator landscaping, gardening and cleaning services	(Yes =1; No =0)
Presence of mechanical cargo loading and off-loading services for users	(Yes =1; No =0)
Operation of product exhibition centres, product display areas, conference centres, and/or auditoria	(Yes =1; No =0) (depending on # and variety)
Presence of on-site banking, bureaux-de-change and ATM Facilities	(Yes =1; No =0) (depending on # and variety)
Presence of Human Resources Agency & Recruiting Services	(Yes =1; No =0)
Presence of manpower training services, in coordination with recognized specialized technical training institutions in various fields	(Yes =1; No =0)
Presence of dedicated on-site R&D, patenting, and product commercialisation services, in conjunction with recognized universities and/or legal services providers	(Yes =1; No =0)
Presence of dedicated on-site matching, twinning, and local supplier and buyer forward and backward linkages schemes	(Yes =1; No =0)(Depending on # and sophistication of schemes)
Presence of Quality, Product, Process Standards, and/or Trade Certification services	(Yes =1; No =0)
<b>Economically-Enabling Software &amp; Services Score</b>	<b>(Scale of 0-16)</b>
<b>4. Economically impactful nature: Employment, investment, turn-over</b>	
[Per Capita Income in the industrial park /Per Capita Income Nationally]	(≥1 =1; <1 =0)
[Full-time equivalent employment/hectare in industrial park]/ Full-time equivalent employment/hectare / In industrial parks Nationally]	(≥1 =1; <1 =0)
[(Investment/ha) In Industrial Park /(Investment/ha) Nationally]	((≥1 =1; <1 =0)
[(US\$ sales revenues/ha) In Industrial Park /(US\$ sales revenues/ha) Nationally]	(≥1 =1; <1 =0)

[% manufacturing inputs sourced domestically In Industrial Park/ % manufacturing inputs sourced domestically nationally]	(≥1 =1; <1 =0)
[US\$ sales of processed or semi-processed goods as % of total Industrial Park sales /US\$ sales of processed or semi-processed goods as % of GDP in US\$]	(≥1 =1; <1 =0)
[US\$ Economic value addition ('EVA', calculated as output-inputs) per capita In Industrial Park/US\$ EVA per capita nationally]	(≥1 =1; <1 =0)
[(Exports minus Imports) In Industrial Park /(Exports minus Imports) Nationally]	(≥1 =1; <1 =0)
[FDI % of total investment (or GFCF) In Industrial Park/FDI % of total investment (or GFCF) Nationally]	(≥1 =1; <1 =0)
[(US\$ exports/ha) In Industrial Park /(US\$ exports/ha) Nationally]	(≥1 =1; <1 =0)
[US\$ exports of processed or semi-processed goods as % of total Industrial Park US\$ exports /US\$ exports of processed or semi-processed goods as % of total national exports in US\$]	(≥1 =1; <1 =0)
[(Enterprises/ha) In Industrial Park /(Enterprises/ha) Nationally]	(≥1 =1; <1 =0)
[(IPR registrations/year/company) In Industrial Park /(IPR registrations/year/company) nationally]	(≥1 =1; <1 =0)
<b>Economically Impactful Nature Score</b>	<b>(Scale of 0-13)</b>
<b>Economic performance score</b>	<b>(Scale of 0-61)</b>

NB: Quantitative inputs shaded in blue are "nice to have" inputs, as opposed to "important" ones.

Table 11: UNIDO Indicators of Industrial Park Economic Performance

## 8.2 SOCIAL PERFORMANCE INDICATORS

UNIDO's five proposed key indicators related to the ISID Pillar "Creating Shared Prosperity" are as follows:

- *Socially-appropriate site and social infrastructure*
- Quality social management system and social services\*
- Occupational health and safety\*
- Good labour relations and welfare\*
- Social inclusiveness\*

\* Indicator inappropriate to evaluating new sites that are not yet fully-operational (the remaining, italicised and non-asterisked indicators being more appropriate, with minor input adjustments).

Once again, each of these key indicators, as previously explained, is composed of a number of input-level quantitative sub-indicators, presented in Table 12, which enables the computation of key indicator "scores":

INDICATOR (WITH QUANTITATIVE INPUTS)	QUANTITATIVE INPUT SCORING BASIS	SCORE
<b>1. Socially-appropriate site &amp; social infrastructure</b>		
Project ESIA conducted and filed with appropriate authorities	(Yes =1; No =0)	
Proximity to public transportation (i.e., bus, subway or light- rail)	(Yes =1; No =0)	
Proximity to residentially zoned areas	(Yes =1; No =0)	
Power lines in Industrial Park are buried, for workforce safety	(Yes =1; No =0)	
Presence of outdoor street-lighting throughout the Industrial Park	(Yes =1; No =0)	
Childcare facilities	(Yes =1; No =0) (Depending on # and types of services)	
Faith and prayer facilities for major denominations and religious groups represented in the workforce	(Yes =1; No =0) (Depending on # and types of services)	
Climate-appropriate (ideally centralized and resource-efficient/ sustainable) HVAC equipment and systems in buildings	(Yes =1; No =0)	
Proximity to mini-mart or supermarket retail services*	(Yes =1; No =0)	
Park or greenspace as % of total area(as per international standard)	(Yes =1; No =0)	
Presence of On-site Incident Response Centre and Public Announcement (PA) system	(Yes =1; No =0)	
Complaints box or Hotline available in industrial park	(Yes =1; No =0)	
Separate women's and men's restrooms in each building	(Yes =1; No =0)	
Disabled-inclusive building design (i.e., access ramp and elevator in each building)	(Yes =1; No =0)	
Site is not on traditional, indigenous or tribal land	(Yes =1; No =0)	
[Average commute time to Industrial Park workplace for employees / Average commute time to workplace nationally]	(≥1 =1; <1 =0)	
Construction materials are domestically-sourced	(Yes =1; No =0)	
Industrial park provision of utilities to adjacent communities	(Yes =1; No =0)	
Operable windows in Industrial Park buildings, ensuring natural ventilation	(Yes =1; No =0)	
ILO/IFC standard worker accommodations on-site	(Yes =1; No =0)	
Drinking fountains in place throughout industrial park buildings	(Yes =1; No =0)	
On-site common cafeteria/canteen/restaurant/catering	(Yes =1; No =0)	
On-site multi-purpose athletic fields, gym, recreation, leisure, entertainment, community and cultural facilities	(Yes =1; No =0)	
<b>Socially-Appropriate Site &amp; Social Infrastructure Score</b>	<b>(Scale of 0-23)</b>	
<b>2. Quality social management system and services</b>		
Social impact management & monitoring system (SMS) in place in industrial park	(Yes =1; No =0)	

Social audits of each firm on at least biennial basis	(Yes =1; No =0)
Existence of Emergency Preparedness and Response system in industrial park	(Yes =1; No =0)
Presence of public or subsidized transportation system for workforce between key points in or near Industrial Park	(Yes =1; No =0)
Industrial Park Community Solidarity Program and Involvement in community projects	(Yes =1; No =0)
Annual public/published Social Performance Report for industrial park	(Yes =1; No =0)
% firms with ISO 26000 Certification	(≥51% =1; ≤49% =0)
% firms with ISO 9001 Certification	(≥51% =1; ≤49% =0)
% firms with SA 8000 Certification	(≥51% =1; ≤49% =0)
% firms with AA1000AP Certification	(≥51% =1; ≤49% =0)
% firms with AA1000AS Sustainability or AA1000SES Stakeholder Engagement Standard Certification	(≥51% =1; ≤49% =0)
% Employees satisfied with Social Systems and Services	(≥50% =1; ≤49% =0)
Dedicated/enhanced industrial park social regulations, including S-IA requirements, and community dialogue mechanism	(Yes =1; No =0)
Industrial Park Operator ISO 26000 <sup>119</sup> Certifications	(Yes =1; No =0)
Industrial Park Operator ISO 9001 <sup>120</sup> Certifications	(Yes =1; No =0)
Industrial Park Operator SA 8000 <sup>121</sup> Certifications	(Yes =1; No =0)
Industrial Park Operator AA1000AP Certifications	(Yes =1; No =0)
Industrial Park Operator AA1000AS Sustainability or AA1000SES <sup>122</sup> Stakeholder Engagement Standard Certifications	(Yes =1; No =0)
Existence of Industrial Park dedicated internal Ombudsman	(Yes =1; No =0)
<b>Quality Social Management System &amp; Social Services Score</b>	<b>(Scale of 0-19)</b>
<b>3. Occupational health &amp; safety</b>	
[Expenditure on health and safety (EHS) per capita in industrial park /EHS per capita nationally]	(≥1 =0; <1 =1)
[% firms with OHSAS 18001 Certification <sup>123</sup> In industrial park /% firms with OHSAS 18001 Certification Nationally]	(≥1 =1; <1 =0)
Existence of Internal Park Operation Fire Safety Guidelines	(Yes =1; No =0)
Perimeter fencing and access control posts	(Yes =1; No =0)
On-site hospital, clinic or dispensary within industrial park	(Yes =1; No =0)
Public or common night transportation or blue-light system in place in industrial park	(Yes =1; No =0)

<sup>119</sup> International Organization for Standardisation. ISO 26000 - Social Responsibility <https://www.iso.org/iso-26000-social-responsibility.html>

<sup>120</sup> International Organization for Standardisation. ISO 9000 Family - Quality Management. <https://www.iso.org/iso-9001-quality-management.html>

<sup>121</sup> Social Accountability International. SA8000® Standard. <http://www.saintl.org/index.cfm?fuseaction=Page.ViewPage&PageID=1689>

<sup>122</sup> AccountAbility. <http://www.accountability.org/standards/>

<sup>123</sup> British Standards Institution (BSI). BS OHSAS 18001 Occupational Health and Safety Management. <https://www.bsigroup.com/en-GB/ohsas-18001-occupational-health-and-safety/Introduction-to-BS-OHSAS-18001/>

[(# fire alarms/building) in Industrial Park / (# fire alarms/building) nationally]	(≥1 =1; <1 =0)
[(# sprinklers/building) in Industrial Park / (# sprinklers/building) nationally]	(≥1 =1; <1 =0)
[# crimes reported per capita in Industrial Park / # crimes reported per capita nationally]	(≥1 =0; <1 =1)
Access by fire services to all parts of Industrial Park	(Yes =1; No =0)
[% employees with private health insurance coverage in Industrial Park / % employees with private health insurance coverage nationally]	(≥1 =1; <1 =0)
[# of nurses per capita in park / # of nurses per capita nationally]	(≥1 =1; <1 =0)
First-aid room or kit in each building	(Yes =1; No =0)
Dedicated, 24/7 health services inside the Industrial Park	(Yes =1; No =0)
Defibrillator in every building	(Yes =1; No =0)
CCTV cameras and security patrols in place	(Yes =1; No =0)
[Mean Emergency (Police, Fire, Ambulance) response time in Industrial Park / Mean Emergency (Police, Fire, Ambulance) response nationally]	(≥1 =1; <1 =0)
<b>Occupational Health &amp; Safety Score</b>	<b>(Scale of 0-17)</b>
<b>4. Good labour relations &amp; welfare</b>	
Presence of aggregated, publicly accessible labour complaints or incidents and Complaint Measurement mechanism data available	(Yes =1; No =0)(Depending on sophistication & transparency of system)
Presence of on-site Regulator, Operator or Third-Party Authorised Labour Inspectors or Counsellors	(Yes =1; No =0)
Absence of instances of child labour and forced labour <sup>124</sup>	(Yes =1; No =0)
Rights to Assemble, Unionize, engage in Collective Bargaining, and Strike	(Yes =1; No =0)
[% workforce unionized in industrial park / % workforce unionized nationally]	(≥1 =1; <1 =0)
[Aver. Salary in industrial park / Aver. Salary Nationally]	(≥1 =1; <1 =0)
[% employees on term or open-ended contracts in industrial park / % employees on term or open-ended contracts nationally]	(≥1 =1; <1 =0)
[# annual complaints per capita about working conditions received in industrial park / # annual complaints per capita about working conditions nationally]	(≥1 =0; <1 =1)
[# annual complaints per capita resolved in industrial park / # annual complaints per capita resolved nationally]	(≥1 =1; <1 =0)
% Industrial Park workers satisfaction with industrial park labour relations	(≥51% =1; ≤49% =0)
[% industrial park employees commuting <15km / % national employees commuting <15km]	(≥1 =1; <1 =0)
[% employee annual turnover in industrial park / % employee annual turnover nationally]	(≥1 =0; <1 =1)

<sup>124</sup> See: ILO Standards on Child Labour: [https://www.ilo.org/moscow/areas-of-work/child-labour/WCMS\\_248984/lang--en/index.htm](https://www.ilo.org/moscow/areas-of-work/child-labour/WCMS_248984/lang--en/index.htm); Forced Labour Protocol: <https://www.ilo.org/global/topics/forced-labour/lang--en/index.htm>

<b>Good Labour Relations &amp; Welfare Score</b>	<b>(Scale of 0-12)</b>
<b>5. Social inclusiveness</b>	
[% employees from legally-recognized minority or disadvantaged groups, or with disabilities in industrial park / % employees from legally-recognized minority or disadvantaged groups, or with disabilities nationally]	(≥1 =1; <1 =0)
[% female workforce in industrial park / % female workforce nationally]	(≥1 =1; <1 =0)
[% women in Management of Operator and Resident firms / % women in Management nationally]	(≥1 =1; <1 =0)
[Female wages as % of male wages in industrial park / Female wages as % of male wages nationally]	(≥1 =1; <1 =0)
Industrial Park Operator-organized Inclusiveness or Sensitivity training or events	(Yes =1; No =0)
[% employees between ages of 16 and 30 in Industrial Park / % employees between ages of 16 and 30 Nationally]	(≥1 =1; <1 =0)
[(# new domestic MSMEs/year/ha) in Industrial Park / (# new domestic MSMEs/year/ha) nationally]	(≥1 =1; <1 =0)
[Domestic MSME % total investment in Industrial Park / MSME % total investment nationally]	(≥1 =1; <1 =0)
[Domestic MSME % of US\$ in Sales in Industrial Park / MSME % of US\$ GDP nationally]	(≥1 =1; <1 =0)
[Domestic MSME % of US\$ in exports in Industrial Park / MSME % of US\$ in exports nationally]	(≥1 =1; <1 =0)
<b>Social Inclusiveness Score</b>	<b>(Scale of 0-10)</b>
<b>Social performance score</b>	
<b>(Scale of 0-81)</b>	

NB: Quantitative inputs shaded in blue are “nice to have” inputs, as opposed to “important” ones.

Table 12: UNIDO Indicators of Industrial Park Social Performance

### 8.3 ENVIRONMENTAL PERFORMANCE INDICATORS

UNIDO’s four proposed key indicators relating to the ISID Pillar: “Safeguarding the Environment” are as follow:

- *Environmentally-appropriate site*<sup>125</sup>
- *Green infrastructure*
- *Green systems\**
- *Efficient and clean production, emissions and waste management\**

\* Indicator inappropriate to the evaluation of new sites that are not yet fully-operational (the remaining, italicised and non-asterisked indicators being more appropriate, with minor input adjustments).

Once again, each of these key indicators is, as previously explained, composed of a number of input-level quantitative sub-indicators, presented in the Table below, which enables the computation of key indicator “scores”:

<sup>125</sup> i.e., whether the actual physical land/site of the industrial park has inherent characteristics, is situated in a location and is zoned in a manner that are environmentally propitious (i.e. chosen, compatible with existing master plans and zoned in such a manner as to result in few if any negative environmental externalities).

INDICATOR (WITH QUANTITATIVE INPUTS)	QUANTITATIVE INPUT SCORING BASIS	SCORE
<b>1. Environmentally-appropriate site</b>		
Site EIA conducted and filed with appropriate authorities	(Yes =1; No =0)	
Site compatibility with Land Use Master Plan as regards non-agricultural use and environmentally-sensitive areas, such as forests, wetlands, mangroves, floodplains, wildlife refuges	(Yes =1; No =0)	
Internal Zoning Plan adopted	(Yes =1; No =0)	
[% plots actually allocated to non-polluting or light manufacturing activities in Industrial Park /% of GDP represented by non-polluting or light manufacturing activity nationally]	(≥1 =1; <1 =0)	
Industrial Park situated on redeveloped brownfield site, with the effective possibility of reusing, re-purposing and converting existing infrastructure or buildings	(Yes =1; No =0)	
<b>Environmentally-Appropriate Site Score</b>	<b>(Scale of 0-5)</b>	
<b>2. Green infrastructure</b>		
Water, electrical and gas meters and load management systems in place, as appropriate to the services offered	(Yes =1; No =0)	
Air quality monitoring (remote controlling and recording) system & infrastructure in place in Industrial Park	(Yes =1; No =0)	
Presence of an off-site landfill for industrial park solid waste management	(Yes =1; No =0)	
Presence of toxic and hazardous waste collection, storage and treatment or disposal management system	(Yes =1; No =0)	
Presence of Public Wastewater Sewerage System, STP and/or of Wastewater Treatment Plant (WWTP)	(Yes =1; No =0)	
Presence of sustainable rain and storm water collection / harvesting (i.e., culverts/drains, cisterns/tanks), management, treatment (e.g., filter, water hyacinth) and re-use systems	(Yes =1; No =0)	
Presence of CETP	(Yes =1; No =0)	
Presence of Organic Composting reception point for organic, vegetable and soil waste transformation into fertilizer and/or of Bio-digesters	(Yes =1; No =0)	
Segregated recycling reception bins, bells and/or containers for: paper & card; recyclable plastic containers; recyclable metal; glass; wood; and brick or stone materials and debris	(Yes =1; No =0)	
% of buildings with Leadership in Energy and Environmental Design (LEED) <sup>126</sup> Certification	(Yes =1; No =0)	
% of buildings with German Sustainable Building Council DGNB <sup>127</sup> Certification	(≥51% =1; ≤49% =0)	
% of buildings with Building Research Establishment Environmental Assessment Method (BREAM) <sup>128</sup> Certification	(≥51% =1; ≤49% =0)	
% of buildings with World Green Building Council (WGBC) <sup>129</sup> Certification	(≥51% =1; ≤49% =0)	

<sup>126</sup> See: Leadership in Energy and Environmental Design. <https://new.usgbc.org/leed>

<sup>127</sup> See: DGNB System. [https://www.dgnb-system.de/en/system/certification\\_system](https://www.dgnb-system.de/en/system/certification_system)

<sup>128</sup> See: Building Research Establishment Environmental Assessment Method (BREEAM). [https://www.breeam.com/BREEAM2011SchemeDocument/Content/03\\_ScoringRating/scoring.htm](https://www.breeam.com/BREEAM2011SchemeDocument/Content/03_ScoringRating/scoring.htm)

<sup>129</sup> World Green Building Council. (n.d.). Rating tool. <http://worldgbc.org/rating-tools>

[% firms with one of the listed WGBC Certifications in industrial park for on-site buildings /% firms having obtained such a certification nationally]	(≥1 =1; <1 =0)
Anti-seismic, anti-flood, or anti-avalanche resilient construction techniques used, as applicable to site conditions	(Yes =1; No =0)
Presence of Solar Street lighting	(Yes =1; No =0)
Presence of waste exchange clearinghouse in the industrial park, promoting industrial symbiosis and economic circularity	(Yes =1; No =0)
Low-voltage (ideally photovoltaic) power electrical systems	(Yes =1; No =0)
Walking and bicycle paths, and racks, inside Park for workforce	(Yes =1; No =0)
Presence of bicycle-sharing system in Industrial Park	(Yes =1; No =0)
Electrical and hybrid vehicle power plug-in points in Industrial Park	(Yes =1; No =0)
Non-potable and “grey” water usage for industrial park irrigation	(Yes =1; No =0)
Operator or Users Association Shared “Efficient Manufacturing” systems and technologies (i.e., Cloud- based systems; Value Networks & Joint Purchasing; Rapid Prototyping, CAD, 3D-Printing; Smart Technology, ‘M2M’, ‘Smart-Grid’, and ‘Internet of Things’; etc.)	(Yes =1; No =0)(depending on degree of tech & systems adoption)
<b>Green Infrastructure Score</b>	<b>(Scale of 0-23)</b>
<b>3. Green systems</b>	
Presence of team of dedicated on-site environmental engineers and/or of staffed unit in the employ of the Regulator or Operator	(Yes =1; No =0)
Formal Operator schedule for verification of pipes and drains inside Park, in place and applied	(Yes =1; No =0)
Annual environmental audits performed on each firm	(Yes =1; No =0)
Operator Annual Environmental Report released to public	(Yes =1; No =0)
[% firms having obtained a “Green” (e.g., “Green Label”, etc. 20), ISO14001, ISO 50001, International Sustainability and Carbon (ISCC) <sup>21</sup> Certification or Global Reporting Initiative (GRI) <sup>22</sup> Guidelines G3.1 Rating (for recycled materials and wastewater, clean energy, sustainable alternative transport systems, etc.) or registration in industrial park /% firms having obtained such a certification nationally]	(≥1 =1; <1 =0)
[(Expenditure on environmental management/ha) In Industrial Park / (Expenditure on environmental management/ha) nationally]	(≥1 =0; <1 =1)
Natural Disaster Assessment and Risk Management Plan & System in place, as appropriate	(Yes =1; No =0)
Operator possesses UN Global Compact Registration	(Yes =1; No =0)
Operator possesses ISO14001	(Yes =1; No =0)
Operator possesses International Sustainability and Carbon Certification (ISCC)	(Yes =1; No =0)
Operator possesses ISO 50001 or Green Certification	(Yes =1; No =0)
Operator possesses GRI Rating	(Yes =1; No =0)
Availability of dedicated financial or tax incentives for green building within the industrial park	(Yes =1; No =0)

Dedicated or enhanced industrial park internal environmental regulations, including biodiversity rules, environmental management system (EMS) requirements	(Yes =1; No =0)
Dedicated Internal Operating Regulations with respect to odour, smoke, light, dust, vibration and noise, as well as hours of activity	(Yes =1; No =0)
[% firms that are UN Global Compact registered participants or signatories <sup>23</sup> In the industrial park /% firms having signed the UNGC or obtained such a registration nationally]	(≥1 =1; <1 =0)
Employee car-sharing or car-pooling system in place	(Yes =1; No =0)
<b>Green Systems Score</b>	<b>(Scale of 0-18)</b>
<b>4. Efficient &amp; clean production, emissions &amp; waste management</b>	
Presence of solid waste collection service	(Yes =1; No =0)
[% energy from renewable (e.g., solar, wind, biomass/biogas/biofuel, geothermal, tidal, hydroelectric, waste-to-power) sources In industrial park /% energy acquired from renewable sources nationally]	(≥1 =1; <1 =0)
[(Power use in KWh /US\$ of Sales) in Industrial Park / (Power use in KWh / US\$ of Sales) nationally]	(≥1 =0; <1 =1)
[(Water use in m <sup>3</sup> /US\$ Sales) in Industrial Park / (Water use in m <sup>3</sup> /US\$ Sales) nationally]	(≥1 =0; <1 =1)
[(m <sup>3</sup> of wastewater recycled/US\$ in Sales) in Industrial Park / (m <sup>3</sup> of wastewater recycled/US\$ in Sales) nationally]	(≥1 =1; <1 =0)
[(Solid waste generated/US\$ Sales) in Industrial Park / (Solid waste generated/US\$ Sales) nationally]	(≥1 =0; <1 =1)
[(Tonnes of solid waste recycled/US\$ in Sales) in Industrial Park / (Tonnes of solid waste recycled/US\$ in Sales) nationally]	(≥1 =1; <1 =0)
[(m <sup>3</sup> of SO <sub>x</sub> , NO <sub>x</sub> , N <sub>2</sub> O, CO, CH <sub>4</sub> , CFC, HC emissions)/US\$ Sales in Industrial Park / (m <sup>3</sup> of SO <sub>x</sub> , NO <sub>x</sub> , N <sub>2</sub> O, CO, CH <sub>4</sub> , CFC, HC emissions)/US\$ GDP]	(≥1 =0; <1 =1)
[(Hazardous waste produced/US\$ in Sales) in Industrial Park / (Hazardous waste produced/US\$ in Sales) nationally]	(≥1 =0; <1 =1)
[(US\$ Million/year heavy industry <sup>130</sup> Sales)/ha in Industrial Park] / [(US\$ Million/year heavy industry Sales)/ha nationally]	NA <sup>131</sup>
[% solid waste sent to landfills in Industrial Park / % of solid waste sent to landfills nationally]	(≥1 =0; <1 =1)
[# days failing National Air Quality Safety Standards in industrial park / # days failing National Air Quality Safety Standards nationally]	(≥1 =0; <1 =1)
[% firms that invest in industrial symbiosis in Industrial Park /% firms that invest in industrial symbiosis nationally]	(≥1 =1; <1 =0)
<b>Efficient &amp; Clean Production, Emissions and Waste Management Score</b>	<b>(Scale of 0-13)</b>
<b>Environmental performance score</b>	<b>(Scale of 0-59)</b>

NB: Quantitative inputs shaded in blue are “nice to have” inputs, as opposed to “important” ones.

<sup>130</sup> e.g., cement, iron and steel, and chemicals.

<sup>131</sup> Not applicable.

