Eco-Industrial Parks – an Instrument for Sustainable Industrial Transformation

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The role of manufacturing in industrial transformation

Trade Facilitation and Links to Services

Manufacturing accounts for 70% of global trade

Links to Service Sectors

30% to 55% share of service sector jobs are in manufacturing

Innovation and Productivity

Manufacturing makes the largest contribution to total productivity growth. Share in EU-15 productivity growth ~ 37%

Research & Development and Adoption of Standards

The Manufacturing sector has performed more than 75% of total private sector spending in R&D

Research and Development

Manufacturing facilitates the adoption of international standards and best practice as firms enter global value chains

Standards

Skills Development and Job Creation

Manufacturing fosters skills development and transfer as new skills are needed to operate, maintain and improve manufacturing processes and products

Skills

Manufacturing sector accounts for large numbers of higher skilled and higher paid jobs

Jobs

In the U.S., Manufacturing has the highest wages (US$ 81,289) across any private industry

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

**Drivers of transformation**

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<th>National</th>
<th>Industrial park</th>
<th>EIP</th>
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<tr>
<td>Export driven growth</td>
<td>Support sectors of growth. Ensure overall links with</td>
<td>Export facilitation and enhanced linkages</td>
<td>Compliance with export requirements. Sustainability standards.</td>
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<td>Export orientation</td>
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<td>Innovation and R&amp;D</td>
<td>Efficient innovation and R&amp;D support. Ecosystem support</td>
<td>Link with local and regional innovation. Onsite common facilities</td>
<td>Drive green innovation. Sustainability as driver towards innovative products and processes</td>
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<td>Full competition</td>
<td>Competition in local market. Eliminate distortions</td>
<td>Ensure access and linkages to local markets. No distortionary measures.</td>
<td>E&amp;S performance above national level. Contributing to natural resource improvements</td>
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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.

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<th>Nike Flyleather, 2018</th>
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<td>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 turnover growth.</td>
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| H&M |

| Unilever |

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

Eco-industrial parks


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).

Source: An International Framework for Eco-Industrial Parks
Available: https://openknowledge.worldbank.org/handle/10986/29110
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

**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)**
Environmental: Energy saving (280,000 tonnes 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.

**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, Infraserv Höchst assists the companies achieving their environmental goals. Services include permit procedures, audits and management systems, remediation management, water protection, emission control.
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: Telengana, 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
## On-going WBG’s similar projects

<table>
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<tr>
<th>Country</th>
<th>Project Description</th>
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<tr>
<td><strong>Turkey</strong></td>
<td><strong>Green Organized Industrial Zones (WBG)</strong></td>
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<td>• <strong>Project owner:</strong> Ministry of Science, Industry and Technology</td>
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<td>• <strong>Implementation timeframe:</strong> Jan 1, 2016 – June 30, 2020</td>
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<td>• <strong>Budget set for Tech. Assistance:</strong> $1,335,000 (Lending estimate: $500 million)</td>
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<td>• <strong>Objective:</strong> To boost competitiveness and move the manufacturing sector of Turkey on a sustainable path through the implementation of an national EIP framework</td>
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<td>• <strong>Outcome:</strong> Developed a National Green OIZ Framework</td>
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<td>• <strong>Recent progress:</strong> Opportunity to link Technical Assistance (TA) to WB lending operation and IFC investment</td>
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<td><strong>Vietnam</strong></td>
<td><strong>Eco-industrial park initiative (WBG &amp; UNIDO)</strong></td>
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<td>• <strong>Project owner:</strong> Ministry of Planning and Investment of Viet Nam</td>
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<td></td>
<td>• <strong>Implementation timeframe:</strong> 3 years</td>
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<td></td>
<td>• <strong>Budget set for Tech. Assistance:</strong> $1,000,000 (Lending is still being defined)</td>
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<td>• <strong>Objective:</strong> 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.</td>
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<td>• <strong>Outcome:</strong> 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.</td>
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<td>• <strong>Recent progress:</strong> The Manual on “Prevention, preparation and response to environmental disasters from industrial zones” is also being developed.</td>
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