Ulsan Eco-industrial Park Projects

June 29, 2016

Hung Suck Park

Professor, Department of Civil and Environmental Engineering, UOU, ROK
Director, Center for Clean Technology & Resource Recycling, UOU, ROK
Eco-industrial Park

Concept

- Efficient sharing • use of resource (information, material, water, energy, infrastructure, habitat, etc)
- Minimization of environmental impacts
- Ecosystem development with circulation and exchange of material and energy

Strategy

Effect

- Economic, environmental and social benefits for sustainable development
Type of EIP

- New Development
  - Green Field Development
- Retrofication of Existing Industrial Park
- Redevelopment
  - Brown Field Development
5W1H Questions for Eco-industrial Park

- **When**: Sustainability is needed
- **Why**: Business and Environmental Competitiveness
- **Who**: Facilitator, Supplier, Recipient and Stakeholders
- **What**: IS Network Expansion by Value Creation
- **Where**: Industrial park, City and Region
- **How**: Research and Development into Business
  (Collective Innovation, Collaboration, Investment)
Ulsan EIP Transitions by IS networks Expansion

Phase 1: Establishment of Ulsan EIP center
- Selecting the champion of the project
- Setting up the EIP team
- Data collection

Phase 2: Symbiosis identification
- Network Searching
  - Top down network searching by EIP team
  - Bottom up network searching by diverse synergy forums
- Recruiting potential partners
- Feasibility investigation
- Business model development

Phase 3: Symbiosis implementation
- Negotiation and contract (MOU)
- Facilities and infrastructure design and construction
- Maintenance and continuous support to synergy projects
Ulsan EIP Center: Project Management
(R&DB Consortium in Collaboration with Local Government)
Project Financing Source

Central Gov.(70%) & Local Gov.(20% : matching), Private Co.(10% : participation fee)

Process

Identification → Feasibility study → IS business Implementation
Stepwise Expansion by Business Model

[Diagram showing various plants and their capacities with arrows indicating expansion steps and flow of materials.]

- **[step 1]**: Sung-Am #1 incineration plant (35 Ton/h, 16 kg/cm²)
- **[step 2]**: Sung-Am #2 incineration plant (25 Ton/h, 16 kg/cm²)
- **[step 3]**: Hyosung #1 Yongyeon plant (25 Ton/h, 16 kg/cm²)
- **[step 4]**: Hyosung #2 Yongyeon plant (25 Ton/h, 16 kg/cm²)
- **[step 5]**: Hyosung #3 Yongyeon plant (25 Ton/h, 16 kg/cm²)

- **SK Energy**
- **SK Chemical**
- **SKC**
- **Hyosung #1 Yongyeon plant**
- **Sung-Am #2 incineration plant**
- **Sung-Am #3 incineration plant**
- **Eastman**
- **Hansol EME**
- **Korea PTG**
- **Hanhwa Chemical**
- **KP chemical**
- **Hanzhao Chemical**
- **Eastman**
- **SK Chemical**
Urban Symbiosis in Ulsan City

- Water Treatment & Biogas Plant
- Power Plant
- Ulsan Port
- Ulsan Municipality
- Ulsan Industrial Complexes
- Incineration Plant for Municipal waste
Lessons learned

1. Vision and Consensus
2. Public and Private Collaboration
3. Competitiveness and Sustainability Strategies
4. Customized EIP and EID Strategies
5. Continuous Improvement

Future Direction

1. From EIP Projects to EIP Development
3. International Collaboration
Thank you

Professor, Dept Civil & Environmental Eng.
University of Ulsan
93 Dehakro, Nam-Gu, Ulsan, Korea 680-749
Tel: 052-259-1050
Fax: 052-221-0152
E-mail: parkhs@ulsan.ac.kr