

## Toolkit for Eco-industrial Parks: **WATER**

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.



## ADDRESSING WATER CHALLENGES THROUGH EIP APPROACHES

Addressing South Africa's water challenges through business-driven opportunities is very much part of the eco-industrial park approach, e.g. companies saving their water usage through resource efficient and cleaner production (RECP), and industrial and infrastructure synergies on water reuse and recycling.

### ADDRESSING WATER CHALLENGES IN SOUTH AFRICA

South Africa has an arid to semi-arid climate, with an average rainfall of 465 mm, half the world average.

There are several water challenges in the country, with a projected shortage of 17% in available water supply by 2030 if current practices are not adjusted.

Identified challenges as listed in the National Water and Sanitation Master Plan (25 February 2018) are as follows:

- Over 3 million people do not have access to basic water supply services;
- Over 14 million people do not have access to safe sanitation;
- More than half of wastewater and potable water treatment works are in a poor or critical condition - 11% of the infrastructure is completely dysfunctional;
- More than 50% of wetlands have been lost, and of those that remain, 33% are in a poor ecological condition;

- Only 5% of agricultural water is used by black farmers;
- 41% of municipal water does not generate revenue of which 35% is lost revenue through leakage; and
- Water is under-priced and cost recovery is not being achieved.

### ECO-INDUSTRIAL PARK APPROACHES IN WATER MANAGEMENT

Industrial parks can address some of the water management challenges identified by implementing eco-industrial park approaches, such as:

- Complying with local and international regulations and international water management practices;
- Investigating feasible water reuse options e.g. industrial effluent and/or by rainwater or storm water collection;
- Ensuring that the total water demand from firms in the industrial park do not have significant negative impacts on local water sources or local communities;

- Ensuring that industrial wastewater generated is treated to appropriate environmental standards;
- Monitoring the environmental performance of tenant companies on a regular basis; and
- Promoting water assessments for tenant companies.

Details on benchmarks of the International Eco-industrial Park Framework can be found at:

[www.openknowledge.worldbank.org](http://www.openknowledge.worldbank.org)



## WATER ASSESSMENT METHODOLOGY

A typical water assessment at company level, using RECP methodology, as developed by the NCPC-SA include:

- Initial environmental assessment, rating management procedures and identifying gaps;
- Process description and flow chart to show major areas and volumes of water usage;
- Pre-assessment identifying areas that are most important for improvement and savings opportunities;
- Billing systems and costs for purchasing water;
- Effluent discharge and costs associated with it;
- Identification of significant water uses by area of an operation (e.g. canteen) and by process (i.e. washing);
- Detailed assessment including water consumption data analysis against identified relevant variables that influence water consumption, using regression analysis methodology to evaluate the environmental performance and operating efficiency at the operation;
- Identification of water savings opportunities, water volumes and cost savings, investment costs, and simple payback periods; and
- Implementation plan.

## STANDARD OPERATING PROCEDURES DEVELOPMENT

Industrial parks, special economic zones and other industrial spaces in South Africa are faced with many challenges including capacity, funding, support, as well as social and economic issues.

In order to address this as part of the dtic's Industrial Park Revitalisation Programme (IPRP), Standard Operating Procedures (SOPs) are being developed.

These SOPs will form part of a toolbox that management entities or companies could use to ensure efficient and effective operation that would also provide economic, environmental, and social benefits.

As part of the SOPs, a water SOP has been developed between the GIZ and the dtic, known as the Water Stewardship SOP for industrial parks. This fits into the EIP programme under the IPRP, which focuses during its first phase on water, energy, and waste in industrial parks.

The water stewardship SOP provides a guide for users to better manage their water resources and can be adapted to suit specific local conditions.

### Key actors for implementing water stewardship

- Shared objectives
- Shared risk
- Mutually beneficial outcomes

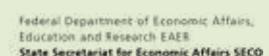
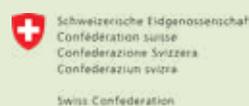


## GOOD PRACTICE EXAMPLES IN SOUTH AFRICA

The AEI Umbogintwini Industrial Complex (UIC) has two impoverished communities on its border that share a common river, which is also used for water provision of tenant companies at the UIC. The AEI Wise Wayz Water Care (WWWC) programme addresses water security as well as community employability.

The communities work together to protect the aquatic ecosystems. Through WWWC hundreds of beneficiaries have received training in subjects ranging from water safety to basic vegetable production. The programme not only ensures water security for the communities, but also clean water required for use by tenant companies at the UIC.

GIZ is working with Atlantis Special Economic Zone (SEZ) to develop a net-zero water concept and process analysis to outline opportunities for water use efficiency and water reuse, as well as examine the governance and institutional influences regarding uptake of net-zero water strategies.



The Global Eco-industrial Parks Programme (GEIPP) South Africa is being implemented from 2021 to 2023 through a collaboration between UNIDO, the Department of Trade, Industry and Competition (**the dtic**) and the National Cleaner Production Centre, South Africa (NCPC-SA). The GEIPP is made possible by funding from the Swiss State Secretariat for Economic Affairs (SECO).

