



**Sustainable Industrial Areas**  
INTERNATIONAL CONFERENCE

Addis Ababa | Ethiopia | 8th - 10th of April 2019

# Eco-Industrial Parks – an Instrument for Sustainable Industrial Transformation

International Conference

**Sustainable Industrial Areas**

Addis Ababa, Ethiopia | 8 - 10 April 2019



Implemented by  
**giz**  
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH



# The role of manufacturing in industrial transformation



Sustainable Industrial Areas  
INTERNATIONAL CONFERENCE  
Addis Ababa | Ethiopia | 8th - 10th of April 2019

## Trade Facilitation and Links to Services



**Trade**

Manufacturing accounts for 70% of global trade<sup>1</sup>



**Links to Service Sectors**

30% to 55% share of service sector jobs are in manufacturing<sup>2</sup>

## Innovation and Productivity



**Innovation**

Manufacturing drives innovation through the creation and transfer of technologies needed to maintain productivity<sup>3</sup>



**Productivity**

Manufacturing makes the largest contribution to total productivity growth. Share in EU-15 productivity growth ~ 37%<sup>4</sup>

## Research & Development and Adoption of Standards



**Research and Development**

The Manufacturing sector has performed more than 75% of total private sector spending in R&D <sup>3</sup>



**Standards**

Manufacturing facilitates the adoption of international standards and best practice as firms enter global value chains<sup>3</sup>

## Skills Development and Job Creation



**Skills**

Manufacturing fosters skills development and transfer as new skills are needed to operate, maintain and improve manufacturing processes and products<sup>3</sup>



**Jobs**

Manufacturing sector accounts for large numbers of higher skilled and higher paid jobs<sup>3</sup>  
In the U.S., Manufacturing has the highest wages (US\$ 81,289) across any private industry<sup>2</sup>

1. McKinsey: Manufacturing the Future report,2012  
2. Ibid

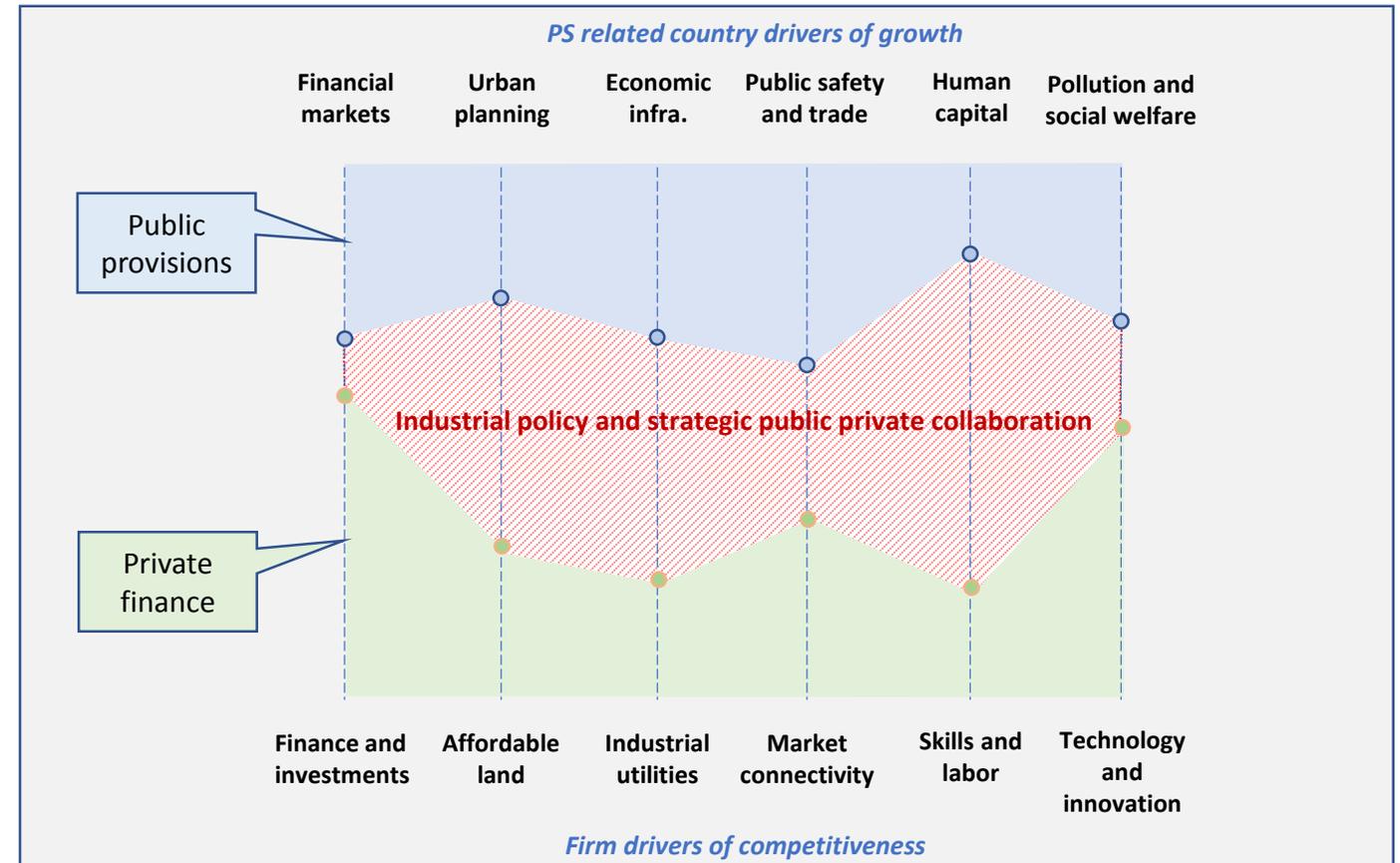
3. UNIDO Industrial Development report,2015  
4. Deloitte: Exponential Technologies in Manufacturing,2017

# Industrial parks as a policy tool for competitiveness



- Industrial parks act as a policy tool for governments to more efficiently influence firm drives of competitiveness
- Understanding the way sectors perform in markets helps define the policy constraints
- Most parks have failed when not based on private sector principles and oriented towards providing business services
- What type of industrial park framework a government chooses depends on the main sectors of growth and the related drivers that they intend to influence
- Increased alignment of public and private interest helps improve mobilization of capital from the private sector

**Example of Private Sector Development Eco-System**



# Industry transformation



Economic growth requires a new look on how firms operate in markets within an ever changing marco-economic framework

## Drivers of transformation

	National	Industrial park	EIP
<p><b>Export driven growth</b> Export orientation requires more complex products and compliance with international requirements</p>	<p>Support sectors of growth. Ensure overall links with</p>	<p>Export facilitation and enhanced linkages</p>	<p>Compliance with export requirements. Sustainability standards.</p>
<p><b>Innovation and R&amp;D</b> Ensures local capability to innovate and increase complexity of products.</p>	<p>Efficient innovation and R&amp;D support. Ecosystem support</p>	<p>Link with local and regional innovation. Onsite common facilities</p>	<p>Drive green innovation. Sustainability as driver towards innovative products and processes</p>
<p><b>Full competition</b> Ensuring even playing field and no distortions improves true competition.</p>	<p>Competition in local market. Eliminate distortions</p>	<p>Ensure access and linkages to local markets. No distortionary measures.</p>	<p>E&amp;S performance above national level. Contributing to natural resource improvements</p>

# Global market demand for green product is rapidly increasing.



- **5.12 trillion USD** is the estimated global market size for low carbon environmental goods and services (Source: EU Commission, UK Department for Business, Innovations and Skills, 2012)
- **66%** of 30,000 global respondents (from 60 different countries) were willing to pay more for sustainable goods, up from 55% in 2014.
- **62% of 250 top business executives** declared that sustainable investments are motivated by consumer expectations for green products (Accenture 2012).



## Global buyers are taking sustainability seriously.



Use of new material made with 50% of recycled leather fiber to reduce water usage and carbon footprint, Reducing scraps from leather production, phase out all hazardous chemicals from supply chain by 2020. Introduce sustainability index to evaluate all suppliers.



Develop textile recycling technologies; responsible use of water in the value chain, switching to renewable electricity, signed the "Transparency Pledge" and developed a customer-facing transparency layer where their online customers can see sustainability information, such as types of materials are used, or in which factory the product.



"Sustainable Living Plan" Initiative: Halve the GHG impact of products across the Supply chain life cycle. Unilever's most sustainable brands grew 46% faster than the rest of the businesses and delivered 70% of its turn over growth



Nike Flyleather, 2018

## Green production increases industrial competitiveness.

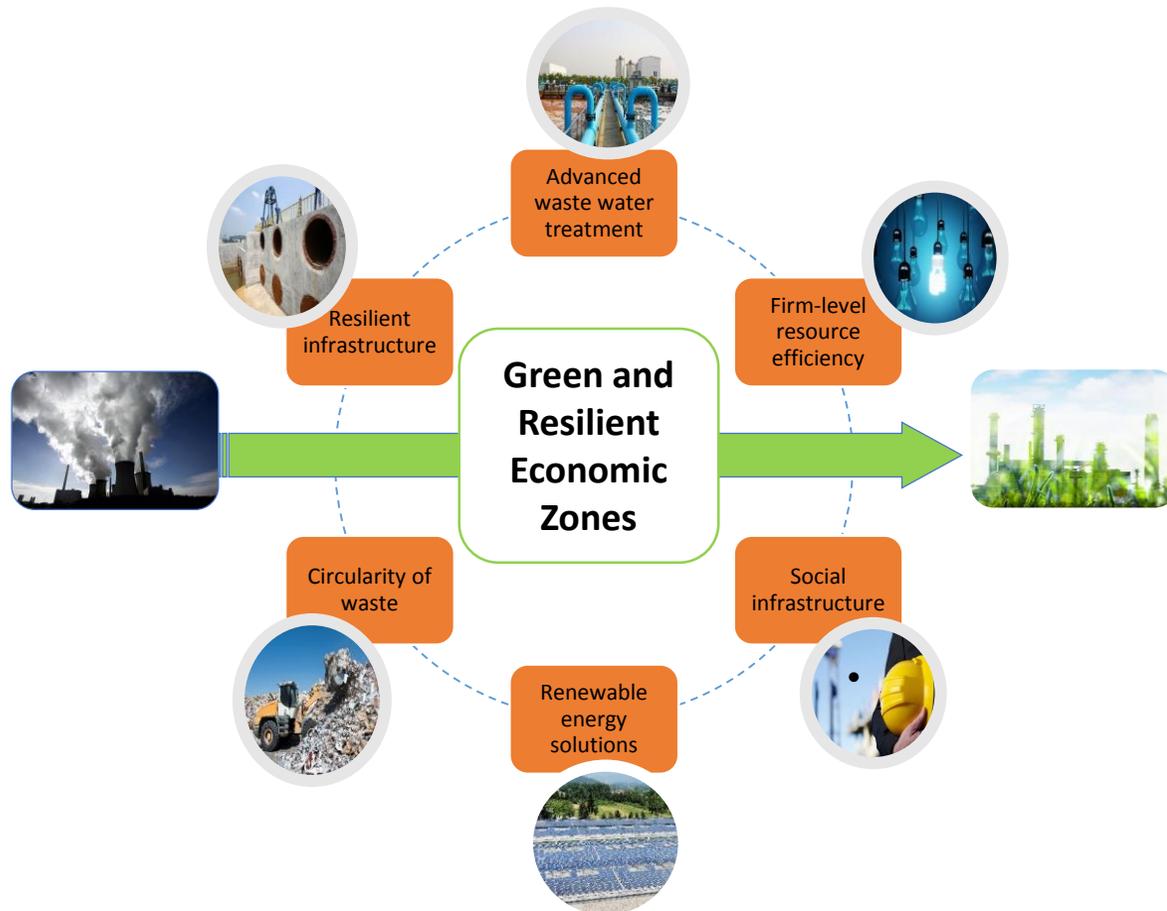
Through energy savings, decarbonizing actions generate **positive returns on investment**, averaging **33%** - well beyond the cost of capital (typically 8-12%) (CDP Carbon Action Report, 2013)

# WBG's approach to Green and Resilient Economic Zone



Sustainable Industrial Areas  
INTERNATIONAL CONFERENCE

Addis Ababa | Ethiopia | 8th - 10th of April 2019



## Eco-industrial parks

- “Ensures sustainability through the integration of social, economic, and environmental quality aspects into its siting, planning, management and operations.” - *International Framework For Eco-Industrial Parks*. UNIDO, World Bank Group and GIZ (2017)

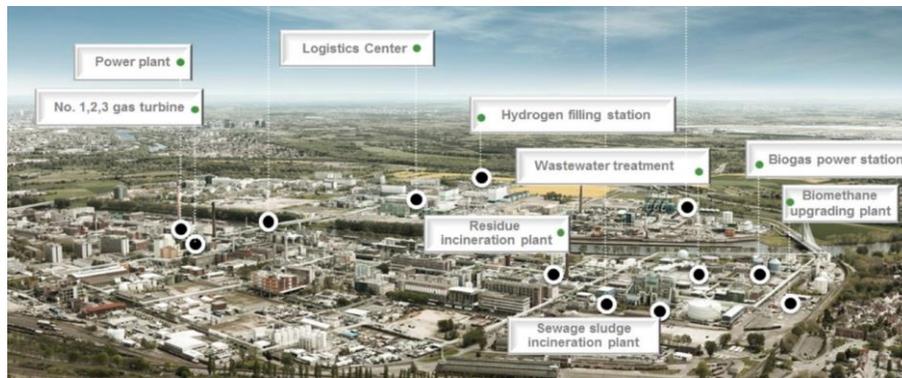
## Green and Resilient Economic Zones

- Minimize loss and damage associated with climate change impacts and natural disasters on industrial zones.
- Build resilient infrastructure and retrofit existing ones to promote sustainable industrialization and foster innovation.
- Create synergies between mitigation and adaptation measures to address the demands for sustainable development and impact of climate change simultaneously (e.g. water efficiency measures addressing water scarcity issues, industrial symbiosis, energy resilience and efficiency).

# Green and Resilient EZs are in line with the latest global trend

- The number of EIPs is rapidly growing (appr. 300 self-defined EIPs globally)
- Global demand for more climate-friendly products and climate-sensitive supply chains is increasing

## Examples of industrial parks with innovative sustainability measures



### Höchst Industrial Park (Germany)

**Competitiveness:** Generated 6.65 bln Euro investment; 22,000 jobs created.

**Environmental Performance:** Increased investment one of the largest industrial wastewater treatment plants (WTP) in Germany, with a state-of-the-art two-stage activated sludge process.

**Management:** With its extensive portfolio of services, Infracore Höchst assists the companies achieving their environmental goals. Services include permit procedures, audits and management systems, remediation management, water protection, emission control.

### Padova Industrial Park (Italy)

**Competitiveness:** 1,500 companies operating.

**Environmental Performance:** Increased investment in green infrastructures through 18% of the park is dedicated to green areas (19,000,000 sqm). On-site energy generation from renewable energy sources.

### Ulsan Eco-Industrial Park (Korea)

**Competitiveness:** Gov. Investment of \$14.8 million. Income: \$65 million / year from selling by-products and waste for recycling. Additional \$78.million /year generated from energy and material saving (2016).  
**Environment:** Energy saving (280,000 tones of oil eq.), reduced CO2 emissions (665,712 tons) and water consumption (80,000 tons) through industrial symbiosis

**Management:** KICOX oversaw the overall planning, budget accounting, approval of EIP project proposals, in liaison with government bodies and regional EIP centers.

# Resilience measures adopted in leading industrial parks

## Upgrading disaster defense infrastructure / Regulatory reforms to promote advanced defense infrastructure

- Upgrade of technical standard for port facility near industrial parks to incorporate lessons learned from the earthquakes (Japan)
- Improving technical standards to promote resilient flood protection investment in industrial park infrastructure (Thailand)
- Modifying industrial zoning regulations to facilitate retrofit / construction of flood-resilient infrastructures including warehouses (U.S. NYC)
- Flood protection upgrades for industrial park infrastructure and facilities (Japan: Fujishiro park, U.S.: NYC Resilient Industry Initiative)

## Enhancing operational resilience of firms and infrastructures within and surrounding industrial parks

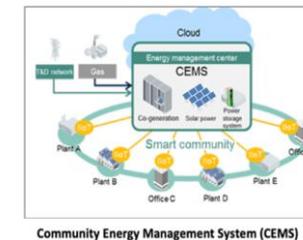
- Area-BCP for the industrial parks (Japan: Akemi Industrial park)
- Installation of microgrids in industrial parks (Japan: F-grid project)
- Emergency plans piloted in the industrial parks (India: Telangana, Viet Nam: Hoa Khanh Industrial Zone in Danang)

## Improving evidence-decision making for resilient infrastructure investment

- Climate risk assessment conducted for industrial parks in Telangana (India)
- Additional investment decision-making based on rapid damage assessment of industrial zones in the aftermath of the earthquake (Haiti)

## Providing safety net and financial support for SMEs operating within the industrial park

- Establishment of the National Catastrophe Insurance Fund (Thailand)
- Disaster Risk Financing for SMEs (Morocco)
- GRiF for ensuring continuity of critical industrial infrastructure



Community Energy Management System (CEMS)



Plug-in hybrid vehicles providing 50kW back-up power



System diagram of F-grid project in Miyagi Prefecture, Japan

# On-going WBG's similar projects

## Turkey



## Green Organized Industrial Zones (WBG)

- **Project owner:** Ministry of Science , Industry and Technology
- **Implementation timeframe:** Jan 1, 2016 – June 30, 2020
- **Budget set for Tech. Assistance:** \$1,335,000 (Lending estimate: \$ 500 million)
- **Objective:** To boost competitiveness and move the manufacturing sector of Turkey on a sustainable path through the implementation of an national EIP framework
- **Outcome:** Developed a National Green OIZ Framework
- **Recent progress:** Opportunity to link Technical Assistance (TA) to WB lending operation and IFC investment

## Vietnam



## Eco-industrial park initiative (WBG & UNIDO)

- **Project owner:** Ministry of Planning and Investment of Viet Nam
- **Budget set for Tech. Assistance:** \$1,000,000 (Lending is still being defined)
- **Implementation timeframe:** 3 years
- **Objective:** Aims to transfer the existing industrial zones into eco-industrial parks through clean and low-carbon production technologies to minimize GHG emissions, POPs releases and water pollutants, while enhancing energy and resource efficiency.
- **Outcome:** The Government of Vietnam issued Decree No. 82”) in 2018 to regulate the management of industrial zones (IZ) and economic zones (EZ) based on the technical findings and guidelines provided by WBG and UNIDO.
- **Recent progress:** The Manual on “Prevention, preparation and response to environmental disasters from industrial zones” is also being developed.