



Toolkit for Eco-industrial Parks: INTERNATIONAL BEST PRACTICE

The eco-industrial park (EIP) concept is about creating more resource efficient and cost-effective industrial parks that are more competitive, attractive for investment, and risk resilient. The uptake of EIPs is rapidly increasing internationally and in South Africa.

The Global Eco-Industrial Parks Programme (GEIPP) demonstrates the viability and benefits of greening industrial parks by improving resource productivity and economic, environmental, and social performance of businesses.



LESSONS LEARNT FROM INTERNATIONAL EIP PROJECTS

The transformation of traditional industrial parks into EIPs is a step-by-step continuous improvement process. UNIDO has implemented EIP projects in multiple countries. Key learnings are shared in this factsheet.

SELECTING PARKS AND SCOPING EIP ACTIVITIES

The success of EIP projects depends strongly on the selection of most suitable industrial parks and subsequent fit-for-purpose and feasible interventions.

Success factors for selecting industrial parks to transform towards eco-industrial parks include:

- Upfront commitment and interest from park management;
- Work with industrial parks with the highest potential for success;
- Avoid working with industrial parks that pose significant risks;
- Collaboration and partnerships with other stakeholders;
- Integration or systems approach and shared facilities; and
- Create visible EIP success cases which can be replicated.

Success factors for scoping EIP activities in parks:

- Need to focus and to prioritize EIP interventions;
- Trying to do everything at once will not lead to success;
- Need for continuous improvement approaches;
- Address key challenges faced by the parks/companies; and
- Start with “low hanging fruit” opportunities.

PARK MANAGEMENT

In many industrial parks, park management provides “traditional” services to its tenants (e.g. leasing/selling, maintenance of utilities and infrastructure, and security services). However, there are many added value services park management could provide to tenants to increase productivity and competitiveness. These services should be based on the specific needs of tenants and could create additional revenue streams for the industrial park.

Industrial parks managed by Public Private Partnerships (PPPs) and the private sector tend to have higher EIP performance

levels than parks managed by the public sector. This illustrates that industrial parks perform better if they are run like a private business, rather than a government-managed initiative.

Success factors for EIP management are:

- Need for strong leadership and commitment;
- Pro-active marketing of EIP features and benefits;
- Extensive and inclusive stakeholder management;
- Business model to share and recover park level costs/ benefits; and
- Feasible and valuable infrastructure and services.

RESOURCE EFFICIENCY AND INDUSTRIAL SYNERGIES

Cleaner production (primary focus on individual companies) and industrial synergies (collaboration between companies) are complementary approaches. Both approaches can be applied in parallel in industrial parks to deliver economic benefits as well as savings in water, energy, and materials/ waste.

When applying resource efficiency and industrial synergies it is important to focus both on low-cost opportunities (to create “quick wins”), as well as investment opportunities with a clear business case.

Feasible distance is also a crucial factor as transportation can make up a significant proportion of the costs to enable industrial synergy.

Implementation of opportunities needs a favourable return on investment. Additional benefits may also include risk mitigation, improved productivity, and improved environmental and social performance.

Regulations can help improve efficiencies but can also be a barrier to industrial synergies if these by-products are classified as waste.

AWARENESS RAISING AND CAPACITY BUILDING

It is crucial to ensure that all stakeholders are informed of developments throughout the various stages of EIP development.

Every industrial park is unique, and therefore each park requires customized capacity-building activities. However, collaboration in international networks and platforms may provide valuable insights.

CONTRIBUTION OF EIPS TO SUSTAINABLE CITIES

Urban-industrial synergies are interlinkages and collaboration between companies in industrial parks and cities/ municipalities.

This means that work on EIPs can be extended beyond their physical boundaries to interact with neighbouring industries, other industrial parks, communities, and cities/ municipalities.

Over the next decade, these linkages are likely to become even stronger through the expansion of cities and new industrial trends (e. g. the circular economy, Industry 4.0).

Key contributions of EIPs to cities/ municipalities include:

- Common infrastructures/utilities servicing residential and industrial developments (e.g. wastewater treatment plants, power supply, waste collection);
- Processing, recovery, and recycling of the city’s waste by industry (e.g. old tires as fuel in cement plants); and
- Use of reprocessed products (e.g. recycled wooden products) and by-products from industries by surrounding municipalities (e.g. waste heat).

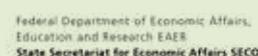
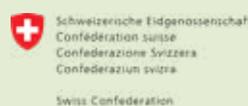
Local authorities will often make the final decision to develop urban industrial synergies based on local support or opposition to a park. Communities must be involved to ensure acceptance and that they will use services offered by the EIP.

An efficient waste collection system is an important success factor to enable effective urban industrial synergy solutions in cities. The local population may also have a strong influence on waste quality through separation at source.

SPATIAL PLANNING AND ZONING

The objective of EIP planning and zoning is to assist in the sustainable and integrated design and operation of industrial parks from an economic, environmental and community perspective. In short, the EIP concept and master planning are about creating more resource-efficient and cost-effective industrial parks which are more competitive, attractive for investment and risk resilient, and are integrated into regional planning and activities.

A master plan is one of the key minimum requirements for any EIP, including a thorough planning and zoning process. It should provide flexibility in the sustainable industrial development of the park and allow for the development of promising industry synergies identified.



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