



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



Eco-Industrial Parks Toolbox Manual

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Defining EIPs

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DEFINITION

EIPs can be 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, for example: resource efficient and cleaner production, industrial symbiosis, circular economy, 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 realise the EIP concept.

Compliance with national and local regulations is the baseline for all industrial parks, whatever the geographical location and specific characteristics of the park.

In short, eco-industrial parks are about creating more resource-efficient and cost-effective industrial parks which are more competitive, attractive for investment and risk resilient.

INTERNATIONAL FRAMEWORK

UNIDO, World Bank Group and GIZ have collaborated to develop an international framework which provides guidance on what constitutes an eco-industrial park (EIP) and how an industrial park can work towards becoming an EIP.

The framework is based on “prerequisites” and “performance indicators” in four key categories: Park management; Environmental performance; Social performance; and Economic performance. The prerequisites highlight the basic requirements for EIPs, and the performance indicators describe expected performance levels that an EIP must meet.

The International EIP Framework is not a certification or audit scheme. The framework is a practical means to (a) understand the current status and intentions of an industrial park with regards to their EIP transformation and (b) identify a set of practical promising opportunities for the park through a process of continuous improvement.



Weblink to download the International EIP Framework



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WORLD BANK GROUP

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Process of Continuous Improvement: Going Beyond the EIP Performance Requirements

Core EIP Categories and Topics

Park management performance

- Park management services
- Monitoring
- Planning and zoning

Environmental performance

- Environmental management and monitoring
- Energy management
- Water management
- Waste and material use
- Natural environment and climate resilience

Social performance

- Social management or monitoring
- Social infrastructure
- Community outreach and dialogue

Economic performance

- Employment generation
- Local business and SME promotion
- Economic value creation

EIP Performance Requirements

Compliance with local and national regulations and alignment with international standards



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BENEFITS OF ECO-INDUSTRIAL PARKS

EIPs reduce:

- > Environmental, economic and social risks
- > Procurement costs
- > Use of materials, water, energy
- > Waste
- > Greenhouse gases
- > Pollutants

EIPs increase:

- > Competitiveness, profitability and investment
- > Security of resources
- > Good-quality and local jobs
- > Workers' welfare
- > Innovations and apply new technologies
- > Access to finance
- > Quality of life for communities



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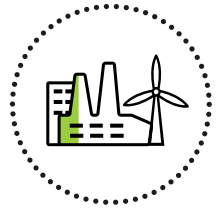
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Defining EIPs

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Ecoplus' extended park management services to 17 industrial parks in Austria

e.g. investor service hub, industry network creation, research and innovation centres



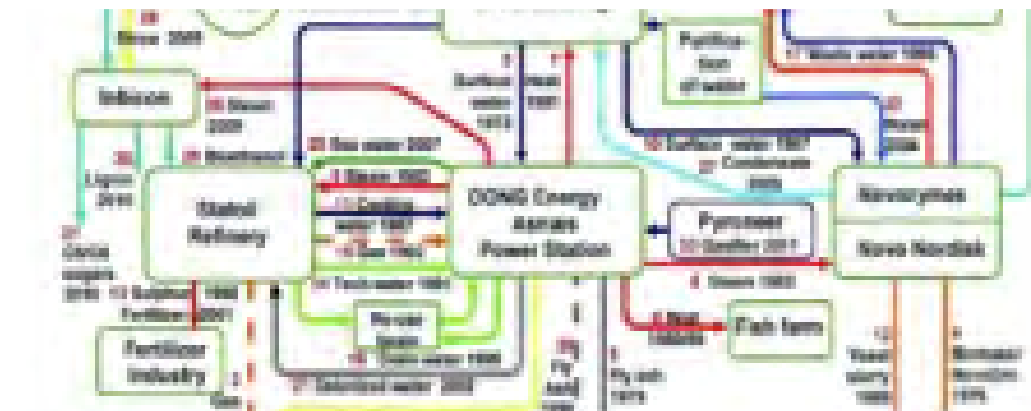
Community development initiatives in the Kwinana Industrial Area, Australia



RECP assessments with companies in many countries since 1980-90s



EIP concept planning of Parque Industrial Malambo, Colombia



Industrial synergies Kalundborg, Denmark



Use of waste plastics by Clariter in the East London Industrial Development Zone (ELIDZ) to produce solvents, oils and waxes



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OVERVIEW OF EIP TOOLS

Planning tools Park level

EIP Concept Planning Tool

Assist in sustainable design of an industrial park

Master Plan EIP Review Tool

Guide sustainability review of existing Master Plan



You can click on any of the tools to navigate directly to detailed instructions on each tool

Implementation support tools Park level

EIP Assessment Tool

Assess park against International EIP Framework and identify EIP opportunities

EIP Management Services Tool

Strengthen and advance services provided by park management to tenant companies

Access to Finance Tool

Identify, review and access available financing options for feasible EIP initiatives

Industrial Symbiosis Identification Tool

Support the identification of waste exchanges between companies

Implementation support tools Country level

EIP Selection Tool

Select parks with high potential for EIP development and successful EIP projects

EIP Policy Support Tool

Support EIP policy development and implementation processes

Monitoring tools Park level

RECP Monitoring Tool

Monitor and report results of RECP assessments in industrial parks

EIP Opportunities Monitoring Tool

Monitor and report impacts from EIP opportunities in industrial parks



UNIDO's EIP Toolbox is available online:
<https://hub.unido.org/eco-industrial-parks-tools>



OBJECTIVES OF TOOLBOX

The objectives of the UNIDO EIP Toolbox are to:

- Provide a practical set of customised and flexible tools to assist practitioners with the development and implementation of eco-industrial parks and related initiatives;
- Support the EIP implementation and decision making processes in relation to both new and existing industrial parks.

TARGET USERS OF THE TOOLBOX

Target users of the EIP tools are management entities of industrial parks as well as development organizations and service providers working on eco-industrial park projects.

The toolbox is applicable to:

- Industrial parks in various international contexts with a core focus on transition and developing countries;
- All development stages of industrial parks (e. g. scoping and concept planning, (pre-) feasibility studies, investment decisions, design and construction, operation, redesign and optimization);
- Industrial parks with different characteristics (e. g. types of industry sectors in park, park size, level of technology development, park management model).





Overview of tools

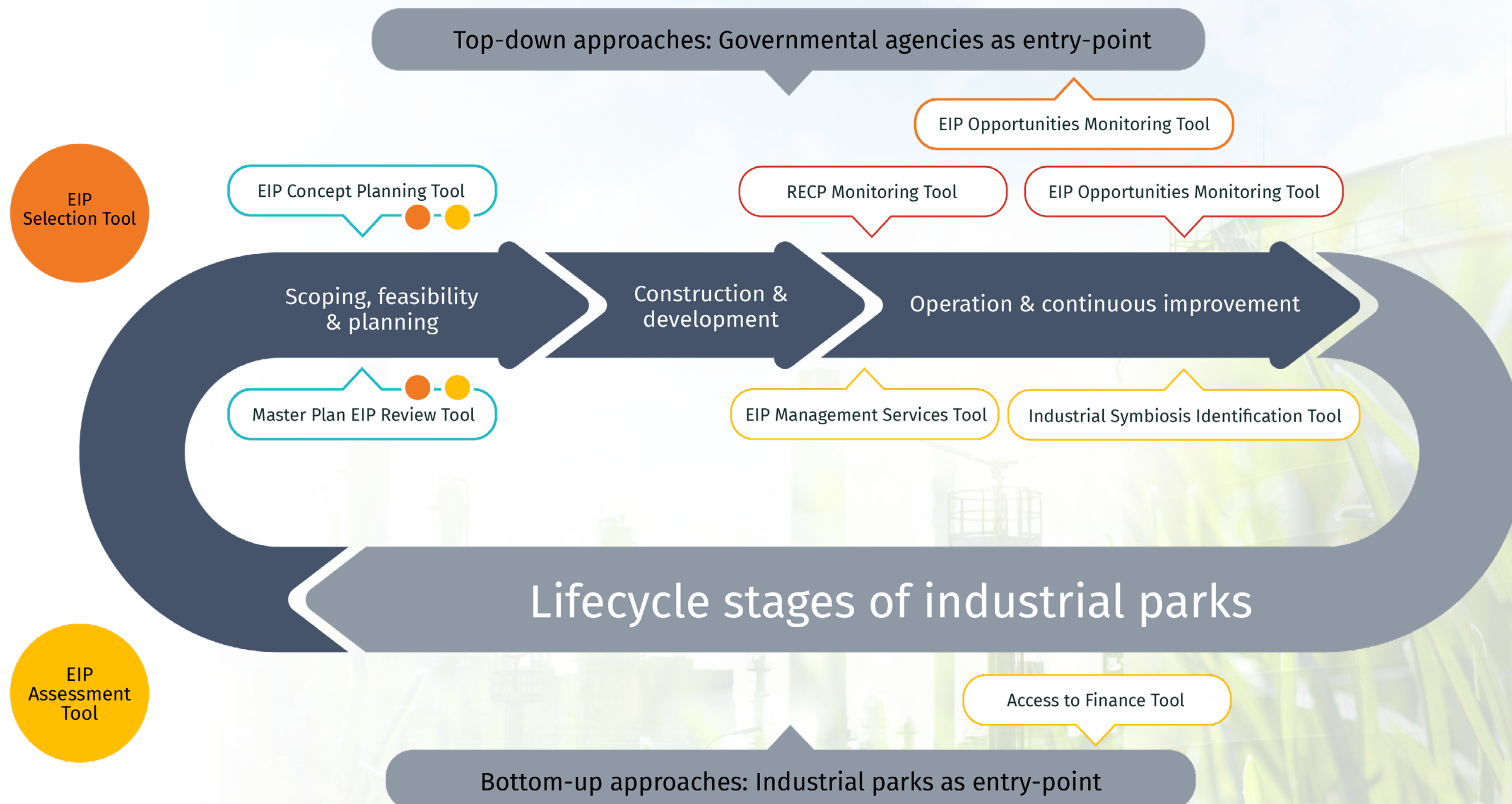
Overall objective & target audience

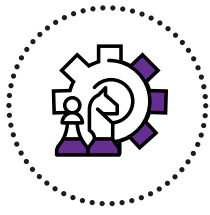
Entry points for EIP tools

CONTRIBUTION OF TOOLS TO EIP TRANSFORMATION PROCESSES



You can click on any of the tools to navigate directly to detailed instructions on each tool





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EIP concept planning tool

Master Plan EIP Review Tool

ILLUSTRATIVE RESULTS – EIP FEATURES

ILLUSTRATIVE RESULTS – RISK MITIGATION



[Click here to download EIP Concept Planning Tool](#)

EIP Concept Planning Tool

Tool objectives

Assist in the sustainable and integrated design and operation of greenfield and brownfield parks.

Results and added value of the tool

The EIP concept planning supports the design of more resource-efficient and cost-effective industrial parks assisting with attracting / maintaining tenant companies, synergy development and industry clustering, risk mitigation, optimisation of transportation.

Target users of tool

National service providers, international development agencies as well as management entities of industrial parks. This tool is applicable to industrial parks in different development stages.

Steps in the tool

1. Review existing and future situation
2. Review against International EIP Framework
3. Review industry interest to locate to park
4. Review existing and potential anchor tenants
5. Review synergy opportunities
6. Define industry clusters and precincts
7. Develop EIP concept plan
8. Market and promote added value features

How to complete the tool

The EIP Concept Planning Tool is usually completed for the first time by a national service provider in a very close collaboration and through interactive workshop sessions with park management team.

Subsequent periodic updates to the EIP Concept Plan can be undertaken by industrial park management themselves, without extensive support from a service provider.

Data required for completing tool

- ▶ Existing master plan and/or other planning documents of industrial park
- ▶ Sufficient information about the current and desired situation of the industrial park (e.g. management and governance, infrastructure & utilities, land zoning, economic / environmental / social conditions)
- ▶ Insights into industry and market demands for industrial land

Practical example of tool application



EIP concept planning workshop in Colombia

An EIP concept plan was developed for Parque Industrial Malambo (PIMSA) to assist park management with the sustainable development of the industrial park and its infrastructure, utilities and available industrial land. PIMSA has around 60% of land available for greenfield development, which can accommodate up to 80 new companies.



Further details on the practical example are included in the tool and following pages.



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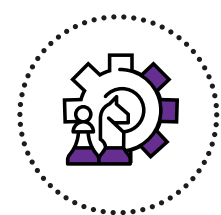
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EIP concept planning tool

Master Plan EIP Review Tool

ILLUSTRATIVE RESULTS – EIP FEATURES

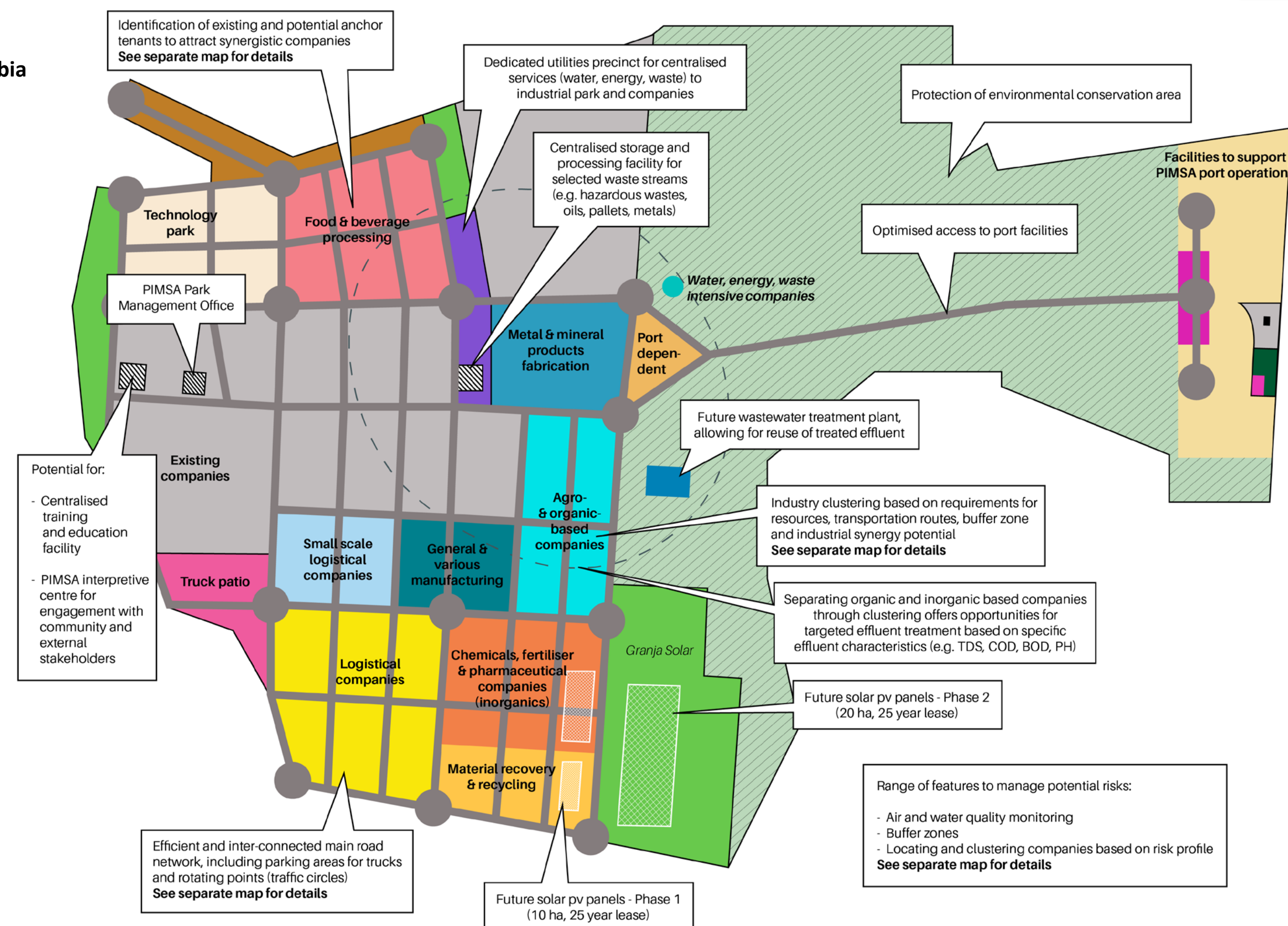
ILLUSTRATIVE RESULTS – RISK MITIGATION



Click here to download EIP Concept Planning Tool

EIP CONCEPT PLANNING TOOL

Example: Parque Industrial Malambo (PIMSA), Colombia



This is one of the multiple EIP concept plans produced for PIMSA. Further detailed examples are included in the EIP Concept Planning Tool itself.



Key EIP features incorporated into EIP concept plan



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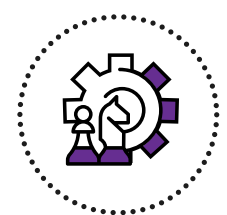
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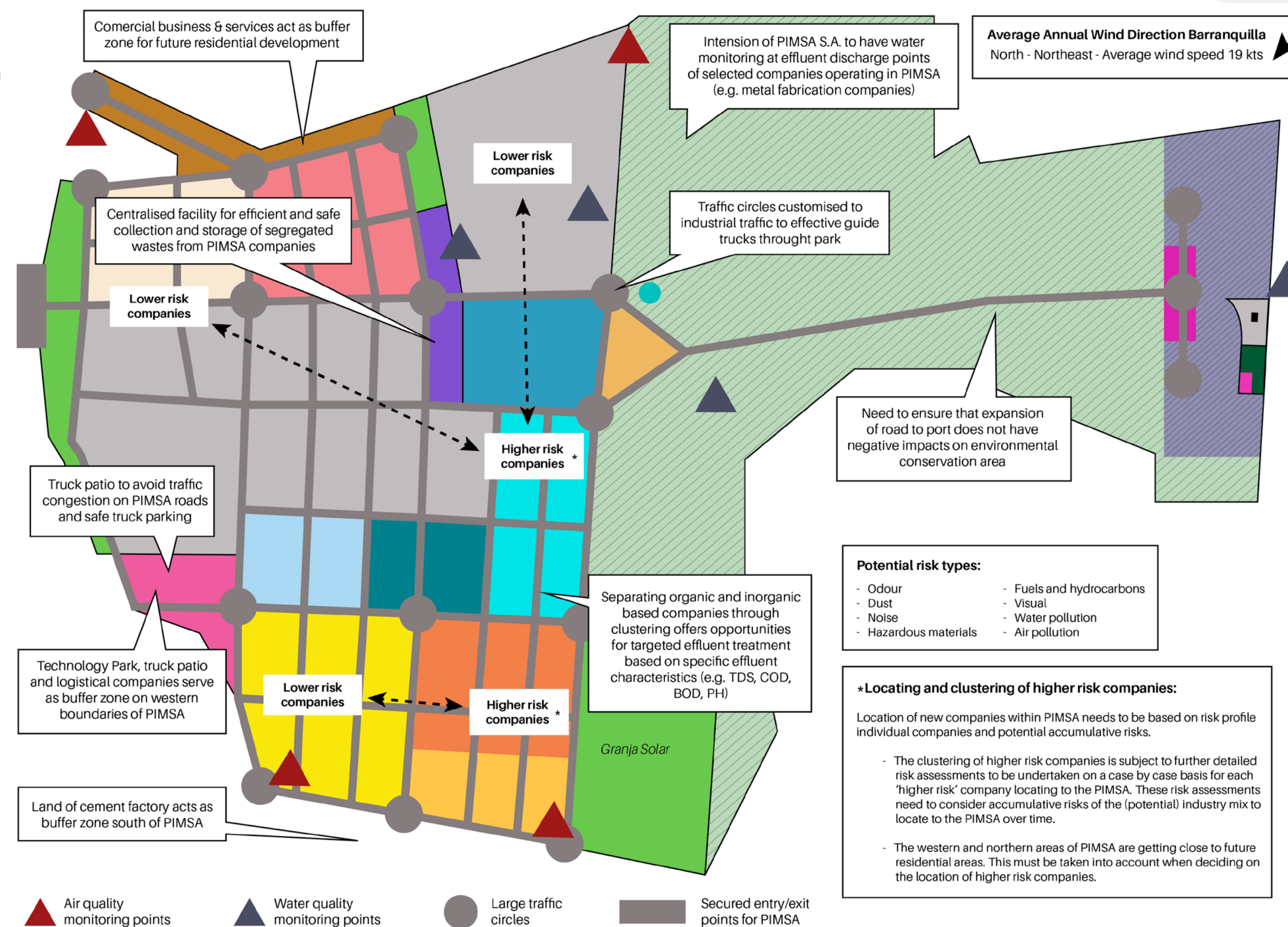
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EIP CONCEPT PLANNING TOOL

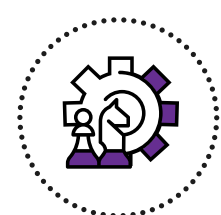
Example: Parque Industrial Malambo (PIMSA), Colombia



This is one of the multiple EIP concept plans produced for PIMSA. Further detailed examples are included in the EIP Concept Planning Tool itself.



Features to manage potential risks

[Click here to download Master Plan EIP Review Tool](#)

Master Plan EIP Review Tool

Tool objectives

Guide the sustainability review of existing Master Plans of industrial parks and thereby provide concrete suggestions for strengthening Master Plans.

Results and added value of the tool

Master plans for industrial parks are often out of date or developed based on conventional and business-as-usual planning processes. The EIP review provides an opportunity to strengthen the existing Master Plan from a EIP and sustainability perspective.

Target users of tool

- ▶ Management entities of industrial parks who have an outdated master plan or a “conventional” Master Plan without sufficient sustainability consideration.
- ▶ National and international service providers assisting industrial parks with updating their Master Plans

Steps in the tool

1. Gap analysis: Review existing master plan
 - 1a. Review on basic contents of master plan
 - 1b. Review against International EIP Framework and Master Plan
2. EIP Concept Planning (optional)
3. Identify and prioritize master plan improvements
4. Action planning of prioritized master plan improvements

How to complete the tool

The Master Plan EIP Review Tool is usually completed for the first time by a national service provider in very close collaboration and through interactive workshop sessions with the park management team. Subsequent periodic updates to the Master Plan EIP Review Tool can be undertaken by industrial park management themselves, without extensive support from service provider.

Data required for completing tool

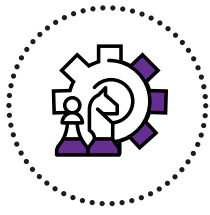
- ▶ Existing master plan and/or other planning documents of industrial park
- ▶ Evidence on the performance of industrial park against the benchmarks of the International EIP Framework

Practical example of tool application



EIP review of master plan in Peru

The review of the Ancon Industrial Park Master Plan was undertaken in 2016 for the Programme for Country Partnership for Peru. The objective of this work was to provide a detailed analysis of the economic, environmental, and social sustainability of the Ancon Master Plan, and outline practical inputs for the sustainable development of the Ancon Industrial Park.

[EIP concept planning tool](#)[Master Plan EIP Review Tool](#)[ILLUSTRATIVE RESULTS – IDENTIFY GAPS](#)[ILLUSTRATIVE RESULTS – CONVERT GAPS INTO IMPROVEMENTS](#)[Click here to download Master Plan EIP Review Tool](#)

MASTER PLAN EIP REVIEW TOOL

Convert identified gaps into master plan improvements



Purpose of this step is to review the completeness of the current documentation of the Master Plan.

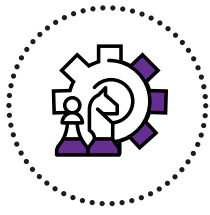


Other topics included in the tool are: Park overview, zoning, infrastructure, compliance, visualisation and plans.

Topic	BASIC INFORMATION QUESTIONS		BASIC REVIEW OF CURRENT MASTER PLAN		
	Basic information questions	Response	Basic contents of a Master Plan for industrial park	Does Master Plan include basic contents?	Note any gaps in current Master Plan
Land use and development	What are likely and potential future developments of the sectors, sizes and locations of existing and new companies in the park in the future?	• Industry 4.0 for manufacturing companies • Changes in automotive supply chain as a result of increasing electric vehicle production	Land use break-up of the site, specified by type of land use, for example: • Industrial land • Commercial land • Land allocated to infrastructure and utilities • Service corridor • Land allocated to transportation nodes • Buffer zone • Etc	No	Buffer zone between industrial activities and community are not defined in Master Plan
	What are development opportunities for the industrial park?	• Increasing demands from tenant companies to have their energy supplied by renewable energy	Control and arrangements to regulate the use and development of land within industrial park: • Conditions and restrictions on land use • Required open/green space in industrial park • Max percentage of land development per lot • Locations, number, size, height, number of storeys and character of buildings • Density of built up area allowed in specified areas • Etc	Yes	No gaps
	What are (potential) challenges for the development of the industrial park? (economic, technical, environmental, social)	• Industrial park struggles to attract new companies. There is increasing competition amongst industrial parks, and market for industrial land has slowed down. • There is increasing scarcity of water in the region. Park faces increasing pressure from local municipality to reduce its potable water use.			



This is a screenshot to illustrate type of questions. Full set of questions and topics are included in the Master Plan EIP Review Tool



EIP concept planning tool

Master Plan EIP Review Tool

ILLUSTRATIVE RESULTS – IDENTIFY GAPS

ILLUSTRATIVE RESULTS – CONVERT GAPS INTO IMPROVEMENTS



Click here to download Master Plan EIP Review Tool

MASTER PLAN EIP REVIEW TOOL

Review on basic contents of master plan documentation



The purpose of this step is to convert the gaps identified in previous steps into concrete and practical improvements for the industrial park's Master Plan.

Recommended to identify improvements in interactive exercises with park management entity and park stakeholders

Selection decision is based on consideration of scorings of legal compliance achievability, benefits, risk management, and stakeholder interest. If improvement is part of legal compliance, it has to be selected for implementation in Master Plan

SUMMARY OF IDENTIFIED GAPS		MASTER PLAN IMPROVEMENTS	PRIORITISE MASTER PLAN IMPROVEMENTS						SELECTION	
Topic	Identified gaps (extract from previous steps)	Improvement opportunity (brief description)	Part of LEGAL COMPLIANCE?	Part of BASIC MASTER PLANNING?	What is likely ACHIEVABILITY?	What are likely BENEFITS?	What is likely RISK REDUCTION?	What is STAKEHOLDER INTEREST?	SELECT for implementation in Master Plan?	Comments
Park overview	No description of unique value proposition of Park X Master Plan No detailed description of the the types, sizes and number of industries to attract to industrial park	Expand "Project overview" section in Master Plan with the unique value proposition and details on targeted industry sectors, sized and number of companies	No	Yes	High	Medium	Low	Medium	To be confirmed	Discuss next steps in next board meeting of park management
Risk management	Park X does not have risk management framework in place, and risk managment has not been addressed yet in Master Plan.	Identify and review the following into Master Plan: • Critical risks for the industrial park and its companies on likelihood and impact. • Cluster companies based on their risk profile (e.g. odour, noise, explosion, fire, soil, air emissions, water pollution). • Industry co-location risks.	Yes	Yes	Medium	High	High	High	Yes	This is a key priority for park management to address
Waste	Master Plan of Park X does not include suitable location of park-level and common waste collection areas.	Identify most suitable location of park-level and common waste collection areas, based on review of industry demands.	No	No	High	High	High	High	Yes	





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EIP Assessment Tool

EIP Management Services Tool

Access-to- Finance Tool

Industrial Symbiosis Identification Tool

ILLUSTRATIVE RESULTS – EIP SCORINGS

ILLUSTRATIVE RESULTS – EIP ACTION PLAN



[Click here to download EIP Assessment Tool](#)

EIP Assessment Tool

Tool objectives

Assess an industrial park against benchmarks of the International Framework for Eco-Industrial Parks (UNIDO, WBG, GIZ) and subsequently identify, prioritize, plan, and implement promising initiatives.

Results and added value of the tool

The EIP Assessment Tool helps industrial parks to understand their current and intended performance on international EIP benchmarks, and subsequently operationalise the process to identify, prioritize and implement promising initiatives.

Target users of tool

The main user of the EIP Assessment Tool is the management entity of an industrial park, supported by their stakeholders (e.g. tenants, government agencies).

Steps in the tool

1. Assess industrial park performance against the benchmarks in the International Framework for eco-industrial parks.
2. Identify and select EIP opportunities which are most achievable and beneficial.
3. Plan, manage and monitor progress on prioritized EIP opportunities.

How to complete the tool

The EIP Assessment Tool is usually completed for the first time by a national service provider in a very close collaboration and through interactive workshop sessions with park management team.

Subsequent periodic updates to the tool can be undertaken by industrial park management themselves, without extensive support from service provider.

Data required for completing tool

Evidence on the performance of industrial park against the qualitative and quantitative benchmarks of the International EIP Framework, covering:

- ▶ Park management (e.g. existing Master Plan, reporting, surveys)
- ▶ Environmental performance (e.g. existing environmental management system, energy efficiency programme, circular economy)
- ▶ Social performance (e.g. existing programmes on skills development, grievance management system, gender equality)
- ▶ Economic performance (e.g. employment targets, local procurement)

Practical example of tool application



EIP assessment in Viet Nam

As of 2021, a total of 50 industrial parks in eight countries (Colombia, Egypt, Indonesia, Nigeria, Peru, South Africa, Ukraine and Viet Nam) have been assessed to date on their performance against the prerequisites and performance indicators outlined in the International EIP Framework. The results and comparative analysis of these EIP assessment are included in GEIPP Lessons Learnt Report. [Click here to download the report.](#)



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ILLUSTRATIVE RESULTS – EIP SCORINGS

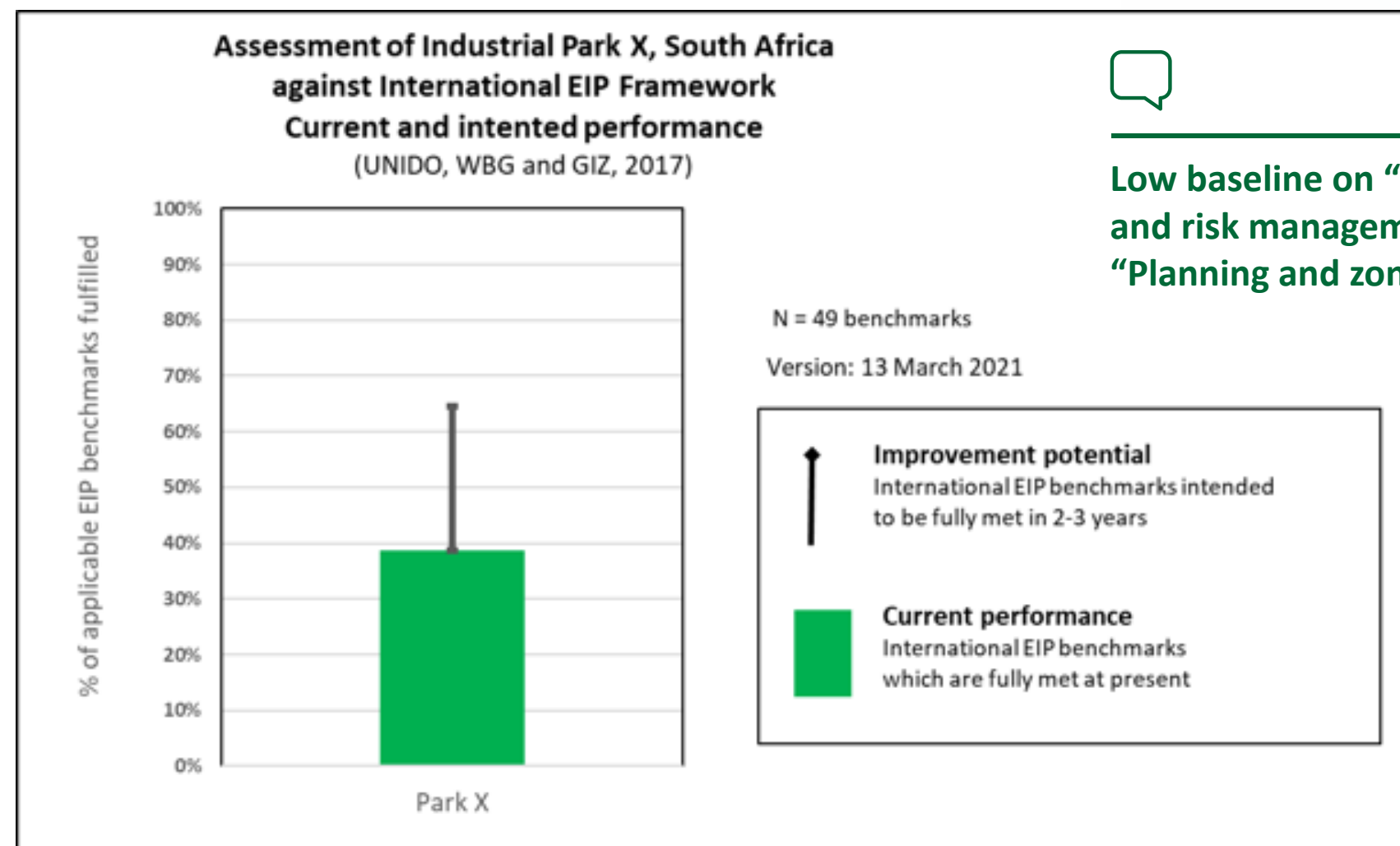
ILLUSTRATIVE RESULTS – EIP ACTION PLAN



Click here to download EIP Assessment Tool

EIP ASSESSMENT TOOL

Overall current and intended performance of industrial park

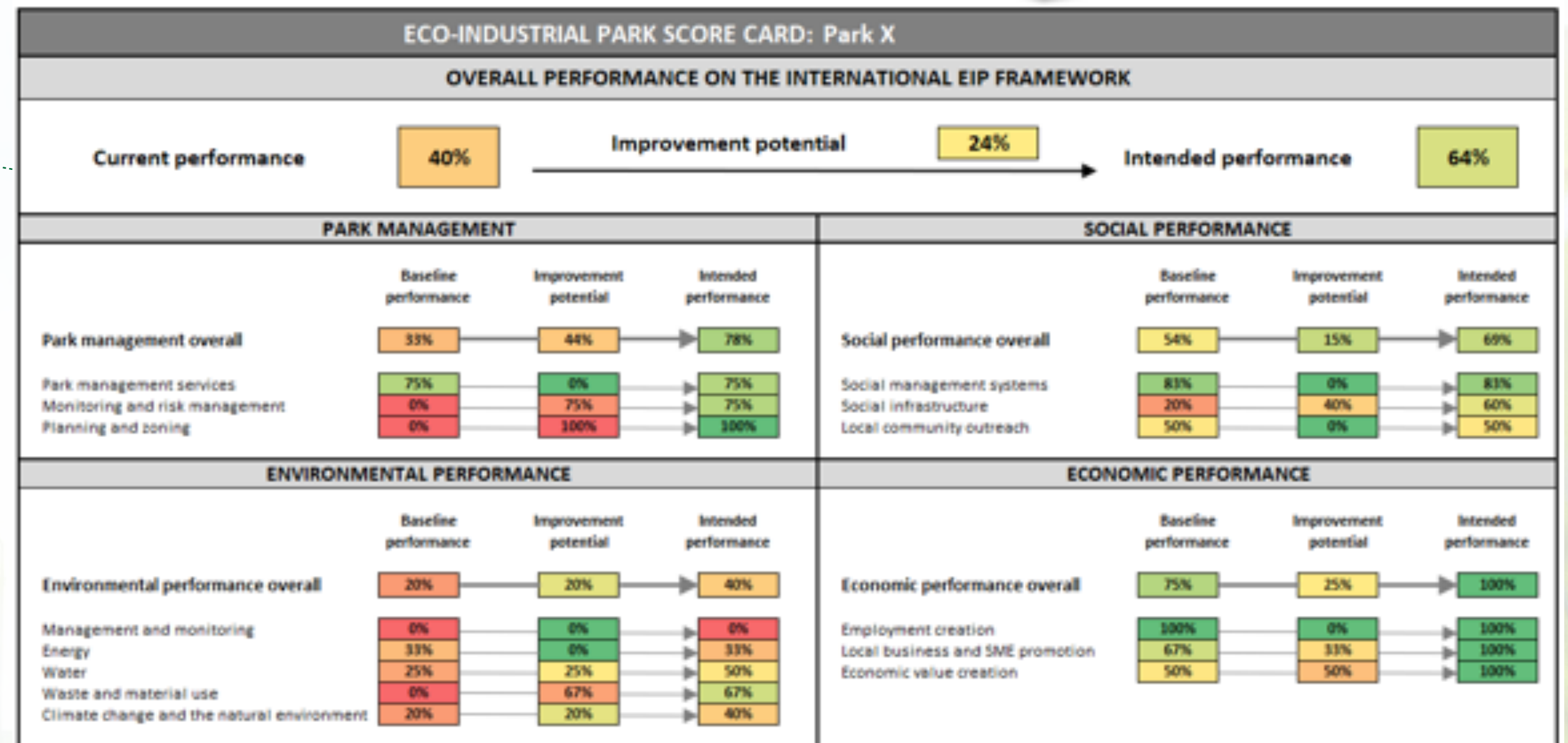


Low baseline on “Park monitoring and risk management” and “Planning and zoning”



EIP assessments in Ukraine (left), Peru (centre) and Nigeria (right)

EIP score card for industrial park



Overall improvement potential for industrial park is 24% for all benchmarks of International EIP Framework

Overall intended performance against International EIP Framework of all four assessed parks at end of GEIPP is 64%

High intended improvement for “Waste and material use”

Baseline compliance on economic performance is highest overall, compared to other categories

High improvement potential for “Economic value creation”



Park level



EIP Assessment Tool

EIP Management Services Tool

Access-to- Finance Tool

Industrial Symbiosis Identification Tool

ILLUSTRATIVE RESULTS – EIP SCORINGS

ILLUSTRATIVE RESULTS – EIP ACTION PLAN



Click here to download EIP Assessment Tool

EIP Assessment Tool

Example of EIP action plan to implement identified and prioritized EIP opportunities

		ACTIONS				
		EIP opportunity	Key actions	Lead role	Support	Timeline
Topic	Energy	Investigate renewable energy options for industrial park to address current energy supply challenges	a. Conduct cost benefit analysis of renewable energy implementation	Park management	Service provider	Q3 2021
			b. Explore applicable business model for renewable energy investment in the industrial parks	Park management	Service provider	Q4 2021
			c. Implement feasibility option / business model	Park management	Service provider	Q1-Q2 2022
	Water	Identify water saving and reuse measures at tenant companies and support their implementation	a. Conduct water assessments with tenant companies	Service provider	Tenant companies	Q2-Q3 2021
			b. Implement feasible good-house keeping water saving measures	Tenant companies		Q4 2021
			c. Undertake feasibility study of investment options	NCPC-SA	Tenant companies	Q1 2022
	Social infrastructure	Strengthen security services in industrial Park	a. Develop 2-page concept note with practical and feasible options to strengthen security services	Park management	Tenant companies	Q3 2021
			b. Develop business model to implement feasible security services	Park management	Service provider	Q4 2021
			c. Approach South African Police Service (SAPS) station located in the park to assist in improving security in the park.	Park management		Q1 2022



Following the gap analysis against the International EIP Framework, EIP opportunities are identified and prioritized with the tool, and subsequent action planned.



EIP assessment in Egypt



South Africa



Recognising that park management may have already systems in place to monitor and manage their activities, it is envisaged that the action planning of prioritized EIP opportunities is adapted to suit the specific requirements of park management.



M E N U



EIP Assessment Tool

EIP Management Services Tool

Access-to- Finance Tool

Industrial Symbiosis Identification Tool

ILLUSTRATIVE RESULTS – IDENTIFY SERVICES

ILLUSTRATIVE RESULTS – SCOPE SERVICES



[Click here to download EIP Management Services Tool](#)

EIP Management Services Tool

Tool objectives

Strengthen and advance services provided by park management to tenant companies, and thereby increase "value for money" provided by park management to tenant companies and secure / expand revenues of park management entity.

Results and added value of the tool

The tool assist park management entities with reviewing, prioritizing, scoping, and action planning of fit-for-purpose and added-value services (including Industry 4.0 services) to their park and tenant companies.

Target users of tool

The main user of the EIP Management Services Tool is the management entity of an industrial park.

Steps in the tool

1. Summarize key challenges, opportunities, and strategic issues facing industrial park
2. Review and prioritize potential added-value services of park management
 - ▶ Optional: Review Industry 4.0 services
3. Scope prioritized added-value services of park management
 - ▶ Optional: Scope Industry 4.0 services
4. Action planning for prioritized added-value services of park management

How to complete the tool

The EIP Management Services Tool is usually completed for the first time by a national service provider in a very close collaboration and through interactive workshop sessions with park management team.

Subsequent periodic updates to the tool can be undertaken by industrial park management themselves, without extensive support from service provider.

Data required for completing tool

- ▶ Existing services provided by park management entity to tenant companies
- ▶ Insights into key challenges, opportunities and strategic issues facing industrial park
- ▶ Insights into service needs of tenant companies

Practical example of tool application



EIP management workshop in South Africa

The EIP Management Services Tool was applied with the team at the East London Industrial Development Zone (ELIDZ) in South Africa. The work identified and scoped a range of added value services to further strengthen the competitiveness of the ELIDZ and its tenants. Illustrative examples of scoped services for the ELIDZ are an Enterprise Supplier Developer Programme, coordination for a support program to improve the energy efficiency of tenant companies, and collaborations on trainings on topics of common interest of tenant companies.



EIP Assessment Tool

EIP Management Services Tool

Access-to- Finance Tool

Industrial Symbiosis Identification Tool

ILLUSTRATIVE RESULTS – IDENTIFY SERVICES

ILLUSTRATIVE RESULTS – SCOPE SERVICES



Click here to download EIP Management Services Tool

EIP MANAGEMENT SERVICES TOOL

Review and prioritize added-value park management services



Based on prioritization column on left High= 3; Medium=2; Low=1; To be confirmed=1.5

ADDED VALUE SERVICES INCLUDED IN THIS TOOL			REVIEW EXISTING SERVICES		NEW SERVICES		PRIORITIZATION OF DEFINED ADDED-VALUE SERVICES					ACTION
Main service category	Potential added-value services of park management	Value proposition for tenant companies and industrial park	Is this service already provided in your park?	Comments on existing services / situation	Is this a possible new service for your park?	Define new added value service for your industrial park	What is likely ACHIEVABILITY of service?	What are likely BENEFITS of service?	INTEREST park management?	INTEREST tenant companies?	Prioritization SCORE (Formula)	Select service for short-term action?
Business support	Support tenant companies in identifying and accessing funding and subsidies	• Tenant companies have easier access to and better understanding of available funding and subsidies	Please select		Please select		Please select	Please select	Please select	Please select	0	Please select
Collaboration	Facilitate community engagement on behalf of tenant companies	• Park management provides "the common voice" on behalf of tenant companies, resulting in consistent community messages and streamlined community engagement approach • Reduced pressure on tenant companies to engage with communities on their own	Please select		Please select		Please select	Please select	Please select	Please select	0	Please select
Environment	Coordinate support program to improve the energy efficiency of tenant companies, especially for the top 50 percent of major energy-consuming businesses in the park	• Reduced energy use and thereby lower operational costs to tenant companies • Tenant companies have easier access to technical advice, resource materials, and professional network with experts on energy efficiency	Please select		Please select		Please select	Please select	Please select	Please select	0	Please select





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Click here to download EIP Management Services Tool

EIP MANAGEMENT SERVICES TOOL

Scope prioritized added value services of park management



To assist with their further development, this step in the tool assists park management and tenant companies to scope prioritized added-value services including options for cost / revenue sharing and potential implementation of selected services.

Topic	Priority added-value park management services selected for short-term action	SPECIFICATION OF THE ADDED-VALUE SERVICE			COST AND REVENUE SHARING		
		What are targeted tenant companies for the added-value service?	What is the value proposition?	What are specific focus areas and features to be included in added-value services	Please provide indication of costs and revenue streams	Can services be offered as part of existing park management fees?	What are options for cost recovery and/or benefit sharing?
ILLUSTRATIVE EXAMPLES - ADDED VALUE PARK MANAGEMENT SERVICES							
Waste management committee	Set up and facilitate regular tenant company meetings addressing and finding solutions for waste management challenges in industrial park	In principle, this service is applicable to all tenant companies. Initial efforts to focus on tenant companies which produce large amounts of recycables and companies which have hazardous waste compliance issues	Rather than each company trying to solve their own waste management challenges, there is opportunity for collaboration of tenant companies to share experiences, find solutions together, and replicate good practices already implemented by some companies	• Recycling of waste pallets, organic waste, plastics, metals, paper and cardboard • Proper storage, collection and disposal of hazardous waste	There are very limited costs associated with setting up and running waste management committee. Waste management committee can meet at park management offices.	Yes, existing park management staff can set up and facilitate waste management committee meetings	• There are very limited costs associated with setting up and running waste management committee • Revenue and reduced costs for waste recycling could be shared amongst tenant companies based on quantities of recyclables collected. • It is anticipated that cost of hazardous waste solutions will be carried by companies as this is a legal compliance issue.
Child day care	Set up and provide day care facility to support employees of tenant companies in the industrial park	In principle, this service is applicable to all tenant companies. Initial efforts to focus on companies which have a larger proportion of workers with young families	• Support workers of tenant companies with their child care needs during working hours and easy access to drop-off and pick-up children before/after work. • Having this child care facility available can assist in maintaining skilled workers	• Child care facility to be located close to main entry into industrial park • Child care facility located sufficient distance to higher risk companies • First priority of child care centre to accommodate children from workers at tenant companies	Investment costs to set up child care facility. Operating costs will largely be salaries of child care workers and supporting staff Revenue through user fees and possible government contributions for child care	No, these specific services to remunerated by use	Service providers receive payment per child (possibly shared between employee and government), which is the usual way for child care





EIP Assessment Tool

EIP Management Services Tool

Access-to- Finance Tool

Industrial Symbiosis Identification Tool

STRUCTURE

ILLUSTRATIVE RESULTS – SEARCH CRITERIA

ILLUSTRATIVE RESULTS – SEARCH RESULTS



Click here to download Access to Finance Tool

Access -To- Finance Tool

Tool objectives

Guide park management entities and tenant companies to identify, review and access available financing options for feasible EIP initiatives for their industrial parks.

Results and added value of the tool

Even when feasible EIP opportunities have been identified and developed, access to finance is often a key challenge. The tool gives visibility to available financing options and provides facilitating tools and advice on how to access those options.

Target users of tool

The main user of the EIP Assessment Tool are the management entities of industrial parks and companies.

Steps in the tool

1. Search financing options
2. Database with financing options
3. Guidance of accessing finance
4. Establish contact with selected financial institutions

How to complete the tool

The Access-to-Finance Tool can be easily used by industrial park management entities and companies themselves, without extensive support from service provider.

Data required for completing tool

Pre-feasibility study undertaken for investment opportunity, including technical details, CAPEX, OPEX, ROD, investment needs, risk assessment, environmental and social benefits

Practical example of tool application



As part of the Global Eco-Industrial Parks Programme in South Africa, the Access to Finance Tool has been used to support feasibility assessments on company-level and park-level opportunities in the East London Industrial Development Zone (ELIDZ) and Phuthaditjhaba Industrial Park. Identified financing options were included in the pre-feasibility assessment reports, which are used to further progress and work towards implementation of promising opportunities.



To date, the Access-to-Finance Tool has been developed for South Africa and Colombia





EIP Assessment Tool

EIP Management Services Tool

Access-to- Finance Tool

Industrial Symbiosis Identification Tool

STRUCTURE

ILLUSTRATIVE RESULTS – SEARCH CRITERIA

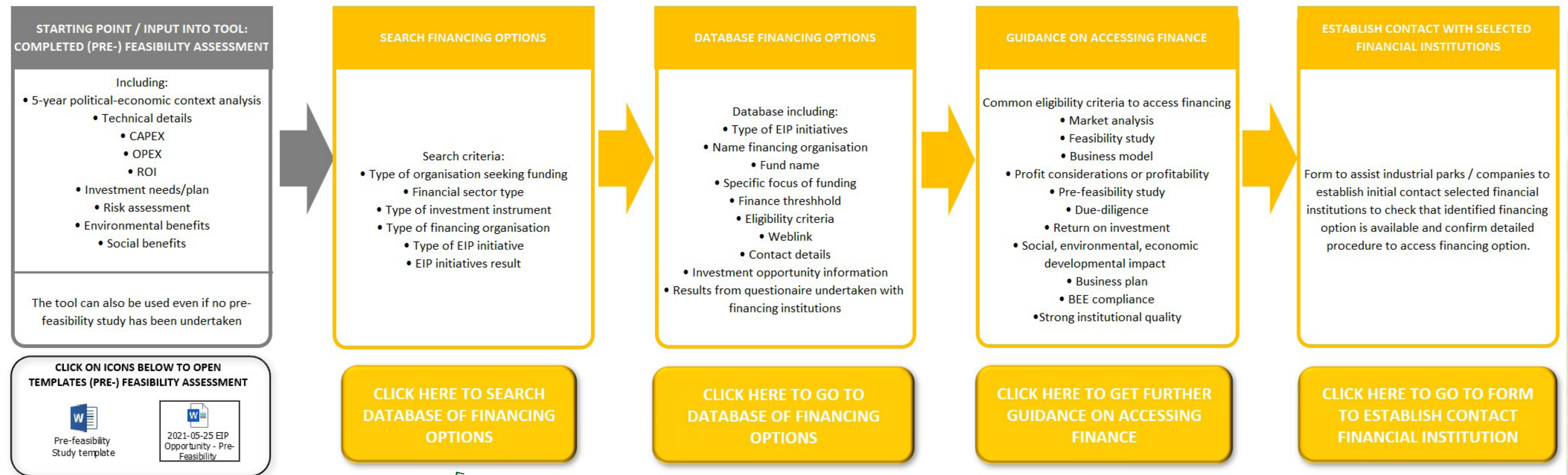
ILLUSTRATIVE RESULTS – SEARCH RESULTS

ACCESS-TO-FINANCE TOOL

Structure of Access-to-Finance Tool for South Africa



[Click here to download Access to Finance Tool](#)



In the Access to Finance Tool you are navigate to each selected step of the tool.



Park level



EIP Assessment Tool

EIP Management Services Tool

Access-to Finance Tool

Industrial Symbiosis Identification Tool

STRUCTURE

ILLUSTRATIVE RESULTS – SEARCH CRITERIA

ILLUSTRATIVE RESULTS – SEARCH RESULTS

ACCESS-TO-FINANCE TOOL

Structure of Access-to-Finance Tool for South Africa



Click here to download Access to Finance Tool

CLICK HERE TO SEE INSTRUCTIONS FOR SEARCHING

CLICK HERE TO SEE SEARCH RESULTS

231 RESULTS

Type of organisation seeking funding	financial sector type	Type of Investment Instrument	type of financing organisation
SMMEs	Government sector	Grant	Development Finance Institutions
	International donor funding	Impact investment	
	Private sector	Loan/Debt	
	Public, private and community	Various instruments (combinations of the instruments)	

EIP Initiatives Search (First Selection)	EIP initiatives result (Second Selection)
Carbon capture and storage	Climate change adaption (flood control channels, dykes, natural cooling)
Climate change adaption (flood control channels, dykes, natural cooling)	Community development
Community development	Environmental protection (monitoring (park-level) pollution control, prevention, and treatment)
Energy efficiency (process changes, cogeneration, smart grid, heating/cooling)	Other EIP Initiatives
Environmental protection (monitoring (park-level) pollution control, prevention, and treatment)	Renewable energy (solar, wind, hydro biomass hydrogen)
Green buildings, park infrastructure	Sustainable land management, (sustainable agriculture, forestry, park green areas, water catchment management)
Green products and materials	
Multiple initiatives (non-sector specific)	
Occupational health, safety, and hygiene	
Property and utility maintenance	
Renewable energy (solar, wind, hydro biomass hydrogen)	
Sustainable land management, (sustainable agriculture, forestry, park green areas, water catchment management)	
Transport (urban rail/metro, electric, hybrid, roads)	
Waste management (reuse/recycling, waste management)	
Water (water efficiency, wastewater treatment) water reuse networks at park level	
(blank)	



A total of 231 financing options are included in the Access to Finance Tool for South Africa.



In the Access to Finance Tool, you can filter the data by simply clicking on an item on each of the filter table(s).



M E N U



EIP Assessment Tool

EIP Management Services Tool

Access-to- Finance Tool

Industrial Symbiosis Identification Tool

STRUCTURE

ILLUSTRATIVE RESULTS – SEARCH CRITERIA

ILLUSTRATIVE RESULTS – SEARCH RESULTS

ACCESS-TO-FINANCE TOOL

Illustrative search results in Access-to-Finance Tool for South Africa



Click here to download Access to Finance Tool



The Access to Finance will generate a list of financing options which meet the selected search criteria. This is illustrative screen shot only.

SEARCH RESULTS								
#	Name financing organisation	Fund name	Specific focus of funding	EIP initiatives result	Finance threshold	Eligibility criteria	Weblink	Investment opportunity information
63	PROPARCO	(1) Venture capital funds (2) Development Capital funds	Agriculture, Agro-processing, Climate action, Energy, Infrastructure, Community Development	Sustainable land management, (sustainable agriculture, forestry, park green areas, water catchment management)	Venture capital funds ranges between approximately \$3 million and \$7 million. Development Capital funds ranges between \$3 million and \$20 million	The technical and commercial viability of the plan.	https://choose-africa.com/en/offres/investment-fund/	Proparco is the private sector arm of the AFD and finances debt and equity for private firms in developing countries. The company invests in private equity funds and venture capital (VC) funds that support SMEs and start-ups with strong development impacts such as infrastructure and agriculture
72	Enablis Financial Corporation SA (Pty) Ltd/Khula Enterprise Finance Limited	The Enablis Acceleration Fund	Agriculture	Sustainable land management, (sustainable agriculture, forestry, park green areas, water catchment management)	R25 000 to R2,5 million	To qualify for the fund one must meet the following requirements: be a South African SME that is accredited by the Enablis Entrepreneurial Network; are black and women entrepreneurs for startups and for the expansion of a business; SMEs involved in all sectors, specifically ICT, transport, tourism, agriculture and services industry and SMEs that need working capital and/ or asset finance.	http://www.enablis.org/	The Enablis Acceleration Fund is a partnership between Enablis Financial Corporation SA (Pty) Ltd and Khula Enterprise Finance Limited. It is currently capitalised at R50m. Its purpose is to improve access to early-stage funding to SMEs, reach out to SMEs in remote/rural provinces and create new sustainable jobs. SMEs that need working capital and or asset finance.





Park level

> Country level

> EIP monitoring tools

> About eco-industrial parks

> EIP toolbox

> EIP planning tools



EIP Assessment Tool

EIP Management Services Tool

Access-to- Finance Tool

Industrial Symbiosis Identification Tool

ILLUSTRATIVE RESULTS – SEARCH BY-PRODUCTS

ILLUSTRATIVE RESULTS – SEARCH INDUSTRY



[Click here to download Industrial Symbiosis Identification Tool](#)

Industrial Symbiosis Identification Tool

Tool objectives

Support the identification of industrial symbiosis opportunities (by-product and waste exchanges) between companies.

Results and added value of the tool

Generates an indicative list of industrial symbiosis opportunities for an industrial park without a significant time investment.

Target users of tool

The main user of the Industrial Symbiosis Identification Tool are management entities of industrial parks and companies as well as (inter)national service providers assisting industrial parks.

Steps in the tool

1. Search by-products
2. Search by industry sector type

How to complete the tool

The Industrial Symbiosis Identification Tool can be easily used by industrial park management entities and companies, without extensive support from service provider.

Data required for completing tool

- List of existing and potential tenant companies
- Insight into existing and potential by-products and wastes generated in the industrial park

Practical example of tool application



Tool application in Viet Nam

Training on the development and implementation of eco-industrial parks was provided by UNIDO to park management and governmental officials in Viet Nam (July 2019). The Industrial Symbiosis Identification Tool was used as an interactive exercise to identify symbiosis opportunities in the three pilot industrial zones of the UNIDO GEF project on eco-industrial parks (e.g. Khanh Phu IZ, Hoa Khanh IZ, and Tra Noc 1&2 IZ). The exercise helped to identify concrete industrial symbiosis opportunities for the three industrial zones.



M E N U

> 25

INSTRUCTIONS

ABOUT GEIPP

ACKNOWLEDGEMENTS

ACRONYMS

FURTHER READING

QUESTIONS AND CONTACT



EIP Assessment Tool

EIP Management Services Tool

Access-to- Finance Tool

Industrial Symbiosis Identification Tool

ILLUSTRATIVE RESULTS – SEARCH BY-PRODUCTS

ILLUSTRATIVE RESULTS – SEARCH INDUSTRY



Click here to download Industrial Symbiosis Identification Tool

INDUSTRIAL SYMBIOSIS IDENTIFICATION TOOL

Search results by-product: Wood residues



The worksheet “Search by-product” is used to identify potential industrial symbiosis opportunities based on the selection of a specific by-product or waste. For example, the worksheet can inform you what industry can be interested to utilize wood residues.

UNIDO Industrial Symbiosis Identification Tool (V2)

IDENTIFY INDUSTRIAL SYMBIOSIS OPTIONS

SEARCH BY-PRODUCTS / WASTES

GO TO INSTRUCTIONS

SEARCH BY COMPANY

REFERENCES

Kindly make your selection under "By-product / waste": Other cells are populated automatically...

1. First, make your selection here!

2. This box lists similar by-products, or alternative names that are sometimes used.

3. Who could sell or buy this by-product? Here you can find companies potentially interested in your by-product

4. More information? Please consult "References" for weblinks and academic articles

By-product / Waste	Similar by-product(s)	Possible providers	Possible users	Practical examples	Comments
Wood residues	Lignin residues Starch scrap Pellets Waste paper sludge/pulp Bark	Ethanol plant Starch industry Paper industry Wood industry	Coal power plant Biomass power plant Briquette factory Pressboard/plywood plant Cement factory & construction Fertilizer	Kalundborg Tianjin Guangxi Guitang Styria Kawasaki	





Park level



EIP Assessment Tool

EIP Management Services Tool

Access-to- Finance Tool

Industrial Symbiosis Identification Tool

ILLUSTRATIVE RESULTS – SEARCH BY-PRODUCTS

ILLUSTRATIVE RESULTS – SEARCH INDUSTRY



Click here to download Industrial Symbiosis Identification Tool

INDUSTRIAL SYMBIOSIS IDENTIFICATION TOOL

Search results by company type: Chemical industry



The worksheet “Search by company” is used to identify potential industrial symbiosis options based on the selection of a specific company type. For example, the worksheet can inform you about alternative raw materials and potential reuses of the by-products/wastes of the chemical industry.

UNIDO Industrial Symbiosis Identification Tool (V2)

IDENTIFY INDUSTRIAL SYMBIOSIS OPTIONS: SEARCH BY COMPANY TYPE

GO TO INSTRUCTIONS

SEARCH BY-PRODUCTS / WASTES

REFERENCES

Possible inputs	Alternative or similar inputs	Possible providers	Practical example(s)	Comment(s)
Blast furnace gas	Syngas Hydrogen	Iron and steel industry Chemical industry (chlor-alkali)	Shandong Liuzhou	chlor-alkali process = important producer, ammonia plant = important user
Carbonates (mineral)		Iron and steel industry	Shandong	CO2 + slag (mineralization)
Hydrochloric acid		Titanium oxide producer	Kwinana	Sulphur (elemental)
		Oil refinery	Kwinana	
Sulphuric acid (80%)		Chlor-alkali plant	Kwinana	H2SO4 98% is used as drying agent. After use, the resulting 80% solution is sold on the market
Zinc waste		Metal industry	Ulsan	Production of Zinc-rich paints
Steam (high temperature)		Waste incinerator	Ulsan	
Carbon dioxide		Ammonia plant Ethanol plant Biogas producer Biogas producer		For instance, biosynthesis of succinic acid
C5 molasses residues	Pentose residues	Ethanol plant		For instance, production of furfural

1. Select a company
Chemical industry

2. Which inputs could you buy from a neighbouring company?
(or)
Which inputs could you sell to a neighbouring company?

3. What type of company might sell this input as a by-product?
(or)
What type of company could be interested to buy your by-product?

4. More information?
Please consult "References" for weblinks and academic articles

Possible outputs	Alternative or similar outputs	Possible users	Practical example(s)	Comment(s)
Alcoholic residues	Aldehyde	WwTP	Kalundborg Ulsan	Carbon source for denitrification bacteria
Sulphuric acid (80%)		Chemical industry	Kwinana	H2SO4 98% is used as drying agent. After use, the resulting 80% solution is sold on the market
Hydrogen		Ammonia plant Thermal power plant		Produced by chlor-alkali plant
Calcium sulfate	Gypsum	Plasterboards manufacturer Soil remediation Cement factory & construction	Kwinana	Typically produced by desulfurization processes. Can be for instance produced in a phosphoric acid production plant
Spent solvent	waste oil	Cement factory & construction	Eclepens Styria Ulsan	Must not contain halogenated solvent. Solvent can be impregnated on solid material, for instance saw dust.



EIP Selection Tool

Tool objectives

Support the selection of industrial parks with a high potential for EIP development and creating successful, visible and replicable EIP projects.

Results and added value of the tool

Selecting industrial parks through a structured and comprehensive process is critical to avoid the selection of unsuitable or less favourable industrial parks for EIP projects.

Target users of tool

The main targeted users of the tool are development agencies, service providers and government authorities who work on EIP projects, or are involved in the selection process of industrial parks for EIP interventions.

Steps in the tool

- ▶ Short-list industrial parks and collect basic information
- ▶ Pre-selection of industrial parks
- ▶ Prioritization of pre-selected industrial parks
- ▶ Review of prioritized parks against International EIP Framework
- ▶ Final selection of industrial parks for EIP project

How to complete the tool

The EIP Selection Tool is usually completed for the first time by a national service provider and development agency in a very close collaboration and through interactive workshop sessions with government authorities and park management entities.

Data required for completing tool

- ▶ Listing and understanding of existing and planned industrial parks
- ▶ Observations and discussions with management entities during site visits to pre-selected industrial parks
- ▶ Insights on the performance of prioritized industrial park against the benchmarks of the International EIP Framework

Practical example of tool application



Industrial park selection in Indonesia

The EIP Selection Tool was applied successfully to support the selection of industrial parks for UNIDO's Global Eco-Industrial Parks Programme. The country level interventions of this programme focus on tailor-made EIP initiatives in selected countries, including Colombia, Egypt, Indonesia, Peru, South Africa, Ukraine and Viet Nam.



Country level



EIP Selection Tool

EIP Policy Support Tool

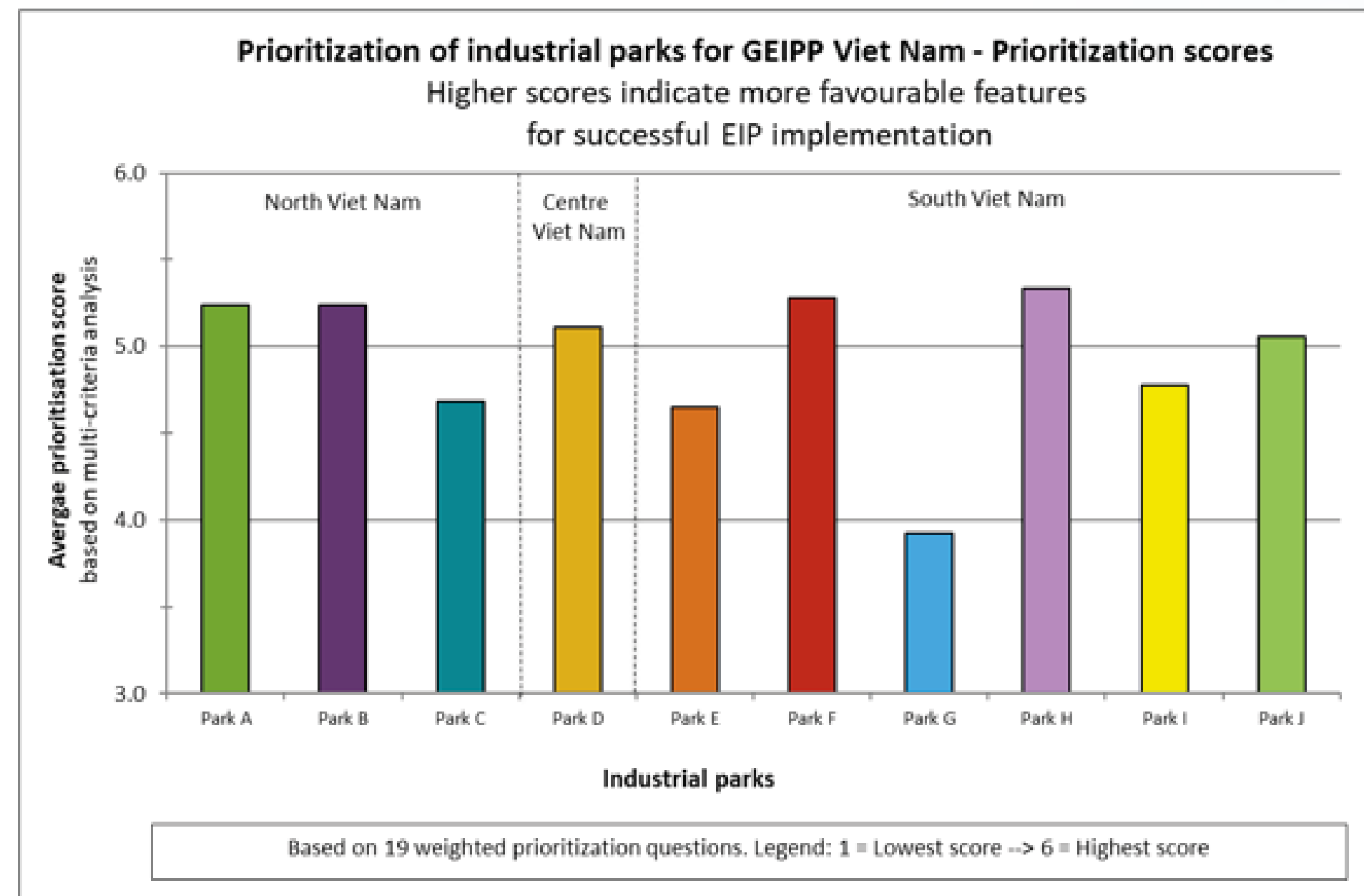
ILLUSTRATIVE RESULTS



[Click here to download EIP Selection Tool](#)

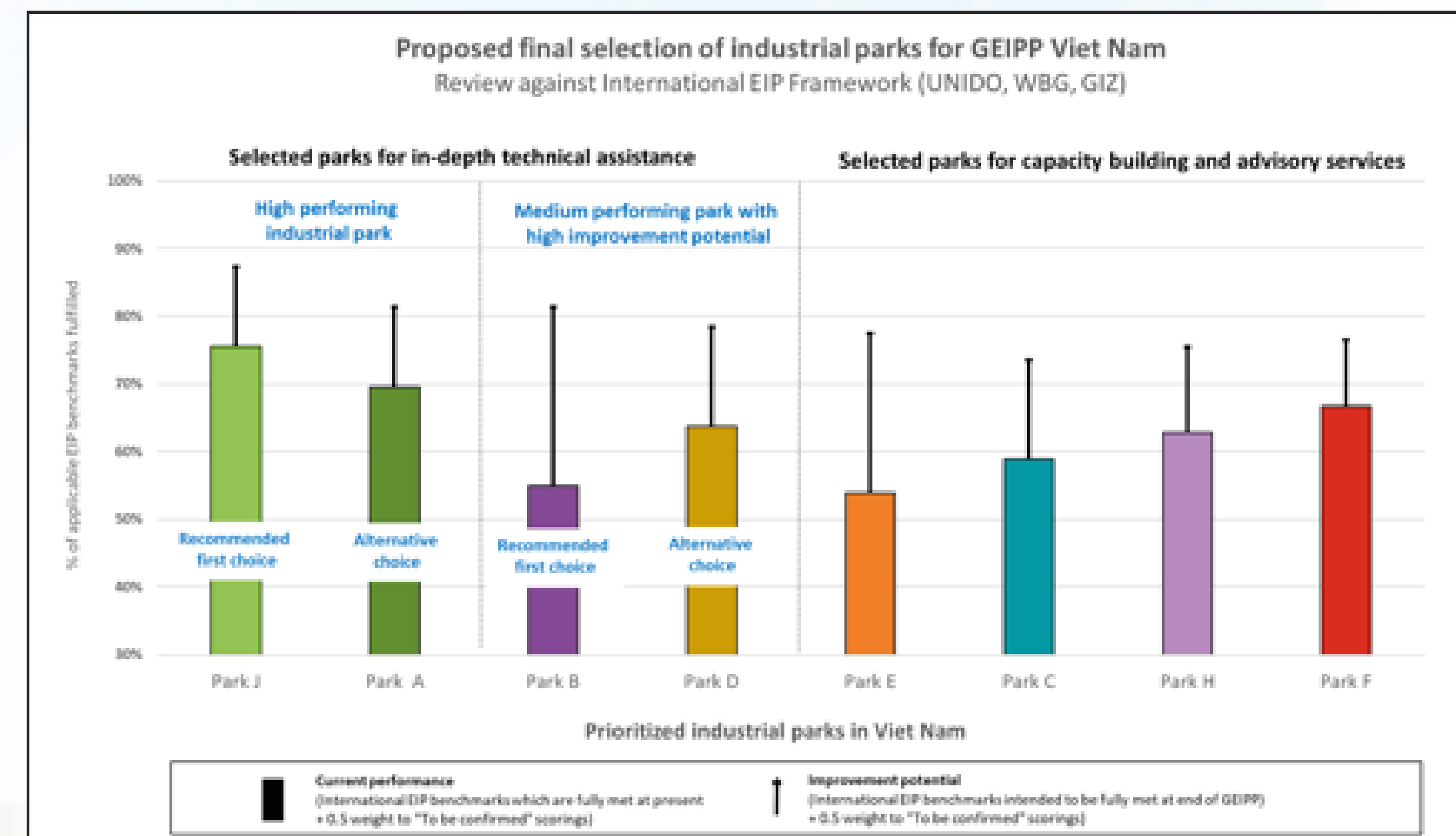
EIP SELECTION TOOL

Prioritization of pre-selected industrial parks



Objective of this step is to compare and prioritize industrial parks against set of criteria for their selection to be part of an EIP project. This figure is based on multi-criteria analysis to compare industrial parks against set of topics such as park management, environmental, social and environmental aspects, and replication.

Final selection of industrial parks for EIP project



Number and types of industrial parks to be selected will depend on the scope and available resources as well as national context and priorities of government and donors. The gaps identified through the reviews against the International EIP Framework provide a good basis to scope EIP interventions for a project.





Country level



EIP Selection
Tool

EIP Policy
Support Tool

POLICY CYCLE

ILLUSTRATIVE
RESULTS - PRIORITIZE
INTERVENTIONS

ILLUSTRATIVE
RESULTS - OVERVIEW
POLICY INSTRUMENTS



[Click here to download EIP
Policy Support Tool](#)

EIP Policy Support Tool

Tool objectives

Provide technical support to policy makers on EIP policy planning and development by guiding the user through the different stages of the policy development process in relation to Eco-Industrial Parks (e.g. from high level visioning to implementation).

Results and added value of the tool

EIP related policies will only succeed when there is a high-level and long-term commitment from key stakeholders, including a crucial role for Governments in creating the appropriate market conditions, policy and regulatory frameworks, technical guidelines etc. Policy interventions must be prioritized and integrated where needed. This tool is built around these success factors and supporting processes.

Target users of tool

Government authorities involved in the policy development and implementation processes related to eco-industrial parks, where needed, supported by service providers and development agencies.

Steps in the tool

1. Analyse stakeholders
2. Develop policy vision / goal
3. Review existing policies
4. Prioritize policy interventions
5. Overview policy instruments
6. EIP policy action planning

How to complete the tool

The tool is organized into different modules representing the multiple stages of policy development. The applicability of different modules will depend on the specific scope of the policy work in the EIP projects. Through the main menu, you can easily navigate to the module(s) of your specific interest.

Data required for completing tool

- Existing and planned policy documents directly or indirectly relevant to (eco-)industrial parks
- Insights into relevant public and private sector stakeholders
- Understanding of existing and planned industrial parks

Practical example of tool application



EIP policy workshop in Colombia

The EIP Policy Support was used during the preparatory phase of the Global EIP Programme in Colombia. The tool supported the stakeholder mapping and systematic review of existing government policies and strategies related to the multi-disciplinary topics of the EIP concept (e.g. industrial productivity, green growth, circular economy, sustainable production, solid waste management, water and energy efficiency). The results from the tool application were summarized in a stakeholder mapping and policy analysis report which was used as reference material to scope the implementation phase of the GEIPP in Colombia.





Country level



EIP Selection Tool

EIP Policy Support Tool

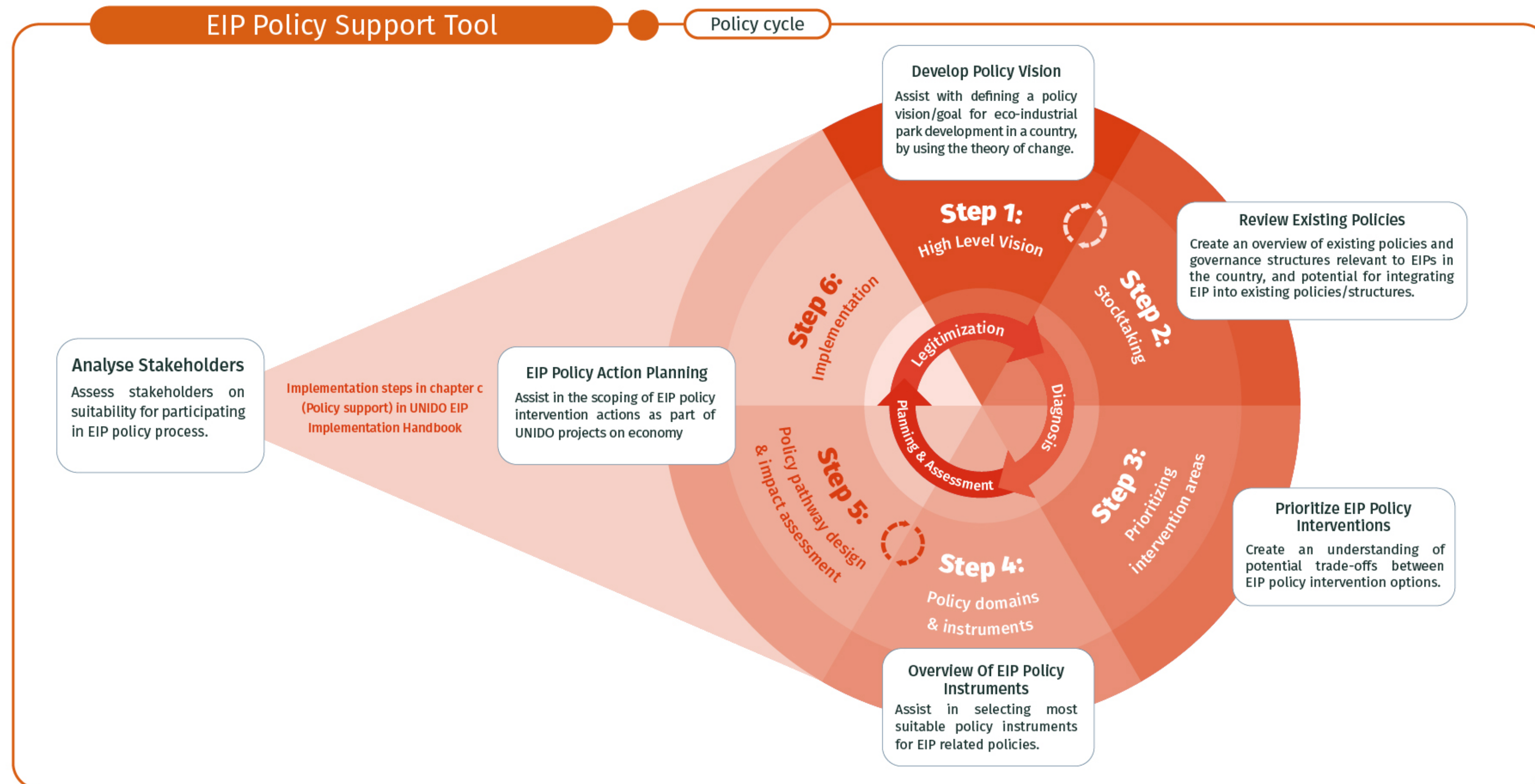
POLICY CYCLE

ILLUSTRATIVE RESULTS - PRIORITIZE INTERVENTIONS

ILLUSTRATIVE RESULTS - OVERVIEW POLICY INSTRUMENTS



[Click here to download EIP Policy Support Tool](#)





EIP Selection Tool

EIP Policy Support Tool

POLICY CYCLE

ILLUSTRATIVE RESULTS - PRIORITIZE INTERVENTIONS

ILLUSTRATIVE RESULTS - OVERVIEW POLICY INSTRUMENTS



Click here to download EIP Policy Support Tool

EIP POLICY SUPPORT TOOL

Multi-criteria analysis to support prioritization of policy interventions



Criteria can be reformulated and added in the tool as required



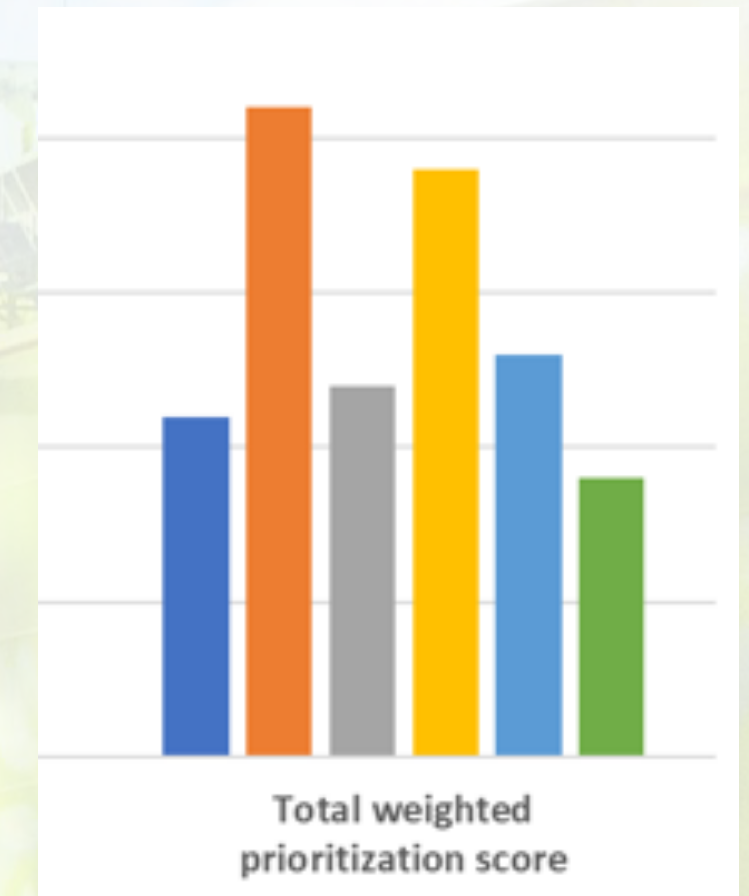
The tool includes a detailed template for a multi-criteria analysis in which the identified policy intervention options, prioritization criteria, weightings, and their subsequent scorings can easily be added.

#	Options for EIP policy interventions and/or instruments to be considered	Type of criteria	Environmental	Type of criteria	Economic	Type of criteria	Social
		Criterion:	GHG emission savings	Criterion:	Contribution to GDP	Criterion:	Job creation
		Weighting:	3	Weighting:	1	Weighting:	3
		Score	Weighted score	Score	Weighted score	Score	Weighted score
a	Policy intervention option 1	Allocate score	1	Allocate score	2	Allocate score	2
b	Policy intervention option 2	Allocate score	4	Allocate score	4	Allocate score	2
c	Policy intervention option 3	Allocate score	2	Allocate score	3	Allocate score	2
d	Policy intervention option 4	Allocate score	2	Allocate score	3	Allocate score	3
e	Policy intervention option 5	Allocate score	1	Allocate score	4	Allocate score	2
f	Policy intervention option 6	Allocate score	3	Allocate score	1	Allocate score	2



Examples of policy interventions:

- Development of National Action Plan on Eco-Industrial Parks
- Introduction of national minimum requirements for industrial parks





Country level



EIP Selection Tool

EIP Policy Support Tool

POLICY CYCLE

ILLUSTRATIVE RESULTS - PRIORITIZE INTERVENTIONS

ILLUSTRATIVE RESULTS - OVERVIEW POLICY INSTRUMENTS



Click here to download EIP Policy Support Tool



This step presents an overview of EIP related policy instruments and assist in selecting most suitable policy instruments for EIP related policies.

EIP Policy Support Tool

Overview policy instruments: Thematic strategies and programs

Examples of policy instruments related to EIPs

Practical international examples
(click on practical example to open weblink)

COMPARATIVE AND INDICATIVE OVERVIEW

Flexibility to make rapidly adjustments

Ability to achieve short-term results

Integration with already existing systems

Level of complexity

Relevance to SMEs

National policy and strategy to provide basis for policy action on eco-industrial parks

National System of Industrial Parks in Peru

Integration of eco-industrial park topics into existing policies and governmental programmes

Eco-Town Program in Japan

National programme and action plan on eco-industrial parks

Eco-Industrial Park Program in South Korea

Regional or local programme(s) and action plan(s)

Madison County Council of Government's Eco-Industrial Business Park in Anderson, Indiana (USA)

Similar overviews are available for:

- ▶ Regulatory instruments and standards
- ▶ Information-based instruments
- ▶ Economic instruments
- ▶ Voluntary agreements

Positive Neutral More difficult

Policy Instruments are the practical means for implementing policy; the tools that create change and achieve policy's targets/objectives. They include a number of different types including regulatory instruments, economic instruments, information-based and voluntary agreements. Instruments are usually linked to a policy.





EIP monitoring tools

> About eco-industrial parks

> EIP toolbox

> EIP planning tools

> EIP implementation support tools

> Park level

> Country level



RECP Monitoring Tool

EIP Opportunities Monitoring Tool

ILLUSTRATIVE RESULTS



Click here to download RECP Monitoring Tool

RECP Monitoring Tool

Tool objectives

Monitor and report the resource savings and results of RECP assessments undertaken with companies in industrial parks.

Results and added value of the tool

Projects on eco-industrial parks (EIPs) and resource efficient and cleaner production (RECP) can only be fully successful if the results achieved are communicated in a standardized and systematic manner.

Target users of tool

The tool is designed to be used by any organization which is involved with RECP assessment and monitoring implementation results.

Steps in the tool

- ▶ Enter results from company RECP assessments in RECP monitoring worksheet
- ▶ View summary results at company level
- ▶ View summary results at industrial park level

How to complete the tool

The tool can be used after completion of the RECP assessments to inform about expected / preliminary results. The tool can also be used several months after the RECP assessments, to report about the implementation and actual results.

Data required for completing tool

RECP assessment reports completed for companies, including savings on electricity, fuel, water, materials and waste and financial savings.

Practical example of tool application



RECP workshop in South Africa

The RECP Monitoring Tool was applied to monitor and report the results from RECP assessments undertaken with 20 companies in Epping Industria and the East London Industrial Development Zone in South Africa. The RECP assessments were carried out by the National Cleaner Production Centre of South Africa (NCPC-SA) as part of the UNIDO EIP Pilot Project (2017-2018).



M E N U



EIP monitoring tools



RECP Monitoring Tool

EIP Opportunities Monitoring Tool

ILLUSTRATIVE RESULTS



Click here to download RECP Monitoring Tool

RECP MONITORING TOOL

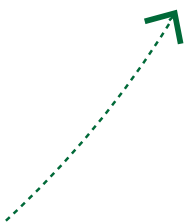
Illustrative extract of RECP monitoring worksheet

GENERAL INFORMATION									
Company name and activities (short summary) Please, write the name of company only once, next to the first option	Date of assessment (MM/YYYY)	Reference and source of information	Description of options (summary)	Implementation (Implemented / Planned / Probable / Unlikely)	Date of implementation (MM/YYYY)	Measured or expected results?	Electrical energy (MWh/yr)	CO ₂ intensity of the national/local grid (tCO ₂ /MWh)	CO ₂ savings (tCO ₂ /yr)
Example Company #1	01/2016	1st interim report and detailed company report	Replacement of standard efficiency motors with premium efficiency motors	Implemented	10/2016	Measured	6.60	0.50	3.30
			Implement automatic combustion control for boiler with online O ₂ measurement.	Planned	12/2017	Expected			Formula
			New facility to burn the exhaust gas produced during the chemical reaction (flaring).	Unlikely	N.A.	Expected			Formula
Example Company #2	09/2016	2nd interim report	Implementation of wastewater treatment plant for reuse of water	Unlikely	N.A.	Measured			Formula
			Repair leaks in compressed air network.	Probable	06/2017	Expected	1.20	0.50	0.60

FUEL SAVINGS	WATER SAVINGS	MATERIAL SAVINGS	FINANCIAL SAVINGS (Euros)
--------------	---------------	------------------	---------------------------



In the RECP Monitoring Tool, similar tables as listed above are available for savings in fuels, water, materials and financials.



This table is generated automatically based on the data entered in RECP monitoring worksheet.



Summary of RECP results at industrial park level

UNIDO RECP Monitoring Tool (V2)			GO TO INSTRUCTIONS	GO TO RECP MONITORING	GO TO SUMMARY (COMPANY LEVEL)
SUMMARY PARK LEVEL			Worksheet is calculated automatically based on the RECP monitoring worksheet		
Name of the industrial park:			Park X		
Number of companies assessed			12		
Total number of RECP improvement options			66 in total		
			- Implemented		
			25		
			- Planned implementation		
			13		
			- Probable implementation		
			15		
			- Unlikely implementation		
			13		
Electricity savings			55,555.00 MWh/yr		
			- Implemented		
			27,600.00		
			- Planned implementation		
			12,555.00		
			- Probable implementation		
			5,600.00		
			- Unlikely implementation		
			9,800.00		
Fossil fuel saving			16,740.00 GJ/yr		
CO ₂ emission reduction			29,367.80 t CO ₂ /yr		
Water savings			54,100.00 m ³ /yr		
Material/chemicals savings (tonnes/yr)			148.00 t/yr		
Financial savings (in Euros)			591,000.00 €/year		
Return on investment (average payback time)			5.58 yr		
			- Implemented		
			4.50		
			- Planned implementation		
			5.10		
			- Probable implementation		
			5.50		
			- Unlikely		
			7.20		



EIP monitoring tools

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> Park level

> Country level



RECP Monitoring Tool

EIP Opportunities Monitoring Tool

ILLUSTRATIVE RESULTS



[Click here to download EIP Opportunities Monitoring Tool](#)

EIP Opportunities Monitoring Tool

Tool objectives

Monitor and report resource savings and impacts from EIP opportunities identified and implemented in industrial parks with the support of (inter)national development projects.

Results and added value of the tool

EIP opportunities can cover a wide range of project interventions to improve the performance of the industrial parks and their tenant companies, including industrial synergies, resource efficiency, park management, and planning/zoning.

Target users of tool

The tool is designed to be used by international development agencies and service providers who work on EIP projects.

Steps in the tool

1. Enter results in EIP opportunities monitoring worksheet
2. View summary of impacts

How to complete the tool

The tool can be used immediately after completion of EIP opportunity assessments for an industrial park to inform about expected / preliminary results. The tool can also be used several months after the assessments, to report about the implementation and actual results.

Data required for completing tool

Reporting on EIP opportunities completed for industrial parks and companies, including savings on electricity, fuel, materials, waste, water, improvement of effluent quality, financial savings, and social benefits.

Practical example of tool application



Progressing EIP opportunities in Colombia

This tool was applied to monitor the results from industrial synergy assessments undertaken with industrial parks in South Africa and Colombia. The assessments were carried out by South Africa National Cleaner Production Centre (SA-NCPC) and Colombia's National Cleaner Production Centre (CNPML) as part of the UNIDO EIP Pilot Project (2017-2018).



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EIP monitoring tools



RECP Monitoring Tool

EIP Opportunities Monitoring Tool

ILLUSTRATIVE RESULTS



Click here to download EIP Opportunities Monitoring Tool

EIP OPPORTUNITIES MONITORING TOOL

Illustrative extract of EIP opportunities monitoring worksheet

BASIC INFORMATION				ELECTRICITY SAVINGS			
EIP opportunity (Short description)	Implementation of EIP opportunity	Date of implementation (if applicable), MM/YYYY	If EIP opportunity is not being implemented, what are the reasons?	Electrical energy saving per EIP opportunity		CO ₂ intensity of national/local grid (t CO ₂ /MWh)	CO ₂ emission reduction due to electricity saving
	(Yes / Planned / No)			Saving in MWh/yr	How calculated? (If detailed information is available, please add reference)		
Example #1: Develop Solar PV panel project in the industrial park	Yes	08/2018		19.2	120MW installed. Capacity factor = typically 16% in the region	0.688	13.21
Example #2: Repair leaks in the steam network	Planned	in 2019					Formula
Example #3: Upgrading of centralised wastewater treatment plant (WWTP)	Planned	in 2020					Formula
Example #4 Establish committee on waste management, environment and resource efficiency	No	Not applicable	Tenant companies are not interested in participating in this committe				Formula

FOSSIL FUEL SAVINGS

WATER SAVINGS

EFFLUENT QUALITY

MATERIALS, CHEMICALS AND WASTES

FINANCIAL SAVINGS

SOCIAL BENEFITS



In the EIP Opportunity Monitoring Tool, similar tables as listed above are available for savings on fossil fuels, water, materials and financials as well as social benefits.

Summary of EIP opportunities for industrial park

UNIDO EIP OPPORTUNITIES MONITORING TOOL (V2)		
SUMMARY OF IMPACTS		
Worksheet is calculated automatically based on the monitoring worksheet		
GO TO INSTRUCTIONS		
GO TO EIP OPPORTUNITIES MONITORING		
Name of industrial park:	Park Y	
Total number of EIP opportunities	76	in total
- Implemented	36	
- Planned implementation	21	
- No implementation (yet)	19	
Electricity savings	76,335.00	MWh/yr
- Implemented	32,980.00	
- Planned implementation	24,355.00	
- No implementation (yet)	19,000.00	
CO ₂ emission reduction due to electricity savings	38,167.50	t CO ₂ /yr
Fossil fuel saving	27,590.00	GJ/yr
CO ₂ emission reduction due to fuel savings	2,621.05	t CO ₂ /yr
Water savings	66,541.00	m ³ /yr
Material/chemicals savings and waste recycling	300.00	t/yr
Financial savings (in Euros)	416,500.00	€/year
Return on investment (average payback time)	5.67	yr
- Implemented	3.80	
- Planned implementation	5.70	
- No implementation (yet)	7.50	



This table is generated automatically based on the data entered in EIP opportunities monitoring worksheet.





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Benefits

Practical examples



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Overall objectives & target audience

Overview of tools

Entry points for EIP tools

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Master Plan EIP Review Tool

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EIP Assessment Tool

EIP Management Services Tool

Access to Finance Tool

Industrial Symbiosis Identification Tool

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EIP Selection Tool

EIP Policy Support Tool

RECP Monitoring Tool

EIP Opportunities Monitoring Tool



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Defining EIPs

Benefits

Practical examples

DEFINITION

EIPs can be 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, for example: resource efficient and cleaner production, industrial symbiosis, circular economy, 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 realise the EIP concept.

Compliance with national and local regulations is the baseline for all industrial parks, whatever the geographical location and specific characteristics of the park.

In short, eco-industrial parks are about creating more resource-efficient and cost-effective industrial parks which are more competitive, attractive for investment and risk resilient.

INTERNATIONAL FRAMEWORK

UNIDO, World Bank Group and GIZ have collaborated to develop an international framework which provides guidance on what constitutes an eco-industrial park (EIP) and how an industrial park can work towards becoming an EIP.

The framework is based on “prerequisites” and “performance indicators” in four key categories: Park management; Environmental performance; Social performance; and Economic performance. The prerequisites highlight the basic requirements for EIPs, and the performance indicators describe expected performance levels that an EIP must meet.

The International EIP Framework is not a certification or audit scheme. The framework is a practical means to (a) understand the current status and intentions of an industrial park with regards to their EIP transformation and (b) identify a set of practical promising opportunities for the



Weblink to download the
International EIP Framework

Process of Continuous Improvement: Going Beyond the EIP Performance Requirements

Core EIP Categories and Topics

Park management performance

- Park management services
- Monitoring
- Planning and zoning

Environmental performance

- Environmental management and monitoring
- Energy management
- Water management
- Waste and material use
- Natural environment and climate resilience

Social performance

- Social management or monitoring
- Social infrastructure
- Community outreach and dialogue

Economic performance

- Employment generation
- Local business and SME promotion
- Economic value creation

EIP Performance Requirements

Compliance with local and national regulations and alignment with international standards



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ABOUT THE GLOBAL ECO-INDUSTRIAL PARKS PROGRAMME

Objective

The objective of the Global Eco-Industrial Parks Programme (GEIPP) is to demonstrate the viability and benefits of greening industrial parks by improving resource productivity and economic, environmental and social performances of businesses and thereby contributing to inclusive and sustainable industrial development in the participating developing and transition economies.

GEIPP components

Component 1 (Country level interventions) implements tailor-made initiatives in seven countries: Colombia, Egypt, Indonesia, Peru, South Africa, Ukraine and Viet Nam, focusing on the incentivization of EIPs in policies/ regulations and the identification and implementation of EIP opportunities in selected industrial parks.

Component 2 (Global Knowledge Development) focusing on the development of specific EIP tools, providing methodological guidance and dissemination of good practices between GEIPP countries and lessons learnt from international experiences.

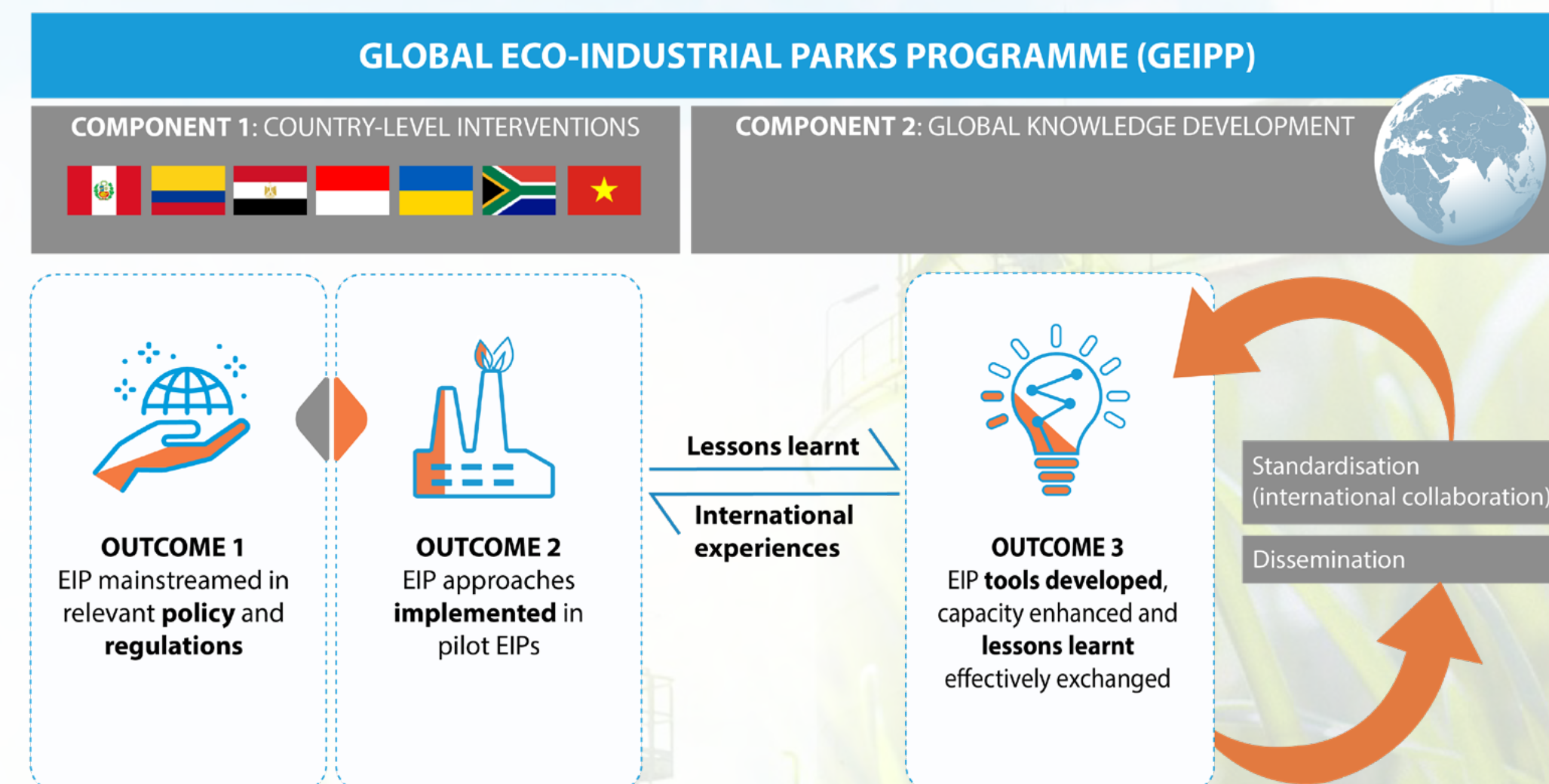
Funding

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Component 2 (Global Knowledge Development) focusing on the development of specific EIP tools, providing methodological guidance and dissemination of good practices between GEIPP countries and lessons learnt from international experiences.

UNIDO EIP Knowledge Hub

For more information about UNIDO's work on EIPs, including publications, a self-paced EIP online course and EIP tools in Mandarin, Spanish, Ukrainian and Arabic, visit the UNIDO EIP Knowledge Hub.





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Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
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Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Economic Affairs SECO



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A2F

Access to Finance

EIP

Eco-Industrial Park

GEIPP

Global Eco-Industrial Parks Programme

GIZ

Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (German Development Cooperation)

IP

Industrial Park

OH&S

Occupational Health and Safety

RECP

Resource Efficient and Cleaner Production

SDG

Sustainable Development Goal

SECO

State Secretariat for Economic Affairs of Switzerland

SME

Small and Medium Enterprise

UNIDO

United Nations Industrial Development Organization

WBG

World Bank Group





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Further Reading

Why?



Why is it important to work on Eco-Industrial Parks?

Eco-Industrial Parks: Creating Shared Prosperity and Safeguarding the Environment
(UNIDO, 2016).

https://bit.ly/EIP_SharedProsperityandEnvironment

Where?



Where do we stand regarding international EIP practices?

Global Assessment of Eco-Industrial Parks in Developing and Emerging Countries
(UNIDO, 2016).

<https://bit.ly/GlobalAssessmentofEIP>

What?



What do we mean with Eco-Industrial Parks?

An International Framework for Eco-Industrial Parks
(UNIDO, World Bank Group, GIZ, 2017, 2021).

<https://bit.ly/InternationalFrameworkforEIP>

How?



How do we implement Eco-Industrial Parks?

Implementation Handbook and Toolbox for Eco-Industrial Parks
(UNIDO, 2017, 2018).

<https://bit.ly/HandbookandToolboxforEIP>



How to operationalize the International EIP Framework?

Practitioner's Handbook for Eco-Industrial Parks –
Implementing the International Framework
(UNIDO, WBG, GIZ, MTIE, 2018).

<https://bit.ly/PractitionersHandbookforEIP>



How to do detailed planning of Eco-Industrial Parks?

Planning for Sustainable Industrial Parks
(GIZ, 2015).

<https://bit.ly/PlanningSustainableIP>



How to mainstream Eco-Industrial Parks?

Mainstreaming Eco-Industrial Parks
(WBG, Kicox, 2016).

<https://bit.ly/MainstreamingEIP>





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ONLINE LEARNING COURSE

UNIDO has developed a self-paced e-learning course on eco-industrial parks. It is aimed at public sector officials working on industrial policy and planning, industrial park managers, firms, innovation centers, academia etc. Participants learn about the key resources and tools available to support the identification, development, and implementation of EIP approaches in industrial parks.

Access to enrolment in the course is available here:



<https://hub.unido.org/training-modules-eco-Industrial-parks>.



CONTACT

For questions and technical advice on the implementation of EIPs, please feel to get in touch with us at EIP@unido.org or join the GEIPP LinkedIn Group here:



www.linkedin.com/groups/12397112/



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