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# GUIDELINES FOR ESTABLISHING NEW ECO-INDUSTRIAL PARKS IN VIET NAM

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## FOR DEVELOPERS AND PROVINCIAL AUTHORITIES



# GEIPP

VIET NAM

GLOBAL ECO-INDUSTRIAL PARKS PROGRAMME

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## Abbreviations

BSIA	Boodarie Strategic Industrial Area
EIA	Environmental Impact Assessment
EIP	Eco-Industrial Park
EPZ	Export Processing Zone
EZ	Economic Zone
FDI	Foreign Direct Investment
GEIPP	Global Eco-Industrial Parks Programme (UNIDO)
GHG	Greenhouse Gas
GIZ	German Agency for International Cooperation
IP	Industrial Park
ISIC	International Standard Industrial Classification
MCA	Multicriteria Analysis
MoU	Memorandum of Understanding
MPI	Ministry of Planning and Investment
PIMSA	Parque Industrial Malambo
PPP	Public Private Partnership
R&D	Research and Development
RECP	Resource Efficient and Cleaner Production
SDGs	Sustainable Development Goals
SECO	Swiss State Secretariat for Economic Affairs
SME	Small and Medium-sized Enterprise
SPV	Special Purpose Vehicle
SWOT	Strengths, Weaknesses, Opportunities and Threats
UNIDO	United Nations Industrial Development Organization
UVP	Unique Value Proposition
WBG	World Bank Group

## Definitions

The following table provides national definitions of the terminology used in this guideline<sup>1</sup>.

Eco-industrial park	<p>Eco-industrial parks (EIPs) are defined as managed industrial areas that promote cross-industry and community collaboration for common benefits related to economic, social and environmental performance. The EIP concept has evolved to address additional, interrelated aspects, including resource efficient and cleaner production (RECP), industrial symbiosis, climate change, pollution, social standards, shared infrastructure, improved management of risks and shared resources, including land and ecosystem services (International Framework for Eco-Industrial Parks, UNIDO, WBG, GIZ, 2021).</p> <p>Industrial parks (IPs), in which enterprises engage in cleaner production and efficient use of resources, have links and cooperate in production to carry out industrial symbiosis activities (please refer to Clause 5, Article 2, Decree 35/2022/ND-CP).</p>
Industrial Park / Industrial zone	An area with defined geographical boundaries, specializing in the production of industrial goods and the provision of services for industrial production.
Industrial Park infrastructure development plan	A component of the provincial planning, as prescribed by the Law on Planning, containing the following points: objectives, orientations, implementation, organization and solutions for the development of the IP system in the planning period; a list of IPs in provinces and centrally administered cities; and the plan for development of the IP system on the planning map.
Industrial Park construction plan	IP construction plans include general plans for IP construction, IP construction subdivision planning and detailed IP construction planning (if necessary).
Industrial Park investment action plan	An IP investment plan is an overall plan for the development of the IP system, including planning, adjustment of planning, preparation of a pre-feasibility study report for an IP infrastructure project, decision on the investment policy of the IP infrastructure project, and approval of investment policies for investment projects on the construction and business of IP infrastructure.
Industrial symbiosis and industrial synergies	<p>Industrial synergies are defined as a process that engages multiple industries in a collective approach involving the physical exchange of materials, energy, water, by-products and/or services. “The keys to industrial symbiosis (industrial synergies) are collaboration and the synergistic possibilities offered by geographic proximity” (Chertow, 2000). The types of industrial synergy can be categorized as follows:</p> <ul style="list-style-type: none"> <li>• <u>Utility synergies and infrastructure-sharing</u>: Shared use of utility infrastructure, mainly revolving around water and energy (e.g. water recovery and energy cogeneration).</li> <li>• <u>Supply synergies</u>: Co-location and clustering of companies in the supply and value chains (e.g. producers and suppliers of raw materials, fabricators, manufacturing, business clients).</li> <li>• <u>By-product synergies</u>: Use of a previously disposed by-product (as solid, liquid or gas) from one facility by another facility to produce a valuable by-product.</li> <li>• <u>Service synergies</u>: Sharing of services and activities between industries in an IP (e.g. joint training of staff and sharing of maintenance contractors).</li> <li>• <u>Urban-industrial synergies</u>: Interlinkage and collaboration between companies and cities/municipalities on the collection, processing and reuse of materials, waste, energy and water streams.</li> </ul> <p>As per Decree 35/2022/ND-CP, industrial symbiosis is a cooperative activity between enterprises in an IP or a number of different IPs to optimize the use or reuse of inputs and outputs such as raw materials, materials, water, energy, waste, scrap and other factors in the production process.</p>

<sup>1</sup> Terminologies are mostly based on the International Framework for Eco-Industrial Parks (UNIDO, WBG, GIZ) and on Decree 35/2022/ND-CP.

Eco-enterprise	An enterprise that simultaneously implements cleaner production solutions, efficient use of resources and industrial symbiosis in EIP (as mentioned in Clause 8, Article 2, Decree 35/2022/ND-CP).
Investment project for construction and business of industrial park	An investment project that uses land for the synchronous construction of technical infrastructure in IPs and leases land to investors, subleases land to build factories, offices, warehouses, service works and public utilities, implements investment projects and organizes production and business in accordance with the provisions of law.
Industrial land area	Land area in an IP for investors to lease land, sublease or buy land to build factories, offices, warehouses, etc., implement investment projects and organize production and business. The area is defined in the IP construction planning and approved by a competent state agency.
Resource-Efficient and Cleaner Production	<p>RECP is the continuous application of preventive environmental strategies to processes, products and services in order to increase efficiency and reduce risks to humans and the environment. RECP is about “doing more with less” and addresses the three sustainability dimensions individually and synergistically, namely:</p> <ul style="list-style-type: none"><li>a) Heightened economic performance through improved productive use of resources.</li><li>b) Environmental protection by conserving resources and minimizing the impact of industry on the natural environment.</li><li>c) Social enhancement by providing jobs and protecting the wellbeing of workers and local communities.</li></ul>
Authority to certify eco-industrial parks	The certification of EIPs and eco-enterprises will comply with Article 40 of Decree 35/2022/ND-CP on Management of Industrial Parks and Economic Zones.
Order, procedures and application documents for certification of eco-industrial parks	Processes, procedural instructions and registration for EIP certification will comply with Article 41 of Decree 35/2022/ND-CP on Management of Industrial Parks and Economic Zones.

## A Introduction

### A.1 These guidelines

The main objective of these guidelines is to assist IP developers and provincial government authorities with the establishment of new EIPs in Viet Nam.

Table 1: Key stakeholders in the establishment of new industrial parks<sup>2</sup>

Regulator	Developer	Operator	Owner/Investor
<p><b>Public entity/ Government body</b></p> <ul style="list-style-type: none"> <li>Strategic national planning of IPs</li> <li>Designates land as parks.</li> <li>Facilitates government services and coordinates public agency inputs to/within IPs such as utilities.</li> <li>Monitors and enforces compliance.</li> </ul>	<p><b>Private, public or public-private partnership (PPP) entity</b></p> <ul style="list-style-type: none"> <li>Designs, plans, and manages development of basic IP infrastructure.</li> <li>Develops land (grading, levelling, construction) and provision of basic infrastructure such as internal road networks, drainage and sewage, etc.</li> </ul>	<p><b>Private, public or PPP entity</b></p> <ul style="list-style-type: none"> <li>Manages day-to-day services to users.</li> <li>May or may not be the same as the developer.</li> <li>Facilitates marketing.</li> <li>Facilitates management, leasing and maintenance.</li> <li>Utilities maintenance</li> <li>Provides value-added services.</li> <li>Provides or contracts for solid waste removal and treatment, maintenance, security, etc.</li> </ul>	<p><b>Private, public or PPP entity</b></p> <ul style="list-style-type: none"> <li>Owns site land.</li> <li>Performs strategic planning.</li> <li>Initiates park development.</li> <li>Pays all or part of the cost of park development.</li> <li>May or may not be the same as the developer.</li> </ul>

These guidelines are aligned with the Government of Viet Nam's process for obtaining approval on provincial planning, construction planning and decision-making on investment policy and requirements to establish both traditional and new EIPs in the country. The guidelines covers key technical aspects relevant for reflecting and integrating international experiences, as well as suggesting site selection for the Government of Viet Nam, with indicators on how to establish new EIPs. The guidelines will cover the following subsections:

- **SECTION A: Introduction**
- **SECTION B: Government of Viet Nam processes**
  - Process to establish new traditional IPs
  - Process to establish new EIPs.
- **SECTION C: International experience and processes to establish new EIPs**
  - Site selection for new EIPs.
  - Feasibility assessments for new EIPs.
  - Concept planning of EIPs.
  - General planning of EIPs.
- **SECTION D: Conclusions and recommendations**

<sup>2</sup> UNIDO (2019). International Guidelines for Industrial Parks.

A summary of the structure of the guideline is presented in Figure 1. Each chapter provides details on the rationale, process and guidance notes for IP developers and government authorities, as well as suggestions for further reading, relevant to each topic, for the establishment of new EIPs in Viet Nam.

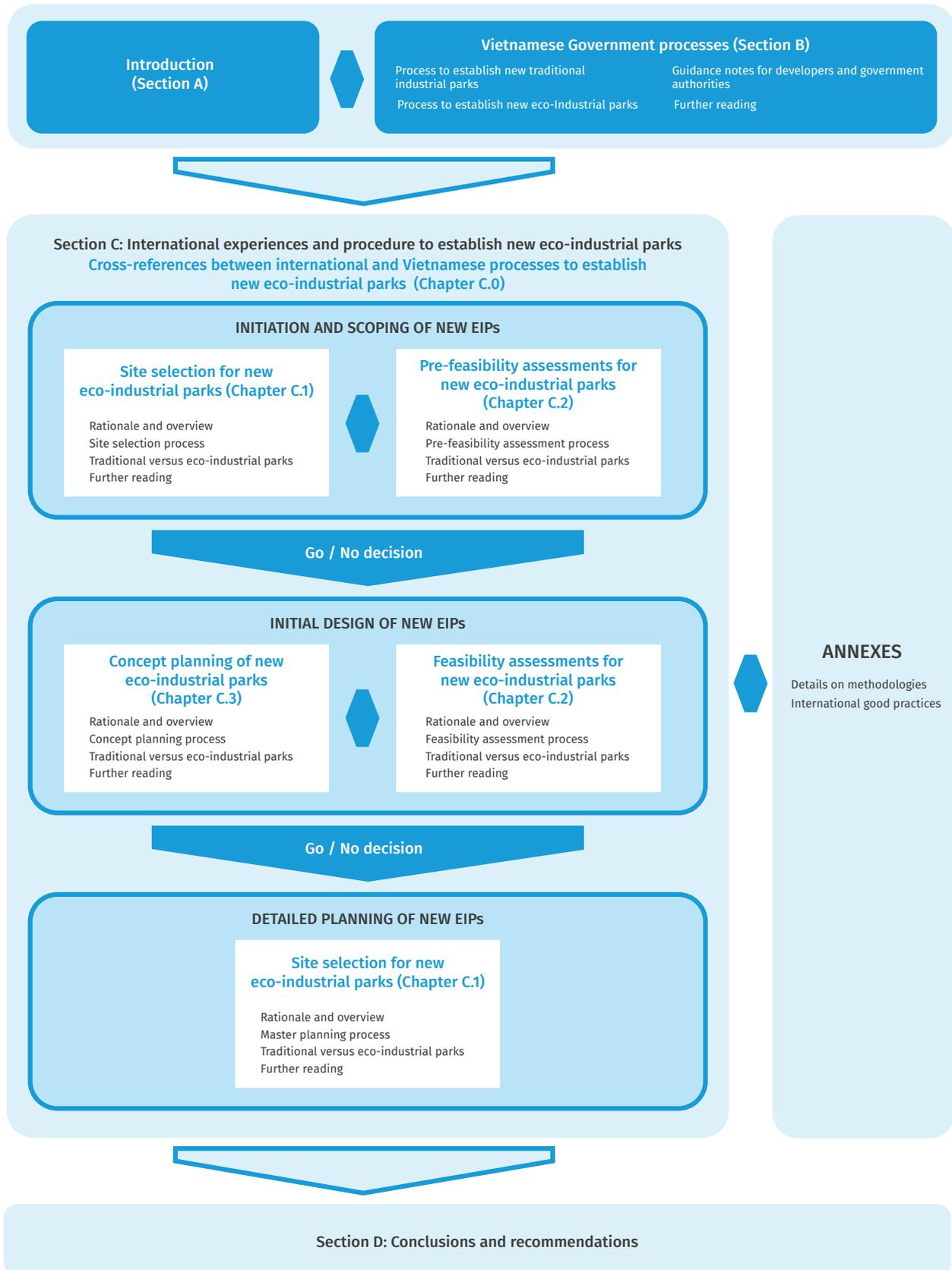


Figure 1: Structure of this guideline

## A.2 Types of industrial park in Viet Nam

In Viet Nam, IP models include:

- Supporting IPs, Specialized IPs and High-tech IPs.
- Industrial – urban – service parks.
- EIPs.
- Export processing zone (EPZ).

Accordingly, Decree 35/2022/ND-CP on "Regulations on management of industrial parks and economic zones" issued on 28 May 2023, features clearly defined types of IP, as follows:

- **Supporting industrial park:** an IP specializing in manufacturing supporting industry products and providing services to produce supporting industry products. At least 60 percent of the total industrial land area of the IP is used to attract investment projects in the production of supporting industry products, in accordance with the law on supporting industry development.
- **Specialized industrial park:** an IP specializing in manufacturing and providing services to produce products in a specific industry or trade. At least 60 percent of the industrial land area of the IP is used to attract investment projects in this industry or trade.
- **Hi-tech industrial park:** an IP that attracts hi-tech and IT investment projects on the list of industries and trades with special investment incentives under the law on investment, projects involving technology transfer on the list of technologies encouraged for transfer in accordance with the law on technology transfer, technology incubators, science and technology business incubators in accordance with the law on high technology, the law on science and technology, innovative start-up investment projects, innovation, research and development (R&D), education and training. At least 30 percent of the industrial land area of the IP is used to attract these investment projects.
- **Industrial – urban – service parks:** includes industrial, urban and service functional areas. IPs have main functions, while urban-service areas have the functions of supporting, providing services and public and social utilities for IPs. The investment procedures, development and requirements will follow the Section 3 – Industrial – Urban – Service parks, as stated in Decree No. 35/2022/ND-CP.
- **Export processing zone:** an industrial park specializing in the production of export goods and provision of services to produce export goods and export activities. Such IPs are separated from the external area, in accordance with the provisions applicable to the non-tariff zone specified in the law on export tax and import tax.
- An **eco-industrial park** is an IP in which enterprises participate in cleaner production activities and efficient use of resources, and have linkages and cooperation in production to carry out industrial symbiosis activities.

The conditions for investment and establishment of the different types of industrial parks are outlined above, including:

- Conform with provincial and regional planning.
- Satisfy the conditions for consideration and approval of project investment policies.
- Are in accordance with the IP construction planning approved by the competent authority.
- Are capable of meeting the land use change requirements, as prescribed by the law on land, the law on forestry and other relevant laws. The detail of conditions should reflect Clause 1, Article 52, Point d and Clause 1, Articles 57 and 58 of Land Law No. 45/2013/QH13, as issued by The National Assembly on 29 November 2013 and Point 9, Article 1 of the Decree on "Amendments and supplements to several articles of decrees on instructions for implementation of the law on land", as issued by the Government and dated 3 April 2023.

- In particular, for EIPs, (i) at least 20 percent of enterprises in IPs apply solutions to use resources efficiently and to produce in a cleaner manner, achieving results in saving raw materials, water, energy, chemicals, waste and reducing emissions to the atmosphere, (ii) the minimum proportion of green areas, traffic, technical zones and shared social infrastructure in IPs reaches 25 percent in the IP construction planning (according to the provisions of Clauses 1, 2, 3 – Article 37, Decree 35/2022/ND-CP).
- For newly established EIPs (according to the provisions of Clauses 1 and 2, Article 38), investors implementing the investment projects connecting EIP infrastructure shall register the industries, projected greenhouse gas (GHG) emission levels for each industry, envisaged industrial symbiosis plan, plan on formulation and implementation of mechanism for monitoring inputs and outputs of IPs on the use of raw materials, materials, water, energy, chemicals, waste, scrap and plans for implementing social responsibility in surrounding communities.

Policies to encourage and incentivize the development of each type of IP (investment incentives and methods of mobilizing capital sources for investment, as well as investment support for the construction of IP infrastructure) are clearly mentioned in Articles 22, 23 and 24 of Decree 35/2022/ND-CP.

## A.3 Defining EIPs

### A.3.1 The International Framework for EIPs

As per the International Framework for Eco-Industrial Parks<sup>3</sup>, EIPs are defined as “managed industrial areas that promote cross-industry and community collaboration for common benefits related to economic, social and environmental performance. The EIP concept has evolved to address additional, interrelated aspects, including: resource efficient and cleaner production, industrial symbiosis, climate change, pollution, social standards, shared infrastructure, improved management of risks and shared resources, including land and ecosystem services. An interdisciplinary approach is required to optimally realize the EIP concept.”

In short, the EIP concept is about creating more resource-efficient and cost-effective IPs which are more competitive, attractive for investments and resilient to risk.

The German Agency for International Cooperation (GIZ), UNIDO and the World Bank Group have collaborated to develop an international framework which provides guidance on what constitutes an EIP and how an IP can work towards becoming an EIP. The framework is based on four key categories: park management performance, environmental performance, social performance and economic performance. The requirements within each category are divided into "prerequisites" and "performance indicators" (64 indicators and prerequisites in total, according to version 2.0), which can be verified and measured in qualitative or quantitative terms. The prerequisites highlight the basic requirements for EIPs, while the performance indicators describe the expected performance levels that an EIP must meet. As a baseline, IPs must comply with all applicable local and national regulations. Figure 2 presents the International Framework for Eco-Industrial Parks.

The International Framework for Eco-Industrial Parks is not a certification or audit scheme. It is a practical tool to (a) understand the current status and performance of an IP wanting to transform into an EIP and (b) identify a set of practical opportunities for the park for continuous improvement.

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<sup>3</sup> UNIDO, World Bank Group, GIZ (2021). An International Framework for Eco-Industrial Parks. <https://openknowledge.worldbank.org/handle/10986/35110>

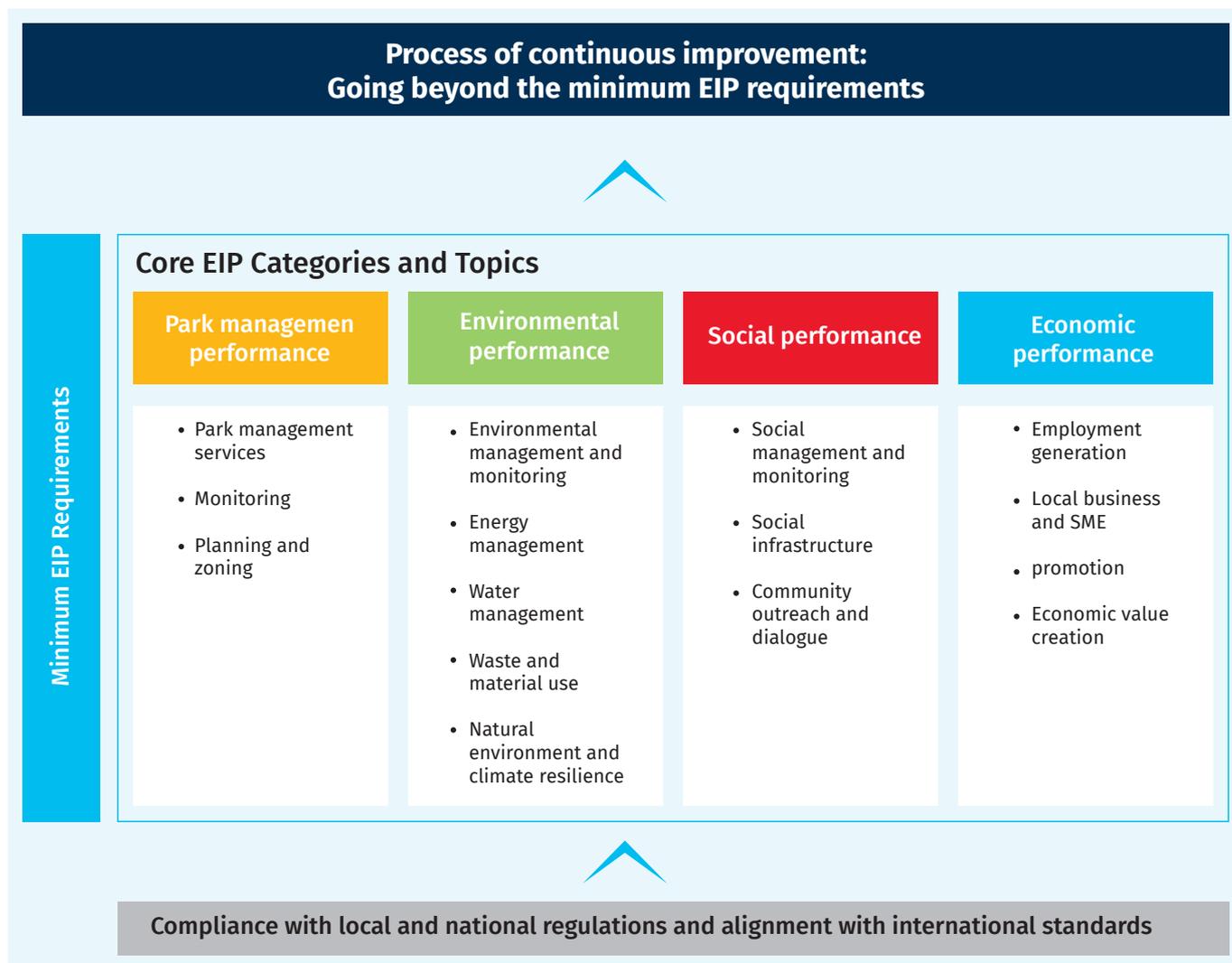


Figure 2: International Framework for Eco-Industrial Parks<sup>4</sup>

### A.3.2 Advantages of EIPs compared to “traditional” IPs

In the context of Viet Nam, the definition of “traditional industrial park” is mentioned in Article 2, Decree No. 35/2022/ND-CP as an area with defined geographical boundaries, specializing in the production of industrial goods and the provision of services for industrial production.

International good practices illustrate that the types of economic, environmental, and social benefits from EIPs vary greatly and go well beyond the conventional business case benefits<sup>5,6</sup>. As illustrated in Figure 3, the benefits are not only commercial but also strategic, leading to reduced exposure to risk, increased competitiveness, business development, production continuity and improved collaboration with key stakeholders. EIPs enable companies to benefit from greater collaboration and exchanges within companies (between management, technical and environmental staff, finance, etc.), as well as between companies, government and service providers. Companies are enabled collectively to turn environmental problems into business solutions by using resources efficiently and cooperating through shared infrastructure.

<sup>4</sup> UNIDO, World Bank Group, GIZ (2021). An International Framework for Eco-Industrial Parks. <https://openknowledge.worldbank.org/handle/10986/35110>.

<sup>5</sup> UNIDO (2020). Results and Lessons Learned from Assessing 50 Industrial Parks in Eight Countries against the International Framework for Eco-Industrial Parks. Sustainability, Issue 12. <https://www.mdpi.com/2071-1050/12/24/10611>.

<sup>6</sup> UNIDO (2017). Implementation Handbook for Eco-Industrial Parks. [www.unido.org/sites/default/files/files/2018-05/UNIDO%20Eco-Industrial%20Park%20Handbook\\_English.pdf](http://www.unido.org/sites/default/files/files/2018-05/UNIDO%20Eco-Industrial%20Park%20Handbook_English.pdf).

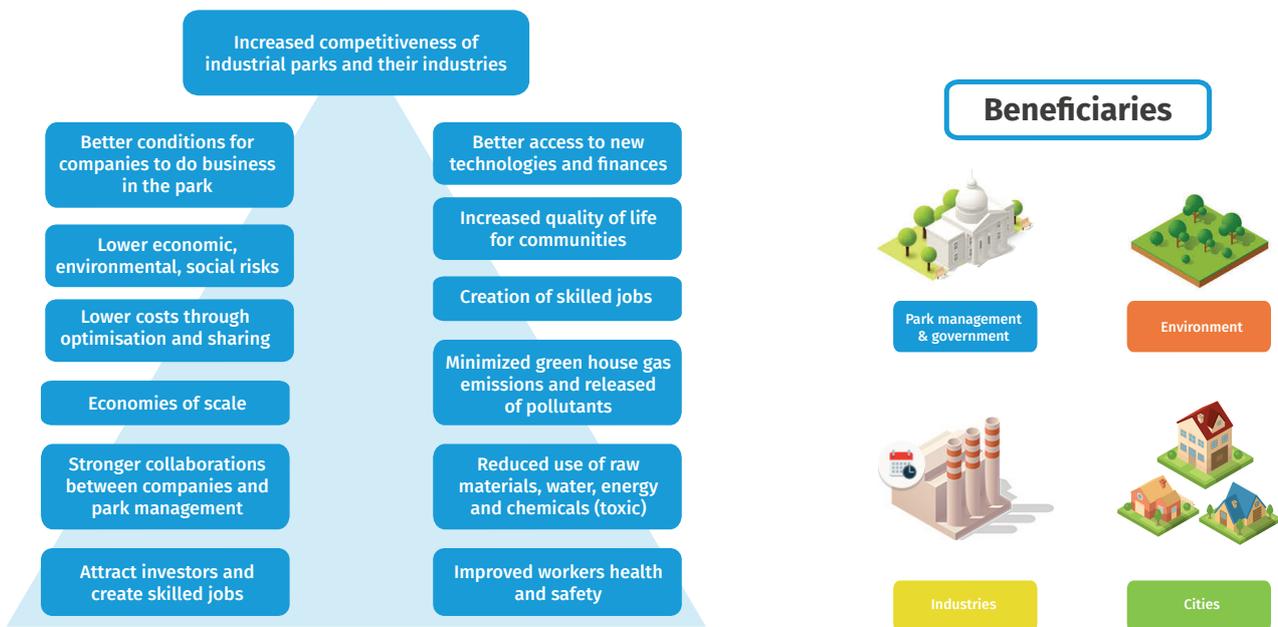


Figure 3: Benefits of EIPs

The transformation of existing IPs into a more sustainable production model, from resource-based development to production efficiency-based development and taking innovation as a growth engine, is essential for Viet Nam's industrial development. With sustainable production and consumption trends, digital transformation represents a necessary change in production and business models.

The economic, social and environmental benefits derived from EIPs are substantial, diverse and exceed normal business benefits. Economic benefits generated from EIPs include job creation through the application of ecological solutions and industrial cooperation. These help to increase the competitiveness of enterprises, with those in well-designed and well-managed IPs able to make efficient use of resources, reduce waste, add value and reduce risk, as well as taking advantage of available services, thereby saving production costs.

Evidence and long-term trends show that EIPs can attract foreign direct investment (FDI) in the high value-added segment and are more sustainable. The environmental benefits of EIPs are achieved by reducing pollution and GHG emissions with more efficient use of resources (raw materials, water, energy) and reducing, reusing and recycling waste, thereby contributing to the conservation and protection of local biodiversity. At the same time, the management of chemicals and hazardous substances in the EIP is improved, helping to increase environmental benefits and ensure a safe working environment for workers. Social benefits from EIPs include increasing quality local jobs through improved working conditions, strengthening cohesion and enhancing benefits for surrounding communities through social infrastructure such as vocational training centres that help to develop skills and provide more services to communities.

Currently, the transition to an EIP model also has advantages for investors and manufacturing enterprises due to a number of supporting EIP policies in Viet Nam, which have been introduced and are gradually being perfected. These include:

- Decree No. 82/2018/ND-CP, dated 22 May 2018, regulating the management of IPs and economic zones, has set out defining criteria for EIPs, and has now been replaced by the Government's Decree No. 35/2022/ND-CP, dated 28 May 2022, regulating the management of IPs and economic zones.
- The National Action Plan on Sustainable Production and Consumption for the period 2021 – 2030, approved in Decision No. 889/QĐ-TTg dated 24 June 2020, has also set the objective to "promote the efficient and sustainable management, exploitation and use of natural resources, fuels and raw materials, encourage the development of environmentally friendly, renewable, reusable and recyclable resources, fuels, materials and products". The development, application and dissemination of industrial symbiosis models and EIP models are also mentioned in the main tasks of this Decision.

Table 2: Comparison of typical features of “traditional” IPs and EIPs

Topic	Traditional IP	EIP
Park management	<ul style="list-style-type: none"> <li>Focus on traditional services (electricity, water, telecommunication, wastewater treatment, etc.), creating normal products to export locally/globally without consideration of the impacts of production on social, economy, and environmental factors.</li> </ul>	<ul style="list-style-type: none"> <li>A proactive management entity which facilitates multistakeholder processes is critical to the success of the EIPs.</li> <li>In addition to basic services, the park management entity provides added value services to assist tenant companies in improving their economic, environmental and social performance and in reducing their risks.</li> </ul>
Resource efficient and cleaner production (RECP)	<ul style="list-style-type: none"> <li>Utilization of cleaner technology and efficient natural resources is encouraged for all tenant companies with their own business targets.</li> </ul>	<ul style="list-style-type: none"> <li>Support tenant companies to identify, develop and implement RECP opportunities to reduce pollution, resource use and associated costs.</li> </ul>
Industrial synergies	<ul style="list-style-type: none"> <li>Traditional IPs do not pay significant attention to finding new synergies with other partners, enterprises and stakeholders inside the IPs to encourage and hasten the productivity, quality and efficiency of output production from their businesses.</li> </ul>	<ul style="list-style-type: none"> <li>Support tenant companies, utility providers and other stakeholders to identify, develop and implement business-driven solutions on utility synergies and infrastructure-sharing, supply chain synergies, by-product synergies and waste exchanges and service synergies.</li> </ul>
Local community	<ul style="list-style-type: none"> <li>Traditional IPs are not strongly committed to introducing good services into their local communities.</li> </ul>	<ul style="list-style-type: none"> <li>EIPs ensure the implementation of good social management practices, including decent work, social and community infrastructure and good relationships with the local community.</li> <li>Compulsory solutions to ensure housing, service works and public utilities for employees working inside EIPs.</li> </ul>
Spatial planning and zoning	<ul style="list-style-type: none"> <li>Compliance with the Provincial Master Plan and the design of subdivisions is not supported with a view to building arrangements with each registered manufacturing enterprise.</li> <li>As stated in Table 2.11 – Circular No. 01/2021/TT-BXD related “QCVN 01:2021/BXD, National Technical Regulation on Construction Planning”, the minimum percentage of landscape in land lots for the construction planning of factories inside IPs must reach 20 percent.</li> </ul>	<ul style="list-style-type: none"> <li>The state and government authorities encourage and promote EIPs with a good well-managed master plan in case of being</li> <li>Rational design of functional subdivisions and orientations to attract FDI</li> <li>Land satisfying landscape, transportation and sharing of technical infrastructure and utilities accounts for at least 25 percent, with a master plan for investment leading to industrial symbiosis inside EIPs.</li> <li>A solid spatial planning and zoning process is a key component of an EIP. This includes considering economic, environmental and social aspects through multistakeholder processes with the relevant stakeholders (e.g. government agencies, the private sector and the local community).</li> </ul>

## A.4 IP and EIP development in Viet Nam

The export processing zones (EPZs), economic zones (EZs) and IPs and of Viet Nam have undergone a period of 30 years of continuous construction and development<sup>7</sup>:

- In the period from 1991 to 2000: Piloting and gradual scaling-up of the model of industrial zones and border-gate IPs.
- In the period from 2001 to 2010: Significant development of industrial zones, establishment of a number of several border-gate EZs and deployment of a new model – coastal EZs.
- In the period from 2011 until now: Continued development and completion of IPs and EZs in depth, attracting quality and key investment.

According to the MPI<sup>8</sup>, with 414 IPs operating in Viet Nam in 2023, the promotion of EIP development will mobilize considerable resources from the private sector for green industrial solutions and to ensure energy security. This will significantly contribute to Viet Nam's efforts to respond to climate change, promoting green growth and circular economy, demonstrating the political determination of the government to implement the sustainable development commitments made at the 2021 United Nations Climate Change Conference (COP 26).

By 2030, 40 to 50 percent of localities will have plans to convert existing IPs into EIPs, while 8 to 10 percent of localities will have the orientation to build EIPs. This includes the stage of construction planning and the orientation of industries and professions to attract investment. The interest in building a new EIP is simultaneous to the conversion of the traditional IP into an EIP.

The initial results achieved in transiting the IP model and planning for the new development of EIPs are highly encouraging. However, this process also faces a number of difficulties. Green financial policies are yet to materialize, while there remains a lack of mechanisms and policies to encourage businesses to form industrial symbiosis solutions. Awareness of sustainable development, the green economy and circular economy should be fostered, as many provincial localities have not yet taken significant action. Procedures for establishing new IPs, in general, and EIPs, in particular, remain complicated and time-consuming.

With the trend of greening the economy, a number of foreign investors are considering investments in EIPs as one of the most important criteria in choosing where to locate a factory. This is understandable as, in industrial zones, the output products of one enterprise can become input products for another and vice versa. As a result, enterprises significantly save on operating costs and improve their competitiveness. The IP model signifies the creation of highly competitive, attractive and resource- and cost-effective IPs that are more resilient to higher risks. In this model, manufacturing, and service enterprises using and sharing resources jointly seek opportunities to improve environmental and socio-economic efficiency through environmental management cooperation.

The Government has issued Decree No. 35/2022/ND-CP, dated 28 May 2022, regulating the management of IPs and EZs to stipulate construction directions, development plans for the system of IPs and EZs, infrastructure investment, establishment, operation, development policies and state management for IPs and EZs .

A plan for the development of the IP system is part of the provincial planning, as prescribed at Point d, Clause 2, Article 27 of the Law on Planning, including information on objectives, orientations, implementation organization and solutions for development of the IP system in the planning period.

The Decree also clearly stipulates the order, procedures and conditions for investment in IP infrastructure. Conditions for investors implementing investment projects on construction and business of IP infrastructure include: adjustment of investment projects on construction and business of IP infrastructure; changing the name of the IP and the conversion of IPs for urban-service development. In the Decree, the government

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<sup>7</sup> Newspaper Investment – 3 stages of industrial park development

<https://baodauthau.vn/3-giai-doan-phat-trien-khu-cong-nghiep-post99062.html>.

<sup>8</sup> <https://congthuong.vn/phat-trien-khu-cong-nghiep-sinh-thai-tai-viet-nam-chinh-sach-va-giai-phap-220083.html>.

assigns MPI the prime responsibility for helping it to unify the state management of IPs and EZs, presiding over and coordinating with ministries, ministerial-level agencies, provincial-level People's Committees, the management boards of IPs, EZs and relevant organizations, as well as for the formulation of legal documents and policies on the management and development of IPs and EZ and their submission to the relevant authorities for promulgation.

#### Contribution of EIPs to the Vietnamese economy

- IPs have made positive contributions to Viet Nam's growth and development achievements, through the significant attraction of FDI, improvements in the efficiency of use of domestic resources and their contribution to expansion to international markets.
- According to data reported by the MPI's Department of Economic Zones Management, as of April 2022, IPs and EZs across the country had attracted 9 784 FDI projects with a total registered capital of USD 195 billion and implemented capital of USD 110 billion USD. In addition, there were 1 387 domestic investment projects, with total registered capital of VND 1 461 billion and implemented capital of VND 533 billion. Investment projects in IPs and EZs contributed around 55 percent of total export turnover in the period from 2016 to 2020.<sup>9</sup>

#### Policy orientations

- Firstly, focus on attracting foreign investment to create conditions for the development of IPs into key processing and manufacturing points, focusing on a number of key industries with competitive advantages, such as mechanical engineering, electricity and electronics and shipbuilding.
- Secondly, in some IPs, there have been large-scale dynamic projects and favourable geographical locations, which continue to attract more reputable potential foreign investors to form large-scale and specialized production clusters, while there is a high level of linkage between enterprises in IPs.
- Thirdly, the attraction of foreign investment in IPs and EZs must focus on ensuring environmental protection, which is synchronous with the speed of socio-economic infrastructure development to ensure sustainable development. This will also improve the quality of FDI inflows into IPs and EZs, giving priority to attracting projects using industry 4.0, as well as modern and environmentally friendly high technology.
- Fourthly, there is a need to renovate the business investment environment of IPs and EZs through the continued improvement mechanisms and policies on IPs and EZs, strengthening of the implementation of ventilation "one-stop shop" administrative mechanisms in IPs and EZs, application of information technology and state management of IPs and EZs, the development of new models of IPs and EZs with higher efficiency and the creation of favourable conditions to attract FDI inflows into IPs and EZs.

### **A.5 Existing policy and regulatory frameworks**

Legal and policy frameworks to support both investors and state management agencies in the process of implementing investment projects on the construction and business of IP infrastructure are promulgated by the Government of Viet Nam in Decree 35/2022/ND-CP, dated 28 May 2022, regulating the management of IPs and EZs. The Decree consists of eight chapters and 76 articles, covering general issues, infrastructure investment, the establishment of IPs, development policies, a national information system on IPs and EZs, state management of IPs and EZs, the functions, and the tasks and powers of management boards of IPs, EPZs and EZs.

In addition, other regulations currently in force that accompany investors to consider investment conditions for the construction and business of IP infrastructure include:

- Law on Fire Prevention and Fighting – National Assembly Law No. 27/2001/QH10, issued on 29 June 2001.
- Law on Urban Planning – National Assembly Law No. 30/2009/QH12, issued on 17 June 2009.
- Decree on The Formulation, Evaluation, Approval and Management of Urban Planning – The Government No. 37/2010/ND-CP, issued on 7 April 2010.
- Decree on Amending a number of articles of Decree No. 37/2010/ND-CP dated 7 April 2010, on Formulation, Appraisal, Approval and Management of Urban Planning and Decree No. 44/2015/ND-CP dated 6 May 2015, providing detailed regulations on construction planning.
- Law on Construction – National Assembly Law No. 50/2014/QH13, promulgated on 18 June 2014.
- Law on Real Estate Business – National Assembly Law No. 66/2014/QH13, issued on 25 November 2014.
- Decree on Detailed Regulations on Construction Planning – The Government No. 44/2015/ND-CP, issued on 6 May 2015.
- Law on Management and Use of Public Property – National Assembly Law No. 15/2017/QH14, issued on 21 June 2017.
- Law on Planning – National Assembly Law No. 21/2017/QH14, issued on 24 November 2017.
- Law amending and supplementing a number of articles of 37 laws related to planning – National Assembly Law No. 35/2018/QH14, issued on 20 November 2018.
- Law on Public Investment – National Assembly Law No. 39/2019/QH14, issued on 13 June 2019.
- Law on Investment – National Assembly Law No. 61/2020/QH14, issued on 17 June 2020.
- Law on Enterprises – National Assembly Law No. 59/2020/QH14 issued on 17 June 2020.
- Law amending and supplementing a number of articles of the construction law – National Assembly Law No. 62/2020/QH14, issued on 17 June 2020.
- Law on Environmental Protection – National Assembly Law No. 72/2020/QH14, issued on 17 November 2020.
- Circular on QCVN 01:2021/BXD, National Technical Regulation on Construction Planning – The Ministry of Construction No. 01/2021/TT-BXD, issued on 19 May 2021.
- Decree on Management of Industrial Parks and Economic Zones in Viet Nam – The Government No. 35/2022/ND-CP, issued on 28 May 2022.
- Circular on Dossiers on Tasks and Projects on Inter-district, District and Special Purpose Zone Construction Planning; Urban and Rural Planning – The Ministry of Construction No. 04/2022/TT-BXD, issued on 24 October 2022.
- Decree on Amendments to some articles of Decrees in Field of State Management of The Ministry of Construction – The Government No. 35/2023/ND-CP, issued on 20 June 2023.

## Legal procedures and regulations for investors investing in building industrial parks in Vietnam

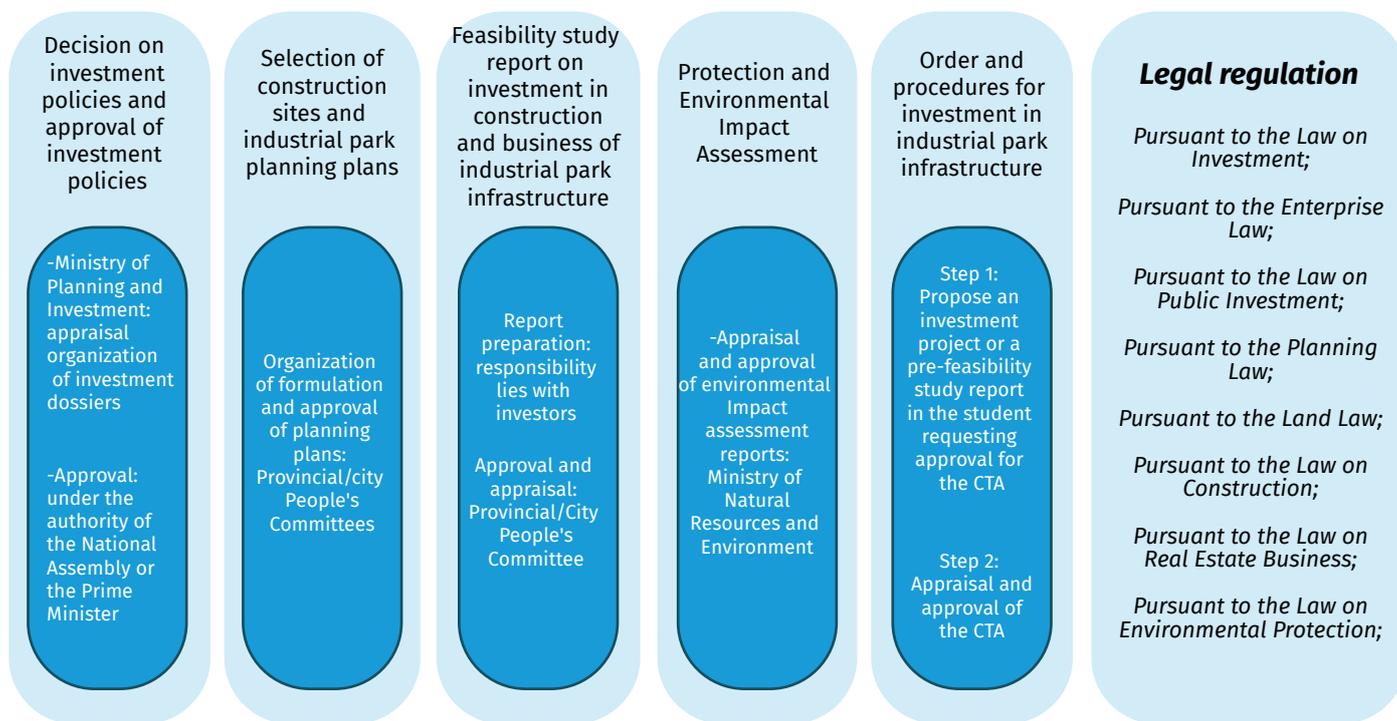


Figure 4: Policies and national regulations applicable to new IPs in Viet Nam

## B Current requirements of the Government of Viet Nam

### B.1 Procedure to establish new (traditional) IP in Viet Nam

#### B.1.1 Legal framework for investment in IP infrastructure

The basic legal statutory for carrying out procedures for investment in traditional IP infrastructure is shown in Section A.5 (above), however this has been updated as follows:

- Pursuant to **Decree 35/2022/ND-CP** on “Regulations on management of industrial parks and economic zones”.
- Pursuant to the **Law on Planning (amended)** – National Assembly Law No. 35/2018/QH14 issued on 20 November 2018.
- Pursuant to **Decree No. 08/2022/ND-CP** on detailing a number of articles of the Law on Environmental Protection issued on 10 January 2022.
- Circular **No. 01/2021/TT-BXD** dated 19 May 2021 related QCVN 01:2021/BXD, National Technical Regulation on Construction Planning.
- Circular **No. 09/2021/TT-BKHDT** dated 16 November 2021 related “Providing guidelines for selection of investors for executing public-private-partnership project and investment projects involving land use”.

#### B.1.2 Procedure to establish a new (traditional) IP

Procedures for deciding and adjusting investment policies for IP infrastructure projects using public investment:

- The pre-feasibility study report of the IP infrastructure project must contain an explanation explaining the satisfaction of the conditions specified in the conditions for investment in IP infrastructure.<sup>10</sup>
- Contents of appraisal of pre-feasibility study report include contents prescribed by the law on public investment and satisfaction of corresponding conditions prescribed in conditions for investment in industrial park infrastructure.

Procedures for investment in investment projects on construction and business of infrastructure of IPs, including IPs in EZs:

- The investment project proposal or pre-feasibility study report in the dossier of application for approval of the investment policy must contain an explanation of the fulfilment of the conditions specified for investment in IP infrastructure. The fulfilment of the conditions specified in Clause 1, Article 10 of Decree 35/2022/ND-CP must be explained in case of investment policy and investor approval.
- The appraisal and approval of investment policies include the contents prescribed by the law on investment and the fulfilment of the corresponding specified conditions for investment in IP infrastructure.

*Note: If the IP uses public investment capital or if the next phase has the same investor as the previous period, a decision may be made on investment policies and their approval and the investment registration certificates issued after the previous phase reaches an occupancy rate of at least 60 percent or when the investment in the construction of the infrastructure has been completed according to the IP construction planning approved by the competent authorities. In this case, investors in the previous stage are given priority in choosing to implement the following stage, except for cases in which auction or bidding must be applied to select investors in accordance with the provisions of law.*

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<sup>10</sup> Clause 9. Conditions for investment in industrial park infrastructure - Decree 35/2022/ND-CP issued on 28 May 2022.

## **INVESTMENT PREPARATION PHASE**

### **STEP 1: Master plan for construction of the IP (this applies to all IP developers and to the Provincial People's Committee)**

- Site selection: In order to select the location for general and master planning of the IP, please refer to Section C.1 – Site selection. This will be the reference with specific guiding criteria for the government to select the correct location to maximize the EIP indicators from the international framework and the national set of EIP indicators (refer to Table 7).
- List of planned IPs in the provincial plans (build and approve according to Article 27 –Law on Planning): Provincial IPs have prioritized development in each period (currently the period until vision of 2030) and approved by the Prime Minister
- The criteria for selection of a new IP for investment purposes are as follows:
  - Conform to the approved planning (regional/provincial).
  - Use at least ha hectares of industrial land or at least 3 percent of the total industrial land area of the IP (including factories, offices and warehouses) for small and medium-sized enterprises (SMEs), supporting industry enterprises, innovative enterprises and beneficiaries of investment incentives. Other enterprises are prioritized and supported in terms of production and business premises in accordance with the law on land lease or sublease.
  - Be able to satisfy the conditions for change of land use purposes, in accordance with the law on land, the law on forestry and other relevant laws.
  - At the time of submitting the pre-feasibility study report of the IP infrastructure project in accordance with the law on public investment or submitting a dossier of application for approval of the investment policy of the IP infrastructure construction and business project in accordance with the law on investment, the average occupancy rate of IPs established in provinces and centrally-run cities is at least 60 percent, with the exception of some specific cases prescribed by law.
  - There are plans for the construction of residential areas and public service works and utilities for employees working in IPs or clusters of IPs approved by competent state agencies, in accordance with the law on housing and other relevant laws.
- IP construction planning has been approved by the Provincial People's Committee (the proposed content of IP construction in the construction planning should be included in this section).

#### **Classification of general construction planning applied to IPs**

In Article 7 – Decree 35/2022/ND-CP, there are clear regulations on the classification of IP construction planning as follows:

- (a) General planning for construction of IPs (**general planning**).
- (b) IP construction subdivision planning (**subdivision planning**).
- (c) Detailed planning for construction of IPs (if necessary) (**detailed planning**).

Therefore, the master plan for construction of IPs and THE IP construction subdivision plans form the basis for:

- Organizing the formulation of detailed planning for the construction of IPs (if necessary).
- Organizing the preparation of pre-feasibility study reports on IP infrastructure projects using public investment capital in accordance with the law on public investment.
- Organizing the preparation of dossiers of investment projects on construction and business of IP infrastructure in accordance with the law on investment.

- Decision on investment policies for IP infrastructure projects using public investment capital in accordance with the law on public investment. Approve investment policies for investment projects on construction and business of IP infrastructure in accordance with the law on investment.

Decree 35/2022 provides some examples for which **construction planning tasks are exempt**, namely: <sup>11</sup>

- In case of the formulation of an IP construction subdivision planning in an area where there has been an approved general planning for construction or a general plan for construction of an EZ, there is no need to formulate planning tasks.
- In case of the formulation of a detailed plan for the construction of an IP in an area where an approved construction subdivision plan has been made, there is no need to formulate planning tasks.
- Subdivision planning tasks are exempt when formulating zoning plans for IPs and industrial-urban-service parks located in areas in which there has been an approved urban general plan or EZ.

## **STEP 2: Pre-feasibility study and proposal of investment for new traditional IP, including Decision on Investment Policy (this applies to all IP developers and Provincial People's Committee)**

A dossier of project implementation proposal includes:

- A written request for project implementation (According to Form A.I.1 of Circular 03/2021/TT-BKHDT).
- Business registration certificate – ID card (citizen identification) of the legal representative of the enterprise/project investor (specified at Point b, Clause 1, Article 33 – Law on Investment).
- At least one of the following documents: financial statements of the last two years/financial commitments of the parent company/financial support commitments of financial institutions/guarantee of financial capacity of investors/documents proving other financial capacity of investors (specified at point c, Clause 1, Article 33 – Law on Investment).
- Pre-feasibility study report (specified in Article 52 – Law on Construction, amended and supplemented in Clause 10, Article 1 of the Law amending and supplementing a number of articles of the Law on Construction).
- Contents of the pre-feasibility study report specified in Article 53 – Law on Construction (amended and supplemented in Clause 11, Article 1 of the amended Law on Construction in 2020):
  - The necessity for investment and the conditions for the implementation of construction investments.
  - Expected objectives, scale, location and form of construction investment.
  - Land and resource use needs.
  - Preliminary design plan on construction, explanation, technology, engineering and equipment (specified in Article 9, Decree 15/2021/ND-CP).
    - Preliminary design drawings include: location map, location of construction land, preliminary total area of the project and drawings showing the preliminary design solution.
    - Explanation of the scale and nature of the project, status, land boundaries, and explanation of conformity with the planning (if any), traffic connection, technical infrastructure around the IP and preliminary design solutions.
    - Preliminary drawings and explanations on technological equipment (if any).

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<sup>11</sup> Clause 4, 5, 6 – Article 7, Decree 35/2022/ND-CP issued on 28/05/2022.

- Estimated project implementation time.
- Preliminary total investment, capital mobilization plan, the ability to return capital, repay loans (if any), preliminary determination of socio-economic impacts and impact assessment.
- Preliminary environmental impact assessment in accordance with the law on environmental protection and other contents in accordance with relevant laws.
- Project proposal (optional) (Point d, Clause 1, Article 33 – Law on Investment).
- The approved general plan for construction of an IP or a master plan for subdivision for construction of an IP.
- There is a construction plan (for expansion projects, built and put into use) on residential areas and cultural and sports facilities for employees working in IPs. For expansion projects, the construction and usability of residential areas and public utility works for employees working in IPs must be completed (Point c, Clause 8, Article 9 – Decree 35/2022/ND-CP).

### **INVESTMENT PHASE**

**STEP 3: To accomplish the process of investing in industrial parks (after reaching the Decision on Policy Investment approval), the investor/s is/are expected to execute the following tasks:**

- Land compensation.
- Land registration and land use purpose or change (if any).
- Appraisal of the environmental impact assessment (EIA).
- Building a construction planning 1/500 (traffic, water, wastewater discharge, etc.).
- Firefighting protection plan.
- Basic design.

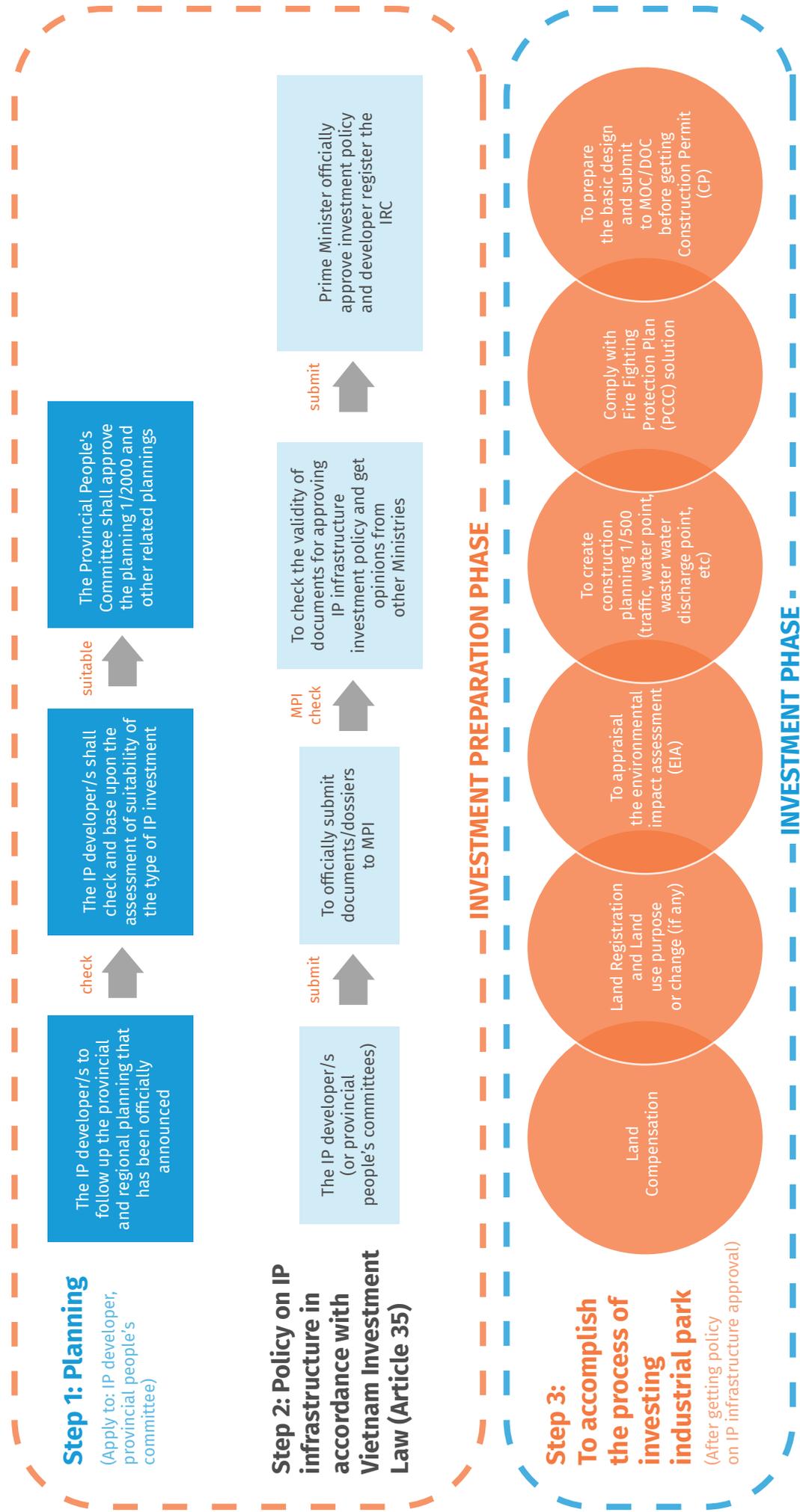


Figure 5: Process to establish new traditional IPs in Viet Nam and steps to be undertaken by the IP developer and authorities

## B.2 Procedure to establish new EIPs in Viet Nam according to the existing legislation

Pursuant to Decree 35/2022/ND-CP, issued on 28 May 2022, on Regulations on management of industrial parks and economic zones, Article 37 clearly mentions the criteria for EIP transition (brownfield), while Article 38 mentions the conditions for establishing new EIPs (greenfield).

The procedures might summarize the steps for creating new EIPs as follows:

### INVESTMENT PREPARATION PHASE

#### **STEP 1: Master planning for construction of IP (this applies to all IP developers and to the Provincial People's Committee)**

- Site selection: To select the location for the general and subdivision planning of the IP, please refer to Chapter 1, Section C – Site selection (from international experience).
- List of industrial parks planning in the provincial planning plan (build and approve following the Article 27 – Law on Planning): Provincial IP have prioritised development in each period (currently the period until vision of 2030) and are approved by the Prime Minister
- The criteria for the selection of investment purposes for new IPs are as follows<sup>12</sup>:
  - Conform to the approved planning (regional/provincial).
  - Be able to satisfy the conditions for change of land use purposes, in accordance with the law on land, the law on forestry and other relevant laws.
  - At the time of submitting the pre-feasibility study report of the industrial park infrastructure project in accordance with the law on public investment or submitting a dossier of application for approval of the investment policy of the industrial park infrastructure construction and business project in accordance with the law on investment.
  - There are plans for the construction of residential areas and public service works and utilities for employees working in IPs or clusters of IPs approved by competent state agencies, in accordance with the law on housing and other relevant laws.
- IP construction planning has been approved by the Provincial People's Committee (the proposed content of IP construction planning should be included in this section).

#### Classification of construction planning applied to IPs

In Article 7 – Decree 35/2022/ND-CP, there are clear regulations on the classification of IP construction planning, as follows:

- General planning for construction of IPs (**general planning**) – in case an IP area is more than 500 ha.
- IP construction subdivision planning (**subdivision planning**) – in case an IP area is less than 200 ha.
- Detailed planning for construction of IPs (if necessary) (**detailed planning**).

Therefore, the approved master plan for construction of industrial parks and industrial park construction subdivision plans form the basis for:

- Organizing the formulation of detailed planning for the construction of IPs (if necessary).
- Organizing the preparation of pre-feasibility study reports on IP infrastructure projects using public investment capital in accordance with the law on public investment.
- Organizing the preparation of dossiers of investment projects on construction and business of IP infrastructure in accordance with the law on investment.

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<sup>12</sup> See Section C – New guidelines to establish new eco-industrial parks in Viet Nam, based on international experience for more information.

- Decision on investment policies for IP infrastructure projects using public investment capital in accordance with the law on public investment. Approve investment policies for investment projects on construction and business of IP infrastructure in accordance with the law on investment.

Decree 35/2022 provides some examples for which **construction planning tasks are exempt**<sup>13</sup>, namely:

- In case of the formulation of an IP construction subdivision planning in an area where there has been an approved general planning for construction or a general plan for construction of an EZ, there is no need to formulate planning tasks.
- In case of the formulation of a detailed plan for the construction of an IP in an area where an approved construction subdivision plan has been made, there is no need to formulate planning tasks.
- Subdivision planning tasks are exempt when formulating zoning plans for IPs and industrial-urban-service parks located in areas in which there has been an approved urban general plan or EZ.

## **STEP 2: Pre-feasibility study and proposal of investment for a new EIP, including Decision on Investment Policy (this applies to all IP developers and to the Provincial People's Committee)**

- To integrate Article 38 of Decree 35/2022/ND-CP on proving capacity and conditions to satisfy the criteria for establishing new EIPs:
  - The government encourages new investment in EIPs through construction planning, rational design of functional subdivisions and orientations to attract investment projects with similar industries and trades to support real industrial symbiosis.
  - Investment projects on construction and business of infrastructure of EIPs must satisfy the following conditions:
    - The type of EIP shall be specified by a competent authority in the decision on investment policies and the investment registration certificate, in accordance with the law on investment as a basis for inspection and monitoring.
    - Investors implementing investment projects on construction and trading of infrastructure of EIPs **register industries and trades** attracting investment in the IP; estimate **emission levels** for each industry or profession; propose an industrial **symbiosis plan** in the IP; plan for the construction and implementation of a **mechanism to monitor** the inputs and outputs of the IP on the use of raw materials, materials, water, energy, chemicals, waste, scraps and plans for implementing social responsibility towards the surrounding community in the project dossiers on investment in construction and business of infrastructure of IP; **commit** to meeting the criteria for determining the EIP specified in Article 37 of Decree 35/2022/ND-CP within eight years from the time of establishment of the IP and clearly define the implementation roadmap.
- A dossier for the project implementation proposal includes a written request for project implementation (According to Form A.I.1 of Circular 03/2021/TT-BKHDT).
- Business registration certificate – ID card (citizen identification) of the legal representative of the enterprise/project investor (specified at Point b, Clause 1, Article 33 – Law on Investment).
- At least one of the following documents: financial statements of the last two years/financial commitments of the parent company/financial support commitments of financial institutions/guarantee of financial capacity of investors/documents proving other financial capacity of investors (specified at point c, Clause 1, Article 33 – Law on Investment).

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<sup>13</sup> Clause 4, 5, 6 – Article 7, Decree 35/2022/ND-CP issued on 28/05/2022.

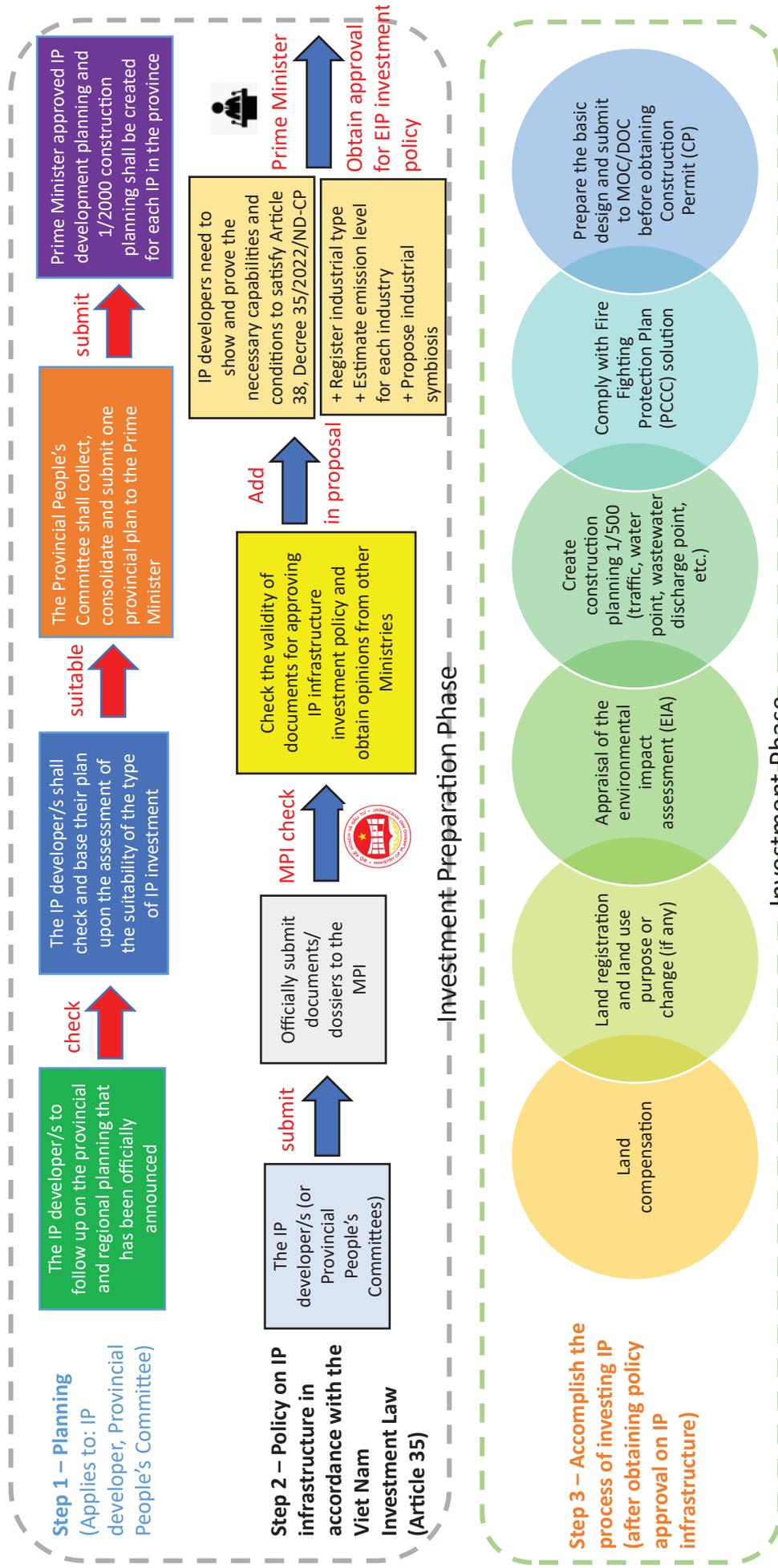
- Pre-feasibility study report (specified in Article 52 – Law on Construction, amended and supplemented in Clause 10, Article 1 of the Law amending and supplementing a number of articles of the Law on Construction).
- Contents of the pre-feasibility study report specified in Article 53 – Law on Construction (amended and supplemented in Clause 11, Article 1 of the amended Law on Construction in 2020):
  - The necessity for investment and the conditions for the implementation of construction investments.
  - Expected objectives, scale, location and form of construction investment.
  - Land and resource use needs.
  - Preliminary design plan on construction, explanation, technology, engineering and equipment (specified in Article 9, Decree 15/2021/ND-CP).
    - Preliminary design drawings include: location map, location of construction land, preliminary total area of the project and drawings showing the preliminary design solution.
    - Explanation of the scale and nature of the project, status, land boundaries, and explanation of conformity with the planning (if any), traffic connection, technical infrastructure around the IP and preliminary design solutions.
    - Preliminary drawings and explanations on technological equipment (if any).
  - Estimated project implementation time.
  - Preliminary total investment, capital mobilization plan, the ability to return capital, repay loans (if any), preliminary determination of socio-economic impacts and impact assessment.
  - Preliminary environmental impact assessment in accordance with the law on environmental protection and other contents in accordance with relevant laws.
- Project proposal (optional) (Point d, Clause 1, Article 33 – Law on Investment).
- The approved general plan for construction of an IP or a master plan for subdivision for construction of an IP.
- There is a construction plan (for expansion projects, built and put into use) on residential areas and cultural and sports facilities for employees working in IPs. For expansion projects, the construction and usability of residential areas and public utility works for employees working in IPs must be completed (Point c, Clause 8, Article 9 – Decree 35/2022/ND-CP).

## **INVESTMENT PHASE**

### **STEP 3 – To accomplish the process of investing in IPs (after obtaining the Decision on Policy Investment approval):**

- Land compensation.
- Land registration and land use purpose or change (if any).
- Implementation of the EIA.
- Build construction planning 1/500 (traffic, water, wastewater discharge, etc.).
- Firefighting protection plan.
- Basic design.

MPI's process to establish new EIPs in Viet Nam and steps needing to be undertaken by the IP developer and authorities



Guidance notes for IP developers and provincial government authorities on the process to establish new EIPs are provided in the following table.

Table 3: Guidance notes –Process to establish new EIPs

Steps in entire process to establish new EIPs	Guidance notes for IP developers	Guidance notes for government authorities
IP development plan in the provincial planning	The IP developers check and update with the provincial planning before making an investment project proposal	The government authorities, especially the Provincial People’s Committees, announced the provincial planning to developers to obtain preliminary site assessment and investment potential for the IP.
IP construction planning	<ul style="list-style-type: none"> <li>• The project developers shall develop the detailed planning of the IP assigned for investment.</li> <li>• The Provincial People’s Committee shall approve the following construction planning tasks and plans.                             <ul style="list-style-type: none"> <li>- General planning for construction of IPs.</li> <li>- Planning of subdivisions for construction of IPs (general plan 1/2000).</li> </ul> </li> <li>• Based on the plan for development of the IP system in the provincial planning, the Provincial People's Committee shall organize the formulation and approval of tasks and plans for the general planning for construction, detailed construction planning scale 1/500 and subdivision planning for construction of IPs in accordance with the law on construction.</li> <li>• It is expected that industrial symbiosis plans and industries for industrial symbiosis plans, emission norms for such industries and the formulation of plans on the implementation of input and output monitoring mechanisms for solutions to implement industrial symbiosis.</li> <li>• Detailing functional subdivisions, arranging industries to ensure the implementation of industrial symbiosis in the detailed construction planning, scale 1/500.</li> </ul>	
Policy on investment in IP infrastructure	<ul style="list-style-type: none"> <li>• The basics of EIA should be processed before obtaining the investment policy and investor selection.</li> <li>• Developers or the Provincial People’s Committees collaborate with MPI and obtain opinions from other ministries (e.g. Ministry of Construction, Ministry of Defence, Ministry of Transportation) and execute the appraisal works before reporting the investment policy to the Prime Minister.</li> </ul>	
Approving the investment policy and investor selection	<ul style="list-style-type: none"> <li>• The Prime Minister will officially issue the investment policy approval and investor approval at the same time OR approval of investment policies, including options for land use rights auction and bidding for investor selection.</li> <li>• The formal EIA approval should be processed and collaborated with the Ministry of Natural Resources and Environment.</li> </ul>	

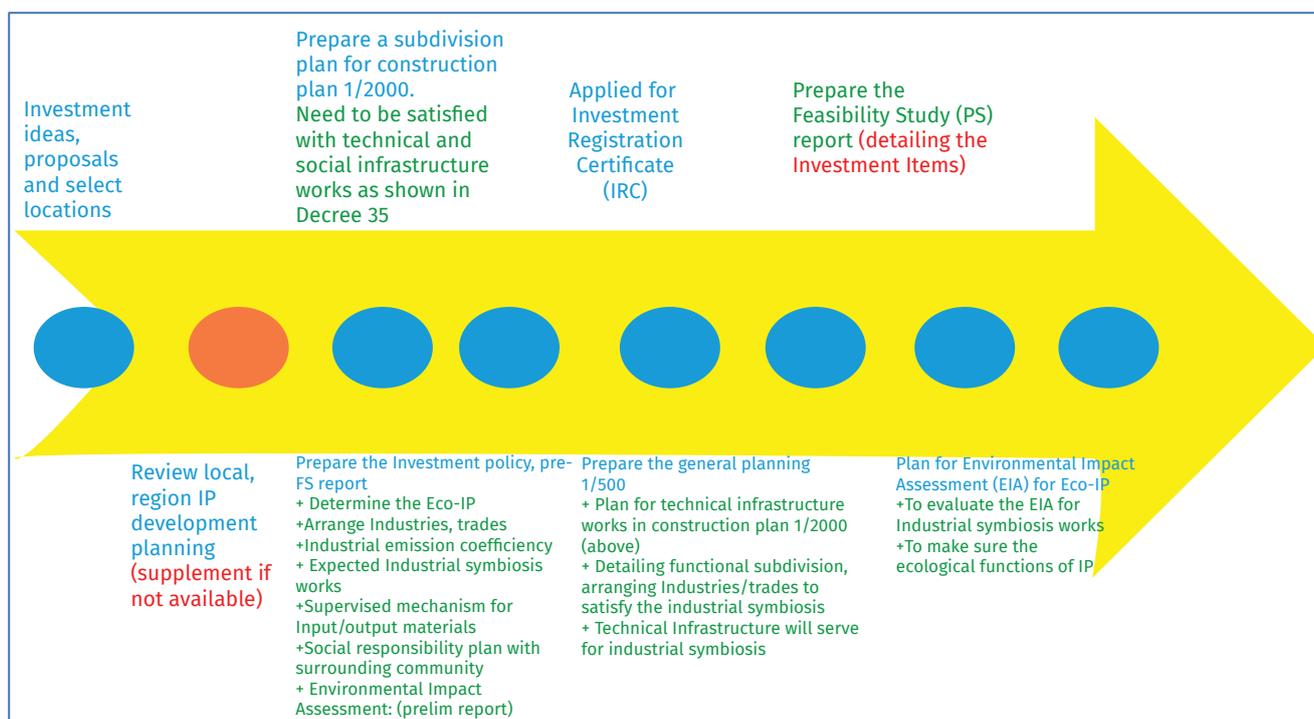


Figure 7: Process of establishing a new EIP according to the provisions of Decree 35

## B.4 Further reading

The following table provides suggested further reading relevant to the process of establishing new EIPs in Viet Nam.

Table 4: Further reading relevant to the entire process of establishing new IPs in Viet Nam

Topics	Further reading
Policies on IP infrastructure in accordance with Vietnamese law	Investment Law (2020): Article 35 - Procedures for investment guideline approval by the Prime Minister
	Law on Environmental Protection (2020) issued by The National Assembly, Law No. 72/2020/QH14 dated 17 November 2020
IP construction planning	Decree No. 35/2022/ND-CP: <ul style="list-style-type: none"> <li>• Article 7. Industrial Park construction planning</li> <li>• Article 9. Conditions for investment on industrial park infrastructure</li> <li>• Article 10. Conditions for investors to implement investment projects on construction and business of industrial park infrastructure</li> </ul>
	Law on Construction (2014): Clauses 25 and 32, Article 3 (amended and supplemented according to the provisions of Points a and c, Clause 1, Article 28 of the Law on Construction)
	Law on Construction (2014): Article 25
	Law on Construction (2014): Point d, Clause 2, Article 26. Point d, Clause 2, Article 27 and Point d, Clause 2, Article 28
	Law on Construction (2014): Clause 2 and 3, Article 24 (amended and supplemented according to the provisions of Clause 7, Article 28)

Table 5: Further reading relevant to the requirements and benchmarks for new EIPs in Viet Nam

Topics	Further reading
IP requirements and benchmarks	Decree 08/2022/ND-CP on Elaboration of Several articles of the law on environmental protection
	Law on Environmental Protection, issued by The National Assembly, dated 17 November 2020
	Decree on Elaboration of Several Articles of the Law on Environmental Protection – The Government No. 08/2022/ND-CP, issued on 10 January 2022
EIP requirements and benchmarks	Law on Environmental Protection, issued by The National Assembly, dated 17 November 2020
	Decree on Elaboration of Several Articles of the Law on Environmental Protection – The Government No. 08/2022/ND-CP, issued on 10 January 2022
	Decree 35/2022/ND-CP on Regulations on management of industrial parks and economic zones

## C New guidelines to establish new EIPs in Viet Nam, based on international experiences

The following table summarizes how international experiences documented in Section C of these guidelines on site selection, feasibility assessments, concept and master planning correspond to the relevant procedures of establishing national EIPs in Viet Nam.

Table 6: Comparison between international good practices and Vietnamese procedures to establish new EIPs

INTERNATIONAL GOOD PRACTICES		VIETNAMESE PROCEDURE	
INTERNATIONAL key elements / steps	Section in these guidelines	Cross-reference to step to establish new eco-industrial parks in Viet Nam	Section in these guidelines
<b>Site selection for new EIPs</b>			
Identify potential industrial sites	C.1.2  Annex B	The site selection for the investment purpose of EIP planning based upon international experience will support the Provincial People’s Committee in making the EIP planning list as part of provincial planning. (The proposed contents from developers to establish new EIPs in construction planning need to be integrate in the master planning step)	Step 1 – Investment Preparation Phase Section B.2
Shortlist potential industrial sites			Site selection
Multicriteria analysis of shortlisted sites			Provincial planning
Final selection of site			Criteria to select new IPs for investment purpose
<b>Feasibility assessments for EIPs</b>			
Vision and objectives for IP	C.2.2  Annex C	The feasibility assessment from international experience will be equivalent to the Step 2 – Policy on IP infrastructure in accordance with Viet Nam Investment Law (Article 35). The production of a feasibility study and proposed project documentation should strictly follow up the Law on Construction and Law on Investment.	Step 2 – Investment Preparation Phase Section B.2
Unique value proposition (UVP)			Conditions to satisfy the criteria of establishing new EIPs
Market demand projections			Dossier of project implementation proposal
Financial analysis			Construction plan
Economic impact analysis			
Service delivery model			
IP management			
Opportunity, impact, risk analysis			
Regulatory analysis			
Environmental and social assessment			
Stakeholder analysis			
Spatial planning			
Infrastructure assessment			

INTERNATIONAL GOOD PRACTICES		VIETNAMESE PROCEDURE	
INTERNATIONAL key elements / steps	Section in these guidelines	Cross-reference to step to establish new eco-industrial parks in Viet Nam	Section in these guidelines
<b>Concept planning of new eco-industrial parks</b>			
Review of existing and future situation	C.3.2	This section will correspond to the inception phase development plan, in which the Provincial People’s Committee established the network of development for its particular province, and should strictly follow up on Point d, Clause 2, Article 27 of the Law on Planning	Step 1, Investment Preparation Phase Section B.2
Review (inter)national indicators and planning implications	Annex D		
Review and consolidate industry interests			
Review existing and potential anchor tenants			
Review synergy opportunities and land use implications			
Define industry clusters and precincts			
Develop IP concept plan			
Promote added value features of concept plan			
<b>Master planning of new EIPS</b>			
Preparing for master planning	C.4.2	Both traditional IPs and EIPs must comply with the provincial master plan (regulation in Article 27 – Law on planning and Article 4 – Decree 35/2022/ND-CP) integrated into provincial planning.  The master plan for the IP needs to be integrated in the provincial planning with orientation of construction planning from the inception phase in order to add a new EIP here.	Step 1, Investment Preparation Phase Section B.2
Develop master plan	Annex E		
Implement master plan			
Keeping master plan up-to-date			

## C.1 Site selection for new EIPs

### C.1.1 Rationale and overview

Selecting the optimal location for a new IP is crucial as it affects how well the site can meet industry demands in terms of connectivity to their suppliers and clients, transportation network, energy and water supply, etc. A poor site selection will likely result in an unsuccessful or, at least, less successful IP. The planning and establishment of a new IP is a resource-intensive and costly process – it is therefore critical to get the initial selection right from the start.

When reviewing and selecting a site location for an IP, it is important to consider the broader geographical area and industry demand parameters. A number of alternative sites should be evaluated based on factors such as transportation connectivity, capital and operational costs, government plans, infrastructure services, geophysical conditions and the natural environment.

In summary, IP developers should take the following factors into account when selecting the optimal site for their project<sup>14</sup>:

- Locations where there is meaningful investor interest, (at least incipient) economic activity and clustering dynamics, proximity to supplies and services, the presence of an appropriately skilled workforce, logistical connectivity and cost efficiencies.
- Compliance with national and local masterplans, urban plans, land use plans and agricultural/residential/commercial and industrial zoning classifications and requirements.
- Cost of site development and construction, based on topography and access.
- Transportation connectivity or linkages, utility linkages and proximity to social infrastructure and assets, including residential communities, commercial and retail areas, schools, police and fire stations, hospitals and clinics and places of worship.
- Avoidance of environmentally and culturally sensitive areas, protection of the natural ecosystem and promotion of the rational management of heritage.
- Building in sustainability strategies from the site selection stage, as energy sustainability considerations should, ideally, include an energy-efficient location choice.
- Maximization of user access to sustainable and cost-competitive energy supplies, water services, telecommunications, transportation infrastructure and nodes, as well as other utilities.
- Seeking, where possible, to redevelop previously developed property rather than breaking fresh ground, in order to capitalize upon and leverage underutilized assets for maximum project impact.
- Engaging stakeholders and the local community in a coordinated manner, ensuring that their concerns are considered and properly managed.

Regardless of sector-specific considerations, the selection of an optimal industrial site is generally tied to the factors listed in the following table.

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<sup>14</sup> UNIDO (2019). International Guidelines for Industrial Parks.  
[www.unido.org/sites/default/files/files/2019-11/International\\_Guidelines\\_for\\_Industrial\\_Parks.pdf](http://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf).

Table 7: Typical parameters to consider for site selection<sup>15</sup>

Critical success factor	Typical parameter
Land status and zoning	<ul style="list-style-type: none"> <li>• Availability of the site within the time frame of the IP development</li> <li>• Alignment with national/provincial/local master plans, urban plans, land use plans</li> <li>• Time required or other challenges in acquisition</li> <li>• Clean and clear title</li> <li>• Targeted land uses and industry (sub)sectors for the IP are permitted in the zoning classifications of the site</li> <li>• Land price</li> <li>• Cost of development</li> </ul>
Connectivity	<ul style="list-style-type: none"> <li>• Distance of identified site from the nearest commercially relevant highways, rail lines, airport, dry ports and/or sea or river ports</li> <li>• Distance from major population and distribution centres, offering both markets and potential labour pools</li> </ul>
Raw materials and services	<ul style="list-style-type: none"> <li>• Availability of commercially relevant raw materials in area, in country, or ease of access to them</li> <li>• Proximity to service providers</li> </ul>
Physical features	<ul style="list-style-type: none"> <li>• Plot size and shape</li> <li>• Topography, including grading and drainage conditions</li> <li>• Soil conditions</li> <li>• On-site above-ground and/or underground water resources</li> <li>• Accessibility</li> </ul>
Sustainable and cost-competitive infrastructure	<ul style="list-style-type: none"> <li>• Industrial power, gas and renewable energy sources</li> <li>• Water for industrial use</li> <li>• Potable water (wells, boreholes, reservoirs, tanks, pipelines)</li> <li>• Industrial and household sewage disposal, effluents and storm water collection, disposal and treatment points</li> <li>• Communications and ICT network</li> </ul>
Environmental conditions	<ul style="list-style-type: none"> <li>• Site-specific environmental rules and guidelines</li> <li>• Site-specific construction rules and guidelines</li> <li>• Adjacency considerations regarding surrounding areas</li> </ul>
Risks	<ul style="list-style-type: none"> <li>• Economic risks (e.g. industries leaving the area), technical risks (e.g. lack of water and energy supply), environmental risks (e.g. flooding, drought, earthquakes) and social risks (e.g. urban encroachment, crime)</li> <li>• Consider short-term risks (up to five years), medium-term risks (five to ten years), and long-term risks (beyond ten years)</li> </ul>
Social conditions	<ul style="list-style-type: none"> <li>• Workforce availability and characteristics</li> <li>• Local government and civil society support and commitment</li> </ul>

<sup>15</sup> Adapted from UNIDO (2019). International Guidelines for Industrial Parks.  
[www.unido.org/sites/default/files/files/2019-11/International\\_Guidelines\\_for\\_Industrial\\_Parks.pdf](http://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf).

Critical success factor	Typical parameter
	<ul style="list-style-type: none"> <li>Existing and planned social infrastructure, such as residential communities, commercial and retail areas, schools, police and fire stations, hospitals and clinics</li> </ul>
Business considerations	<ul style="list-style-type: none"> <li>Site meets the strategic and market-driven interests of targeted investors and industry (sub)sectors</li> <li>Existing business presence in the area</li> <li>Presence of complementing facilities and services</li> <li>Presence of competing facilities</li> <li>Operational and utility delivery costs</li> <li>Supporting the business environment, for instance with an affordable labour force, presence of nearby central and local government services and single-window facilities</li> </ul>

### C.1.2 Site selection process

Selecting an industrial site is a strategic process that considers technical, economic, social, environmental and political factors. In summary, based on international experiences, the four key steps in site selection for new EIPs are:

- ***Step 1 – Identify potential industrial sites:*** Identify potential sites (so called "candidate sites") for a new IP based on the extent of land available for the required infrastructure, as well as environmental and social considerations. The land shall be sufficiently large to provide space for the required infrastructure and utilities to support tenant companies (e.g. energy supply, water supply/treatment/recycling, waste management, buffer zone). As part of this step, the environmental sensitivity of the search area and its surroundings should be investigated and areas within the area that are subject to environmental sensitivity should be avoided.
- ***Step 2 – Shortlist potential industrial sites:*** Undertake a rapid assessment of the identified sites for their suitability based on social, economic and environmental considerations, and subsequently shortlist suitable sites for the targeted industrial development, eliminating locations that do not meet minimum criteria for establishing a new IP.
- ***Step 3 – Multicriteria analysis (MCA) of shortlisted sites:*** A multicriteria analysis approach can be used to compare the site options for a new IP by integrating the relevant financial, technical, social and environmental criteria. The MCA is aimed at identifying a site option that has the optimum overall performance, through a systematic process that is clear and transparent.
- ***Step 4 - Final selection of site:*** Building upon the outcomes of the previous steps, undertake stakeholder discussions to make the final decision on the most suitable site for the new EIP meeting all of the minimum site requirements (Step 2) and performing most favourably on the financial, technical, social and environmental criteria of importance to the stakeholders (Step 3).

Further details on each step of the site selection process are included in Annex B of these guidelines.

### C.1.3 Similarities and differences for the site selection of traditional IPs versus EIPs

The following table summarizes the key similarities and differences for each step of the site selection process of traditional IPs compared to EIPs.

Table 8: Traditional IPs versus EIPs – Site selection

Steps in site selection process	Traditional IPs vs EIPs	
	Similarities	Differences
Step 1: Identify potential industrial site	<ul style="list-style-type: none"> <li>• Proper site selection process is critical to all types of IP</li> <li>• Therefore, all steps of the site selection process are equally relevant to both traditional IPs and EIPs</li> </ul>	<p>The site selection process for EIPs may have a stronger focus on sustainability criteria, including:</p> <ul style="list-style-type: none"> <li>• Equal attention to economic, environmental and social opportunities and risks, recognizing that environmental and social risks will become economic risks if not properly managed.</li> <li>• Considering benchmarks from the International EIP Framework relevant to site selection (as listed in Annex A)</li> <li>• Site potential to produce renewable energy on-site</li> <li>• Site potential for sustainable water use, water recycling</li> <li>• <b>Site potential for enabling industrial symbiosis, waste recycling and integrated waste management practices</b></li> </ul>
Step 2: Shortlist potential industrial sites		
Step 3: MCA of shortlisted sites		
Step 4: Final selection and communications		

### C.1.4 Further reading

The following table provides suggested further reading relevant to site selection for new EIPs.

Table 9: Further reading on site selection

National references	Article 4, Decree No. 35/2022/ND-CP: Plan for development of industrial park system
	Point d, Clause 2, Article 27 of the Law on Planning (2017)
	Clause 2, Clause 3, Article 3, Land Law No. 45/2013/QH13 dated November 29, 2013
International references	<p>UNIDO (2019). International Guidelines for Industrial Parks. <a href="http://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf">www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf</a>.</p> <ul style="list-style-type: none"> <li>• Chapter 2: Industrial Park planning</li> <li>• Chapter 6: Industrial Park investment marketing and facilitation</li> <li>• Chapter 7: Industrial Park risk management</li> </ul>
	<p>GIZ. Sustainable Industrial Area Toolbox. <a href="http://www.sia-toolbox.net/solution/site-assessment">www.sia-toolbox.net/solution/site-assessment</a></p> <ul style="list-style-type: none"> <li>• Webpage: Site Assessment</li> </ul>
	<p>UNIDO, WBG, GIZ (2021). International Framework for Eco-Industrial Parks. <a href="https://openknowledge.worldbank.org/handle/10986/35110?locale-attribute=es">https://openknowledge.worldbank.org/handle/10986/35110?locale-attribute=es</a>.</p> <ul style="list-style-type: none"> <li>• Chapter 4: Performance requirements for eco-industrial parks</li> </ul>

## C.2 Feasibility assessment for new EIPs

### C.2.1 Rationale and overview

A reliable and site-specific feasibility assessment is critical to making a justified final decision for the establishment and financing of an IP. This should include market identification and demand projections, master plans, technical designs, project costs and benefits analysis, social and environmental assessments, institutional mapping and governance system analysis, infrastructure requirement assessments and development plans, financial modelling and structuring plans, as well as economic impact modelling. All of these factors are crucial in deciding if and how to proceed with establishing a new EIP.

Prior to undertaking a full detailed feasibility assessment, a pre-feasibility assessment provides a broad perspective from which to assess the overall potential of an IP project. It helps decision-makers to determine whether the project overall is technically, financially, economically, socially and environmentally sound. The analysis also positions the proposed project within national, regional and international competition and market trends. A pre-feasibility study uses widely available statistical data sources supplemented by field data collected specifically for the study and qualitative information gathered through interaction with public authorities and enterprises.

Pre-feasibility assessments generally cover similar subjects to feasibility studies, but do so in less detail, as shown in Figure.

**Important notes:** A pre-feasibility assessment informs the scope and focus areas of a detailed feasibility assessment and should therefore be carried out as a separate task prior to a detailed feasibility assessment. Furthermore, a (pre-)feasibility assessment is generally carried out before the detailed design and master planning of a new EIP is carried out, as the feasibility needs to be confirmed before significant human and financial resources are spent on detailed design and master planning.

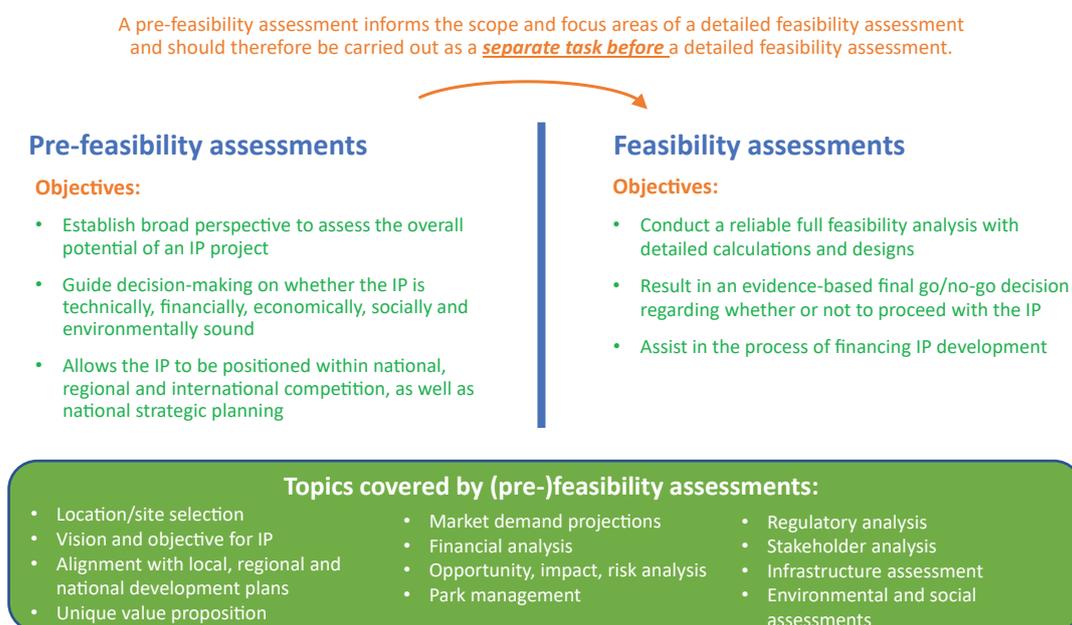


Figure 8: Pre-feasibility versus feasibility assessments for new EIPs<sup>16</sup>

<sup>16</sup> Adapted from: UNIDO (2019). International Guidelines for Industrial Parks. [www.unido.org/sites/default/files/files/2019-11/International\\_Guidelines\\_for\\_Industrial\\_Parks.pdf](http://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf).

## C.2.2 Feasibility assessment process for new EIPs

Feasibility and pre-feasibility assessments are usually led by an IP developer and undertaken by planning, engineering and management consultancies. As IPs are multidisciplinary systems interacting with a range of stakeholders, feasibility assessments should be undertaken through multistakeholder approaches involving the relevant government authorities, the private sector, business associations and community representatives.

Key elements of (pre-)feasibility assessments include, but are not limited to, the following<sup>17</sup>:

- **Site selection:** Comparing potential IP sites based on their market suitability, transport connectivity, power and water linkages and cost feasibility. Details on site selection are captured in Chapter C.1.
- **Vision and objective for IP:** Develop overall vision and objective of the IP with regard to types of industries to attract, the type of IP and expectations of the IP from economic, environmental and social perspectives.
- **Alignment with local, regional and national development plans:** Analysis of the context and basis of the project to determine the necessity and urgency of the new EIP, objectives and suitability to contribute to the national strategy, in particular the socio-economic master plan of countries, the regional or local socio-economic master plan and industry development planning.
- **Unique value proposition:** Clear statement that differentiates the IP from its other (competing) industrial parks locally, nationally and internationally.
- **Market demand projections:** Assessment of the sectoral niches that may be attracted to the proposed IP, including their country of origin, expectations and needs. The project anticipates sector-specific demand for an IP based on historical investment patterns and current trends nationally, internationally and in the prospective location, as well as industry and comparator benchmarks.
- **Financial analysis:** Modelling the costs and revenue streams of the potential IP project based on its expected demand and conceptual master plan, as well as exploring a range of possible financing structures, mechanisms and funding sources. The financial analysis includes the following:
  - Construction investment objectives, construction location and land use area, capacity scale and form of construction investment.
  - Total investment and capital mobilization, financial analysis, risks, costs of exploitation and use of works, assessment of socio-economic efficiency of the project, proposed coordination mechanisms, preferential policies and support for project implementation.
  - Analysis of investment efficiency, including socio-economic efficiency and impacts, defence and security, as well as the ability to recover investment capital (if any).
- **Economic impact projections:** Modelling the anticipated economic impacts of establishing the proposed IP in terms of investment, public finance expenditure, jobs, net exports, tax revenues and foregone revenues and other factors, based on the results of the demand and financial analysis.
- **Service delivery model:** Definition of the service delivery model, and corporate and legal structure for the proposed IP, including details of the nature of the corporate vehicle that will be used to develop and operate the park, the extent of participation within it from the public and private sectors and their respective roles and responsibilities in terms of the design, financing, ownership, development and operation of the project.
- **IP management:** The management entity plays a critical role in the successful development and operation of the IP from an economic, environmental and social perspective.

<sup>17</sup> Expanded from: UNIDO (2019). International Guidelines for Industrial Parks.  
[www.unido.org/sites/default/files/files/2019-11/International\\_Guidelines\\_for\\_Industrial\\_Parks.pdf](http://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf).

- **Opportunity, impact and risk analysis:** Reviewing opportunities and risks from an economic, environmental and social perspective, considering short-, medium- and long-term scenarios. Opportunities and risks for IPs are better managed when analysed using a systematic approach to identify, prioritize and manage them.
- **Regulatory analysis:** Considering the existing policy, legal and regulatory environment in which the IP would be grounded.
- **Environmental and social assessment:** Analysis of the socio-environmental context of the site, identification of associated risks and anticipated impacts and planned mitigation measures aimed at averting environmental degradation and protecting the interests of the population and nearby communities.
- **Stakeholder analysis:** IPs are truly multidisciplinary systems bringing together many different stakeholders. All successful initiatives internationally have close collaboration between industry, government, civil society organizations and community.
- **Spatial planning:** Preparation of a concept plan, master plan, including zoning plan, subdivision plan, integrated with urban/regional plans and ensuring continuity with infrastructure and services provisioned in these plans.
- **Infrastructure assessment:** Infrastructure and service needs assessment, description of the site's physical context, the project's geo-technical specifications, its resulting engineering and architectural plans, and the transportation management plans.

Further details on key topics of feasibility assessments for new EIPs are included in Annex C of these guidelines.

### C.2.3 Similarities and differences for the feasibility assessment of traditional IPs versus EIPs

The following table summarizes the key similarities and differences in the scope for each element of the feasibility assessment for traditional IPs compared to EIPs.

Table 10: Traditional IPs versus EIPs – Feasibility assessment

Key elements of feasibility assessments	Traditional IPs versus EIPs	
	Similarities	Differences
Site selection	<ul style="list-style-type: none"> <li>• Proper (pre-)feasibility assessments are critical to the establishment of all types of IP</li> <li>• Therefore, all elements of a (pre-)feasibility assessment are equally relevant to new traditional IPs and EIPs</li> </ul>	<ul style="list-style-type: none"> <li>• See Chapter C.1 of these guidelines</li> </ul>
Vision and objectives for IP		<ul style="list-style-type: none"> <li>• The vision, objectives and UVP of EIPs cover a balanced and integrated approach to economic, environmental and social development</li> </ul>
Unique value proposition		
Market demand projections		<ul style="list-style-type: none"> <li>• Market demand for EIPs may have a broader focus on attracting "green" industries, as well as consideration of industries to attract through supply chain, utility synergies, by-product and service synergies</li> </ul>
Financial analysis		<ul style="list-style-type: none"> <li>• Financial and economic impact analysis for EIPs may have a stronger focus on incorporating the full life cycle costs, including carbon credits, climate change impacts</li> </ul>
Economic impact analysis		
Service delivery model		<ul style="list-style-type: none"> <li>• In addition to basic services, EIPs also consider added value services to tenant companies, which increase their economic, environmental and social performance</li> </ul>
IP management		
Opportunity, impact, risk analysis		<ul style="list-style-type: none"> <li>• Analysis for EIPs pays equal attention to economic, environmental and social opportunities, impacts and risks</li> </ul>
Regulatory analysis		

Key elements of feasibility assessments	Traditional IPs versus EIPs	
	Similarities	Differences
Environmental and social assessment		<ul style="list-style-type: none"> <li>Analysis for EIPs pays equal attention to economic, environmental and social regulations and policies, including adherence to international standards</li> </ul>
Stakeholder analysis		<ul style="list-style-type: none"> <li>Analysis for EIPs covers a broad range of stakeholders, including the private sector, relevant government agencies, industry associations, civil society organizations, local communities and educational institutions</li> </ul>
Spatial planning		<ul style="list-style-type: none"> <li>See Chapter C.3 of these guidelines</li> </ul>
Infrastructure assessment		EIPs apply integrated approaches to infrastructure, including: <ul style="list-style-type: none"> <li>Shared utilities and infrastructures inside and outside the park</li> <li>Consideration of basic, environmental and social infrastructure</li> </ul>

### C.2.4 Further reading

The following table provides suggested further reading relevant on (pre-)feasibility assessments for new EIPs.

Table 11: Further reading on (pre-)feasibility assessments

National references	Circular 18/2016/TT-BXD on “Specifying and providing guidance on certain contents of evaluation and approval of projects, construction designs and cost estimates”
	Decree No. 35/2022/ND-CP on “Regulations on management of industrial parks and economic zones”
International references	UNIDO (2019). International Guidelines for Industrial Parks. <a href="http://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf">www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf</a> <ul style="list-style-type: none"> <li>Chapter 2: Industrial Park planning</li> <li>Chapter 5: Industrial Park regulation</li> <li>Chapter 6: Industrial Park investment marketing and facilitation</li> <li>Chapter 7: Industrial Park risk management</li> </ul>
	UNIDO. COMFAR Software. <a href="http://www.unido.org/resources-publications-publications-type/comfar-software">www.unido.org/resources-publications-publications-type/comfar-software</a> . <ul style="list-style-type: none"> <li>Tool to aid in the analysis of investment projects</li> </ul>
	UNIDO (1991). Manual for the Preparation of Industrial Feasibility Studies. <a href="http://www.unido.org/sites/default/files/files/2021-02/manual_for_the_preparation_of_industrial_feasibility_studies.pdf">www.unido.org/sites/default/files/files/2021-02/manual_for_the_preparation_of_industrial_feasibility_studies.pdf</a> . <ul style="list-style-type: none"> <li>Part 1: Categories and basic aspects of pre-investment studies</li> <li>Part 2: Specific chapters on feasibility studies</li> <li>Part 3: Supporting materials and case-study</li> </ul>
	UNIDO, WBG, GIZ (2021). International Framework for Eco-Industrial Parks. <a href="https://openknowledge.worldbank.org/handle/10986/35110?locale-attribute=es">https://openknowledge.worldbank.org/handle/10986/35110?locale-attribute=es</a> . <ul style="list-style-type: none"> <li>Chapter 4: Performance requirements for eco-industrial parks</li> </ul>

## C.3 Concept planning of new EIPs

### C.3.1 Rationale and overview

The objective of EIP concept planning is to assist in the sustainable and integrated design and operation of IPs from an economic, environmental and social perspective. EIP concept planning assists with designing more resource-efficient and cost-effective IPs that are more competitive, attractive for investment and resilient to risk.

The integrated planning of IPs, their companies, infrastructure, utilities, and land uses is a core element for the development of synergies within IPs and their surrounding regions, as well as a mechanism to optimize utility infrastructure and associated costs.

The concept plan should provide flexibility in the sustainable industrial development of the park and allow for the development of the promising industry synergies identified and, subsequently, industry clustering. The plan provides guidance on the types of industry clustering that can occur in an IP, rather than locking in clustering scenarios at the outset with limited information on future companies to locate to the IP. As companies locate to an IP, specific and more detailed industry clustering scenarios should be assessed.

The concept planning approach aims to capture the following planning opportunities:

- Understand industrial land demands.
- Attract synergistic anchor tenants to the IP.
- Encourage industrial synergy development.
- Optimize industry zoning and clustering.
- Optimize existing and future infrastructure and utilities.
- Reduce economic, environmental and social risks.
- Increase competitiveness of the IP.
- Communicate added value features of the EIP concept plan to stakeholders.

This chapter is based on the EIP Concept Planning Tool developed by UNIDO through the Global Eco-Industrial Parks Programme (GEIPP). The tool is freely available from UNIDO's Knowledge Hub<sup>18</sup>.

### C.3.2 EIP concept planning process

Figure presents the methodology to develop a concept plan for EIPs. Each of the steps is introduced below. Further details are provided in Annex D of these guidelines and in UNIDO's EIP Concept Planning Tool.

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<sup>18</sup> <https://hub.unido.org/eco-industrial-parks-tools>.

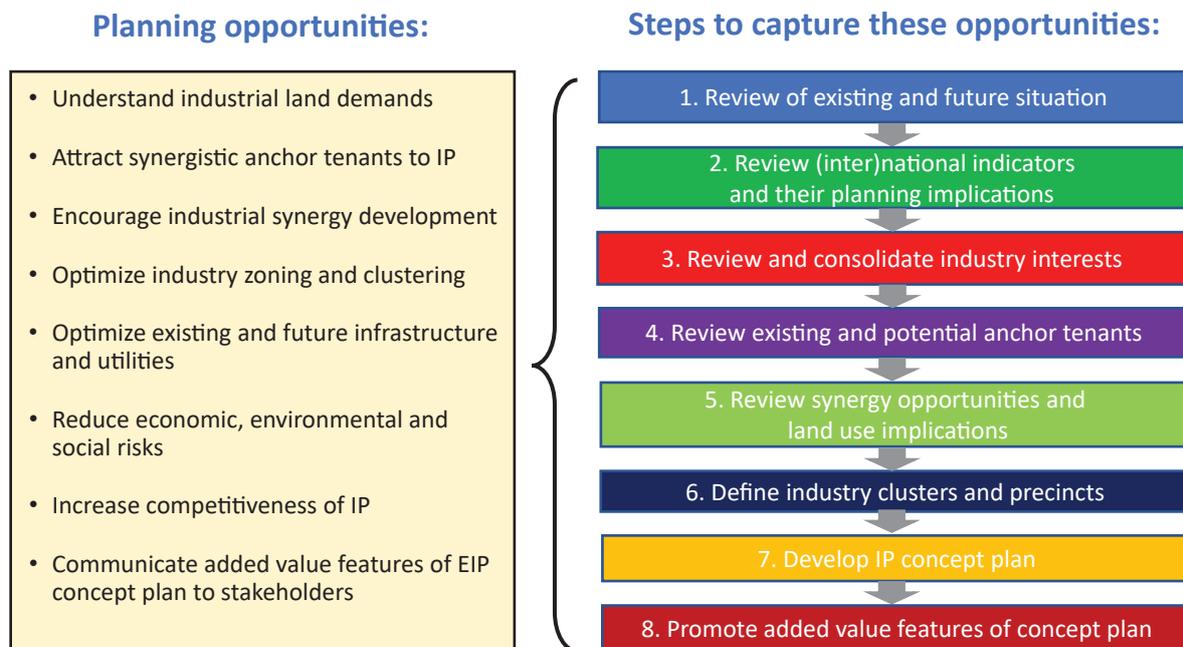


Figure 9: Steps in EIP concept planning

A brief introduction to each step of the concept planning methodology:

1. **Review existing and future situation:** A good understanding of the existing and future situation of the IP and its surroundings is a key first step to developing concrete and practical suggestions to optimizing the concept planning of any IP. This step includes a set of questions to review the existing and future situation for the IP on the following topics:
  - Park set-up, management and governance.
  - Infrastructure and utilities.
  - Land zoning.
  - Tenant companies.
  - Economic conditions.
  - Environmental and geographical conditions.
  - Community and social conditions.
2. **Review against International EIP Framework and its land use implications:** An International Framework for Eco-Industrial Parks was developed by UNIDO, the World Bank and GIZ to provide guidance on how an IP can work towards becoming an EIP. A large proportion of the EIP prerequisites and performance indicators outlined in the International EIP Framework have implications for land use in the IP and, thereby, for the EIP concept plan. Utilizing the International EIP Framework, this step identifies EIP and spatial planning opportunities to incorporate into the EIP concept plan.
3. **Review industry interest in locating to IP:** This step prioritizes industry sectors to attract to the new EIPs following a review of manufacturing sectors based on the International Standard Industrial Classification (ISIC revision 4). The full development of an IP normally takes a significant period of time (up to 30 years). As a result, there are uncertainties during the development phase regarding the potential industry types that will locate to an IP in the future. The potential for industry and business development in an IP is determined by a range of factors, including the availability of suitable land and servicing, transportation nodes, communications, labour, proximity to markets and infrastructure.

4. ***Review existing and potential anchor tenants:*** An anchor tenant acts as a central feature of an IP and as a catalyst for establishing industrial synergies. The development of an IP significantly benefits from having anchor tenants to attract associated and synergic businesses. Anchor tenants allow for planning of industrial synergies within the park or the adjacent area. These anchor tenants can be existing companies in surrounding areas or new businesses locating in an IP. This step guides a review of existing and potential new anchor tenants for an IP. The step is based on anchor tenants according to ISIC and the likelihood of attracting further companies through supply chain, utility, by-product/waste and/or service synergies.
5. ***Review synergy opportunities and their land use implications:*** The key to industrial synergy is collaboration and the synergistic possibilities offered by geographic proximity. The EIP concept plan should allow for the development of promising industrial synergy opportunities through industry clustering and co-location, flexible and "synergistic" precincts, service/utility corridors and a transportation network. The following types of industrial synergies are assessed as part of the EIP concept planning approach:
  - Supply synergies and co-location of suppliers and clients.
  - Utility synergies and infrastructure sharing.
  - By-product synergies and waste exchange.
  - Service synergies.
  - Urban-industrial synergies.
6. ***Define industry clusters and precincts:*** The clustering of companies is a core element in the development of industrial synergies within an IP and its surrounding regions, as well as a mechanism to reduce the need for utility infrastructure and associated costs. Industry clustering in an IP can be based on a range of parameters, including supply chain connections, water and energy consumption, risk profile, transport requirements, lot size and orientation and potential synergies. Through a set of location criteria, this step guides the user to identify preferred location(s) and clustering of companies within an IP and specific precincts.
7. ***Develop EIP concept plans:*** The EIP concept plan is based on the interpretation and consolidation of all previous steps of the EIP concept planning methodology. This step guides the interpretation and consolidation of the previous steps into a customized EIP concept plan, which includes the following:
  - Land use implications from the International EIP Framework.
  - Industry clustering and precincts.
  - Anchor tenants.
  - Industrial synergies.
  - Transportation network.
  - Risk mitigation.
8. ***Market and promote added value features of EIP concept plan:*** The EIP concept plan provides opportunities for park management to differentiate itself from other IPs or locations in which companies can locate and operate, as well as providing a strong case on why it is preferable for companies to locate to an IP with an EIP concept plan. It is important, therefore, for the IP management to market and promote the added value features of the EIP concept plan to businesses and investors, as well as to the local community and government agencies. This step assists in summarizing the added value features of the EIP concept plan and communicating these to the IP's stakeholders, including businesses and investors, the local community and government agencies.

### C.3.3 Similarities and differences for the concept planning of traditional IPs versus EIPs

The following table summarizes the key similarities and differences in the scope for each step of the concept planning process for traditional IPs compared to EIPs.

Table 12: Traditional IPs versus EIPs – Concept planning

Steps in concept planning process	Traditional IPs versus EIPs	
	Similarities	Differences
Step 1: Review of existing and future situation	<ul style="list-style-type: none"> <li>• Proper concept planning is critical to the establishment of all types of IP</li> <li>• Therefore, all steps of the concept planning process are relevant to new traditional IPs and EIPs</li> </ul>	<ul style="list-style-type: none"> <li>• The review of the existing and future situation of a new EIP may have a stronger and more integrated focus on the economic, environmental and social developments affecting the park in the short, medium and long term.</li> </ul>
Step 2: Review (inter)national indicators and their planning implications		<ul style="list-style-type: none"> <li>• The review for new EIPs is based on economic, environmental and social benchmarks, also building upon the International Framework for Eco-Industrial Parks<sup>19</sup></li> </ul>
Step 3: Review and consolidate industry interests		<ul style="list-style-type: none"> <li>• EIPs may have a broader focus on attracting "green" industries, anchor tenants, as well as consideration of industries to attract through supply chain, utility synergies, by-product and service synergies</li> </ul>
Step 4: Review existing and potential anchor tenants		
Step 5: Review synergy opportunities and land use implications		
Step 6: Define industry clusters and precincts		<p>Industry clustering for new EIPs is carried out based on economic, environmental and social criteria, including:</p> <ul style="list-style-type: none"> <li>• Water, energy, material and transportation requirements</li> <li>• Reducing economic, environmental and social risks</li> <li>• Supply chain, utility, by-product, service, and urban-industrial synergies</li> </ul>
Step 7: Develop IP concept plan		<p>EIP concept plans are developed based on the consolidation of economic, environmental and social considerations identified in previous steps, covering:</p> <ul style="list-style-type: none"> <li>• Land use implications from the International EIP Framework</li> <li>• Industry clustering and precincts</li> <li>• Anchor tenants</li> <li>• Industrial synergies</li> <li>• Transportation network</li> </ul>

<sup>19</sup> UNIDO, World Bank Group, GIZ (2021). An International Framework for Eco-Industrial Parks. <https://openknowledge.worldbank.org/entities/publication/ff91fafb-d404-5ba6-82d8-595566675cca>

Steps in concept planning process	Traditional IPs versus EIPs	
	Similarities	Differences
		<ul style="list-style-type: none"> <li>Mitigation of economic, environmental and social risks</li> </ul>
Step 8: Promote added value features of concept plan		<ul style="list-style-type: none"> <li>The added value of the EIP concept plan is promoted from integrated economic, environmental and social perspectives</li> </ul>

### C.3.4 Further reading

The following table provides suggested further reading relevant to the concept planning of new EIPs.

Table 13: Further reading on concept planning of new EIPs

National references	<ul style="list-style-type: none"> <li>Pursuant to the <b>Law on Land</b> – National Assembly Law No. 45/2013/QH13 issued on 29 November 2013.</li> <li>Pursuant to <b>Decree 35/2022/ND-CP</b> on "Regulations on management of industrial parks and economic zones"</li> <li>Pursuant to the <b>Law on Planning</b> – National Assembly Law No. 21/2017/QH14 issued on 24 November 2017.</li> </ul>
International references	UNIDO (2019). International Guidelines for Industrial Parks. <a href="http://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf">www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf</a> . <ul style="list-style-type: none"> <li>Chapter 3: Industrial park land acquisition, design and development</li> <li>Chapter 7: Industrial park risk management</li> </ul>
	UNIDO. Eco-Industrial Park Toolbox. <a href="https://hub.unido.org/eco-industrial-parks-tools">https://hub.unido.org/eco-industrial-parks-tools</a> . <ul style="list-style-type: none"> <li>EIP Concept Planning Tool</li> </ul>
	UNIDO (2018). Leveraging a New Generation of Industrial Parks and Zones for Inclusive and Sustainable Development – Strategic Framework. <a href="http://www.unido.org/sites/default/files/files/2019-12/UNIDO_Strategic%20Framework_WEB.pdf">www.unido.org/sites/default/files/files/2019-12/UNIDO_Strategic%20Framework_WEB.pdf</a> . <ul style="list-style-type: none"> <li>Chapter 3: A new generation of parks and zones</li> <li>Chapter 4: Preparatory analysis and design for 21st century parks and zones</li> </ul>
	UNIDO, WBG, GIZ (2021). International Framework for Eco-Industrial Parks. <a href="https://openknowledge.worldbank.org/handle/10986/35110?locale-attribute=es">https://openknowledge.worldbank.org/handle/10986/35110?locale-attribute=es</a> . <ul style="list-style-type: none"> <li>Chapter 4: Performance requirements for eco-industrial parks</li> </ul>

## C.4 General planning of new EIPs

### C.4.1 Rationale and overview

A master plan is a comprehensive document that guides the planning, development and operation of an IP. It is therefore much more than a layout map of an IP. While different terminologies are used internationally, including master plan, structure plan and development plan, their overall objectives are the same.

The establishment of new EIPs should be based on well-defined master plans. Master planning has a lasting impact on how an IP develops, operates and is integrated into its surrounding areas and communities. It defines the connection between the topography, land use, infrastructure, public right-of-way, buildings, social settings and their surrounding environments<sup>20</sup>. Master plans should be prepared based on existing public plans, as well as new site-specific surveys, investigations and analysis.

Master plans are to be integrated with urban/regional plans and should ensure continuity with the infrastructure and services provisioned in the latter. A master plan should be reviewed every three years or as and after significant developments affect the park.

The scope of these guidelines covers land use planning, infrastructure and utilities, communication and multistakeholder collaboration, economic development, social development, environmental protection, innovation and R&D and IP management, as depicted in Figure 10.

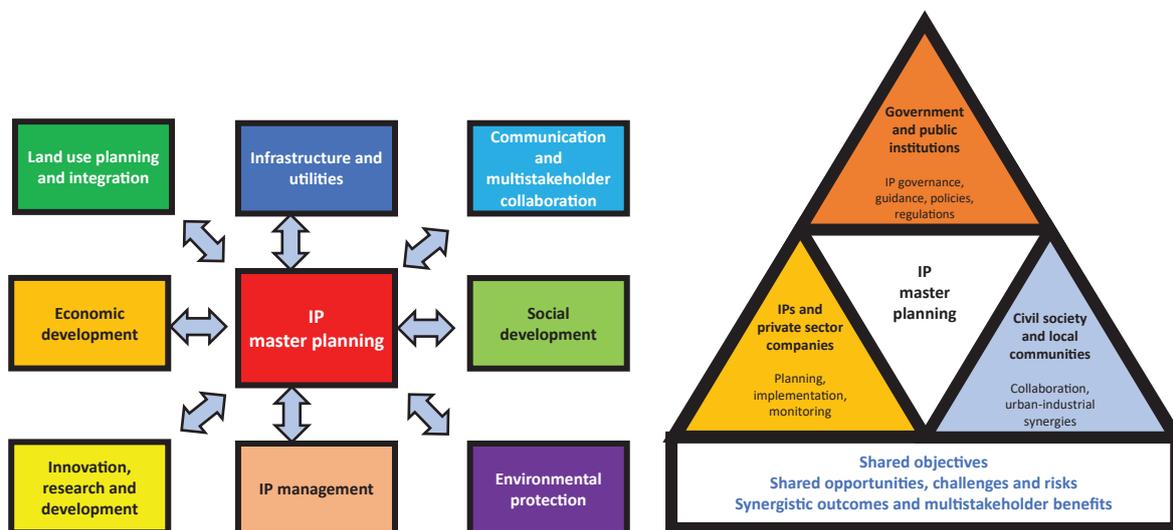


Figure 10: Where does industrial park master planning fit in?

Master planning requires integrated approaches to economic, environmental and social development. Master plans for IPs are often designed based on conventional and business-as-usual planning processes. Conventional master plans often fail to fully consider the sustainability challenges or opportunities offered by EIP approaches (e.g. reducing economic, environmental and social risks, meeting Sustainable Development Goals (SDGs), increasing supply chain demand, industry clusters, industrial synergies, anchor tenants, shared and integrated utilities and infrastructure). EIP approaches provide an opportunity to strengthen the existing master plan from economic, environmental and social perspectives. A solid and integrated master plan assists in creating more resource-efficient and cost-effective IPs which are more competitive, attractive for investment and risk-resilient.

Developing the master plan for a new EIP is usually the main responsibility of IP developers supported by provincial government authorities. However, all IPs are part of a broader system as no IP operates in isolation. It is crucial, therefore, to integrate the planning of IPs with municipal, regional and national development

<sup>20</sup> World Bank (2016). Regenerating Urban Land: A Practitioner's Guide to Leveraging Private Investment.

plans. Planning of IPs is a truly multidisciplinary process. In this context, the present guidelines gain leverage from the value that can be offered by different stakeholders of IPs (Figure 10).

Based on international good practices, Annex E of these guidelines provides a detailed typical outline and contents of an IP master plan. It is acknowledged that each IP is unique with regard to its complexity, state of development, size, local priorities, etc. The outline and contents of the master plan should therefore be adapted accordingly.

In summary, a master plan for an EIP typically includes the following elements:

- *Introduction to master plan* (e.g. master plan objectives, implementation plan for master plan, communication and promotion, contact details).
- *Overview of IP* (e.g. local conditions, vision and UVP, Integration with local, provincial, national development plan, management and governance model, management and monitoring systems).
- *Strategic opportunities, impacts and risk management* (e.g. business and service delivery model, investment strategy, employment and local skills, social impacts, analysis of opportunities, impacts and risks).
- *Land use break-up of IP* (e.g. overview of existing and targeted land uses of the IP, land use break-ups by type of land use).
- *Control arrangements, regulations and standards for the development and use of IP* (e.g. compliance with national regulations and standards, compliance with international standards, conditions and restrictions on land use, criteria for buildings and plot development).
- *Basic infrastructure* (e.g. existing, planned and possible basic infrastructure servicing the IP and its companies, such as road network, energy supply, water supply, security).
- *Environmental infrastructure* (e.g. existing, planned and possible environmental infrastructure servicing the IP and its companies, such as storm water drainage, wastewater treatment, solid waste management).
- *Social infrastructure* (e.g. planned and possible social infrastructure servicing the IP and its companies, such as food facilities, toilets and health facilities).
- Annexes:
  - Details on applicable regulations and standards.
  - Details on management, procurement and monitoring systems and operational procedures.
  - Detailed criteria for buildings and industrial land development.
  - Detailed maps, plans and thematic layers in required scale.
  - Economic, environmental and social assessments supporting master plan.
  - Details on industrial park's basic, environmental and social infrastructures.
  - Other annexes, as required.

#### **C.4.2 IP master planning process**

Based on international experiences, an overall process for IP master planning is presented in Figure 11 below. The process consists of four interlinked phases with each phase comprising intermediary steps to ensure that IP master plans are properly prepared, developed, implemented and kept up to date, supported by multidisciplinary planning approaches.

The implementation of the four phases can be conducted in parallel, or chronologically, depending on the requirements for the achievement of master planning outcomes. There are a number of "journeys" that could be undertaken and, in effect, there is no single "correct" path. As such, it is important to be clear on the objectives and priorities and to subsequently develop the appropriate master planning journey for the IP.

The process is designed to foster practical ease and provide clearly defined reference points to ensure master planning progress and success in IPs.

These guidelines apply a process-driven approach for master planning based on continuous improvement to assist IPs with the development, implementation and update of their master plan.

An introduction to each phase and the steps of the master planning process is provided in the following subsections. Further details are provided in Annex E of the present guidelines.

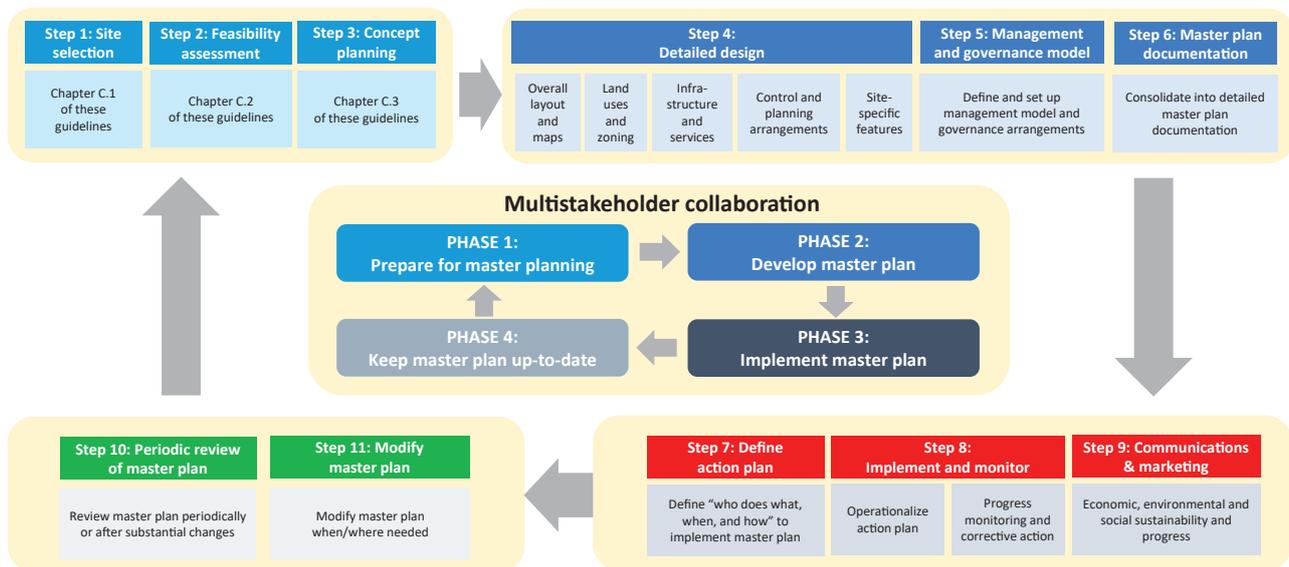


Figure 61: Process for IP master planning

### 1.1.1 Phase 1: Prepare for master planning

The master planning journey begins with the confirmation of the appropriate site selection for the IP and feasibility assessments, followed by concept planning of the IP.

Phase 1 of the master planning includes the following steps, with details provided in the respective chapters of these guidelines:

- Step 1: Site selection, Chapter C.1
- Step 2: Feasibility assessments, Chapter C.2
- Step 3: Concept planning, Chapter C.3

### 1.1.2 Phase 2: Develop master plan

Phase 2 of the master planning process covers the actual development or upgrade of the IP master plan, and includes the following steps:

- Step 4: Detailed design (e.g. overall layout and maps, land uses and zoning, infrastructure and services, control and planning arrangements, site-specific features).
- Step 5: Management and governance model, including IP operations and management services.
- Step 6: Master plan documentation (e.g. consolidate results from detailed design and master plan preparations (Steps 1 to 5) into detailed master plan documentation to guide the establishment of the new IP).

### 1.1.3 Phase 3: Implement master plan

Implementing the EIP master plan in a structured and monitored manner will bring about significant improvements and benefits for the IP overall, its companies, community and the local/regional economy.

Phase 3 of the master planning process concerns the implementation of the master plan, and includes the following steps:

- Step 7: Define action plan to implement master plan.
- Step 8: Implement and monitor, including the operationalization of the action plan, progress monitoring and corrective action.
- Step 9: Communications and marketing, covering the economic, environmental and social sustainability of the IP and progress on the implementation of the master plan.

#### 1.1.4 Phase 4: Periodic review of the master plan

Master planning is a journey of continuous improvement. Given that IPs operate in a dynamic system, it is important to respond efficiently and effectively to changing situations and to take corrective action accordingly. This will likely require adjustments to master planning over time and the application of adaptive management practices by the IP management entity.

While ongoing progress review on the IP master plan and its implementation is important, it is key to undertake more detailed evaluations with designated timelines. These evaluations provide a clear indication of how to improve the implementation of master planning actions and guide the overall strategy for the next master planning iteration.

Phase 4 concerns the periodic review of the master plan, and covers the following steps:

- Step 10: Review master plan periodically or after substantial changes.
- Step 11: Modify master plan when/where needed.

### C.4.3 Similarities and differences for master planning of traditional IPs versus EIPs

The following table summarizes the key similarities and differences in the scope for each phase of the master planning process for traditional IPs compared to EIPs.

Table 14: Traditional IPs versus EIPs – Master planning

Steps in master planning process	Traditional IPs versus EIPs	
	Similarities	Differences
Phase 1: Preparing for master planning	<ul style="list-style-type: none"> <li>• Proper master planning is critical to the establishment of all types of IP</li> <li>• Therefore, all phases and steps of the master planning are equally relevant to new traditional IPs and EIPs</li> </ul>	<ul style="list-style-type: none"> <li>• Preparing for master planning includes site selection, feasibility assessment, concept planning (as presented in Figure 6)</li> <li>• See Chapters C.1, C.2 and C.3 of these guidelines</li> </ul>
Phase 2: Develop master plan		<ul style="list-style-type: none"> <li>• Detailed design of EIP has a strong focus on industry clustering, enabling industrial synergies, shared infrastructure and utilities and buffer zones</li> </ul>
Phase 3: Implement master plan		<ul style="list-style-type: none"> <li>• The implementation, monitoring, communication and marketing of the EIP master plan pays equal attention to economic, environmental and social aspects</li> </ul>
Phase 4: Keeping master plan up-to-date		<ul style="list-style-type: none"> <li>• Master plan of EIPs is updated periodically based on the changing economic, environmental and social conditions inside and surrounding the park</li> </ul>

### C.4.4 Further reading

The following table provides suggested further reading relevant to the master planning of new EIPs.

Table 15: Further reading on master planning of new EIPs

National references	Decree No. 35/2022/ND-CP on “Regulation on management of industrial parks and economic zones”
	Article 16, Law on Construction (2014)
International references	<p>UNIDO (2019). International Guidelines for Industrial Parks.  <a href="http://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf">www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf</a>.</p> <ul style="list-style-type: none"> <li>• Chapter 3: Industrial Park land acquisition, design and development</li> <li>• Chapter 4: Industrial Park operation and management</li> <li>• Chapter 5: Industrial Park regulation</li> <li>• Chapter 6: Industrial Park investment marketing and facilitation</li> <li>• Chapter 7: Industrial Park risk management</li> <li>• Chapter 8: Industrial Park performance evaluation</li> </ul>
	<p>UNIDO. Eco-Industrial Park Toolbox.  <a href="https://hub.unido.org/eco-industrial-parks-tools">https://hub.unido.org/eco-industrial-parks-tools</a>.</p> <ul style="list-style-type: none"> <li>• Master Plan EIP Review Tool</li> </ul>
	<p>UNIDO, WBG, GIZ (2021). International Framework for Eco-Industrial Parks.  <a href="https://openknowledge.worldbank.org/handle/10986/35110?locale-attribute=es">https://openknowledge.worldbank.org/handle/10986/35110?locale-attribute=es</a>.</p> <ul style="list-style-type: none"> <li>• Chapter 4: Performance requirements for eco-industrial parks</li> </ul>

## **D Recommendations on the use of these guidelines**

- The MPI and the Government of Viet Nam shall use these guidelines to support and streamline the establishment of EIPs in Viet Nam, in close collaboration with government authorities and IP developers.
- IP developers and provincial government authorities shall collaborate and use these guidelines to ensure optimized economic, environmental and social outcomes in relation to site selection, feasibility assessments, concept planning and master planning of new EIPs, based on international experience (Section C).
- International and national development/support organizations (UNIDO, World Bank, GIZ, etc.) shall be encouraged to work with the MPI, provincial government authorities, IP developers and other relevant stakeholders on the implementation and streamlining of the site selection, feasibility assessments, concept planning and master planning of new EIPs in Viet Nam, as highlighted in these guidelines.

# **Annex A:**

# **International Framework for**

# **Eco-Industrial Parks**

## Annex A: International Framework for EIPs Benchmarks in the International Framework for EIPs

An International Framework for Eco-Industrial Parks was developed by UNIDO, the World Bank Group (WBG) and GIZ to define the requirements for an IP to qualify as an EIP. The framework guides government authorities, developers and practitioners on the critical elements needed for governments and the private sector to work together to establish economically, socially and environmentally sustainable EIPs.

The framework covers a set of benchmarks in four key categories, namely park management performance, environmental performance, social performance and economic performance. These benchmarks assist in assessing existing IPs, retrofitting existing parks or planning new EIPs. The following table provides a set of benchmarks from the International Framework for Eco-Industrial Parks that are considered most relevant to the planning and establishment of new EIPs.

**Important note:** In principle, established and operational EIPs should meet all 64 benchmarks of the International Framework for Eco-Industrial Parks. A selected set of these international benchmarks should already be considered during the planning phase of a new EIP (these are listed in Table 16 below). This is to ensure that the actual development and operation of the EIP can most efficiently and effectively meet all international benchmarks. For full details on the total set of international EIP benchmarks, please download the International EIP Framework publication.

Table 16: *International benchmarks most relevant to the planning of new EIPs*<sup>21</sup>

Topics	Type of benchmark	Description of international benchmarks for EIPs	Implications for establishing new EIPs
<b>PARK MANAGEMENT</b>			
Park management services	Prerequisite	A distinct park management entity (or alternative agency, where applicable) exists to handle park planning, operations and management and monitoring.	Assess suitable location(s) for a park management office that is easily accessible to stakeholders inside and outside the park (e.g. close to the main entry point of the park).
	Prerequisite	<p>Park management entity to manage and maintain the IP property, common infrastructure and services as prescribed in the tenant contract. This should include at least the following:</p> <ul style="list-style-type: none"> <li>Property management, including plot allotments, re-allotments, development, land use monitoring.</li> <li>Utilities, roads, security (including IT security) and emergency response services/facilities and wastewater treatment plants and</li> </ul>	<p>Assess the most suitable location and size of the following:</p> <ul style="list-style-type: none"> <li>Utilities, roads and technical units, such as waste and wastewater treatment plants and operations, power, and energy systems</li> <li>Park-level and common waste collection areas</li> <li>Common maintenance and repair workshops</li> </ul>

<sup>21</sup> UNIDO, World Bank Group, GIZ (2021). An International Framework for Eco-Industrial Parks. <https://openknowledge.worldbank.org/handle/10986/35110>.

Topics	Type of benchmark	Description of international benchmarks for EIPs	Implications for establishing new EIPs
		<p>operations, including waste heat/energy recovery and distribution networks.</p> <ul style="list-style-type: none"> <li>• Environmental monitoring and advisory activities</li> <li>• Common landscaping, buffer zones, street lighting, security surveillance and street cleaning</li> <li>• Provide facilitation services to and between tenant firms (for example, networking, collaboration and training opportunities)</li> <li>• Engagement with the park's stakeholders and business representatives</li> <li>• PR and community participation centre/platform/activities</li> </ul>	<ul style="list-style-type: none"> <li>• Park-level and common security and emergency response facilities</li> <li>• Buffer zones</li> <li>• Common employee and tenant facilities</li> </ul>
Monitoring and risk management	Prerequisite	<p>Park management entity maintains an EIP framework monitoring system in place, tracking and reporting:</p> <ul style="list-style-type: none"> <li>• Progress on environmental, social and economic performance at the park level annually</li> <li>• Critical risk factors and related responses, at least for:                             <ul style="list-style-type: none"> <li>○ Risk points for the accidental release of hazardous solid, liquid and gaseous effluents, including during transportation and disposal when fire hazards are possible</li> <li>○ Applicable natural disaster risks</li> <li>○ Environmental performance</li> <li>○ Social performance</li> <li>○ Economic performance</li> <li>○ Critical risk management at the park level</li> </ul> </li> <li>• Acts as monitoring and pre-clearing institution for environmental issues on behalf of the regulatory bodies, as delegated</li> <li>• May operate a central environment control unit with an emergency alert system for environmental and other hazards</li> </ul>	<ul style="list-style-type: none"> <li>• Assess critical risks for the IP and its companies in terms of likelihood and impact.</li> <li>• Cluster companies based on their risk profile (e.g. odour, noise, explosion, fire, soil, air emissions, water pollution)</li> <li>• Assess industry co-location risks</li> </ul>

Topics	Type of benchmark	Description of international benchmarks for EIPs	Implications for establishing new EIPs
	Prerequisite	<p>Park management has a plan in place, to be updated every seven years, to react to potential negative impacts of climate change (e.g. heatwaves and droughts, storms and floodwater events):</p> <ul style="list-style-type: none"> <li>All adaption needs for infrastructure and services are identified and in place for the IP to protect against climate change and potential damage.</li> <li>The park management entity and resident firms have plans and measures in place to ensure continued operation of critical infrastructure systems within the park (wastewater treatment plants, power plants, recycling facilities, etc.) that can be activated even in emergencies.</li> </ul>	<ul style="list-style-type: none"> <li>Assess possible negative impacts of climate change risks.</li> <li>Assess adaption needs for infrastructure and services and incorporate into the EIP concept and master plan.</li> </ul>
Planning and zoning	Prerequisite	<p>Park management entity investigates risks due to climate change and updates this information on a regular basis.</p> <p>A master plan (or equivalent planning document) for any new and existing IP has been developed and is reviewed periodically (minimum every seven years) and updated if required, including the following core elements:</p> <ul style="list-style-type: none"> <li>Based on different risk analysis exercises. essential and efficient infrastructure (onsite and offsite, ensuring access to decent housing), utilities, transportation network. environmental and social issues. buffer zone around the park. procedure to safely locate high-risk industries, cluster synergistic industries and similar.</li> <li>Integration into master plan of relevant requirements is specified in the International EIP Framework.</li> </ul>	<ul style="list-style-type: none"> <li>Identify and assess essential and efficient infrastructure, utilities and transportation network.</li> <li>Identify and assess the most suitable internal park land zoning.</li> <li>Identify and assess the most appropriate location and size of buffer zones.</li> <li>Identify and assess the most appropriate location of high-risk industries and cluster synergistic industries.</li> </ul>
<b>ENVIRONMENTAL PERFORMANCE</b>			
Energy	Prerequisite	Supporting programmes (e.g. energy efficiency networks) are in place to improve the energy efficiency of major energy-consuming businesses in the park.	<ul style="list-style-type: none"> <li>Cluster major energy-consuming companies in the EIP concept plan.</li> <li>Allow and facilitate co-location of energy-intensive companies, in proximity to an energy generator.</li> </ul>

Topics	Type of benchmark	Description of international benchmarks for EIPs	Implications for establishing new EIPs
Water supply and wastewater	Prerequisite	An industrial heat recovery strategy is in place to investigate opportunities for heat and energy recovery for the major thermal energy-consuming firms in the park. (Typically, these are firms that individually use at least 10 to 20 percent of total firm-level energy consumption).	<ul style="list-style-type: none"> <li>Identify and assess service corridors to allow for potential energy exchanges between energy-intensive companies and an energy generator.</li> </ul>
	Prerequisite	Park management provides the physical network for waste heat/energy exchange at park level and assists firms in connecting to the network. A commonly accepted rewards system for waste heat/energy provision/use is in place.	<ul style="list-style-type: none"> <li>Cluster major energy-consuming companies in EIP concept plan (including companies that emit large amounts of waste heat).</li> <li>Allow and facilitate co-location of energy-intensive companies and potential users of waste heat, in proximity to an energy generator.</li> </ul>
	Performance indicator	Total renewable energy use for electricity and heat production in the IP is equal to or greater than the renewable energy share in the annual national electricity mix in the grid.	<ul style="list-style-type: none"> <li>Identify and assess suitable location(s) for renewable energy facilities in the IP with most favourable conditions (e.g. sun, wind, geothermal).</li> </ul>
	Prerequisite	Park management entity has operational plans to increase water reuse in the next five years. This would be achieved by either reuse of industrial effluents, or through rainwater/storm water collection.	<ul style="list-style-type: none"> <li>Identify the most suitable location of industry feedwater facility in the IP (e.g. utility precinct)</li> <li>Allow and facilitate co-location of water-intensive companies in proximity to water facilities.</li> </ul>
	Prerequisite	Park management entity provides the physical network for water reuse/cascading of water.	<ul style="list-style-type: none"> <li>Allow and facilitate co-location of energy facility with industry feedwater facility.</li> <li>Identify service corridors in the IP to allow for potential pipelines for water exchanges between industry feedwater facility, water/energy-intensive companies, ocean, wastewater treatment and a groundwater access point.</li> </ul>
	Performance indicator	100 percent of the total water demand from firms in the IP does not negatively impact local water sources or communities.	<ul style="list-style-type: none"> <li>Identify and assess sustainable water sources to meet water demand, and incorporate the required facilities/infrastructure into the EIP concept and master plan.</li> </ul>

Topics	Type of benchmark	Description of international benchmarks for EIPs	Implications for establishing new EIPs
	Performance indicator	100 percent of industrial wastewater generated by the IP and resident firms is treated in accordance with the appropriate environmental standards.	<ul style="list-style-type: none"> <li>Identify and assess a suitable location for a centralized industrial effluent treatment facility in an IP (e.g. utility precinct). Where possible, combine the treatment facility with water recycling.</li> <li>Allow and facilitate co-location of water-intensive companies in proximity to a centralized water recycling facility.</li> <li>Identify and assess service corridors in the IP to allow for potential pipelines for water exchanges between industry feedwater facility, water/energy-intensive companies, ocean, wastewater treatment plant and a groundwater access point.</li> </ul>
	Performance indicator	At least 25 percent of total industrial wastewater from firms is reused responsibly within or outside the IP.	<ul style="list-style-type: none"> <li>Identify and assess a suitable location for an industry feedwater facility/water recycling facility in the IP (e.g. utility precinct).</li> <li>Allow and facilitate co-location of water-intensive companies in proximity to a water recycling facility.</li> <li>Allow and facilitate co-location of the energy facility with industry feedwater/water recycling facility.</li> <li>Identify and assess service corridors in the IP to allow for potential pipelines for water exchanges between industry feedwater facility, water/energy-intensive companies, ocean, wastewater treatment plant and a groundwater access point.</li> </ul>
Waste and material use	Prerequisite	Obeying the principles of good practices for the management of hazardous materials and waste as part of legally binding agreements.	<ul style="list-style-type: none"> <li>Identify and assess suitable location(s) for a centralized hazardous waste collection facility in the park.</li> </ul>
	Prerequisite	A central park facility or other mechanism is in place to treat waste that cannot be processed by individual firms.	<ul style="list-style-type: none"> <li>Identify and assess suitable location(s) for a central park facility or other mechanism to treat waste.</li> </ul>
	Performance indicator	At least 25 percent of non-hazardous, solid industrial waste generated by firms is reused/recycled by other firms, neighbouring communities, or municipalities.	<ul style="list-style-type: none"> <li>Allow and facilitate co-location of synergistic companies and location of waste processing companies in the IP.</li> </ul>

Topics	Type of benchmark	Description of international benchmarks for EIPs	Implications for establishing new EIPs
	Performance indicator	100 percent of firms in the park appropriately handle, store, transport and dispose of toxic and hazardous materials.	Identify and assess service corridors and transportation nodes to allow for potential waste/by-product exchange movements.
	Performance indicator	At least 20 percent of manufacturing firms adopt circular economy practices, including engagement in industrial symbiosis networks in the park, or actively exchange secondary raw materials, waste or other circular economy practices.	<ul style="list-style-type: none"> <li>Identify and assess suitable location(s) for centralized hazardous waste collection facility in the park.</li> <li>Allow and facilitate co-location of synergistic companies and location of waste processing companies in the IP.</li> <li>Identify and assess service corridors and transportation nodes to allow for potential waste/by-product exchange movements.</li> </ul>
	Performance indicator	100 percent of waste generated by firms in the IP is safely disposed of. Open burning of waste generated in an EIP is prohibited.	<ul style="list-style-type: none"> <li>Identify and assess suitable location(s) for waste processing and recycling companies both inside and outside the IP.</li> <li>Identify and assess service corridors and transportation nodes to allow for potential waste exchange movements.</li> </ul>
	Prerequisite	The park management implements measures to protect biodiversity, and protects or creates natural/recreational areas in and surrounding the park.	<ul style="list-style-type: none"> <li>Identify and assess suitable location(s) for natural/recreational areas in and surrounding the park.</li> </ul>
Climate change and the natural environment	Performance indicator	At least 5 percent of open space in the park is used for native flora and fauna.	<ul style="list-style-type: none"> <li>Identify and assess possible location(s) to keep for open space for native flora and fauna.</li> </ul>
	Performance indicator	At least 30 percent of firms in the IP have a risk management framework in place that (a) identifies activities which have an impact on the environment, (b) assigns a level of significance to each activity and (c) has appropriate mitigation measures in place.	<ul style="list-style-type: none"> <li>Identify and assess critical risks for the IP and its companies in terms of likelihood and impact.</li> <li>Cluster companies based on their risk profile (e.g. odour, noise, explosion, fire, soil, air emissions, water pollution).</li> <li>Assess industry co-location risks.</li> </ul>

Topics	Type of benchmark	Description of international benchmarks for IIPs	Implications for establishing new IIPs
<b>SOCIAL PERFORMANCE</b>			
Social infrastructure	Prerequisite	Essential primary social infrastructure has been adequately provided in the site master plan and is fully operational in the park. Gender perspectives are incorporated in the formulation, management and monitoring of plans and programmes. A particular entity exists (e.g. planning unit or facilitated group of interested firm representatives), which investigates and plans for future developments/challenges to the social environment, with the introduction of new technologies such as "Industry 4.0" and artificial intelligence-controlled production processes.	<ul style="list-style-type: none"> <li>Identify and assess types and suitable location(s) for primary social infrastructure, in the IP or in its proximity, which also facilitates and encourages the employment of women. For example, public lavatories (for men and women), drinking water fountains, cafeterias within reach of the employees, recreational areas and childcare programmes.</li> </ul>
	Performance indicator	At least 80 percent of the employees surveyed report satisfaction with social infrastructure.	<ul style="list-style-type: none"> <li>Identify and assess types and suitable location(s) for primary social infrastructure in the IP (e.g. local shops, restaurants/caferias, recreation areas, medical facilities, banks, postal offices and emergency fire facilities).</li> </ul>
	Performance indicator	75 percent of firms in the IP with more than 250 employees have a programme for skills/vocational training and development.	<ul style="list-style-type: none"> <li>Identify and assess potential location(s) of a skills/vocational training centre in the IP, which also facilitates and encourages the development of women's skills.</li> </ul>
	Performance indicator	At least 80 percent of the community members surveyed are satisfied with the park's efforts to communicate.	<ul style="list-style-type: none"> <li>Identify and assess a potential location of interpretive centre in the IP (e.g. for accommodating stakeholder meetings and community involvement in the park).</li> </ul>
	Performance indicator	At least two outreach activities implemented annually by the park management entity are regarded as positive by over 80 percent of the surveyed community members.	<ul style="list-style-type: none"> <li>Identify and assess a potential location of interpretive centre in the IP (e.g. for accommodating stakeholder meetings and community involvement in the park)</li> </ul>
<b>ECONOMIC PERFORMANCE</b>			
Local business & SME promotion	Prerequisite	The park management entity allows and promotes the establishment of SMEs that provide services and add value to park residents.	<ul style="list-style-type: none"> <li>Identify and assess optimal location(s) of SMEs (e.g. specific precinct dedicated to SMEs) and supporting infrastructure (e.g. rental buildings customized for the needs of SMEs)</li> </ul>

Topics	Type of benchmark	Description of international benchmarks for EIPs	Implications for establishing new EIPs
	Performance indicator	At least 25 percent of resident firms use local suppliers or service providers for at least 25 percent of their total procurement value.	<ul style="list-style-type: none"> <li>Identify and assess service corridors and transportation nodes to efficiently supply tenant companies by local suppliers.</li> </ul>
	Performance indicator	At least 90 percent of the total procurement budget of the park management entity is paid to local service providers within a 100 km radius.	<ul style="list-style-type: none"> <li>Identify and assess service corridors and transportation nodes to efficiently supply park management by local suppliers.</li> </ul>
Economic value creation	Prerequisite	A market demand and feasibility study, supported by a business plan for specific "green" infrastructure and services, has been undertaken to justify planning and implementation in the IP.	<ul style="list-style-type: none"> <li>Identify and assess suitable location(s) for "green" infrastructure.</li> <li>Identify and assess service corridors and transportation nodes to allow for material/water/energy movements.</li> </ul>
	Prerequisite	Park management is financially solvent to operate/provide park infrastructure and services.	<ul style="list-style-type: none"> <li>Design of IP and its infrastructure is based on current and anticipated demands of tenant companies, as well as utilization of existing infrastructure and utilities.</li> </ul>
	Prerequisite	Park management entity is responsible for marketing the park and park concepts (EIP concept) to potential national and international investors.	<ul style="list-style-type: none"> <li>Identify and assess added value and EIP features in IP design which benefit the tenant companies, local community and other IP stakeholders.</li> </ul>
	Performance indicator	Resident firms use at least 50 percent of the total amount of available space earmarked for their use within the park.	<ul style="list-style-type: none"> <li>Apply staged development of IP in line with industry demands for land lots and building space.</li> </ul>

## Application of International EIP Framework to Viet Nam

The international benchmarks should be considered for new EIPs in Viet Nam. The accumulation of experience and exchange of practices from international topics below is recommended. All benchmarks have been addressed and reflect the process and policies to support and cooperate in the development of EIPs. These include :

- Park management.
- Environmental management.
- Social performance.
- Economic performance.

The similarities between international benchmarks have been shown in Vietnamese requirements and Clause 36 and Clause 37 of Decree 35/2022/ND-CP, with responsibilities in terms of task hierarchy for Provincial People's Committees, cooperation among enterprises, the management board of IPs, and agencies/organizations/investors in terms of sharing infrastructure, gaining greater benefits from industrial symbiosis and service management.

- Support investment in new construction, upgrade, renovation and repair of technical and social infrastructure works.
- Enterprises in the IPs will collaborate to jointly use technical infrastructure works, social infrastructure, services, raw materials, materials and production inputs. They will also reuse raw material, materials, water, excess energy, waste and scraps – both their own and those of other enterprises in the IP – to reduce costs and improve operational efficiency and competitiveness.
- Agencies, organizations and investors are encouraged to build and provide information and databases on efficient use of RECP in IPs to support and connect enterprises and continue industrial symbiosis activities.
- All of the basic services in the IPs prescribed by law, including essential infrastructure services (electricity, water, information, fire prevention, fighting, wastewater treatment and other essential infrastructure services) and related services, support enterprises in the IP to perform industrial symbiosis.
- Develop and implement a mechanism to coordinate input and output supervision on the use of raw materials, materials, water, energy, chemicals, waste and scrap in the IP. Produce annual reports on the results achieved in efficient use of RECP and emission monitoring of IPs and disseminate the reports to the management boards of IPs and EZs.
- Annually, publish a report on environmental protection and social responsibility towards the surrounding community, send it to the management board of IPs and EZs and post it on the enterprise's website.

# **Annex B:**

## **Site selection for new EIPs**

## Annex B: Site selection for new EIPs

### Details on methodology

#### Step 1 – Identify potential industrial sites

The following table provides a template to collect information on identified potential sites for a new EIP, covering basic information, sensitivity and risks, connectivity and utilities. Additional topics for data collection can be added based on specific local/national context for the establishment of the new EIP.

Table 17: Template to collect basic information on identified potential sites

Important information for IP site selection	IDENTIFIED POTENTIAL SITES FOR IP			
	Insert name of potential IP site	Insert name of potential IP site	Insert name of potential IP site	Insert name of potential IP site
<b>Basic information</b>				
Precise location and area boundaries				
Existing and allowed land uses				
Land ownership – government or private land lease in acquisition				
Land availability – extent of land to suit the industrialization demand				
Distance from existing IPs/industrial areas				
Distance to the major settlements				
<b>Sensitivity and risks</b>				
Environmental sensitivity of the site to suit the necessary industrial development				
Distance from sensitive areas				
Environmental risks (e.g. flooding, droughts, fires, earthquakes)				
<b>Connectivity</b>				
Distance and connectivity to road network				
Distance and connectivity to rail network				

Important information for IP site selection	IDENTIFIED POTENTIAL SITES FOR IP			
	Insert name of potential IP site	Insert name of potential IP site	Insert name of potential IP site	Insert name of potential IP site
Distance and connectivity to port facilities				
Distance and connectivity to airline network				
<b>Utilities</b>				
Electricity supply (e.g. distance of different pre-final sites from nearest existing substation/power plant)				
Water supply (e.g. distance from source of water for domestic and industrial purposes)				
Effluent discharge (e.g. distance to disposal point)				
Drainage (e.g. distance of major rivers or drains from the pre-final sites)				
ICT (e.g. mobile networks, data cables)				

**Step 2 - Shortlist potential industrial sites**

The following table is a template to assist in shortlisting identified sites based on minimum selection criteria (e.g. land availability, zoning, compliance, market-driven, energy supply, water supply, transportation nodes, traffic flow, topography, social infrastructure, sensitivity, risks, stakeholder support and workers).

**IMPORTANT:** A discussion within the project team on the suitability of a site needs to be held if a potential site does not meet one or more of these criteria.

Table 18: Template to shortlist potential sites<sup>22</sup>

Topic	Minimum requirements for new EIPs (criteria can be adjusted according to project context)	Insert name of potential IP site		Insert name of potential IP site		Insert name of potential IP site	
		Rating	Comments	Rating	Comments	Rating	Comments
Land availability and costs	Site is available for acquisition at a competitive price within the timeframe of the envisaged EIP development	Please select		Please select		Please select	
Zoning	Envisaged land uses and targeted industry (sub)sectors for the IP are permitted in the zoning classifications	Please select		Please select		Please select	
Compliance	Site is compliant and aligned with national/provincial/local master plans, urban plans and land use plans	Please select		Please select		Please select	
Market-driven	There is clear evidence that the site meets the strategic and market-driven interests of targeted investors and industry (sub)sectors	Please select		Please select		Please select	
Energy supply	Site has good potential to be connected to cost-competitive and sustainable energy supplies (e.g. electricity, gas, renewables) to	Please select		Please select		Please select	

<sup>22</sup> "Please select" options: Yes, No, To be confirmed.

Topic	Minimum requirements for new EIPs (criteria can be adjusted according to project context)	Insert name of potential IP site		Insert name of potential IP site		Insert name of potential IP site	
		Rating	Comments	Rating	Comments	Rating	Comments
	meet all future demands of companies in the IP						
Water supply	Site has good potential to be connected to cost-competitive and sustainable water supplies (e.g. potable water, groundwater, reclaimed water) to meet all future demands of companies in the IP	Please select		Please select		Please select	Please select
Transportation nodes	Site has good potential to be connected cost-effectively to required transportation nodes (e.g. road, rail, port) to meet all future demands of companies in the IP	Please select		Please select		Please select	Please select
Traffic flow	The average speed for heavy vehicles travelling on roads connecting to the EIP is above 25 km/hour	Please select		Please select		Please select	Please select
Topography	Topographic conditions (e.g. land slope, relief, soil) are favourable for developing the site cost-effectively into the envisaged (eco-) industrial park	Please select		Please select		Please select	Please select
Social infrastructure	Site has good linkages and proximity to existing and planned social infrastructure, including residential communities, commercial and retail areas, schools, police and fire stations, hospitals and clinics and places of worship	Please select		Please select		Please select	Please select

Topic	Minimum requirements for new EIPs (criteria can be adjusted according to project context)	Insert name of potential IP site		Insert name of potential IP site		Insert name of potential IP site	
		Rating	Comments	Rating	Comments	Rating	Comments
Sensitivity	Site is not located in or near one or more environmentally, culturally or socially sensitive areas	Please select		Please select		Please select	
Risks	Site is not prone to significant economic, technical, environmental or social risks, considering short-term (up to 5 years), medium-term (5 to 10 years) and long-term risks (more than 10 years)	Please select		Please select		Please select	
Stakeholders	There is support from relevant stakeholders (including local government and local communities) for the establishment of a new EIP with targeted industry sectors	Please select		Please select		Please select	
Workers	Site is located within a reasonable daily commuting distance of local workers	Please select		Please select		Please select	
Other	Add other shortlisting criteria as relevant	Please select		Please select		Please select	
	Add other shortlisting criteria as relevant	Please select		Please select		Please select	
Does the potential site meet ALL shortlisting criteria?		To be discussed		To be discussed		To be discussed	

**Step 3 – Multi-criteria analysis (MCA) of shortlisted sites**

A MCA approach can be used to compare the site options for a new IP by integrating the relevant financial, technical, social and environmental considerations. The analysis is aimed at identifying a site option that has the optimum overall performance through a systematic process that is both clear and transparent.

Notes on criteria for the analysis: The criteria included in the MCA are derived from an assessment of criteria which are likely to impact upon the project and that differentiate between the site options. The criteria are normally developed by first drawing on knowledge and experience within the core project, followed by a review with the input of the relevant key stakeholders. An important aspect in selecting the criteria is that they may be assessed in a way that would provide meaningful results and differentiate between the options.

Notes on the weightings of the criteria: The criteria weightings define the relative importance of each of the criteria in the decision-making process. The weightings need to be derived by consensus through communications between the core project team and key stakeholders of the new EIP. The MCA can be undertaken using a statistical method known as additive weighting. In this method, the scores from the technical assessments are standardized to allow summation (from 0 for a least favourable score to 1 for most favourable score). The criteria weightings are applied to the results of the technical assessments using the MCA approach, which produces a ranking of the site options.

Notes on sensitivity analysis: Any uncertainty in the MCA, such as criteria based on qualitative data or estimates rather than quantified data, can be amplified by applying weightings to the criteria. The significance of these uncertainties needs to be tested through a sensitivity analysis. In this way, a ranking of the options is undertaken in order to investigate the influence of uncertainties in the data on the outcome. The criteria for which qualitative assessments are made involve assumptions or are highly weighted and, therefore, may significantly influence the outcome. The focus should be placed on whether changing the scores of the preferred options would lower their ranking. The process involved for the sensitivity analysis for each criterion is as follows:

- Re-scoring the criteria.
- Re-ranking the options.
- Recording any changes to the rankings.

The following table provides a simplified template to undertake a MCA of shortlisted sites for a new EIP. It is noted that MCAs are normally undertaken through an Excel file to enable automated processing and weighting of the scorings. A customized Excel file for the MCA is available from the project team of the GEIPP.

Table 19: Template for multicriteria analysis of shortlisted sites

Category	Criteria	Unit	Cost or benefit	Weight (0.5-2)	Basis, assumptions, sources for assessment	NORMALIZED Scoring			
						Site option 1	Site option 2	Site option 3	Site option 4
Cost	Costs to purchase site	Millions, USD	Cost	2	Estimate includes capital expenditure only				
Cost	Cost to make the site project-ready for new companies	Millions, USD	Cost	2	Estimate includes capital expenditure only				
Location	Strategic location to attract targeted sectors and investors	Scale	Benefit	1	Unit value 1 = Limited strategic location Unit value 5 = Highly strategic location				
Land	Size, shape and slope of industrial land	Scale	Benefit	1	Unit value 1 = Unfavourable size, shape and slope of industrial land Unit value 5 = Favourable size, shape and slope of industrial land				
Negotiations	Complexity of negotiations to obtain site	Scale	Benefit	1	Unit value 1 = High complexity Unit value 5 = Low complexity				
Connectivity	Connectivity of site to road, rail, port	Scale	Benefit	1	Unit value 1 = Unfavourable connectivity Unit value 5 = Favourable connectivity				
Existing services	Utilization of existing infrastructure, utilities, services	Scale	Benefit	1	Unit value 1 = Unfavourable utilization Unit value 5 = Favourable utilization				
Energy	Price and security of energy supplies	Scale	Benefit	1	Unit value 1 = High price and low supply security Unit value 5 = Low price and high supply security				

Category	Criteria	Unit	Cost or benefit	Weight (0.5-2)	Basis, assumptions, sources for assessment	NORMALIZED Scoring			
						Site option 1	Site option 2	Site option 3	Site option 4
Water	Price and security of water supplies	Scale	Benefit	1	Unit value 1 = High price and low supply security Unit value 5 = Low price and high supply security				
Stakeholders	Level of stakeholder support (e.g. government, local communities)	Scale	Benefit	1	Unit value 1 = Low level of stakeholder support Unit value 5 = High level of stakeholder support				
Labour	Local availability of skilled workers	Scale	Benefit	1	Unit value 1 = Limited availability Unit value 5 = High availability				
Risks	Environmental risks facing site (e.g. climate change, droughts, flooding)	Scale	Benefit	1	Unit value 1 = High environmental risks Unit value 5 = Low environmental risks				
Risks	Economic and political risks facing site (e.g. government approval, inflation)	Scale	Benefit	1	Unit value 1 = High economic and political risks Unit value 5 = Low economic and political risks				
Risks	Social risks facing site (e.g. community encroachment, strikes, labour issues, crime)	Scale	Benefit	1	Unit value 1 = High social risks Unit value 5 = Low social risks				
Other	<i>Add other criteria as required</i>	<i>Insert unit</i>	<i>Please select</i>	1	<i>Add basis, assumptions, sources as required</i>				
Other	<i>Add other criteria as required</i>	<i>Insert unit</i>	<i>Please select</i>	1	<i>Add basis, assumptions, sources as required</i>				

Category	Criteria	Unit	Cost or benefit	Weight (0.5-2)	Basis, assumptions, sources for assessment	NORMALIZED Scoring			
						Site option 1	Site option 2	Site option 3	Site option 4
Other	Add other criteria as required	Insert unit	Please select	1	Add basis, assumptions, sources as required				
<b>Accumulative score</b>									

**Step 4 - Final selection of site**

Building upon the outcomes of the previous steps, it is of crucial importance to undertake stakeholder discussions in order to ensure that the final decision on the most suitable site for the new EIP meets all minimum site requirements (Step 2) and performs most favourably in terms of the financial, technical, social and environmental criteria (Step 3) of importance to the stakeholders. The final selection on the preferred site cannot be taken in isolation, and the decision needs to be taken in consultation with all relevant stakeholders in both the public and private sector.

Selecting the optimal location for a new IP is crucial as it affects how well the site can meet industry demands in terms of connectivity to their suppliers and clients, transportation network, energy and water supply, etc. A poor site selection will likely result in an unsuccessful or, at least, less successful IP. The planning and establishment of a new IP is a resource-intensive and costly process – it is therefore it is critical to get the initial selection right from the start.

## International good practice

Below is a generalized example of MCA for a new IP, as detailed results are confidential.

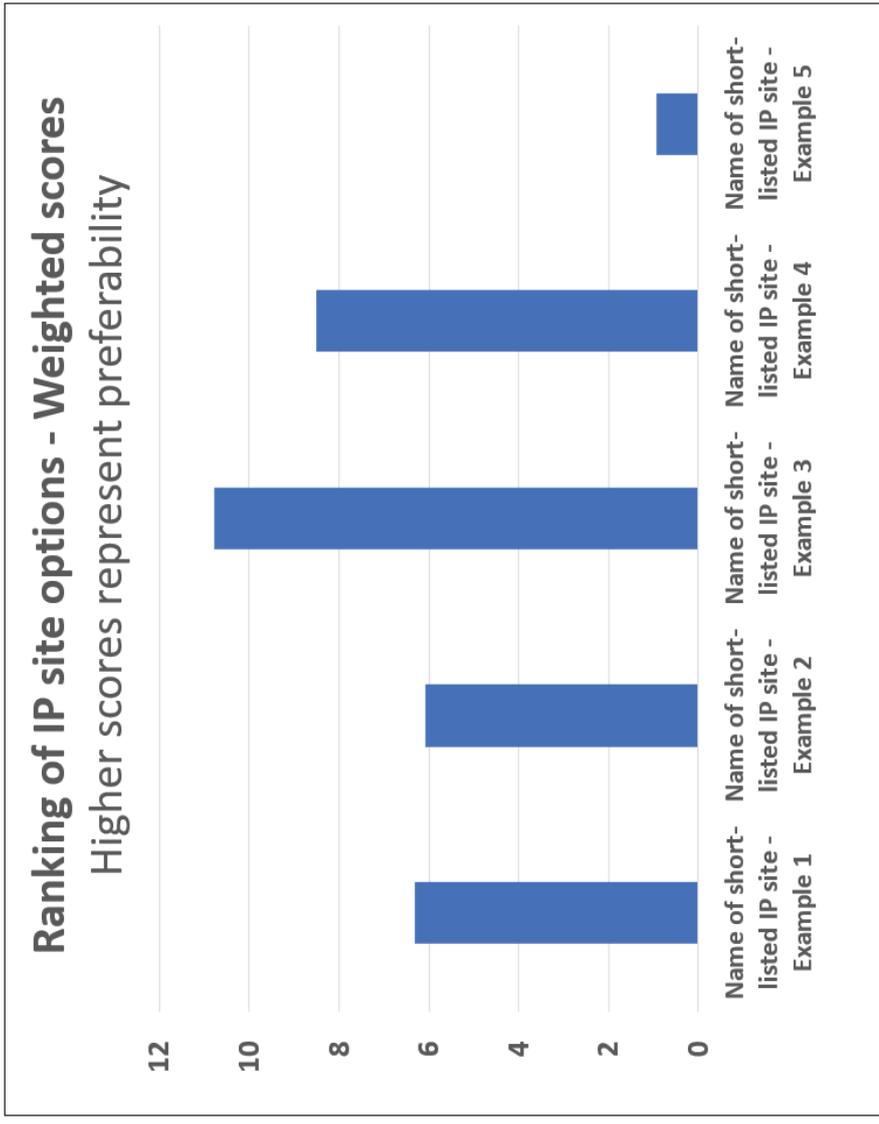
Category	Criteria	Cost or benefit?	Weight (0.5-3)	Basis, assumptions, sources for assessment		Name of short-listed IP site - Example 1		Name of short-listed IP site - Example 2		Name of short-listed IP site - Example 3		Name of short-listed IP site - Example 4		Name of short-listed IP site - Example 5	
				Unit value	Unit value	Unit value	Unit value	Standardized score	Standardized score	Standardized score	Standardized score	Standardized score	Standardized score		
Cost	Costs to purchase site	Cost	2	3	5	2	4.5	3.5							
Cost	Cost to make the site project-ready for new companies	Cost	2	2.5	1	2	1	4							
Location	Strategic location to attract targeted sectors and investors	Benefit	1	5	2	4	3	2							
Land	Size, shape and slope of industrial land	Benefit	1	4	3	5	4	1							
Negotiations	Completeness of negotiations to obtain site	Benefit	1	3	4	4	3	3							
Connectivity	Connectivity of site to road, rail, port	Benefit	1	5	3	5	4	3							
Existing services	Utilisation of existing infrastructures, utilities, services	Benefit	1	4	2	4	5	2							
Energy	Price and security of energy supplies	Benefit	1	3	4	5	4	1							
Water	Price and security of water supplies	Benefit	1	3	5	3	4	3							
Stakeholders	Level of stakeholder support (e.g. government, local communities)	Benefit	1	3	3	5	4	2							
Labour	Local availability of skilled workers	Benefit	1	3	2	5	4	2							
Risks	Environmental risks facing site (e.g. climate change, droughts, flooding)	Benefit	1	3	3	4	5	3							
Risks	Economic and political risks facing site (e.g. governmental approvals, inflation)	Benefit	1	3	2	3	3	2							
Risks	Social risks facing site (e.g. community encroachment, strikes, labour issues, crime)	Benefit	1	2	3	4	4	1							
Other	Add other criteria as required	Please select	7												
Other	Add other criteria as required	Please select	7												
Other	Add other criteria as required	Please select	7												
Accumulative score															
				7.1	5.3	11.5	9.3	0.5							
				3	4	1	2	5							
Comparative option ranking (from high to lowest) Most favourable option = High accumulative MCA score Least favourable option = Lowest accumulative score															

**Accumulative score**

**Comparative option ranking  
(from high to lowest)**

Most favourable option = High accumulative MCA score  
Least favourable option = Lowest accumulative score

6.3	6.1	10.8	8.5	0.9
3	4	1	2	5
		Most favourable option based on weighted MCA		



# **Annex C:**

## **Feasibility assessments for new EIPs**

## Annex C: Feasibility assessments for new EIPs

### Details on methodology

#### *Vision and UVP*

The IP developer/management and key stakeholders should collaborate to establish a vision for the EIP that aligns with both national and regional development goals.

Establishing the vision and objectives of the IP at the project's outset is crucial for sustainable planning. What kind of industries are to be located? How would the zones be defined? What are the expectations of the stakeholders involved? These are the questions to answer while developing the vision and objectives of the IP.

Occupancy level is a key measure of an IP's success. To attract companies and investments, it is essential to develop marketing and branding strategies based on the park's UVP.

In generic terms, a UVP is a marketing statement that differentiates a product or brand from its competitors. A UVP can be thought of as "what you have that competitors don't." A successful UVP promises a clearly articulated benefit to consumers, offering them something that competitive parks cannot or do not offer. The UVP should also be compelling enough to attract new customers. It carefully balances what the customer wants with what the business does well or what it can deliver that the others cannot. The idea is to make the IP stand out from the competition in a unique way. The UVP should appeal to what the investors care about and clearly differentiate the EIP's offering from other IPs.

In relation to EIPs, the development of a UVP is subject to three key questions<sup>23</sup>, namely:

- What are the desired investors/industries?
- Why should they invest in an IP?
- How do you attract these industries?

#### *Market and business case analysis*

EIPs can help governments to attract investment and offer financial returns to developers and businesses. However, a business case demonstrating the need for serviced industrial lands and the project's benefits must be prepared early in the process of establishing a new EIP.

EIPs must be market-driven and meet investor demands. They should be located in economically viable areas with good access to labour, markets and logistics. The success of a park depends on its ability to respond to investment demand and investor needs. A "build it and they will come" approach is only effective in rare cases in which there is high demand for industrial land and the park's location meets investors' expectations<sup>24</sup>.

A well-prepared business case should analyse both the opportunities and risks of a project and provide a strong justification for it. Often, insufficient effort is put into developing a solid business case and positioning the IP correctly. This can result in a mismatch between what companies need and what the park offers.

Demand forecasting is a complex and uncertain exercise that requires the following activities<sup>25</sup>:

- Analysis of investment and trade patterns at global, regional and national levels, providing a clear understanding of the sectors that will make up the majority of investment and emerging trends.
- Analysis of the sources of comparative advantage in the country as a whole and in the region in which the park is located. These sources include appropriate and abundant labour and preferential access to key markets, as well as land resources.

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<sup>23</sup> Extracted from: Ernst Grigat, Sapherior (2022). Industrial Zone Management and Risk Assessment.

<sup>24</sup> World Bank, Special Economic Zones in Africa: Comparing Performance and Learning from Global Experience (2011).

<sup>25</sup> Based on UNIDO (2019). International Guidelines for Industrial Parks.

- Analysis of direct input from existing and potential investors through surveys, focus group discussions and interviews. The goal is to understand their investment location decision-making process, the criteria that will drive it and their needs in terms of serviced industrial land.
- Benchmarking on the proposed IP against alternative location options, both within and outside the marketplace. The goal is to properly compare investor options in this context, including their costs, services and other characteristics.
- Analysis of government decision-making aimed at providing the required political and social consensus, as well as the necessary political programmatic and resource commitment to support the establishment of IPs through a formal IP policy.

**Opportunity, impact and risk analysis**

EIPs offer a number of economic benefits, but also come with risks related to planning, development, operation, business disruption, environmental and social impacts. They involve multiple stakeholders and require regulatory compliance. A systematic approach to identifying, prioritizing and mitigating risks is essential for effective management. It is important to have clear plans for risk prevention and mitigation at both the park and company levels.

Risk assessment is an essential part of planning for any IP development. Each park has its own unique context and conditions, with the risks varying as a result. The first step in any risk mitigation plan is to identify, analyse and prioritize site-specific risks to ensure that the park operates securely and sustainably. A summary of potential risks facing an EIP is provided in Table 20 below.

A good risk management plan includes measures for prevention and limitation, incident response, responsible parties and communication. It should define the responsibilities of all stakeholders and establish clear decision-making processes. Compliance with national and international regulations is also important. Park management and resident companies must inform employees of their responsibilities. Risk control strategies include avoidance, reduction, sharing and retention (as depicted in Figure 7)<sup>26</sup>.



Figure 7: IP risk management strategies<sup>27</sup>

<sup>26</sup> Based on UNIDO (2019). International Guidelines for Industrial Parks.

<sup>27</sup> UNIDO (2019). International Guidelines for Industrial Parks.

Table 20: Potential IP risks<sup>28</sup>

<b>PLANNING RISKS</b>	<ul style="list-style-type: none"> <li>Planning compliance</li> <li>Surrounding population density</li> <li>Traffic and congestion</li> <li>Adjacent projects</li> <li>Utilities capacity</li> <li>Enterprise layout</li> <li>Land title</li> <li>Demand risks</li> <li>Economic justification</li> </ul>	<b>ENVIRONMENTAL AND HAZMAT RISKS</b>	<ul style="list-style-type: none"> <li>Storm flood</li> <li>Fire/explosion</li> <li>Hazardous materials</li> <li>Waste and wastewater disposal</li> <li>Natural disasters</li> </ul>
<b>STRATEGIC RISKS</b>	<ul style="list-style-type: none"> <li>Construction risks</li> <li>Supplier and partner non-performance risks</li> <li>Policy instability</li> <li>Promoter capacity</li> <li>Operations</li> <li>Governance</li> <li>Technology</li> <li>Regulatory framework</li> </ul>	<b>HUMAN RESOURCE AND OCCUPATIONAL RISKS</b>	<ul style="list-style-type: none"> <li>Accidents/health</li> <li>Operational safety</li> <li>Reduction and retention</li> <li>Knowledge management</li> <li>Emergency support</li> <li>Management</li> </ul>
<b>FINANCIAL RISKS</b>	<ul style="list-style-type: none"> <li>Stock exchange/capital market fluctuations</li> <li>Exchange and interest rate fluctuation</li> <li>Liquidity/cash flow</li> <li>Fraud</li> <li>Financial viability</li> </ul>	<b>FIXED ASSET RISKS</b>	<ul style="list-style-type: none"> <li>Security</li> <li>Energy supply</li> <li>Property damage</li> <li>Machinery breakdown</li> </ul>
<b>MARKET AND COMMERCIAL RISKS</b>	<ul style="list-style-type: none"> <li>Competitors/Market share/Reputation</li> <li>Business interruption</li> </ul>		

Source: Adapted from Oldani Insurance Group Ltd. (2015) and Locus Economica (2019)

When preparing for master planning of IPs, it is important to consider the following tools for assessing opportunities, impacts and risks:

- A Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis evaluates an IP’s strengths, weaknesses, opportunities and threats from economic, environmental and social perspectives. Its main goal is to help the park to understand all of the factors involved in making business decisions.
- Economic impact modelling is essential for deciding whether to proceed with an IP project.
- An Environmental and Social Mitigation Plan and Economic Impacts Study should outline the steps needed to maximize the economic, environmental and social benefits of an IP project, while minimizing any negative impacts. These can be prepared as one integrated study or separate documents.

### Infrastructure and service needs assessment

An EIP offers essential infrastructure to support industrial development, sometimes for specific industries. The infrastructure needs of a park can vary depending on the industries that invest there and the existing infrastructure on site or nearby.

EIPs apply sustainable and integrated design and operation of basic, environmental and social infrastructure. The integrated planning and strategic clustering of infrastructure, utilities and companies is a core mechanism to reduce the need for utility infrastructure and associated costs.

Social and commercial amenities may be needed to provide conveniences for the park’s workers and visitors. Security is important in creating a safe environment for those in and around the park. It may be necessary to place some social infrastructure facilities away from industrial plots to minimize any risks to the public.

<sup>28</sup> UNIDO (2019). International Guidelines for Industrial Parks.

Infrastructure planning should be based on existing plans and new site-specific surveys and assessments. It should follow certain fundamental principles<sup>29</sup>, including

- All infrastructure should be modular, functional, cost-effective and flexible enough to take gradual occupancy into account.
- Waste minimization/sustainable and green concepts.
- Life cycle operation, management costs, value for money analysis from developer and unit occupant perspectives.
- Phased development.
- Integrated and linked to municipal infrastructure and related national/provincial/local development plans.
- A range of infrastructure development options and alternatives.

The following figure shows some of the specific objectives for providing infrastructure in EIPs.

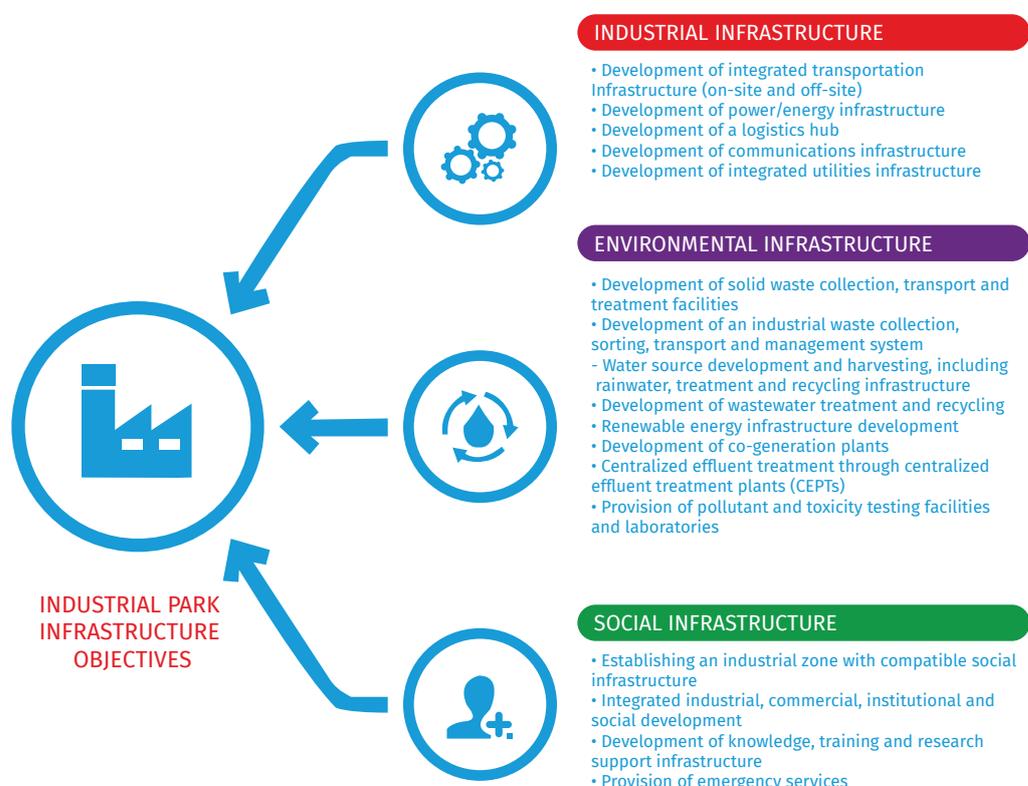


Figure 8: Illustration of IP infrastructure objectives<sup>30</sup>

### Policy and regulatory analysis

Both the EIP overall and the companies operating within it must comply with local/national regulations and good international business practices.

EIPs and their companies must follow all relevant national and local laws and standards. This includes employment regulations, discharge limits, air emission limits, waste disposal and handling requirements and noise limits. The park management should monitor compliance and report on performance. The ISO 19600 Standard offers guidance for managing compliance.

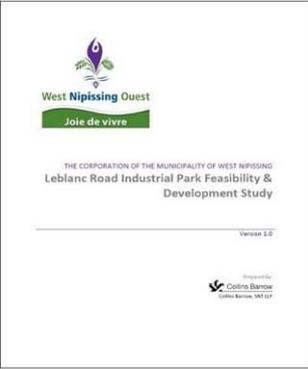
<sup>29</sup> Based on UNIDO (2019). International Guidelines for Industrial Parks.

<sup>30</sup> UNIDO (2019). International Guidelines for Industrial Parks.

It is important for park management to be knowledgeable about and enforce the regulations and international standards that apply to IP compliance. To achieve this, the park management entity has a system in place to gather and adhere to relevant local/national regulations and international standards. Compliance is enforced among resident firms by requesting and collecting information, which they share with the park management entity.

It is essential to take into account current and future policies, legal and regulatory requirements to which the IP and its companies must adhere. This includes providing an overview of relevant institutions and stakeholders, identifying opportunities for differentiation that may benefit the project and potential investors, as well as recognizing any constraints or challenges that may arise.

### International good practices

	<ul style="list-style-type: none"> <li>• Yellowstone County Industrial Park Feasibility Analysis, Montana, United States of America.</li> <li>• Feasibility study is available from: <a href="http://www.bigskyeconomicdevelopment.org/documents/Industrial-Park-Feasibility-Analysis_KLJ_2014.pdf">www.bigskyeconomicdevelopment.org/documents/Industrial-Park-Feasibility-Analysis_KLJ_2014.pdf</a>.</li> <li>• Chapter 1: Industry opportunities</li> <li>• Chapter 2: Market analysis</li> <li>• Chapter 3: Site alternatives</li> <li>• Chapter 4: Site operations</li> <li>• Chapter 5: Ownership and development alternatives</li> <li>• Chapter 6: Recommendations and implementation plan</li> </ul>
	<ul style="list-style-type: none"> <li>• Leblanc Road Industrial Park Feasibility &amp; Development Study, Canada.</li> <li>• Feasibility study is available from: <a href="http://westnipissing.ca/wp-content/uploads/2020/11/Ec-Dev-Industrial-Park-Feasibility-Study.pdf">http://westnipissing.ca/wp-content/uploads/2020/11/Ec-Dev-Industrial-Park-Feasibility-Study.pdf</a>.</li> <li>• Part 1: Introduction</li> <li>• Part 2: Market assessment</li> <li>• Part 3: Operational and feasibility analysis</li> <li>• Part 4: Implementation recommendations</li> <li>• Part 5: Conclusion</li> </ul>

# **Annex D: Concept planning of new EIPs**

## Annex D: Concept planning of new EIPs

### Details on methodology

The detailed methodology included in this annex is based on the EIP Concept Planning Tool developed by UNIDO through the GEIPP. The tool is freely available from UNIDO’s Knowledge Hub<sup>31</sup>.

#### Step 1: Review existing and future situation

The creation of a good understanding of the existing and future situation of an EIP and its surroundings is a key first step to developing concrete and practical suggestions to optimize the concept planning of any IP.

The following template provides a set of questions to review the existing and future situation/developments for the IP with regard to the following topics:

- Park set-up, management and governance.
- Infrastructure and utilities.
- Land zoning.
- Tenant companies.
- Economic conditions.
- Environmental and geographical conditions.
- Community and social conditions.

UNIDO’s EIP Concept Planning Tool provides detailed fill-in templates to review the existing and future situation regarding each of the topics listed above. An illustrative example of such a template is provided below. Please download the EIP Concept Planning Tool to access full details.

#### Illustrative example of worksheet: Park set-up, management and governance

Review existing situation		Review future situation/developments	
Question	Answer	Question	Answer
1	What is the current state of park ownership? <ul style="list-style-type: none"> <li>• National/foreign investment</li> <li>• Government-owned, private, public-private investment</li> </ul>	1	Are there any potential changes to the IP ownership?
2	What is the name of the current park management organization/developer? <ul style="list-style-type: none"> <li>• Number of park management staff</li> <li>• Park management organigram</li> </ul>	2	Are there any potential changes to the IP management organization/developer?
3	What is the existing park management business model and the governance model of the IP? <ul style="list-style-type: none"> <li>• Land lease / sales</li> </ul>	3	What are the potential future developments around the park management business model and governance model of the IP?

<sup>31</sup> <https://hub.unido.org/eco-industrial-parks-tools>

Review existing situation		Review future situation/developments		
Question		Answer	Question	
Answer		Answer		
	<ul style="list-style-type: none"> <li>Park management services and fees</li> </ul>			
4	What is the current long-term vision of the IP?		4	Are there any potential changes to the long-term vision of the IP?
5	What is the total land area of industrial park (ha)?		5	Are there any potential changes to the total land area of the IP?
6	What is the current development stage of the IP? <ul style="list-style-type: none"> <li>Greenfield, brownfield, not yet fully occupied, fully occupied brownfield</li> <li>Percentage of land that is currently developed and occupied by tenant companies and infrastructure/utilities</li> </ul>		6	What is the expected development stage of the IP in five years and in ten years? <ul style="list-style-type: none"> <li>Percentage of land that is developed and occupied by tenant companies and infrastructure/utilities</li> </ul>
7	What is the history of the IP?			

**Step 2: Review against International EIP Framework and its land use implications**

An International Framework for Eco-Industrial Parks was developed by UNIDO, WBG and GIZ (2021) to provide guidance on how an IP can work towards becoming an EIP. A large proportion of the EIP benchmarks in the International EIP Framework have implications for land use in the IP and, therefore, for the EIP concept plan.

This step assesses the current and intended performance of an IP against benchmarks of the International Framework for Eco-Industrial Parks and subsequently identifies EIP and spatial planning opportunities to incorporate into the EIP concept plan.

The benchmarks from the International Framework for Eco-Industrial Parks most relevant to the planning of new EIPs are provided in Annex A of these guidelines. For further details on the full set of international EIP benchmarks, please download the International EIP Framework publication<sup>32</sup>.

**Step 3: Review industry interest to locate to IP**

The full development of EIPs normally takes a significant period of time (up to 30 years). As a result, there are often uncertainties during the development phase regarding the potential industry types that will locate to an IP in the future. This is also the case for a number of IPs. The maximum flexibility is therefore needed in IP planning and development processes. The potential for industry and business development in IPs is determined by a range of factors, including the availability of suitable land and servicing, transportation nodes, communications, labour, proximity to markets and infrastructure.

The discussion on (potential) demand for industrial land for IP can be guided by the following elements:

- Take stock of the available studies to understand demand for industrial land in the region in which the IP is located.
- What are the main favourable features of the IP to attract new companies, both now and in the future?

<sup>32</sup> UNIDO, World Bank Group, GIZ (2021). An International Framework for Eco-Industrial Parks. <https://openknowledge.worldbank.org/handle/10986/35110>.

- Which industry sectors are likely to move to the IP or to the region?

UNIDO’s EIP Concept Planning Tool provides a detailed fill-in template to prioritize industry sectors following discussions with park management and assessment of the available market demand studies. The worksheets in the tool support a review of manufacturing sectors based on ISIC revision 4. An illustrative example of such a template is provided below. Please download the EIP Concept Planning Tool<sup>33</sup> to access full details.

International Standard Industrial Classification (ISIC) <a href="http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27">http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27</a>		Priority subsector to attract <sup>34</sup>	Likelihood of locating to IP <sup>35</sup>
ISIC Division	ISIC Group		
<b>Section C - Manufacturing</b>			
10 - Manufacture of food products	101 – Processing and preserving of meat	Please select	Please select
	102 – Processing and preserving of fish, crustaceans and molluscs	Please select	Please select
	103 – Processing and preserving of fruit and vegetables	Please select	Please select
	104 – Manufacture of vegetable and animal oils and fats	Please select	Please select
	105 – Manufacture of dairy products	Please select	Please select
	106 – Manufacture of grain mill products, starches and starch products	Please select	Please select
	107 – Manufacture of other food products	Please select	Please select
	108 – Manufacture of prepared animal feeds	Please select	Please select
11 - Manufacture of beverages	110 – Manufacture of beverages	Please select	Please select
12 - Manufacture of tobacco products	120 – Manufacture of tobacco products	Please select	Please select
Etc.	Etc.	Etc.	Etc.
	Etc.	Etc.	Etc.

#### Step 4: Review existing and potential anchor tenants

The development of EIPs will benefit significantly from having anchor tenants to attract associated and synergistic businesses and establish industrial synergies in the area. These anchor tenants can be existing companies in surrounding areas or new businesses locating to an IP.

An anchor tenant acts as a central feature of an IP and a catalyst for establishing industrial synergies. An anchor tenant helps to define potential sources of exchange (e.g. the use of brine from the desalination plant as a resource for industrial salt production). Furthermore, the availability of a specific resource (e.g. inorganic and organic by-products, waste, energy, wastewater streams) can attract other potential tenants.

A key question for the review of anchor tenants in this step concerns the potential for large companies to locate to the IP, considering the industrial land demand for the park.

UNIDO’s EIP Concept Planning Tool provides detailed fill-in templates to review existing and potential new anchor tenants for IPs. The template in the tool is based on a list of illustrative anchor tenants grouped

<sup>33</sup> <https://hub.unido.org/eco-industrial-parks-tools>.

<sup>34</sup> “Please select” options: Very high, High, Medium, Low, Very Low, Not applicable, To be confirmed.

<sup>35</sup> “Please select” options: Very high, High, Medium, Low, Very low, Not applicable, To be confirmed.

according to the ISIC and the likelihood of attracting further companies through the supply chain, utility, by-product/waste and/or service synergies.

An illustrative example of such a template is provided below. Please download the EIP Concept Planning Tool<sup>36</sup> to access full details.

***Illustrative snapshot of worksheet***

Selected industrial sectors (ISIC divisions)	Illustrative example of anchor tenant(s) in industrial sector	Existing or potential anchor tenant? <sup>37</sup>	For potential anchor tenants: What is the likelihood of an anchor tenant locating to the IP? <sup>38</sup>	List details of existing or potential anchor tenant(s) (if available)
10 – Manufacture of food products	Dairy processing facility	Please select	Please select	
11 – Manufacture of beverages	Brewery	Please select	Please select	
13 – Manufacture of textiles	Spinning, weaving and textile finishing company	Please select	Please select	
14 – Manufacture of clothing apparel	Manufacture of clothing apparel	Please select	Please select	
15 – Manufacture of leather and related products	Leather tannery	Please select	Please select	
Etc.	Etc.	Etc.	Etc.	

***Step 5: Review synergy opportunities and land use implications***

International good practices show that the types of benefit deriving from industrial synergies often go well beyond the conventional business case benefits. The security of water and energy supply, increased resource efficiency, lower operational costs for resource use and reduced storage and landfill costs are key benefits resulting from the synergies.

The following types of industrial synergy are assessed as part of the EIP concept planning approach:

- ***Supply synergies and co-location of suppliers and clients:*** Co-location and clustering of companies in the supply and value chains (e.g. producers and suppliers of raw materials, producers, manufacturing and business clients).
- ***Utility synergies and infrastructure sharing:*** Shared use of utility infrastructure, mainly revolving around water and energy (e.g. water recovery and energy co-generation).
- ***By-product synergies and waste exchange:*** The use of a previously disposed by-product (as solid, liquid or gas) from one facility by another facility to produce a valuable by-product.
- ***Service synergies:*** Sharing of services and activities between companies in an industrial area (e.g. joint training of staff and sharing of maintenance contractors).
- ***Urban-industrial synergies:*** Interlinkages between companies and cities/municipalities, including:

<sup>36</sup> <https://hub.unido.org/eco-industrial-parks-tools>

<sup>37</sup> “Please select” options: Existing, Potential, Not applicable, To be confirmed.

<sup>38</sup> “Please select” options: Very high, High, Medium, Low, Very Low, Not applicable, To be confirmed.

- Common infrastructure and utilities servicing both residential and industrial developments (e.g. wastewater treatment plant, power supply, waste collection).
- Processing, recovery and recycling of the city’s waste by industries (e.g. old tyres as alternative fuel in cement plants, reprocessing of electronic waste).
- Use of reprocessed products (e.g. recycled wooden products, processed compost) and by-products from companies by surrounding municipalities (e.g. waste heat).

UNIDO’s EIP Concept Planning Tool provides a detailed fill-in template to review synergy opportunities for an IP, including their potential implications on the spatial planning of the IP. The EIP concept plan of the IP (Step 7) should allow for the development of promising industrial synergy opportunities through:

- Industry clustering and co-location.
- Flexible and “synergistic” precincts.
- Service/utility corridors.
- Transportation network.

An illustrative example of a template for reviewing urban-industrial synergy opportunities and their spatial planning implications is provided below. Please download the EIP Concept Planning Tool<sup>39</sup> to access the templates for reviewing supply chain, utility, by-product and service synergies.

**Illustrative example of worksheet: Urban-industrial synergies**

#	Synergy opportunities	Potential implication for land planning and zoning of IP	What is the relevance of this synergy to the IP? <sup>40</sup>
<b>Urban-industrial synergies</b>			
1	Joint IP and municipality wastewater treatment facility	<ul style="list-style-type: none"> <li>• Allow for location of joint IP and municipality wastewater treatment facility in park (e.g. utility precinct)</li> <li>• Allow for co-location of water intensive companies in close proximity to wastewater facility</li> <li>• Allow for co-location of energy facility with municipality wastewater treatment facility</li> <li>• Service corridors to allow for potential water exchanges between water supply and treatment facilities, water/energy intensive companies, ocean, wastewater treatment plant, water access points</li> </ul>	Please select
2	Joint IP and municipality water supply facility	<ul style="list-style-type: none"> <li>• Allow for location of joint IP and municipality water supply facility in park (e.g. utility precinct)</li> <li>• Allow for co-location of energy facility with water supply facility</li> <li>• Service corridors to allow for potential water exchanges between water supply and treatment facilities, water/energy intensive companies, ocean, wastewater treatment plant, water access points</li> </ul>	Please select
3	Joint renewable energy projects (e.g. solar, wind) between IP and local municipality/city	<ul style="list-style-type: none"> <li>• Allow for location in suitable land area of IP with favourable wind and solar characteristics (e.g. buffer zone)</li> </ul>	Please select

<sup>39</sup> <https://hub.unido.org/eco-industrial-parks-tools>.

<sup>40</sup> “Please select” options: Very high, High, Medium, Low, Very low, Not relevant, To be confirmed.

#	Synergy opportunities	Potential implication for land planning and zoning of IP	What is the relevance of this synergy to the IP? <sup>40</sup>
4	Processing of selected waste streams from local municipality/city in IP or vice versa (e.g. plastics, paper, organic waste, construction and demolition waste, municipal solid waste)	<ul style="list-style-type: none"> <li>• Transportation nodes to allow for potential material movements</li> <li>• Allow for co-location of synergistic waste collection and processing companies</li> </ul>	Please select
5	Shared district cooling/heating system supplying local communities/ municipality/city	<ul style="list-style-type: none"> <li>• Service corridors to allow for potential district cooling/heating system</li> <li>• Allow for co-location of energy-intensive companies</li> <li>• Allow for location of shared cooling district facility</li> </ul>	Please select
6	List other urban-industrial synergy opportunities for IP	List potential implication for land planning and zoning of IP	Please select

**Step 6: Define industry clusters and precincts**

The clustering of companies is a core element in the development of industrial synergies within an IP and its surrounding regions, as well as a mechanism to reduce the need for utility infrastructure and associated costs.

In the first instance, industry clustering is facilitated through the development of appropriate industry precincts within the park. Companies and organizations involved in clusters are able to achieve synergies and leverage economic advantage from shared access to information and knowledge networks, supplier and distribution chains, markets and marketing intelligence, special competencies, resources and support institutions available in a specific locality. The cluster concept focuses on the functional linkages and interdependencies among actors in value chains.

The following is a set of location criteria which guide the identification of preferred and optimal location(s) for new companies within an IP and specific precincts:

- Water:
  - High water requirements
- Energy:
  - High electricity requirements
  - High use of heat, cooling steam, gas
- Transport:
  - Close access to highway
  - Access to wide roads
  - Close access to port
  - Access to other material-handling services (e.g. truck patio, conveyors)
- Potential risks:
  - Risk profile (e.g. odour, noise, explosion, fire, soil, air emissions, water pollution)
  - Industry co-location risk
- Lot size:
  - Large versus small lots
- Waste and by-products:
  - Access to by-product/waste storage and processing facility
- Encourage synergies:
  - Supply, utility, by-product and service synergies between companies inside and outside the park (including urban-industrial synergies)

Please complete the following table to assess each prioritized industry sector (as defined in Step 2 on industrial land demand) against a set of industry location criteria.

Applicability of location criteria to (sub)sectors / company types <sup>41</sup>																
Results from Steps 3 and 4: Prioritized industry sectors, anchor tenants and any specific companies for IP	High water use	High electricity use	High use heat, cooling steam, gas	Close access to highway	Access to wide roads	Close access to port	Large amounts of waste and by- products	Lot size	Potential risks					Other risks		
	Air pollution	Odour	Hazardous materials	Fire and explosions	Water pollution	Noise										
Insert sector, anchor tenant, company type/name	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	
Insert sector, anchor tenant, company type/name	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	
Insert sector, anchor tenant, company type/name	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	
Insert sector, anchor tenant, company type/name	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	
Insert sector, anchor tenant, company type/name	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	
Insert sector, anchor tenant, company type/name	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	
Insert sector, anchor tenant, company type/name	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	
Insert sector, anchor tenant, company type/name	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	
Insert sector, anchor tenant, company type/name	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	Please select	

<sup>41</sup> "Please select" options: Very high, High, Medium, Low, Very low, Not applicable, To be confirmed.

### Step 7: Develop EIP concept plan

The development of an EIP concept plan is based on the interpretation and consolidation of all previous steps in the methodology. UNIDO’s EIP Concept Planning Tool contains templates to guide the interpretation and consolidation of the previous steps into a customized EIP concept plan for an IP. The templates cover the following:

- Land use implications from the International EIP Framework.
- Industry clustering and precincts.
- Anchor tenants.
- Industrial synergies.
- Transportation network.
- Risk mitigation.
- Land use implications from the International EIP Framework

### International good practice: Parque Industrial Malambo (PIMSA), Colombia

As part of UNIDO’s Global RECP Programme, an EIP concept plan was developed for the Parque Industrial Malambo (PIMSA) in Colombia, in close collaboration with the park management team.

The EIP concept plan developed for PIMSA assists park management in facilitating the sustainable development of the IP and its infrastructure, utilities and available industrial land. The focus of the developed EIP concept is on maximizing economic, environmental and social benefits and minimizing risks to park management, companies and the community. PIMSA has around 60 percent of land available for greenfield development, which can accommodate up to 80 new companies. Therefore, another key focus was on attracting synergistic companies, industry clustering and the development of sustainable infrastructure, services and utilities.

Figure 9: PIMSA concept plan example – Key EIP features incorporated into concept plan

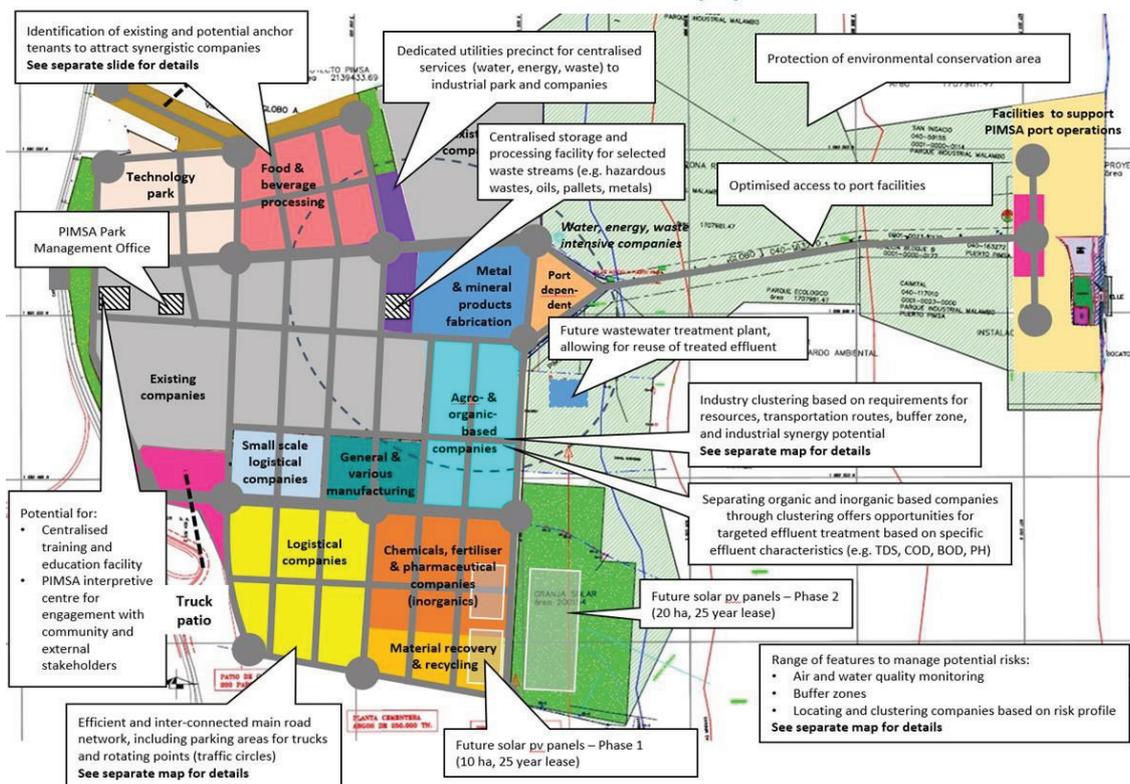


Figure 10: PIMSA concept plan example – Industry clustering and precincts

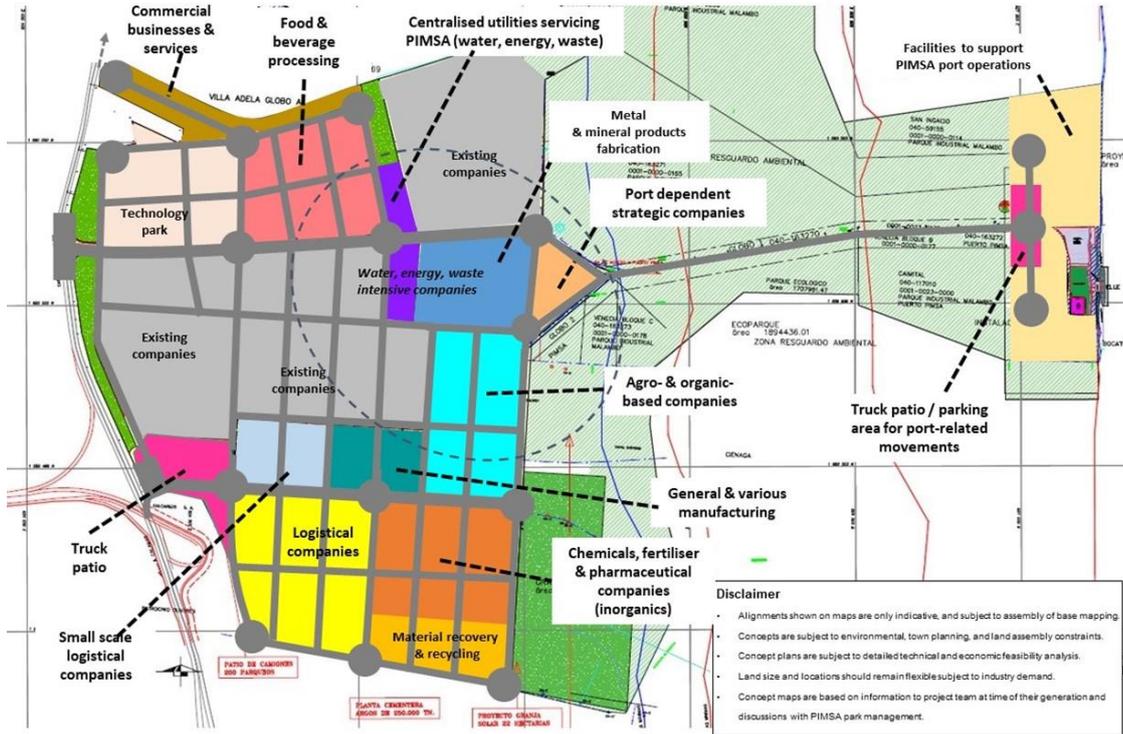


Figure 11: PIMSA concept plan example – Anchor tenants

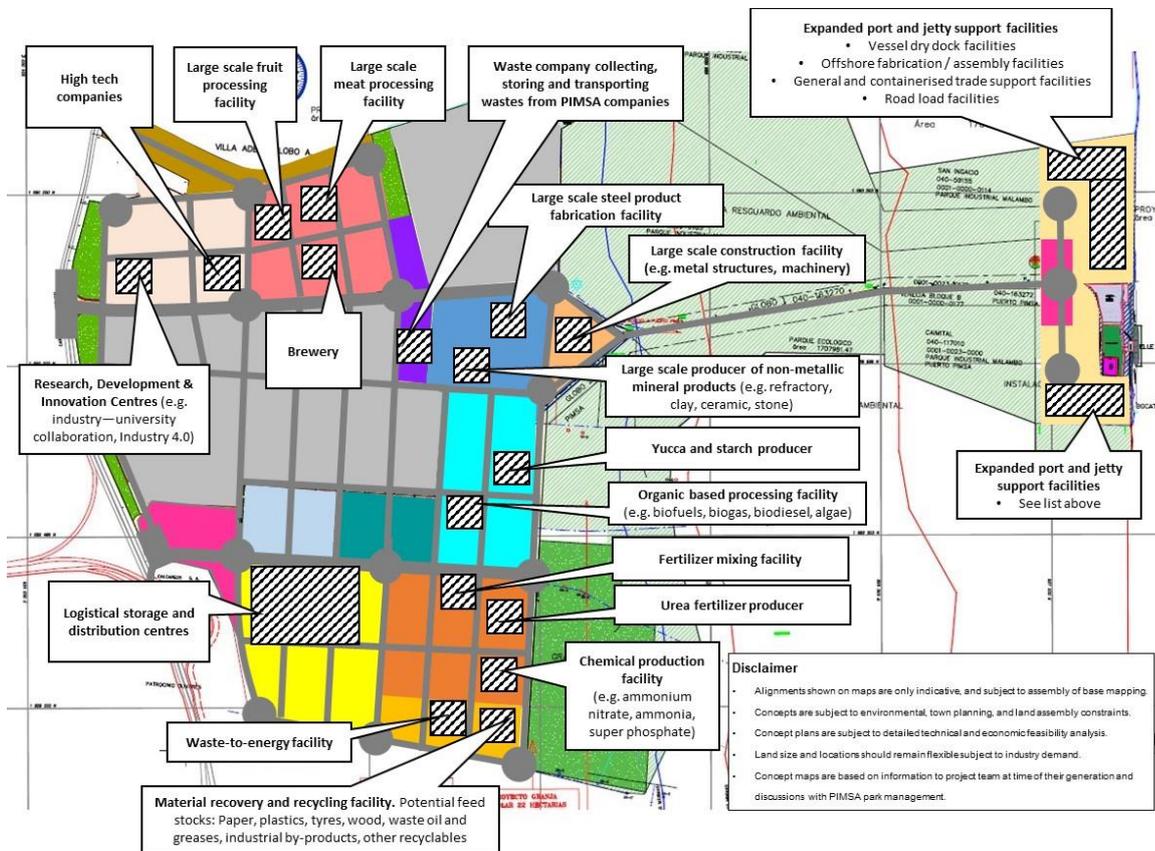


Figure 12: PIMS concept plan example – Supply chain synergies

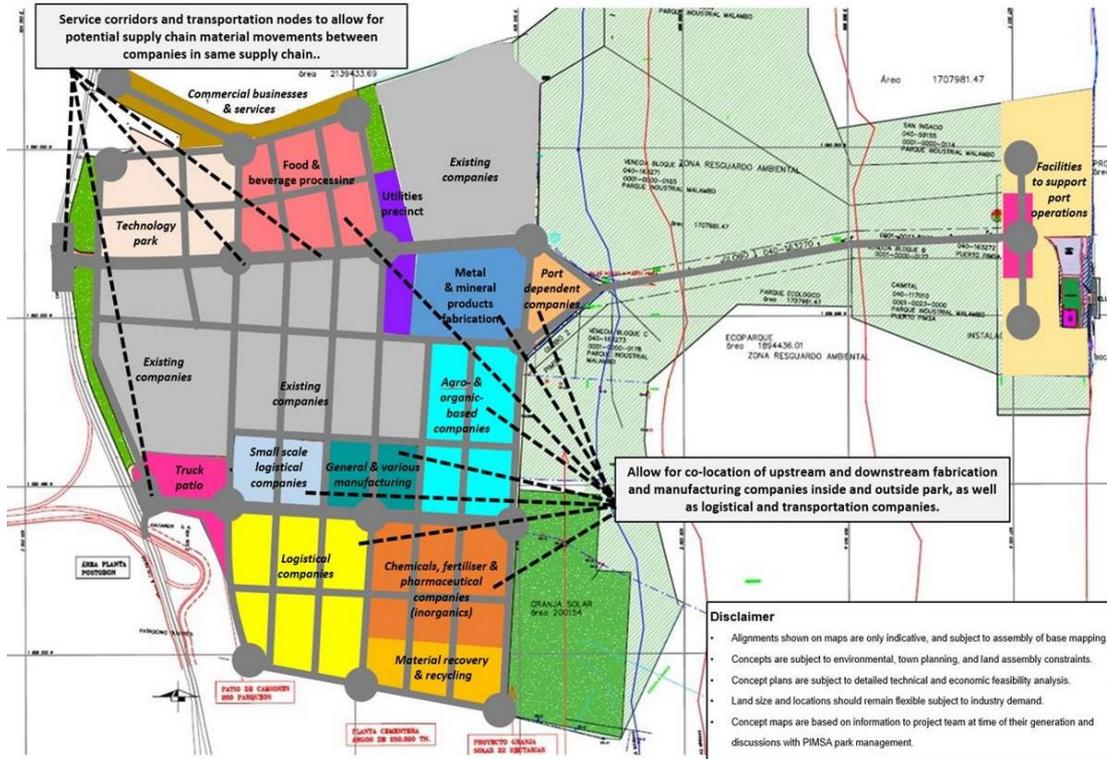


Figure 13: PIMS concept plan example – Utility synergies

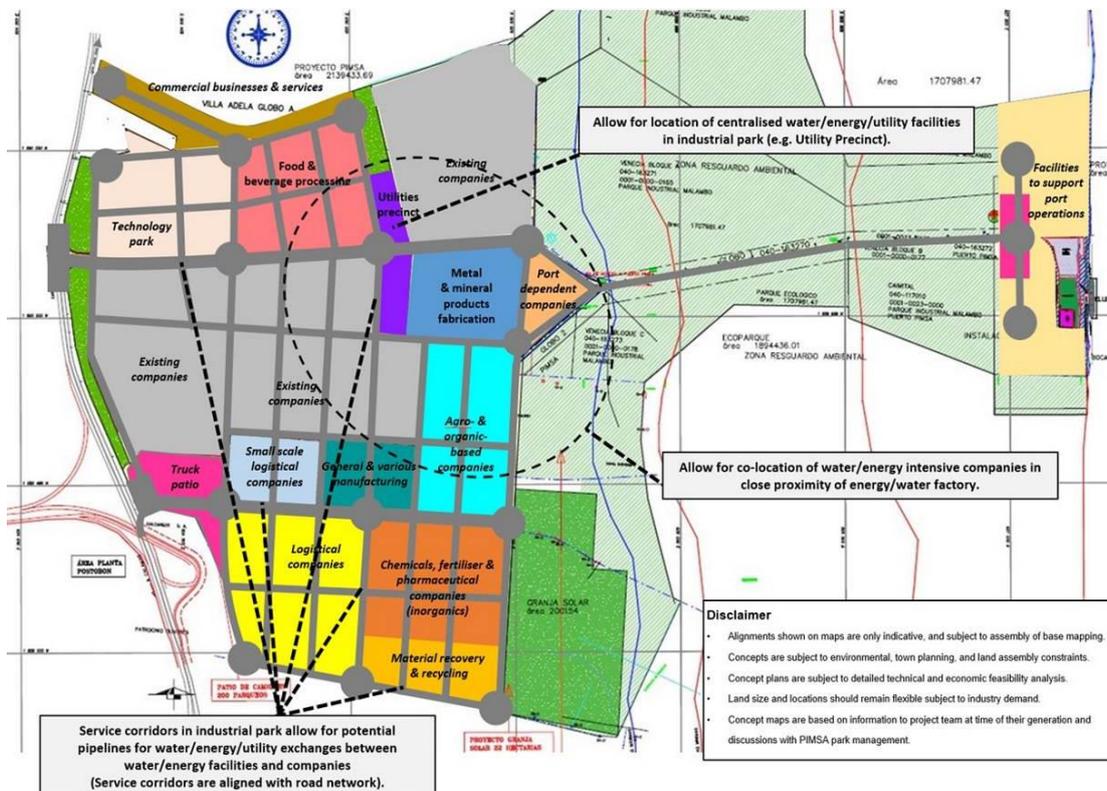


Figure 14: PIMSA concept plan example – By-product and waste synergies

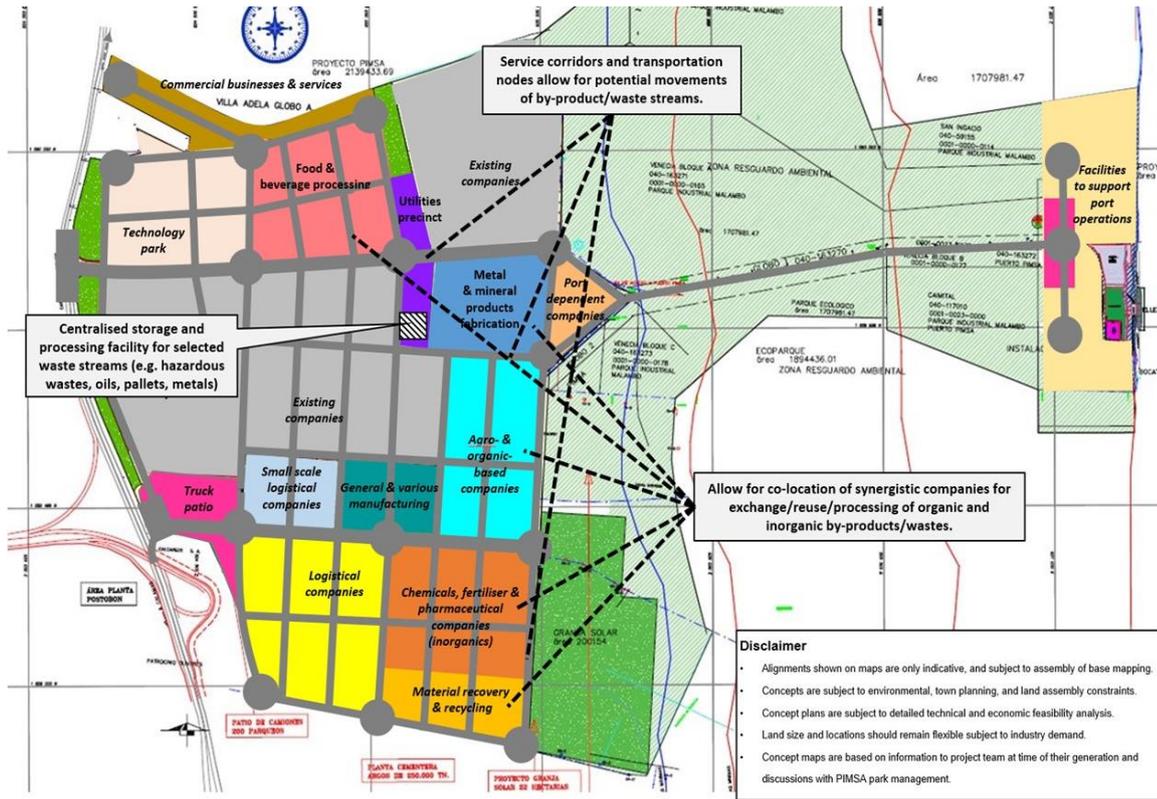


Figure 15: PIMSA concept plan example – Urban-industrial synergies

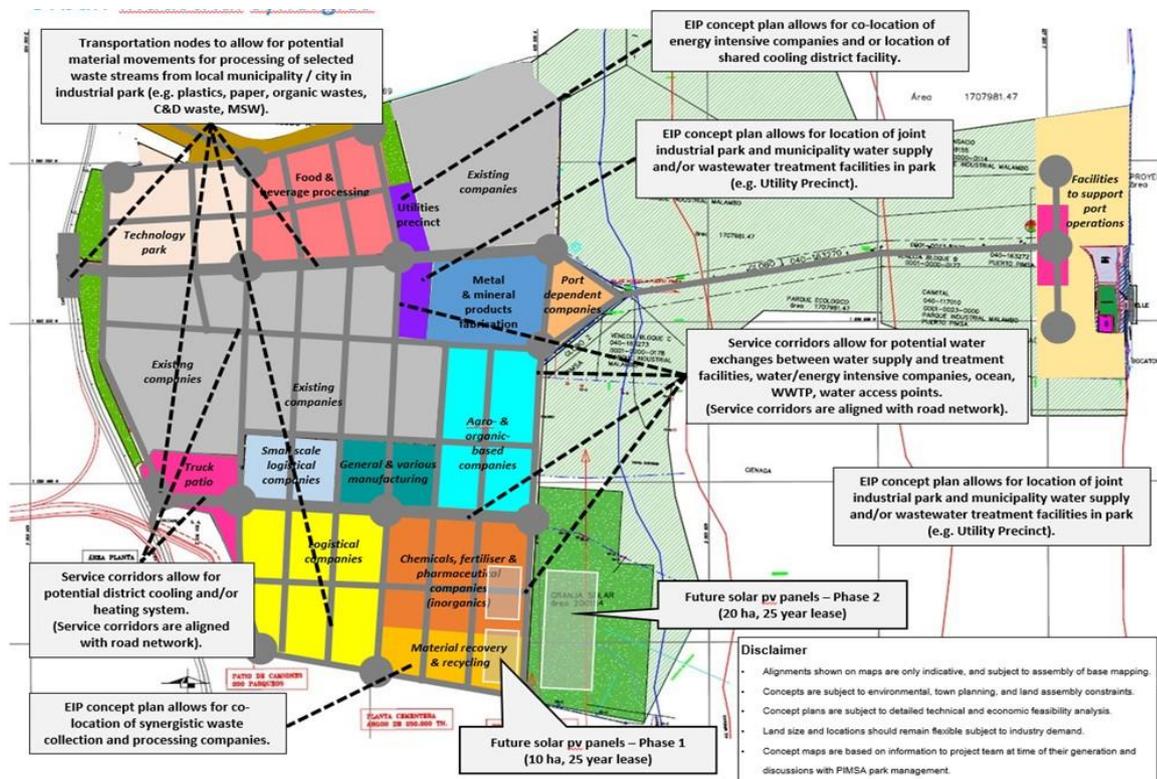


Figure 16: PIMSA concept plan example – Transportation network

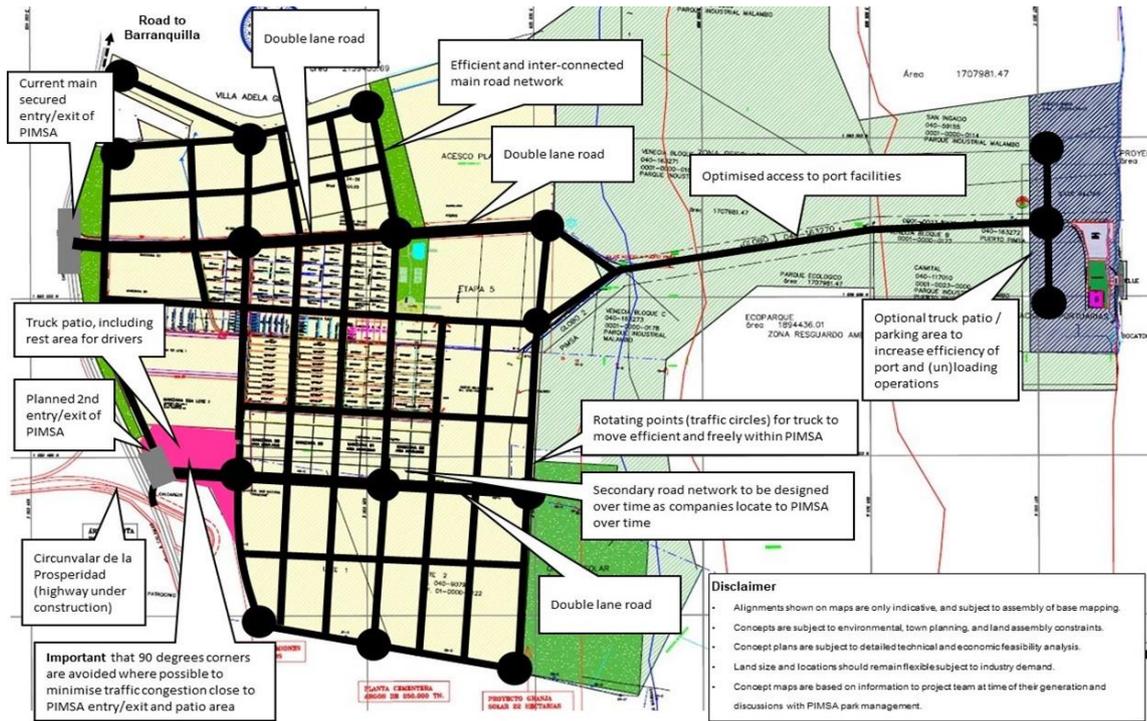
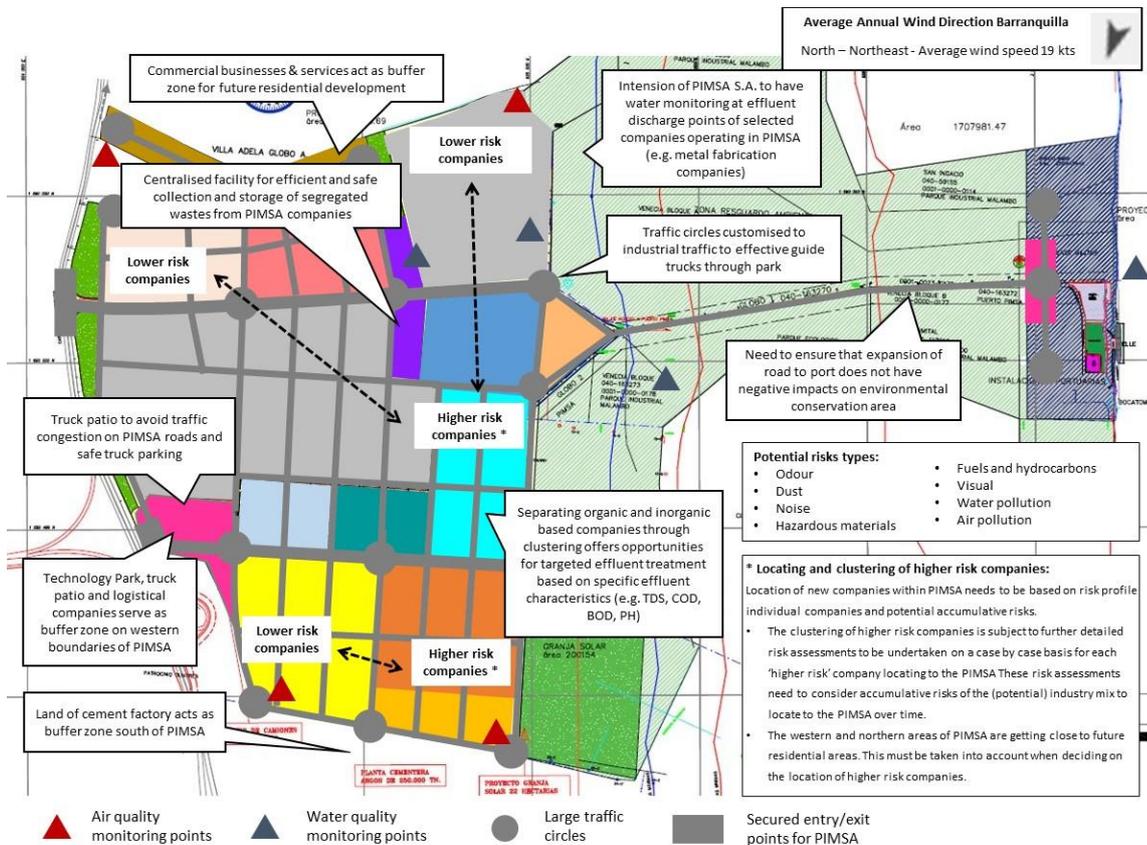


Figure 17: PIMSA concept plan example – Risk management



**Step 8: Market and promote added value features of the EIP concept plan**

The objective of the EIP concept plan is to assist in the sustainable and integrated design and operation of IPs from an economic, environmental and community perspective. The EIP concept provides an opportunity for park management to differentiate itself from other IPs or locations in which companies can locate and operate as well as providing a compelling argument for companies to locate to an IP with an EIP concept plan. It is therefore important for IP management to market and promote the added value features of the EIP concept plan to business and investors, as well as to the local community and government agencies.

UNIDO’s EIP Concept Planning Tool provides detailed fill-in templates to summarize the added value features of the EIP concept plan and communicate these to the IP stakeholders. The templates cover the added value features on the following topics:

- International Framework for EIPs
- Industry clustering and precincts
- Anchor tenants
- Supply chain synergies
- Utility synergies and infrastructure sharing.
- By-product and waste synergies.
- Service synergies.
- Urban-industrial synergies.
- Transportation network.
- Risk management.
- Effectiveness, efficiency and flexibility.

An illustrative example of such a template for urban-industrial synergies is provided below. Please download the EIP Concept Planning Tool<sup>42</sup> to access full details.

***Illustrative example of worksheet: Urban-industrial synergies***

Added value features of EIP concept plan			
Generic statement		Applicability to IP <sup>43</sup>	Specific added value feature of IP
<b>Urban-industrial synergies</b>			
1	EIP concept plan allows for location of joint IP and municipality water supply and/or wastewater treatment facility in park (e.g. utility precinct).	Please select	
2	Service corridors allow for potential water exchanges between water supply and treatment facilities, water/energy-intensive companies, ocean, wastewater treatment plant, water access points.	Please select	
3	EIP concept plan allows for location of renewable energy projects in suitable land area of IP with favourable wind and solar characteristics (e.g. buffer zone).	Please select	
4	Transportation nodes to allow for potential material movements for processing of selected waste streams from local municipality/city in IP (e.g. plastics, paper, organic waste, construction waste, municipal solid waste).	Please select	
5	EIP concept plan allows for co-location of synergistic waste collection and processing companies.	Please select	
6	Service corridors allow for potential district cooling and/or heating system.	Please select	
7	EIP concept plan allows for co-location of energy-intensive companies and or location of shared cooling district facility.	Please select	

<sup>42</sup> <https://hub.unido.org/eco-industrial-parks-tools>.

<sup>43</sup> “Please select” options: Very applicable, Applicable, Somewhat applicable, Not applicable, To be confirmed.

# **Annex E: Master planning of new EIPs**

## Annex E: Master planning of new EIPs

### Details on methodology

#### Methodology – Phase 1: Prepare for master planning

Phase 1 of the master planning includes the following steps and details, which are included in the respective chapters of the present guidelines:

- Step 1: Site selection, Chapter C.1.
- Step 2: Feasibility assessment, Chapter C.2.
- Step 3: Concept planning, Chapter C.3.

#### Methodology – Phase 2: Develop master plan

##### *Step 4: Detailed design*

Master planning has a lasting impact on how an IP develops, operates and is integrated into surrounding areas and communities. It defines the connection between the topography, land use, infrastructure, public right-of-way, buildings, social settings and their surrounding environments. Master plans should be prepared based on existing public plans, as well as new site-specific surveys, investigations and analysis.

Master plans for IPs are often designed based on conventional and business-as-usual planning processes. Conventional master plans often fail to fully consider the sustainability challenges or opportunities offered by EIP approaches (e.g. reducing economic, environmental and social risks, industry clusters, industrial synergies, anchor tenants, shared and integrated utilities and infrastructure). The EIP approach provides an opportunity to strengthen the existing master plan from an economic, environmental and social perspective.

The design and development of an IP involves a wide range of stakeholders, including institutions at different levels of government, businesses, financial institutions, development partners, education and training institutions, research centres and environmental and community organizations. Constructive and transparent stakeholder relations are essential to successful site selection, site master planning and its implementation. For all these aspects, it is pertinent to build a strong working relationship with the relevant stakeholders at the appropriate time. The manner in which stakeholders are engaged can influence the planning and design of parks in a positive or a negative way. Strategies for effective stakeholder engagement during the design and development of IPs include<sup>44</sup>:

- Binding Memoranda of Understanding (MoU) between stakeholders, which outline the requirements, roles and responsibilities of each party, thereby enabling more effective coordination and getting the most out of the parties' respective mandates, knowledge and expertise.
- A governance system to facilitate the inclusion and collaboration of stakeholders at the national, regional and local levels.
- Regular communications among stakeholders to ensure full and transparent stakeholder engagement, constituency and trust-building.
- Active community engagement to consider and integrate the knowledge, suggestions and concerns of affected citizens and communities into the IP's development decisions.

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44 UNIDO (2019). International Guidelines for Industrial Parks.

### Overall lay-out and maps

The following plans and thematic layers should be included in a master plan at the required scale<sup>45</sup>:

- Site master plan.
- Land use plan.
- Transportation plan (e.g. roads, parking, service station, petrol pump, mobility plan, pedestrian pathways, bicycle tracks/stations).
- Storm water management plan.
- Wastewater management plan.
- Landscaping/green/buffer/open space plan.
- Basic and technical infrastructure plan.
- Environmental infrastructure plan.
- Social infrastructure plan.

### Land uses and zoning<sup>46</sup>

The land use break-up of the site plays an important role in the master planning of an IP. The designation of sites for industries can be conducted according to industry type, including service industries, general industries, obnoxious and hazardous industries, as well as an elaboration of permissible and restricted industries.

Zoning is a form of spatial organization and planning that involves configuring and organizing IPs in accordance with the expected uses of the land within them. It is an advantage for an IP to have different zones for different types of industrial and non-industrial activities. The relationship between industrial, residential (e.g. multiformat worker housing or hotels), commercial, administrative, social and recreational zones, together with the spread and intensity of each use, significantly impacts upon an IP. Zoning helps by encouraging on-site economies of scale in the concentration and utilization of utilities infrastructure, for instance as regards waste collection and treatment, wastewater recycling, internal transport networks and other amenities. Zoning helps to ensure that the land is used efficiently and effectively.

Segregated internal zones, such as those listed below, are typical in an IP context:

- Industrial zones for targeted sectors: These include industrial plots, industrial factory shells and multistorey industrial units for non-polluting or medium-polluting industries.
- Amenities zones: These cover information centres, training centres, R&D facilities, clinics, administrative buildings, shopping centres, fire stations, weigh stations, etc.
- Special infrastructure zones: These cover certification laboratories, quarantine services, market intelligence unit, etc.
- Logistics zones: These cover loading and unloading yards, parking lots, packaging facilities, transportation hubs, cargo-handling centres, raw material collection and storage depots, goods storage warehouses, etc.
- Utilities zones: These cover solid waste collection centres, electrical substations, centralized effluent treatment or recycling facilities, etc.
- Labour and staff zones: These cover multiformat worker housing, guesthouses and hotels, etc.
- Green zones: These cover green belts and buffer zones along the park's boundaries, lawns, parks and water features, internal walkways between zones, etc.

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<sup>45</sup> GIZ (2015). Guidelines on planning sustainable industrial parks.

<sup>46</sup> Based on UNIDO (2019). International Guidelines for Industrial Parks.

Zoning within the park can be designed to encourage industrial symbiosis for the utilization of materials, industrial water and energy by-products. Energy efficiency optimization can be attained by stimulating and facilitating “energy symbioses” and cooperation among residents. Surplus energy (e.g. heat, electricity, steam, hot water, biogas) from a plant can be transferred to other companies, either within the park or in nearby communities. Segregating polluting and non-polluting activities is another example of sound zoning practice.

### Infrastructure, utilities and services<sup>47</sup>

Infrastructure, utilities and services to consider in the master planning of an IP include:

- **Basic infrastructure:** Road network, electricity, water supply, gas, eco-friendly transportation, security, fencing, fire and disaster management etc.
- **Technical infrastructure:** (Green) factory buildings, renewable energy/energy efficiency provisions, business centre, warehouses, training centre, design centre, incubators etc.
- **Environmental infrastructure:** Storm water drainage, sewerage/wastewater conveyance, wastewater treatment and disposal facilities, solid waste management facilities, green/open spaces/landscapes, environmental monitoring etc.
- **Social infrastructure:** Food and beverage facilities, training/entrepreneurship development facilities, recreational facilities, gender-specific infrastructure – provisions for women employees, barrier-free infrastructure for people with disabilities, guesthouses, public lavatories, health centre etc.

The quality of engineering plans is a crucial factor in any infrastructure project. IP infrastructure encompasses complex physical support systems, such as facilities for the transportation of materials and people to and from the site, for the production and supply of energy, for the transport, storage and treatment of water and for telecommunications. Their planning and construction requires the preparation of scale drawings and layouts, the selection of appropriate technology and equipment, site preparation and construction planning, project delivery scheduling and approval by the relevant authorities. The main principles of sustainable engineering include:

- Encouraging developers to consider sustainability in early design processes, exceeding minimum standards.
- Incorporating built forms, technologies, materials, orientation and layout that contribute to energy efficiency (e.g. through natural ventilation, heating, cooling and lighting) and associated emissions.
- Avoiding adverse micro-climatic effects (e.g. wind turbulence, noise reflection).
- Where feasible, taking into account the potential for the reuse of existing buildings and materials.
- Making sufficient provisions for waste storage and recycling and water management/recycling.
- Applying flexible building design for multiple uses.

When engineering plans are ready, it is good practice to demand an independent third-party review to ensure that the design meets all predetermined requirements, objectives and standards. The appropriate degree and level of review will depend on a number of risk factors. However, even low-risk projects should undergo at least a basic peer-review process.

The construction of an IP involves the proper programming and scheduling of contractors, bulk earthworks, the construction of road and other transportation networks and the installation of services such as power, water, gas, telecommunications and waste treatment. These services are installed both within the park boundaries and for any required “last mile” connection spurs. Construction activities have the potential to impact the environment and communities. Construction management strategies must therefore take the following elements into consideration:

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<sup>47</sup> Based on UNIDO (2019). International Guidelines for Industrial Parks.

- During IP construction, it is important to minimize the negative effects of construction on both the environment and on people. This includes minimizing the impact on natural habitats, soil, water, air quality, noise levels, light pollution, fumes, dust and local amenities.
- Conducting a risk assessment is necessary to identify the potential impacts resulting from construction.
- It is essential to develop a construction management plan that outlines necessary actions to mitigate and manage potential construction risks.
- Procuring sustainable building materials for construction is important. This includes materials that have the least environmental impact, while still offering the highest technical specifications.
- Maximizing opportunities for on-site and off-site reuse and recycling of construction waste.
- Maximizing the IP's energy-saving potential by using energy-efficient materials and resource-efficient construction practices is important. This includes constructing industrial buildings and installations that are capable of exchanging energy flows and enhancing collective heating, ventilation and cooling.
- Implementation monitoring of the construction management plan.

### Site-specific features

Each IP is unique in terms of risks, local conditions, etc. It is likely, therefore, that each master plan will include specific topics that are unique to an IP. These site-specific features can include factors such as bushfire hazards, explosion risks, flooding risks, availability of local workers, but can also cover the following specific items:

- As IPs become more prevalent, energy planning and management are becoming increasingly important components of their planning and development. This is because IPs offer opportunities for the sustainable utilization of low-carbon energy as well as for shared infrastructure.
- Some energy sustainability considerations include low-carbon infrastructure, smart building design and orientation for integration of renewables. The architectural and engineering design elements of IPs should incorporate energy efficiency and clean energy considerations. This includes such "green" features as exterior openings, skylights, passive cooling/heating technologies, materials with a high solar reflective index, vegetation to cover exposed roof areas, energy-efficient lighting and on-site renewable energy.

## **Step 5: Management and governance model**

### IP management model

The management entity of an IP plays a pivotal role in its daily operations and strategic decision-making. Effective park management requires dedicated responsibilities and functions. The park management entity needs to have measures in place to manage risks and accidents, catalyse stakeholder dialogue, provide platforms for knowledge-sharing, and operate and maintain park-level infrastructure. Furthermore, it is expected to formulate environmental- and social sustainability-related strategies for the park, including collaboration with regulators, resident firms and surrounding communities. It should also set performance targets at the park level. In addition, the park management entity needs to be knowledgeable about the companies' operations (for instance, resource demands, labour requirements, waste and wastewater generation and management, administration, etc.). The management entity needs to be empowered to carry out these tasks.

An IP can be developed and operated by the government (at the national, provincial or local level), by private enterprise (whether by a construction company/property developer, consortium or manufacturers' association) or by a form of PPP – for instance through a joint venture between government and a private enterprise. Different government ministries, public agencies and state-owned development and facilities management corporations regularly invest in IPs, given the public interest that they present for the economy. The developer or owner of the IP, whatever its ownership structure, pays for the initial development of a park and subsequently, during the operations phase, leases or sells the developed and serviced plots and/or factory shells to private firms in order to recoup its costs.

Regardless of their ownership model, the private sector invariably plays a vital role in the IPs, both as park residents and, very often, in the role of design consultants, construction contractors and managers of public projects. This participation by private firms provides critical expertise and, in so doing, reduces government risk. Where the operator is a separate entity from the site's owner or developer, the IP owner or developer is responsible for establishing and defining the park operator's specific responsibilities, to be enshrined in an "Operator Agreement".

Although there are multiple ways in which IP management can be organized, the following three park management approaches are most common<sup>48</sup>:

- ***Management by private entity:*** Under this model, the park operator, a private company, is contracted by the IP's owner/investors. On occasion, resident firms that own plots and factory buildings in the park can also be included. This approach is mainly adopted where private investors have largely invested in and/or own IPs. Private management contracts with specialized facilities management companies are also regularly established at government/state-owned IPs.
- ***Management by public entity:*** Public management is a widely-adopted approach in a number of developing countries, whereby the government has a large economic stake in an IP. This can be done directly by a ministry, agency or authority, or through a commercially-oriented State-Owned Enterprise or Special Purpose Vehicle (SPV). In the latter scenarios, the government owns, funds and invests in the company, giving the State strong influence over day-to-day decision-making regarding the park's operations.
- ***Joint management by public and private entities:*** IPs owned in PPPs are jointly managed by the government and private investors. While the power-sharing mechanism described in the SPV's Articles of Association allows the parties to divide responsibilities as they deem appropriate, it almost invariably leaves day-to-day park management and technical decisions to the private partner(s), vesting the public partner(s) with land acquisition, compensation and resettlement and government relations and interface (for instance around the required permits).

### ***IP governance***

Governance covers the regulation and policy aspects of IPs. It is the role of local government (or a specific law for the creation of the IP) to establish the required set of policies and regulations that enable the sustainable operation of the IP. Compliance with local, national and international standards in environmental protection and social development need to be upheld by all stakeholders present in the IP. The planning, implementation, management and monitoring of IPs entail cross-sectoral and cross-functional activities. These also require active communication and coordination among a diverse set of agencies and institutions at park, provincial and national levels. This presents a governance and enforcement challenge that needs to be addressed through comprehensive institutional strengthening, development and reform led by the IP management entity.

Key aspects to take into account for effective governance of IPs include:

- Streamlined and effective governance structures (e.g. policies, regulations, roles and responsibilities) are in place and operational to support the transformation into sustainable IPs.
- Applicable regulations and policies are to be enforced at company and IP levels, and government agencies have the capabilities and resources to do so.
- Participation by the municipality and provincial government is critical. IPs should be specifically addressed through relevant integrated development plans and local economic development plans, including tailored bylaws and other incentives, as and when applicable, and budget lines (and resources) allocated to support such spaces.

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<sup>48</sup> Extracted from: UNIDO (2019). International Guidelines for Industrial Parks.

- Planning, development and management of IPs is performed in line with existing governance structures, policies, institutions and regulating bodies.

### *Operations and management services*

The park management entity of an IP is defined as the entity that deals with management and day-to-day operations, services to resident firms, park infrastructure and facilities, promotion and marketing and interaction with authorities and the community on behalf of the park's resident firms.

The management entity plays a pivotal role in daily operations, ensuring the continuous implementation of an EIP framework, and engaging with the park's stakeholders, including resident firms, communities and regulatory authorities. The management entity needs to be empowered to carry out these tasks, while the framework's performance requirements support this empowerment in the interests of overall sustainability. A formalized, well-functioning and financially sustainable park management entity can deliver a range of benefits, including the following:<sup>49</sup>

- Having a single management entity to interface with resident firms, provide customer-oriented services, and engage with stakeholders will result in efficiency gains.
- Having a single entity to drive the overall strategy for RECP, circular economy practices and social standards, will help to meet national and international expectations in attracting local and international investment. The management entity should market the park as a sustainable business location adhering to international environmental and social standards.
- An environmentally- and socially-orientated management team can identify synergies and opportunities for collaborative approaches among park firms, and help to achieve mutual environmental and social goals and targets.
- A dedicated entity is better able to disseminate knowledge and inform stakeholders about new technologies and successful interventions available to EIP firms.

Key functions of IP management are:<sup>50</sup>

- Environmental monitoring and recording, together with the enforcement of the park's code of conduct.
- Risk, accident and incident management in park.
- Stakeholder consultations including local citizens and government officials to take on board respective goals and visions.
- Facilitation of knowledge-sharing and collaboration between companies (waste management, cleaner production, health and safety procedures, etc.).
- Maintenance of facilities and infrastructure in the IP, and financing ensured for these services.
- Facilitation to establish new companies in the IP (e.g. determine optimal location based on infrastructure/service needs, risk profile, industrial synergies).
- Representation of interests and objectives of the park as part of local or regional disputes and stakeholder meetings.

Tenant companies require value for money for the services and lean management from the (E)IP operator. The conditions under which investors and tenants are invited may determine their future willingness to pay. Nevertheless, the need to make an EIP attractive to foreign investment does not need to systematically undermine efforts for cost recovery. The different revenue streams (internal and external) that can be tapped in an EIP are shown in Figure 18, with their condition of applicability. Private investment, government subsidies and multi/bilateral donor support are some of the main external sources of funding for an EIP.

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<sup>49</sup> UNIDO, World Bank Group, GIZ (2021). An International Framework for Eco-Industrial Parks.

<https://openknowledge.worldbank.org/handle/10986/35110>

<sup>50</sup> UNIDO (2017). Implementation Handbook for Eco-Industrial Parks.

[https://www.unido.org/sites/default/files/files/2018-05/UNIDO\\_Eco-Industrial\\_Park\\_Handbook\\_English.pdf](https://www.unido.org/sites/default/files/files/2018-05/UNIDO_Eco-Industrial_Park_Handbook_English.pdf)

External funding sources should be considered as a transitional or investment phase towards self-financial sustainability.

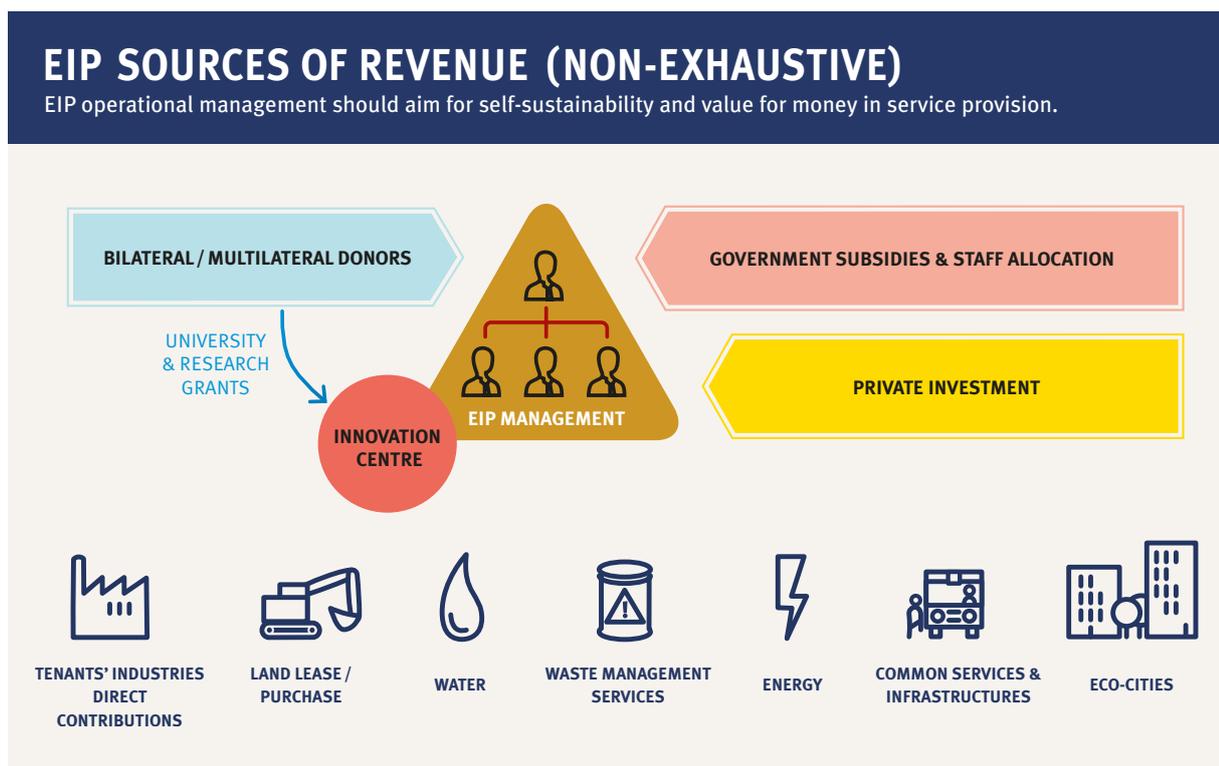


Figure 18: Sources of revenue for (E)IP management<sup>51</sup>

In many IPs, park management provides the “traditional” services to its tenants, such as leasing/selling of industrial land to tenant companies, electricity and water supply billing, maintenance of roads, fences and office buildings inside the park, as well as basic security services. However, park management could provide a range of added value services in order to achieve the following:

- Assist tenant companies in increasing their economic, environmental and social performance.
- Reduce risks for the park and its companies, emphasizing that environmental and social risks are business risks.
- Create a more resource-efficient and cost-effective IP which is more competitive and attractive for investment.
- Enable tenant companies to concentrate on core business, create cost savings from service synergies.

**Step 6: Master plan documentation**

Based on international good practice examples, Table 21 below presents a proposed outline and typical contents of an IP master plan.

**Important note:** It is acknowledged that each IP is unique with regard to its complexity, state of development, size, local priorities, etc. The structure and contents of the master plan can and should therefore be adapted accordingly.

Table 21: Typical outline of IP master plan

<sup>51</sup> UNIDO (2017). Implementation Handbook for Eco-Industrial Parks.

Typical structure of master plan		Indicative number of pages <sup>52</sup>	Typical contents
<b>Chapter 1: Introduction to master plan (Chapter to be up to 3 pages in total)</b>			
1.1	Objectives of master plan	0.5 page	<ul style="list-style-type: none"> <li>Brief outline of objectives of master plan</li> <li>Discussion on alignment of master plan with relevant urban/regional plans of which IP is a part</li> </ul>
1.2	Action plan for IP and its master plan	1 page	<ul style="list-style-type: none"> <li>Procedure and key actions for developing and implementing the IP and its master plan and keeping it up-to-date (e.g. who, what, when, how)</li> <li>Procedure for required internal and external approval of IP master plan</li> </ul>
1.3	Communication and promotion	0.5 page	<ul style="list-style-type: none"> <li>Procedure to adapt communications and the disclosure of information from the master plan relevant to different key stakeholders, covering planning, infrastructure, economic, environmental and social perspectives</li> <li>Description of platform to effectively communicate IP performance in implementing master planning actions</li> </ul>
1.4	Contact details	0.5 page	<ul style="list-style-type: none"> <li>Contact details if stakeholders wish to obtain further information about IP</li> <li>Web link to IP website</li> </ul>
<b>Chapter 2: Overview of IP (Chapter to be up to 10 pages in total)</b>			
2.1	Introduction to IP	1 page	<ul style="list-style-type: none"> <li>Description of location of IP and total area of site</li> <li>Brief summary of current development status of IP</li> </ul>
2.2	Local conditions	3 pages	<ul style="list-style-type: none"> <li>Description of local economic, environmental and social conditions</li> <li>One subsection for economic conditions (e.g. economic profile of the region, including analysis of existing enterprises by size and sector and the impact thereof)</li> <li>One subsection for environmental conditions (e.g. climate, wind, water availability, geographic conditions)</li> <li>One subsection for social conditions (e.g. unemployment, education, health, available skills, human development profile)</li> <li>Cross-reference table to annexes for detailed information and studies on local conditions (e.g. geo-technical investigation, traffic impact studies, topographical surveys, civil engineering studies)</li> </ul>
2.3	Vision and UVP for IP	1 page	<ul style="list-style-type: none"> <li>Vision for IP, aligned with EIP approach and business development strategy</li> <li>Clearly defined UVP and added value features of IP</li> <li>Overview of economic rationale (e.g. reason for which IP is sustainable and viable and what it contributes to the economy)</li> <li>Projected outputs and expected key outcomes of IP</li> <li>Review of comparative and competitive advantages of IP</li> </ul>
2.4	Management model and	1 page	<ul style="list-style-type: none"> <li>Overview of IP management model                             <ul style="list-style-type: none"> <li>Mission and mandate of IP management and governance</li> </ul> </li> </ul>

<sup>52</sup> Indicative number of pages in main body of master plan, depending also on the size and complexity of the industrial park. Detailed information on specific topics can and should be included in annex of the industrial park master plan.

Typical structure of master plan		Indicative number of pages <sup>52</sup>	Typical contents
	governance of IP		<ul style="list-style-type: none"> <li>○ Goals, objectives and performance indicators for IP</li> <li>○ Management structure and responsibilities</li> <li>○ Existing, planned and possible services provided to companies</li> <li>○ Business model for self-sustainable IP management</li> <li>○ Financial statements (e.g. income statement, balance sheet, existing and targeted revenues, profits, costing model for IP)</li> <li>○ Ways in which the IP manages its stakeholder relationships</li> <li>● Overview of governance arrangements for IP                             <ul style="list-style-type: none"> <li>○ Administrative system and organigram/hierarchy</li> <li>○ Decision-making/delegation of authority</li> <li>○ Governance procedures and documentation required</li> </ul> </li> <li>● Extent to which the IP management owns or controls the land in the IP needs to be clearly stated and supported by documentation</li> <li>● Letter confirming the appointment of an independent auditor</li> </ul>
2.5	Management and monitoring systems and operational procedures	Up to 2 pages	<ul style="list-style-type: none"> <li>● Overview of existing and planned management and monitoring systems for the IP and companies, covering economic, environmental and social aspects</li> <li>● Summary of key operational procedures and processes for IP and companies, covering knowledge management, R&amp;D, technology development, SME promotion, emergency response, etc.</li> </ul>
2.6	Ongoing and future development of IP	Up to 2 pages	<ul style="list-style-type: none"> <li>● Brief overview (and possible map) of historical development of IP to date and envisaged stage of development of remaining industrial land in the short/medium/long term</li> <li>● Map with the stages of development of the IP and the planning of the design of basic infrastructure.                             <ul style="list-style-type: none"> <li>○ Alignment with existing initiatives related to business development, retention and expansion and infrastructure upgrade, skills development and training</li> </ul> </li> </ul>
<b>Chapter 3: Strategic opportunities, impacts and risk management (Chapter to be up to 10 pages in total)</b>			
3.1	Business plan and investment strategy for IP	Up to 3 pages	<ul style="list-style-type: none"> <li>● Summary of market and industrial land demand analysis                             <ul style="list-style-type: none"> <li>○ Identification and analysis of key industrial sectors, markets and their value chain opportunities, and possible product lines, (current vs. future), including any specific sector studies.</li> <li>○ Prioritization of industrial sectors and value chains with high potential</li> <li>○ Mapping and analysis of global trends for the prioritized industrial sectors and value chains</li> <li>○ Market demand analysis for industrial land, specified by industry sector</li> </ul> </li> <li>● Overview of existing and expected type, size and number of companies in IP:                             <ul style="list-style-type: none"> <li>○ Define what types of group can be made. This implies developing the typologies identified and defining the restriction factors.</li> </ul> </li> </ul>

Typical structure of master plan		Indicative number of pages <sup>52</sup>	Typical contents
			<ul style="list-style-type: none"> <li>○ Include a table with key information for the investor/company by sector, minimum and maximum size and, on this basis, define how the needs of each sector would be met</li> <li>• Business plan and attraction strategy for IP               <ul style="list-style-type: none"> <li>○ Strategies for each prioritized sector</li> <li>○ Outline means through which the IP meets these demands</li> <li>○ Review of potential value and number of investments to be attracted and developed and multiplier effects</li> <li>○ Marketing/investment promotion plan</li> </ul> </li> <li>• Overview of achieved and targeted investments into infrastructure, utilities and businesses               <ul style="list-style-type: none"> <li>○ Financial modelling and scenario planning (e.g. operational and capital financing, cost-benefit analysis, net present value, return on investment, internal rate of return)</li> </ul> </li> </ul>
3.2	Employment and local skills and social impacts	Up to 2 pages	<ul style="list-style-type: none"> <li>• Summary of existing and required skills for the development of the IP and its companies               <ul style="list-style-type: none"> <li>○ Skills demand assessment</li> <li>○ Overview of available and any planned educational and training facilities</li> <li>○ Overview of approach on how skills required by companies are met</li> </ul> </li> <li>• Overview of existing and expected employment numbers in IP:               <ul style="list-style-type: none"> <li>○ An estimate of jobs that would potentially be generated can be calculated, based on previous statistics by industry</li> <li>○ It is important to show the data broken down by gender and, where possible, highlight how many jobs are being generated for people from local municipalities</li> <li>○ Distinguish between permanent or temporary employment, construction jobs versus jobs during operation, direct or indirect employment</li> </ul> </li> <li>• Summary of community collaboration and development initiatives</li> <li>• Summary of social impact of the IP, including community benefits, housing, education, health care, access to public transportation, safety and security, availability of basic services</li> </ul>
3.3	Opportunity, impact and risk analysis	Up to 2 pages	<ul style="list-style-type: none"> <li>• Summary of opportunity, impact and risk analysis, covering economic, environmental and social aspects (e.g. through SWOT analysis)</li> <li>• Overview of system/means in which IP monitors and manages key opportunities and risks</li> <li>• Analysis of the key requirements to realize the identified opportunities and manage priority risks, including, among others:               <ul style="list-style-type: none"> <li>○ Policy and strategy alignment at national, provincial and regional levels</li> <li>○ Demands from investors</li> <li>○ Stakeholder support</li> </ul> </li> </ul>

Typical structure of master plan		Indicative number of pages <sup>52</sup>	Typical contents
			<ul style="list-style-type: none"> <li>○ Skills and human capital</li> <li>○ Availability and access to technologies, infrastructure and services</li> <li>○ Environmental matters, including sustainable development</li> <li>○ Land use requirements</li> </ul>
<b>Chapter 4: Land use break-up of IP, specified by type of land use (Chapter to be up to 10 pages in total)</b>			
4.1	Overview	Up to 2 pages	<ul style="list-style-type: none"> <li>• One summary figure with overview of existing and targeted land uses of IP</li> </ul>
4.2	Land use break-ups by type of land use	Up to 8 pages	<p>Brief description and specific maps of existing and targeted land use of IP.</p> <p>Specified land use by:</p> <ul style="list-style-type: none"> <li>• Industrial land, including allocation of sector-specific precinct areas based on their location criteria</li> <li>• Commercial land</li> <li>• Land available to SMEs</li> <li>• Land allocated to infrastructure and utilities, including dedicated precinct area for centralized utilities (e.g. water supply/treatment/recycling, energy supply/recovery, waste management, utility gases)</li> <li>• Land allocated to service corridors and transportation nodes                             <ul style="list-style-type: none"> <li>○ Service corridors cover land made available for pipelines and other services (e.g. water supply, water treatment, water recycling, gases and fuels, utility gases like nitrogen, compressed air, conveyor belts for raw materials/products)</li> <li>○ Map with location of service corridors to allow for potential energy, water, material and waste movement between tenant companies in a centralized utilities precinct area</li> </ul> </li> <li>• Land suitable for obnoxious and hazardous industries</li> <li>• Port facilities, including truck patio/parking area for port-related movements and facilities to support industrial park port operations</li> <li>• Buffer zones to separate higher risk industries and community                             <ul style="list-style-type: none"> <li>○ Brief explanation on how buffer zone can be utilized (e.g. light industries, utilities and services, biodiversity areas, recreation)</li> </ul> </li> </ul>
<b>Chapter 5: Control arrangements, regulations and standards for the development and use of land in an IP (Chapter to be up to 8 pages in total)</b>			
5.1	Compliance with national regulations and standards	Up to 2 pages	<ul style="list-style-type: none"> <li>• Overview of linkages to industrial development goals and national objectives, e.g. provincial and national development plans</li> <li>• References to existing and relevant national and regional development plans and indicate how master plan integrates with these plans</li> <li>• Brief description of existing procedure to track existing and changing environmental, economic and social regulations and standards applicable to IP</li> <li>• Summary table with cross-references to applicable national environmental, economic and social regulations and standards, including column on how these are met by the IP</li> </ul>

Typical structure of master plan		Indicative number of pages <sup>52</sup>	Typical contents
5.2	Compliance with international standards	Up to 2 pages	<ul style="list-style-type: none"> <li>• Summary table with cross-references to international standards, including a column on how the IP meets these regulations and standards</li> <li>• International EIP Framework (UNIDO, World Bank, GIZ) outlines the international environmental and social standards applicable to IPs</li> <li>• Summary of current and intended performance of IP against International EIP Framework and efforts taken to progress the transformation of IP towards an EIP</li> </ul>
5.3	Conditions and restrictions on land use	Up to 2 pages	<ul style="list-style-type: none"> <li>• Specified conditions and restrictions per land use (e.g. industrial land, commercial land, land allocated to infrastructure and utilities, land allocated to buffer zones and service corridors)</li> <li>• Summary of permissible industries and restricted industries to locate to IP</li> </ul>
5.4	Criteria for buildings and plot development	Up to 2 pages	<ul style="list-style-type: none"> <li>• Overview with practical set of building criteria/guidelines for tenant companies, covering: <ul style="list-style-type: none"> <li>○ Maximum percentage of land development per lot</li> <li>○ Location, number, size, height, number of storeys and character of buildings</li> <li>○ Density of built-up area allowed in specified areas</li> <li>○ Recommended green building criteria</li> </ul> </li> <li>• Cross-references to applicable national and international building standards and regulations</li> <li>• Brief outline of existing and possible green buildings (e.g. green walls, water reuse, green roofs)</li> </ul>
<b>Chapter 6: Basic infrastructure (Chapter to be up to 8 pages in total)</b>			
6.1	Overview	1 page	<ul style="list-style-type: none"> <li>• Summary of existing, planned and possible basic infrastructure servicing IP and its companies</li> <li>• Project management methodology to monitor and manage the development of basic infrastructure servicing the IP</li> </ul>
6.2	Basic infrastructure by type	0.5 to 1 page per type of infrastructure	<p>Details and summary maps of existing, planned and possible basic infrastructure servicing the IP and its companies.</p> <ul style="list-style-type: none"> <li>• Construction and maintenance plan for basic infrastructure</li> <li>• National/provincial or local road network and other transportation nodes, public transport, main modes for cargo movement, transportation system (land, sea, air and ferry transportation), domestic and international load and unload, connection to external infrastructure</li> <li>• Electricity, gas, renewable energy and energy efficiency provisions</li> <li>• Water supply and sewage treatment <ul style="list-style-type: none"> <li>○ Brief description of sustainable water sources to supply water demand</li> </ul> </li> <li>• Information and communications technologies</li> <li>• (Green) factory buildings</li> </ul>

Typical structure of master plan		Indicative number of pages <sup>52</sup>	Typical contents
			<ul style="list-style-type: none"> <li>• Security and fencing</li> <li>• Brief description of existing and possible types and most suitable location(s) for common security and emergency response facilities</li> <li>• Fire and disaster management</li> <li>• Shared warehouses and storage facilities</li> <li>• Brief description of existing and potential suitable location(s) for common maintenance and repair workshops</li> </ul>
<b>Chapter 7: Environmental infrastructures (Chapter to be up to 6 pages in total)</b>			
7.1	Overview	1 page	<ul style="list-style-type: none"> <li>• Summary of existing, planned and possible environmental infrastructure servicing the IP and its companies</li> <li>• Project management methodology to monitor and manage the development of environmental infrastructure servicing the IP</li> </ul>
7.2	Environmental infrastructure by type	0.5 to 1 page per type of infrastructure	<p>Details and maps of existing, planned and possible environmental infrastructure servicing the IP and its tenant companies, including:</p> <ul style="list-style-type: none"> <li>• Construction and maintenance plan for environmental infrastructure</li> <li>• Storm water drainage</li> <li>• Wastewater treatment, recycling, disposal facilities</li> <li>• Solid waste management facilities                             <ul style="list-style-type: none"> <li>○ Brief description of existing and possible suitable location(s) for park-level and common waste collection areas</li> </ul> </li> <li>• Green/open spaces/landscapes</li> <li>• Environmental monitoring                             <ul style="list-style-type: none"> <li>○ Summary of existing environmental monitoring arrangements in IP master plan, covering effluent disposal, air quality, noise, waste, energy use, renewable energy, emission factors, GHG emissions, water use and reuse, domestic and industrial wastewater, rainwater, waste generation by category (recyclables, green waste, non-recyclables)</li> </ul> </li> </ul>
<b>Chapter 8: Social infrastructure (Chapter to be up to 6 pages in total)</b>			
8.1	Overview	1 page	<ul style="list-style-type: none"> <li>• Summary of existing, planned and possible social infrastructure servicing the IP and its companies</li> <li>• Project management methodology to monitor and manage the development of social infrastructure servicing the IP</li> </ul>
8.2	Social infrastructure by type	0.5 to 1 page per type of infrastructure	<p>Details and maps of existing, planned and possible social infrastructure servicing the IP and its tenant companies, including:</p> <ul style="list-style-type: none"> <li>• Construction and maintenance plan for social infrastructure</li> <li>• Food and beverage facilities</li> <li>• Business centre and training facilities</li> <li>• Recreational facilities</li> <li>• Gender-specific infrastructure – provisions for female employees</li> <li>• Barrier-free infrastructure to enable people with disabilities</li> </ul>

Typical structure of master plan		Indicative number of pages <sup>52</sup>	Typical contents
			<ul style="list-style-type: none"> <li>• Public lavatories</li> <li>• Health facilities</li> <li>• Interpretive centre in IP (e.g. for accommodating stakeholder meetings and community involvement in park)</li> <li>• Brief description of existing and possible suitable location(s) for housing/accommodation for people working in the IP (e.g. within daily commuting distance)</li> </ul>
<b>Annexes</b>			
A	Details on applicable regulations and standards	Up to 5 pages	<ul style="list-style-type: none"> <li>• Relevant details on applicable national environmental, economic and social regulations and standards</li> <li>• Relevant details on EIA for IP and companies</li> <li>• Relevant details on applicable international standards</li> <li>• Relevant details on International EIP Framework (UNIDO, World Bank, GIZ)</li> </ul>
B	Details on management, procurement and monitoring systems and operational procedures	As required	<ul style="list-style-type: none"> <li>• Relevant details on management, procurement and monitoring systems and operational procedures, such as:                             <ul style="list-style-type: none"> <li>○ Code of conduct for tenant companies.</li> <li>○ Quality, environmental, occupational health and safety management system at IP level</li> <li>○ Emergency response</li> <li>○ Procedures on monitoring energy, water supply, water treatment, waste management</li> <li>○ Complaints and grievance management</li> </ul> </li> </ul>
C	Detailed criteria for buildings and industrial land development	Up to 5 pages	<ul style="list-style-type: none"> <li>• Relevant details on building criteria/guidelines for companies operating in the IP</li> <li>• Relevant details on applicable national and international building standards and regulations</li> </ul>
D	Detailed maps, plans and thematic layers in required scale	Up to 10 pages	<ul style="list-style-type: none"> <li>• Detailed map: Site master plan</li> <li>• Detailed map: Land use plan</li> <li>• Detailed map: Transportation plan (e.g. roads, parking area, IP entry/exit points, service station, mobility plan, pedestrians, pathways, bicycle tracks)</li> <li>• Detailed map: Storm water management plan</li> <li>• Detailed map: Wastewater management plan</li> <li>• Detailed map: Landscaping/buffer/open space plan</li> <li>• Detailed map: Basic infrastructure plan</li> <li>• Detailed map: Environmental infrastructure plan</li> <li>• Detailed map: Social infrastructure plan</li> <li>• Other detailed maps as required for IP</li> </ul>

Typical structure of master plan		Indicative number of pages <sup>52</sup>	Typical contents
E	Studies to support master plan	As required	<ul style="list-style-type: none"> <li>• Details on <b>environmental</b> studies undertaken to support master planning (e.g. geo-technical investigation, traffic studies, topographical surveys, civil engineering studies, water studies, energy supply studies)</li> <li>• Details on <b>social</b> studies undertaken to support master planning (e.g. skills needs assessment, local job creation and skills development studies)</li> <li>• Details on <b>economic</b> studies undertaken to support master planning (e.g. industrial demands assessments, financial modelling, feasibility studies)</li> </ul>
F	Details on IP's basic, environmental and social infrastructure	As required	<ul style="list-style-type: none"> <li>• As required, detailed information on IP's existing, planned and possible infrastructure</li> </ul>
<i>Etc.</i>	<i>Other annexes as required</i>	<i>As required</i>	<ul style="list-style-type: none"> <li>• <i>As required, add other annexes relevant to the planning, development and operation of an IP</i></li> </ul>

## Methodology - Phase 3: Implement master plan

### Step 6: Develop action plan

Implementing the master plan and its supporting suite of actions can be inherently complex. As a result, an action plan for implementing the master plan is often developed. The action plan should be focused on the priority areas identified in the master plan, such as:

- Vision and UVP.
- Market and business case analysis.
- Opportunity, impact and risk analysis.
- Infrastructure and service needs assessment.
- Policy and regulatory analysis.
- Overall lay-out and maps.
- Land uses and zoning.
- Infrastructure and utilities.
- Site-specific features.
- Set-up management model and governance arrangements.
- Economic, social and environmental sustainability.

International good practices clearly indicate that continuous improvement processes and opportunity-based approaches are the most useful to drive forward the economic, environmental and social benefits in IP and their master planning. A key question for park management and stakeholders, regarding the implementation of the master plan, is “Where are we now, where do we want to be and how do we get there?”.

The action plan for the master plan should be an operational working file that needs to be reviewed and updated on a regular basis to reflect progress, while addressing potential changes to the park's priorities and external circumstances. The intention is for the action plan to act as an operational tool for the IP to implement its master plan.

As a minimum, the action plan for the master plan should include the following:

- Priority topic (as indicated above).
- Clearly defined master plan opportunity/initiative for implementation.
- Key actions required to implement the opportunity/initiative.
- Name of positions and organizations to lead/support the implementation of each action.
- Allocated timeline to complete each action.
- Column to comment on the progress of each action.

Effective connectivity between implementation processes and stakeholder engagements will need to be ensured and managed. This will not only aid in keeping stakeholders involved in the progress, but will also help to facilitate improved alignment across a range of interventions. In this regard, it is important to emphasize that engagement within the IP and tenants, as well as local government and key national government departments, will be particularly important, noting the need to comply with regulatory requirements.

### **Step 7: Implement and monitor**

There are a number of institutional arrangement options for structuring the organization and oversight of master planning-related actions. The options presented below provide a clear strategy for responding to the IP-related opportunities, challenges and risks given the relationships that exist between IP management, tenants and their stakeholders with the broader catchment.

- *Option 1 – IP and its companies individually pursuing master planning:* While the option may not be the most effective or supportive of collective action, the IP and tenant companies could choose to undertake master planning individually. However, this could be pragmatic, considering that certain companies may have shareholder requirements that are discordant with other tenant companies, when an IP is made up of different tenant companies with differing requirements and relationships with regard to the environment, local community, infrastructure and utilities, as well as highly divergent regulatory compliance requirements. This does not mean that there is no engagement or coordination, but rather that the oversight and accountability regarding the implementation of interventions and realization of impact would lie with each IP/tenant company, and with the IP management for park-level aspects.
- *Option 2 – Cluster approach to IP master planning:* The goal of the cluster approach is for IP management and tenant companies to pool together their resources in order to agree on the actions to be pursued, as well as how they can be financed, resourced and sustained.

*Option 3 – Utilizing existing platforms such as local industry business chamber:* Utilizing existing platforms, such as industry business chambers, to facilitate the embedding of master planning in IP and park tenants, is premised on the basis that most park tenants already belong to the local business chamber. In certain instances, These business chambers have the capability to initiate activities on behalf of tenant companies, one of which could be the embedding of master planning.

- *Option 4 – Linking to broader-based IP initiatives:* In certain instances, there may be an opportunity to link the master planning interventions at IP and tenant company levels to those being undertaken at the regional/national level. The form of oversight and governance may vary according to the context, with two main options available.

### *Progress monitoring and corrective action*

Monitoring the implementation of the IP master plan and associated actions is important for determining progress and supports the alignment of the ongoing activities. Monitoring is also an important part of identifying and tracking key challenges that hinder progress, as well as the key success factors that can potentially be replicated.

Monitoring the implementation of the master plan and actions involves:

- Identifying monitoring intervals for each of the targets and activities under the respective actions.
- Establishing mechanisms to track progress on the activities aimed at implementing master planning.
- Documenting data and information into relevant electronic reporting templates or written reports.
- Noting that there are a range of regulatory requirements, this monitoring will support the IP management and IP stakeholders in reporting on compliance.

It is important to note that monitoring needs to be continuous, commencing at the start of the implementation of master planning actions and lasting until the end of the first iteration of the plan or until specific actions have been completed, as the data and information gathered informs the next suite of interventions.

It is important to document how and why decisions have been made to support the IP master planning. IP management, tenants and IP stakeholders will make ongoing adjustments in approach to support the master planning, and these require recording. Disclosure of this data and information as part of stakeholder discussions on process and progress is important and creates trust with stakeholders.

### **Step 8: Communications and marketing**

Communication is a central and cross-cutting element to IP master planning. Communicating and disclosing information helps to drive transparency, accountability and credibility in the master planning journey. Furthermore, communication and the exchange of information helps to ensure that no-one is left behind and can help to garner more collective support. This also raises awareness for all key and non-key stakeholders, both within the IP and beyond.

The nature of communications and the disclosure of information needs to be adapted and relevant to the different key stakeholders. Many stakeholders will be focused upon key elements of the master plan, but possibly not all elements. Business shareholders will, for example, have specific information requirements, as will civil society groups. It is important, therefore, to ensure that the information is tailored and in a format that is clear and comprehensible to its intended audience. This, in turn, will allow those stakeholders to make well-informed decisions and make meaningful contributions to the process.

To effectively communicate site performance in implementing master planning actions, IPs and their stakeholders should have working platforms for disclosing information, e.g. a website, social media pages, email notifications, annual reports, etc. Based on the stakeholder's role in the site's master planning actions, IPs and park tenants should determine which platforms will be used to communicate performance to stakeholders as part of the communication plan.

A lack of effective marketing and investment facilitation activities can lead to failure in attracting quality investment to an IP, even though it may have strong infrastructure, legal arrangements and services in place. Conversely, there is broad consensus that marketing and investment facilitation efforts can positively impact investment. It is therefore essential to establish a clear and effective investment marketing and facilitation strategy that offers and emphasizes the package of tailored investor support services that an IP provides. This includes any "one-stop shop" service delivery mechanism.<sup>53</sup>

If IPs are to offer more than mere industrial real estate solutions and serve more fundamental economic interests, the identification of those sectors that can provide a long-term competitive advantage for the host country or region should form the basis for subsequent actions under any IP investment promotion strategy.

Image-building campaigns, while important, are just one element of investment promotion, which usually also comprise the following<sup>54</sup>:

- Factsheets, videos and information briefs to attract potential investors to a specific IP.
- Newsletters that inform specific target audiences, typically circulated on a monthly or quarterly basis.

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<sup>53</sup> Extracted from: UNIDO (2019). International Guidelines for Industrial Parks.

<sup>54</sup> Extracted from: UNIDO (2019). International Guidelines for Industrial Parks.

- Media and public relations activities on investment success stories and alerts for domestic and international media, as well as on upcoming events and favourable policy developments as regards IPs. These may entail press, radio and television briefings, conferences, organized inbound and outbound tours for national and international journalists and tours by government representatives to promote the IP programme in foreign markets.
- A dedicated website and suite of social media channels.
- Mobilization of the network of a country's diplomatic channels, as embassies and consulates are very often the first point of contact for potential foreign investors.

Timing is a key element of investment promotion campaigns. For example, premature campaigns based only on mock-up versions of the IP master plan lack transparent and verifiable information regarding a park's readiness to receive investors.

## **Methodology – Phase 4: Periodic review of master plan**

### ***Step 9: Review master plan periodically or after substantial changes***

Processes will need to be undertaken to assess the impact (positive or negative) of the IP master planning initiatives that have been implemented, and to assess the impact of the shared risks, at different scales. This information provides the basis from which to review, adapt and improve the IP master plan in future. Transparency, through communication, is a critical component of master planning, and this is actioned in this phase.

Performance assessment provides a crucial point in the process to review progress and reflect on the lessons learned, and to make incremental improvements in the plan to achieve greater impact and success. Assessing the site's performance on the implementation of the IP master plan and actions provides information about:

- The impact that master planning actions have had on addressing key challenges and opportunities within and outside the IP.
- The risk exposure and risk mitigation that was achieved for the IP and its stakeholders.
- The financial gains and value benefits, such as improved natural and social capitals and ecosystem services, resulting from the master planning actions.
- The identification of areas of improvement going forward.

The data and information gathered needs to be regularly reviewed and assessed to support adaptive management. A regular review routine and protocol is required to enable assessment of progress against the established targets and milestones. How these reviews are structured and supported needs to be documented and agreed upon.

In order to undertake a detailed performance assessment on the implementation of the master plan, IPs and their stakeholders should understand the cost benefit of implemented master planning actions, considering social, economic and environmental impacts, together with the financial impacts. This will require a structured evaluation, with the impact assessment being based upon both quantitative and qualitative information, making for a more robust analysis of the overall impact of the actions. Obtaining feedback from key stakeholders will be an important part of this assessment.

Continual improvement is a key principle of IP master planning, with the results of some initiatives only realizing impact at later stages and after iterative process improvements. As a result, master planning needs to be understood as a learning journey on how to continuously improve the response to IP-related opportunities, challenges and risks from economic, environmental and social perspectives. It is important, therefore, for IP management, tenant companies and stakeholders to make longer-term commitments to continually improving in the implementation of master planning actions.

An IP master plan should be reviewed at least every three to five years or after substantial changes have occurred in the IP's internal and external situation(s). For example, the following developments would trigger an update, albeit not an all-inclusive one, of the master plan:

- Redefined vision, UVP and business strategy of the IP.
- Changed management or governance model for the IP.
- (Re)development of infrastructure and utilities servicing the IP and its tenant companies (e.g. water supply/treatment/recycling, renewable energy facilities, highway upgrades, airport expansion).
- Redefined and changing land use for (parts of) of the IP (e.g. light or heavy industries, buffer zones, land allocated to infrastructure and utilities, industry clustering).
- Changing urban encroachments, social infrastructure and community priorities affecting the IP.
- New or changing industry sectors are interested or locating to the IP.

### **Step 10: Modify master plan where needed**

As with the previous steps, the modification of an IP master plan needs to be undertaken in close collaboration with the relevant stakeholders. A modular design of the master plan is recommended so that specific items/topics can be modified effectively and efficiently, such as:

- Communication and promotion, (e.g. contact details).
- Overview of IP (e.g. local conditions, vision and UVP, integration with local, provincial, national development plan, management and governance model, management and monitoring systems).
- Strategic opportunities, impacts and risk management (e.g. business and service delivery model and investment strategy, employment and local skills, social impacts, analysis of opportunities, impacts and risks).
- Land use break-up of IP (e.g. overview existing and targeted land uses of IP, land use break-ups by type).
- Control arrangements, regulations and standards for the development and use of IP (e.g. compliance with national regulations and standards, compliance with international standards, conditions and restrictions on land use, criteria for buildings and plot development).
- Basic infrastructure (e.g. existing, planned and potential basic infrastructure servicing IP and its companies, such as the road network, energy supply, water supply and security).
- Environmental infrastructure (e.g. existing, planned and potential environmental infrastructure servicing the IP and its companies, such as storm water drainage, wastewater treatment and solid waste management).
- Social infrastructure (e.g. planned and potential social infrastructure servicing the IP and its companies, such as food facilities, lavatories and health facilities).
- Annexes:
  - Details on applicable regulations and standards.
  - Details on management, procurement and monitoring systems and operational procedures.
  - Detailed criteria for buildings and industrial land development.
  - Detailed maps, plans and thematic layers on the required scale.
  - Economic, environmental and social assessments supporting the master plan.
  - Details on the IP's basic, environmental and social infrastructures.
  - Other annexes as required.



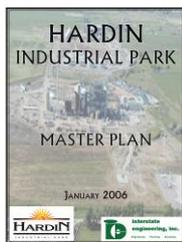
## Technical Appendices:

- Appendix A: BSIA Land Tenure and Interests 
- Appendix B: Aboriginal Heritage 
- Appendix C: Pilbara Ports Authority - Berth Placement 
- Appendix D: BHP Billiton Amended Loop Corridor 
- Appendix E: Stakeholder Consultation 
- Appendix F: DWER Approval 
- Appendix G: Draft Subdivision Conditions 
- Appendix H: RUC Limited Bush Fire Management Plan 
- Appendix I: Plan of Subdivision and Subdivision Approval 
- Appendix J: DWER Approval to DWMS 
- Appendix K: Summary of Submissions 
- Appendix L: Gazettal Notice - Amendment 71 

## External Report Appendices:

- Appendix I: Current Land Use Interests and Report 
- Appendix II: GHD BSIA Traffic Report 
- Appendix III: GHD District Water Management Strategy 
- Appendix IV: GHD BSIA Geotechnical Report 
- Appendix V: GHD BSIA Flora and Fauna Assessment 
- Appendix VI: GHD Groundwater Monitoring 
- Appendix VII: GHD Turner River Flood Study 
- Appendix VIII: RPS Aboriginal Heritage Assessment 
- Appendix IX: GHD BSIA Industrial Ecology Strategy 
- Appendix X: Environmental Noise Assessment 
- Appendix XI: Air Assessments Air Quality Assessment 
- Appendix XII: Concept Plan for Quantitative Risk Assessment 
- Appendix XIII: Worley Parsons Technical Note 
- Appendix XIV: Cardno Coastal Vulnerability Report 
- Appendix XV: Strategen Bush Fire Assessment 

### Hardin Industrial Park, Montana, USA



Hardin Industrial Park is a practical example from the United States of America of how a master plan for a medium-sized IP can be structured.

The master plan documents can be downloaded from:  
[www.tworiversauthority.org/Master\\_Plan\\_Final.pdf](http://www.tworiversauthority.org/Master_Plan_Final.pdf).

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