Corporate environmental management through industrial clusters in China

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Industrial clusters, industrial parks and industrial development

産業クラスター、工業団地と産業開発

Industrial clusters
Geographical agglomeration of firms and ancillary units engaged in the same sector or activity
Generates significant economic gains - External Economies, Collective Joint Action

National 194
Provincial ~1300
Others ~ 3000
Eco-industrial parks

An Eco-Industrial Park is a community of manufacturing and service businesses located together on a common property. Members seek enhanced environmental, economic, and social performance through collaboration in managing environmental and resource issues. (Eco-industrial Park Handbook)

Win-Win solution at industrial Parks

The biggest national experiment in EIPs – CHINA

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1978</td>
<td>Reform &amp; open policy</td>
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<td>1984</td>
<td>Economic &amp; Tech Development Zone</td>
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<td>1992</td>
<td>High-tech Industrial Parks</td>
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<tr>
<td>2001</td>
<td>MEP Pilot EIPs</td>
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<td>2003</td>
<td>EIP Guidelines; Cleaner production promotion law</td>
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<td>2005</td>
<td>To fasten circular economy development</td>
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<td>EIP Tech. Standards</td>
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<td>Regulation on EIP management</td>
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<tr>
<td></td>
<td>EIP: TEDA, Suzhou IP, Suzhou High-tech Park</td>
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<td>2010</td>
<td>Circular economy promotion law</td>
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<td></td>
<td>EIP: Wuxi High-tech Park, Yantai EDA, Weifang EDA</td>
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EIP – from strategic niche to mainstream development
EIPー戦略隙間から発展主流へ

- Technological trajectory (path dependency)
- Spaces for experimentation, to open windows for tech., information, funding
- Government as enabler, a powerful recruitment group is important
- Regional competitiveness

EIPs provide new opportunities for CEM
EIPがCEMへの新しい機会を提供

- Geographical agglomeration of firms and ancillary units
- Generation of significant economic gains - external Economies, collective joint action
- Waste exchanging
- Cascading usages of energy, water and material
- Infrastructure sharing
- Social embeddedness
Success stories – CRT cluster
成功事例 – CRTクラスター

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Success stories – Biodesulfurization
成功事例：バイオ脱硫システム

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Success stories – Heat and power cogeneration
成功事例 - 熱と電力同時供給システム

To replace 36 boilers in 18 companies;
To save fuel oil 582t/h
To reduce SO₂ 22,000 tons

Some problems remained for CEM in EIPs
EIPsにCEMについて残っている問題点

- Low capacity on eco-innovations;
- Weak economic incentives, especially ignorance of market rules due to strong governmental behavior;
- lack of information platforms
- Institutional issues
- Legal issues
Unsuccessful stories

- H2 and CO2 exchanging between coking plant and methanol plant;
- Steam and water exchanging among plants;
- Industrial collapse due to withdrawn of key plants
- ...

O/Rourke et al (1996): A large gulf separates descriptions of what industrial ecology can be, and specific examples and strategies for implementing industrial ecology

EIP can be considered as industrial parks’ eco-innovation. The valley of death also exists.
Policy implications  政策の含意

➢ Consequences for governance (local cluster governance and chain governance)
➢ Consequences for local upgrading
➢ The double externality problem
➢ The regulatory push/pull effect
➢ The increasing importance of social and institutional innovation

Thanks for your attention!

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