Creating Low-Carbon Industrial Parks/Zones

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Outline Presentation

Facts of Indonesia

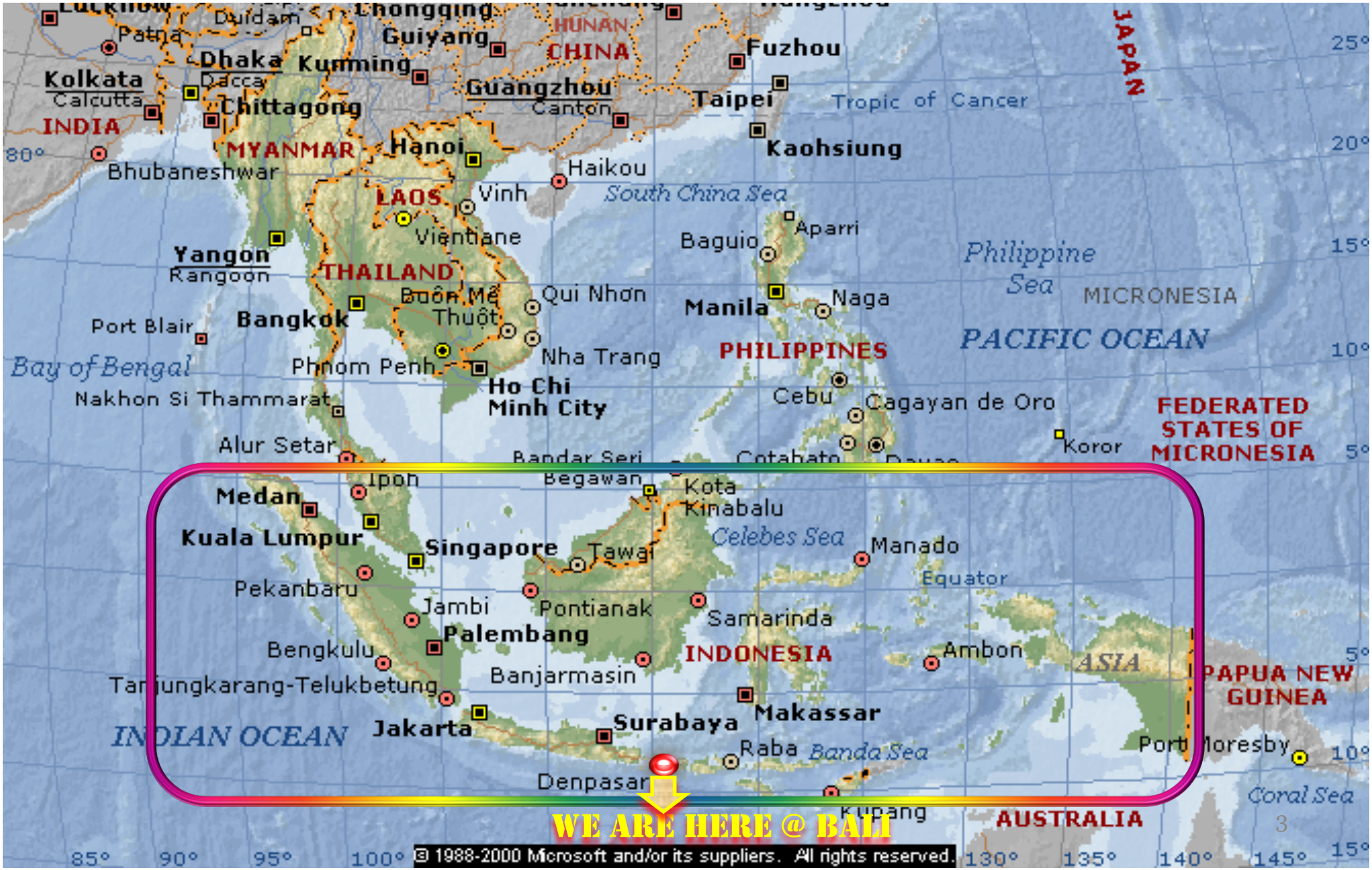
Current Status & Projects of JCM

Progress of the Networking Activities Future Steps

Potential of JCM Projects in Indonesia

FACTS OF INDONESIA

INDONESIA & NEIGHBOURING COUNTRIES



INDONESIA

Some facts & statistics:

- 17,508 islands
- The biggest moslem country
- About 280 million inhabitants (85% moslem)
- 336 different ethnic
- 500 languages & dialects
- lies between two oceans
  (Indian & Pacific) and two continents (Asia & Australia)
- West-east 5150 km, North-south 2000 km
- 81% of Indonesia is sea area

NATURAL BEAUTY OF INDONESIA

Indonesia Joint Crediting Mechanism (JCM) Secretariat

Started from 2010 and it was formally signed at August 2013

Established by the Coordinating Ministry of Economic Affairs of the Republic of Indonesia in February 2014 to help manage the implementation of JCM activities between Indonesia and Japan.

10 Joint Committee (JC) members from Indonesia, 8 from Japan. JC meeting is every 6 months.

Indonesia JCM Secretariat
BUMN Building 18th floor, Jl. Medan Merdeka Selatan 13, Jakarta
Website: www.jcmindonesia.com
Email: info@jcmindonesia.com

The JCM projects current development in Indonesia

The Feasibility Study (FS)

- **75 FS** have been done in 2010-2013 on 13 sub sectors.
- **21 FS will be finished on February 2015**, including 3 FSs that cooperate with local government (one of it is Bandung FS project).

The Project Implementation

- 11 JCM projects are now in our pipeline.
- 1 project is withdraw
- **1 project is registered as a JCM project**.
- 9 projects on energy efficiency and 2 projects on renewable energy.
- All of the projects are being developed with the cooperation between Indonesia and Japan participants.

The Registered Project

Energy Saving for Air Conditioning & Process cooling by Introducing high efficiency centrifugal chiller.

First registered project under the JCM.

List of JCM implementation projects

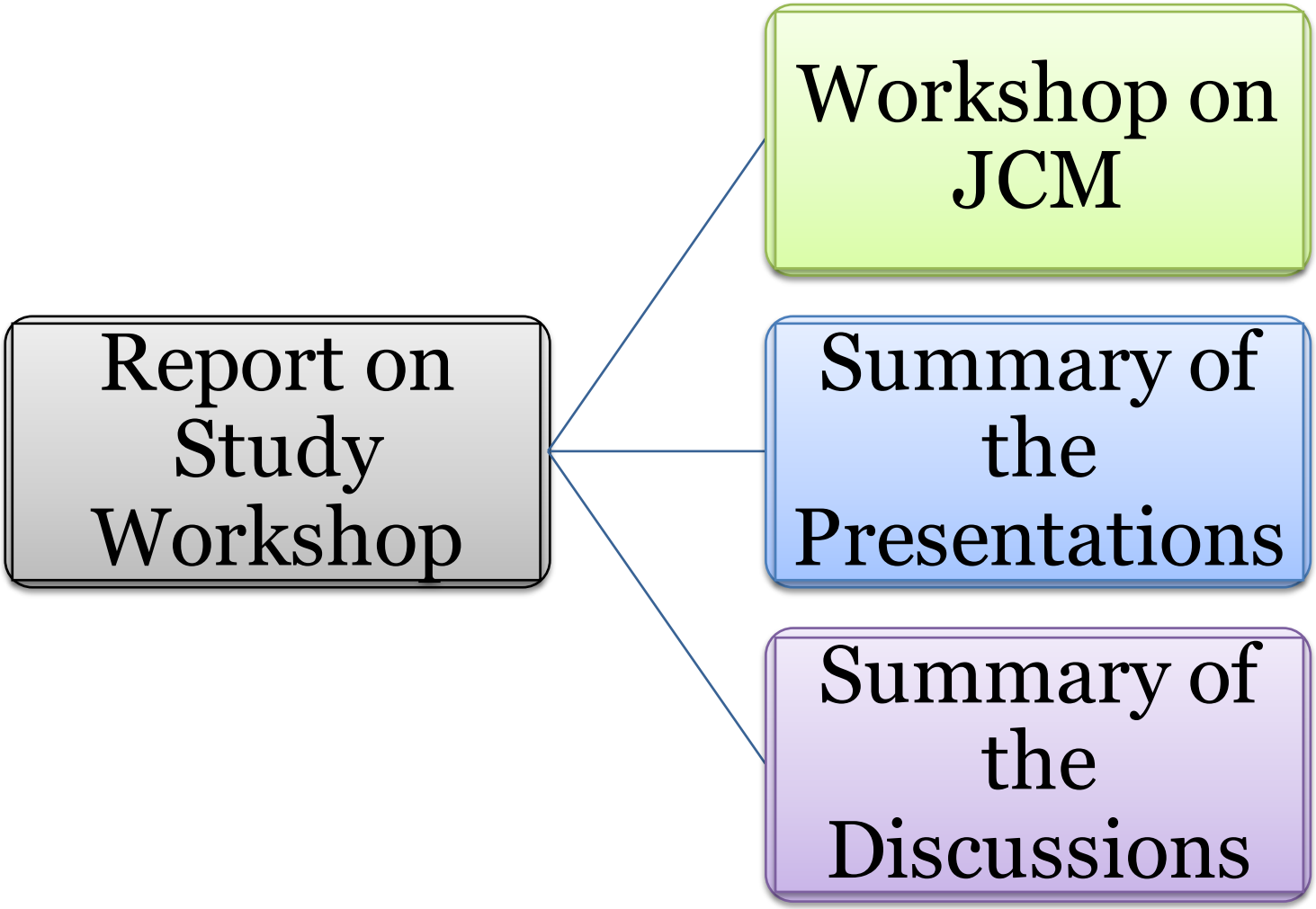
Num.	Project Names	Estimated Emission Reduction (ton CO2/year)	Capacity/estimated energy saving
1.	Energy saving by double bundle-type heat pump at beverage plant	585	
2.	Energy saving for air-conditioning at textile factory	592	799 MWh
3.	Energy saving for air-conditioning and process cooling at textile factory	715	965 MWh
4.	Energy Savings at Convenience Stores	33.1	39 MWh
5.	Energy Efficient Refrigerants to Cold Chain Industry	213	288 MWh
6.	Energy Saving by Optimum Operation at Oil Refinery	3,400	
7.	Utility Facility Operation Optimization Technology - "RENKEI" Control	58,000	800 MWh
8.	Energy saving through introduction of regenerative burners to the aluminum holding furnace of the automotive components manufacturer	855.6	
9.	Energy saving for textile factory facility cooling by high efficiency centrifugal chiller	104	92.4 MWh
10.	Remote Auto-Monitoring System for Thin-Film Solar Power Plant in Indonesia	1,432	1 MW
11.	Power generation by waste heat recovery in cement industry	122,000	30,4 MW
12.	**Palm waste biomass power generation project**	**28,128**	**5.7 MW**
13.	Solar power hybrid System installation to existing base transceiver stations in off-grid area	2,786	18 KW

Registered

Withdraw

Source : JCM Secretaiat Indonesia

Progress of Networking Activities



Workshop on JCM

It was held on **January 19th, 2015** at the Centre for Environmental

Number of **participants were 20** person, respectively

✓Ministry of Environment and Forestry - (Speaker)
✓Secretariat JCM Indonesia - (Speaker)
✓Bogor University of Agriculture (IPB) - (Speaker)
✓Ministry of Energy and Mineral
✓Institut Teknologi Sepuluh November in Surabaya , East Java (ITS)
✓University of Indonesia
✓University of Lampung
✓Agency for Assesment and Application of Technology (BPPT)
✓Local Government: West Java Province
✓Palm Oil Mills (Wilmar group)

Summary of The Presentations

"3E Nexus Initiative"

Main points :

- 3E nexus willing to **build a sustainable low carbon society** and to carry out capacity development to **establish a domestic network** in the partner countries

- The role of 3E nexus secretariat and their operational

Ministry of Environment and Forestry

Topic on

The regulation regarding the clean development mechanisms in Indonesia

Main points

- **National Policies** on Climate Change in Indonesia
- **Implementation of National Policies**
- **Sign Center in MoEF**, and related ministries for the inventory regulation
- **Piloting of MRV** for RAD GRK (GHGs Reduction; Local Action Plan) started last year. The RAN GRK (GHGs Reduction; National Action Plan), RAD GRK and NAMAs (Nationally Appropriate Mitigation Actions) are owned by the government, but to include the private sector, it is beyond the control of government. Limited action of private sector in this process, even though the number of JCM projects in Indonesia is higher than other countries.

JCM Secretariat Indonesia

Topic on

The Current Development of the JCM Mechanism in Indonesia

Main points

- JCM was made as a post-Kyoto framework
- JCM scheme – needed 3 years to develop, start implement on 2013
- 10 Joint Committee (JC) members from Indonesia, 8 from Japan. JC meetings: every 6 months
- How JCM works – PDD submitted by Japanese and Indonesian companies, Joint Committee (JC) decides which ones are acceptable
- All of the FS results must be sent to the government. Total 96 FS completed done so far. FS includes local governments, local universities. 11 JCM projects are now being implemented (+1 withdrew)
- Only 1 project registered = verified
- 2 types of JCM projects – Model projects (financed by MoE Japan, can receive up to 50% of credit), Demonstration projects (financed by METI, can utilize 90% of the credit)

Bogor University of Agriculture

Topic on REDD + in Indonesia

Main points

- Activities of **REDD+** in Indonesia
- **Key Policies, strategies and Action Plan**
- **Indonesian FREL** (Forest Reference Emission Level)
- Establish for national level MRV method, and use a sub-national approach
- REDD activities implemented in a defined geographical area
- Country can start REDD activities at any level and then scale up to a national approach, sub-national level reference level would be decided for each activity

Summary of the discussion session

- The project is the 3E Nexus Initiative, to work towards low-carbon society sustainable development through energy, environment, and ecosystems
- Discussion of this meeting: about the difficulties, potentials of JCM, etc. in Indonesia and also how to expand the network in countries
- The Indonesia JCM Secretariat interests is how to develop a mechanism that will be accepted by the UNFCCC.
- Using JCM: to enhance academic network, increase capacity of academicians, how should we collaborate to make a more sustainable society.

Summary of the discussion session

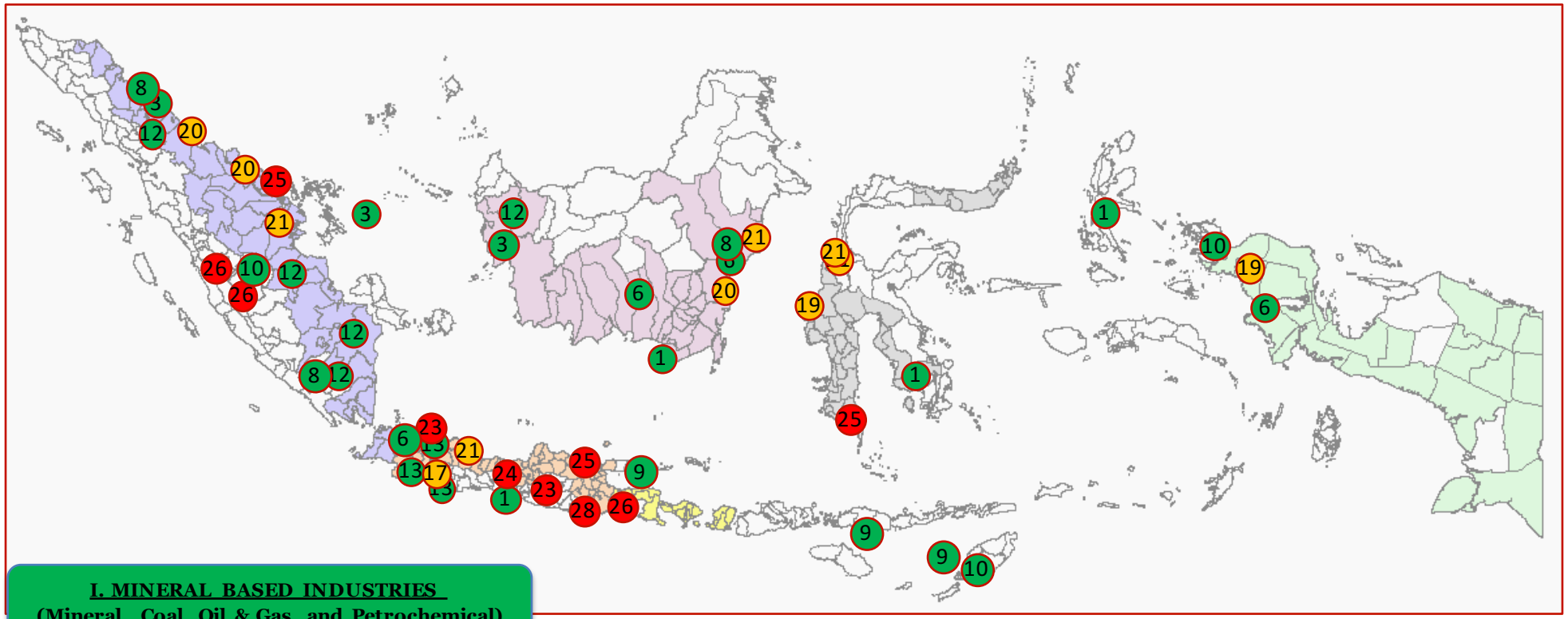
- The role of academician/scientist is very important on network for the JCM how to transfer the technology, deliver knowledge/capacity, to promote academic-policy dialogue, to create sustainable society locally and globally.
- First step that could be done in this project is to do the feasibility study, to prioritize technology/action and then conduct feasibility study. National Committee on Climate Change has done technologies assessments for mitigation in many different sectors.
- The Indonesia JCM Secretariat would like to have the list of experts and list of competencies that are ready to help with JCM projects or companies in the JCM process.

Potential and Challenges for JCM Projects

- Based on our expertise the potential for JCM Projects in Indonesia:
- **Creating low-carbon industrial parks/zones using schemes of:**
  - Energy efficient appliances and use of energy service companies project scheme.
  - Decentralized stand-alone renewable energy projects
  - Low-carbon waste management projects such as waste reduction, best disposal method, etc.
  - Low-carbon water-saving water systems (drinking and sewage) including effective use of water resources, water pollution prevention, etc.

FUTURE STEPS

INDUSTRIAL DEVELOPMENT PLAN



I. MINERAL BASED INDUSTRIES
(Mineral, Coal, Oil & Gas, and Petrochemical)

1. Base Steel Manufacturing and Refining
2. Non Iron base Manufacturing and Refining
3. Metal Forming
4. Metal for Strategic Industries
5. Rare Metal Manufacturing and PGM
6. Petrochemical
7. Organic Chemical
8. Fertilizer
9. Salt
10. Cement
11. Synthetic Resin and Plastic Materials
12. Synthetic Rubber
13. Textile Fibre
14. Chemical Industry
15. Plastics, Rubber Processing and Products of Rubber
16. Pharmaceutical Industry and Medicine

II. AGRO BASED INDUSTRIES

17. Food
18. Fresheners
19. Feed
20. Industri Oleo food, Oleo chemical dan Non Food Chemical Industry
21. Forest products and plantation Processing

III.HR & TECHNOLOGY BASED INDUSTRIES

22. Machinery
23. Textile and Apparel
24. Laboratory and Medical Device
25. Transportation
26. Leather and Footwear Industry
27. Electrical Equipment
28. Electronics and Telematics

IV. ENHANCING ROLE OF SME'S

Primarily to strengthening industrial structure by increasing linkages between large industry and SMEs.

LOCATION: IN ALL INDONESIA.

Source: Ministry of Industry

THE ROLE OF INDUSTRIAL SECTOR ON NATIONAL ECONOMY

CONTRIBUTION TO GDP

Industrial sector is the biggest contributor of GDP i.e. **23,93%**, with growth rate at **5,78%** (BPS-Statistics Indonesia, 2014)

TOTAL INDUSTRY

- 23,941 Large and Medium Scale Industries
- 3.418.366 Micro and Small Scale Industries

JOB OPPORTUNITIES

Industrial sector employs **14,8 million** manpower. **Micro and small scale** industry: **10,3 million (70%), middle scale: 700 thousand (5%)** and **large scale: 3,8 million (25%)** (Ministry of Industry, 2014)

Source: Ministry of Industry

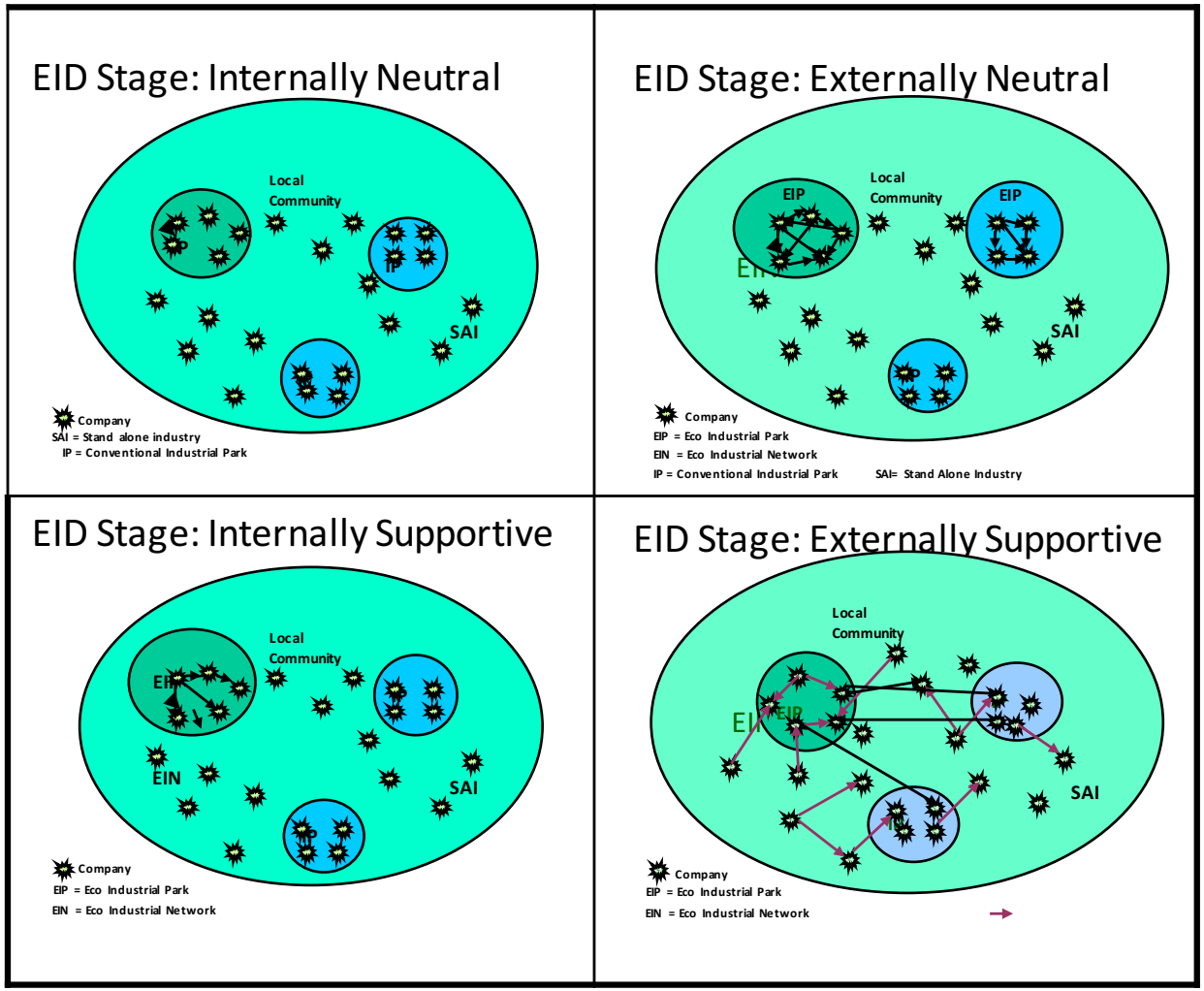
INDUSTRIAL PARKS IN INDONESIA

Data of 2013 (HKI – Industrial Parks Association) 61 Industrial Parks are the member of HKI, with more than 7200 companies

Most of the industries: **do business as usual (BAU)**

Green Industry and Greening the Industry: through eco-industrial parks (EIP)

Source: Antony S.F. Chiu,



Continuum Stages Model of EIP Development in Southeast Asia

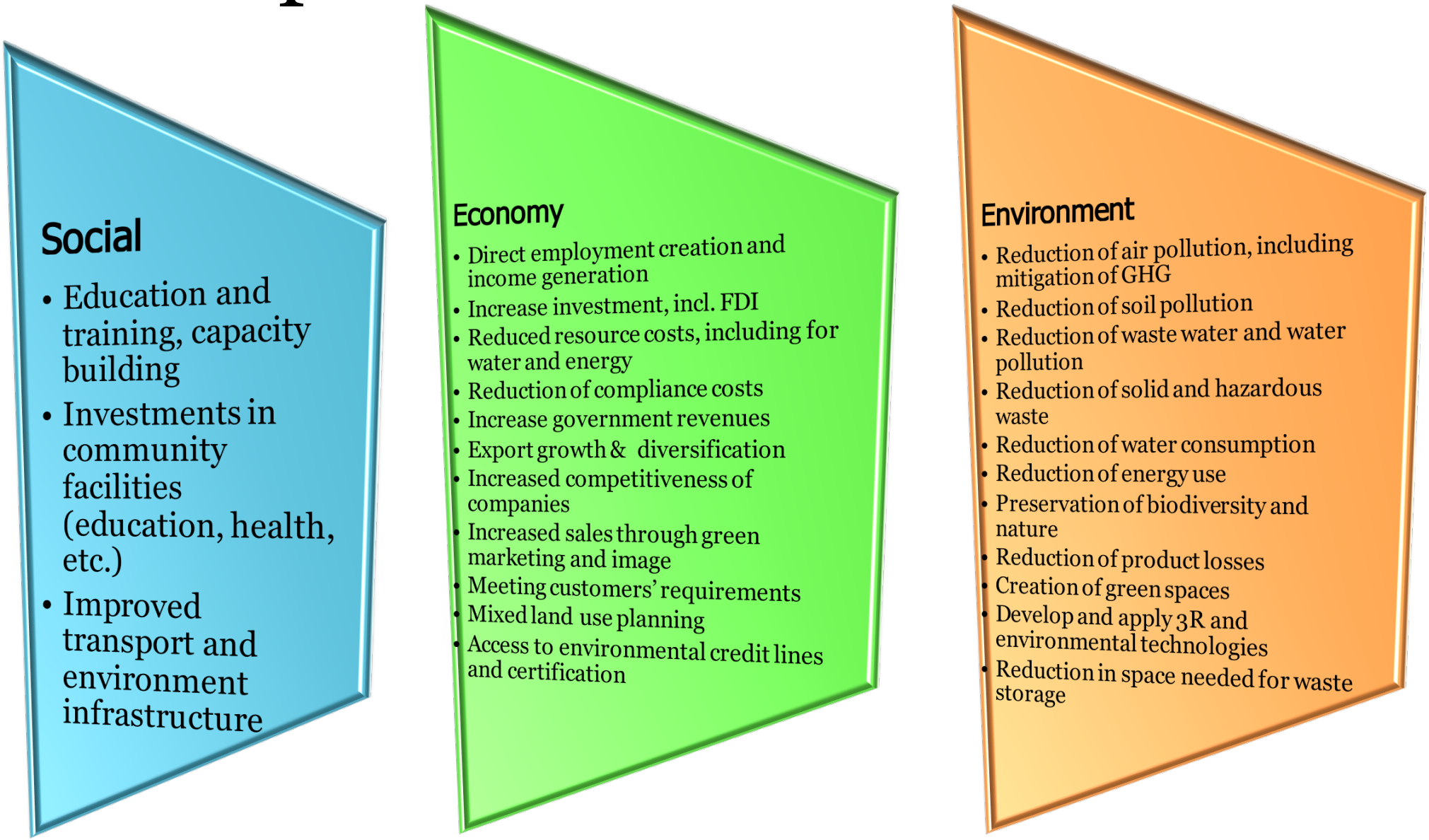
Source: Chiu, 2001

Description of the Continuum Model

Stages	Internal Neutral Industry-level Optimization	Internal Supportive Tenant Business Partner Network	External Neutral Estate-level Optimization	External Supportive Estate as asset to neighboring entities
Description	Minimizes individual industry environmental impact	Takes on supportive role on business partners' environmental performance within the industrial estate system	Minimizes environmental impact at estate level	Provides environmental services as competitive edge to regional network (e.g. neighboring estates, stand alone industries, communities)
Environmental impact of individual tenant (unit)	(0)	(+)	(++)	(+++)
Environmental impact of industrial estate (system	(-)	(-)	(0)	(+)
Economic performance of system	(+)	(++)	(+++)	(++++)
Social image of system	(-)	(-)	(0)	(+)
Programs	Cleaner Production (CP) Environmental Management System (EMS) Ecodesign Life Cycle Assessment (LCA) Environmental Management Accounting (EMA) Environmental Performance Indicator (EPI) Corporate Social Responsibility (CSR)	Greening the Supply Chain Corporate Synergy System (CSSII) Green Procurement Eco-labeling Programmatic Cleaner Production (P-CP) Programmatic Environmental Impact Assessment (P-EIA) By Product Exchange (BPX) Packaging material take back Design for Environment (DfE) Reverse Manufacturing / End of life Disassembly	Extended Product Responsibilities (EPR) Product Stewardship Material and Water Recycling Energy Cascading Co-generation Collective Utility Sharing of transportation, warehousing logistics, training, recruitment, marketing, procurement Green architecture Landscape Ecology Centralized WWTF (see Kalundborg Box) Cross Industry By product Exchange (BPX) Emergency Response System Park Environmental Management	Integrated Resource Recovery System Regional Resource Management Life Cycle Assessment (LCA) Substance Flow Accounting (SFA) Material Flow Accounting (MFA) National Policy on Circular Economy Intra- and Inter-estate Collaboration

Note: (0) means neutral, no positive or negative contribution to the parameter
(+) means positive (good) impact on the environment or good social image
(-) means negative (bad) impact on the environment

Triple Bottom Line Potential



Overall Status of EIP

EIP is a valid approach for scaling up resource efficiency and cleaner production in industrial zones in developing and emerging economies

Yet,

- EIPs mean different things to different people
- Practice does not yet match ambition
- Process based interpretation appears most useful
- Good practice elements exist, yet need to be brought together and implemented routinely in planning, development and management of industrial zones

Determine the Barriers of developing the EIP in Indonesia

Analyzing and the challenges

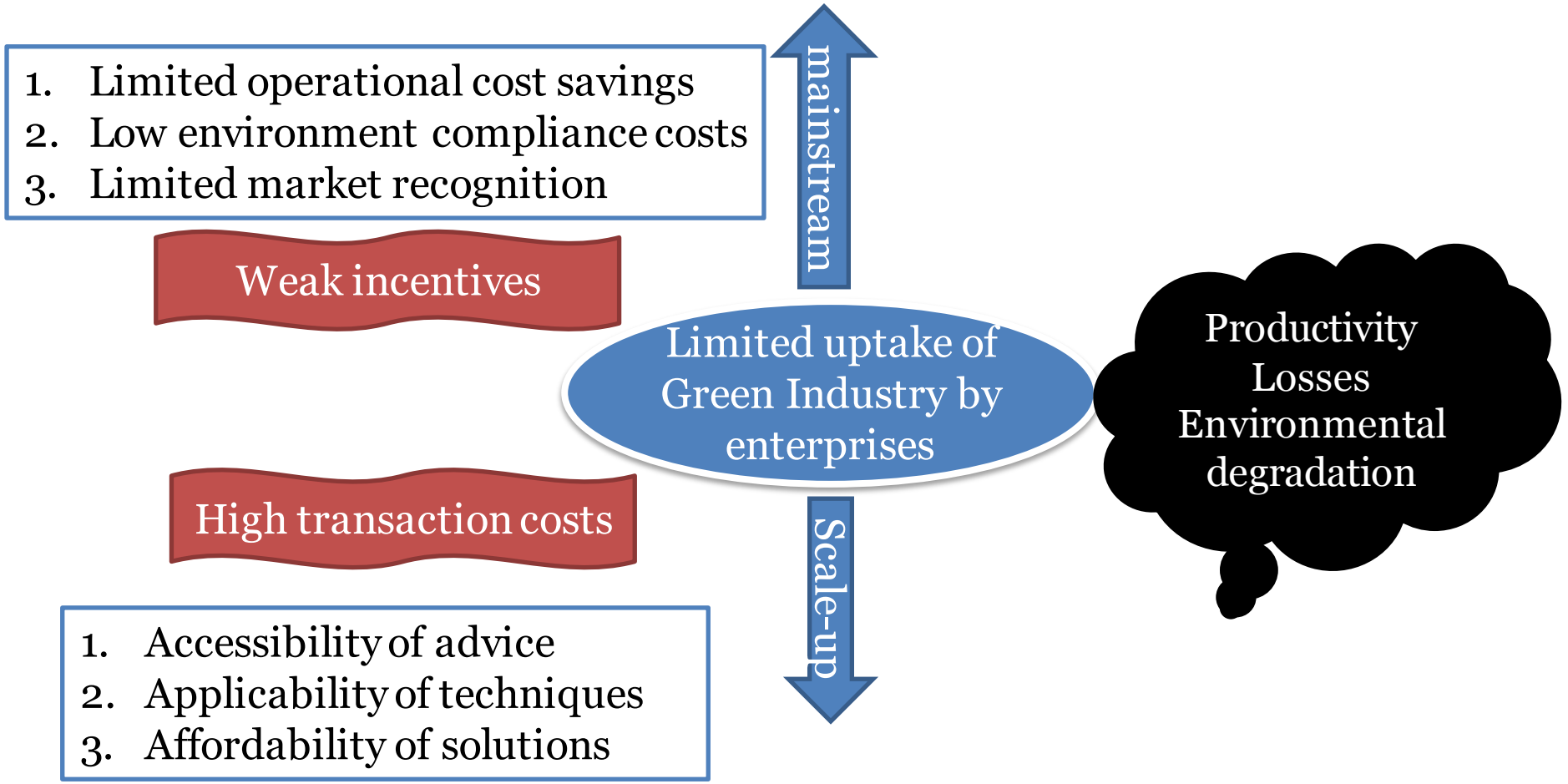
Mainstreaming and Scaling up

Contribution of the Indonesian Network

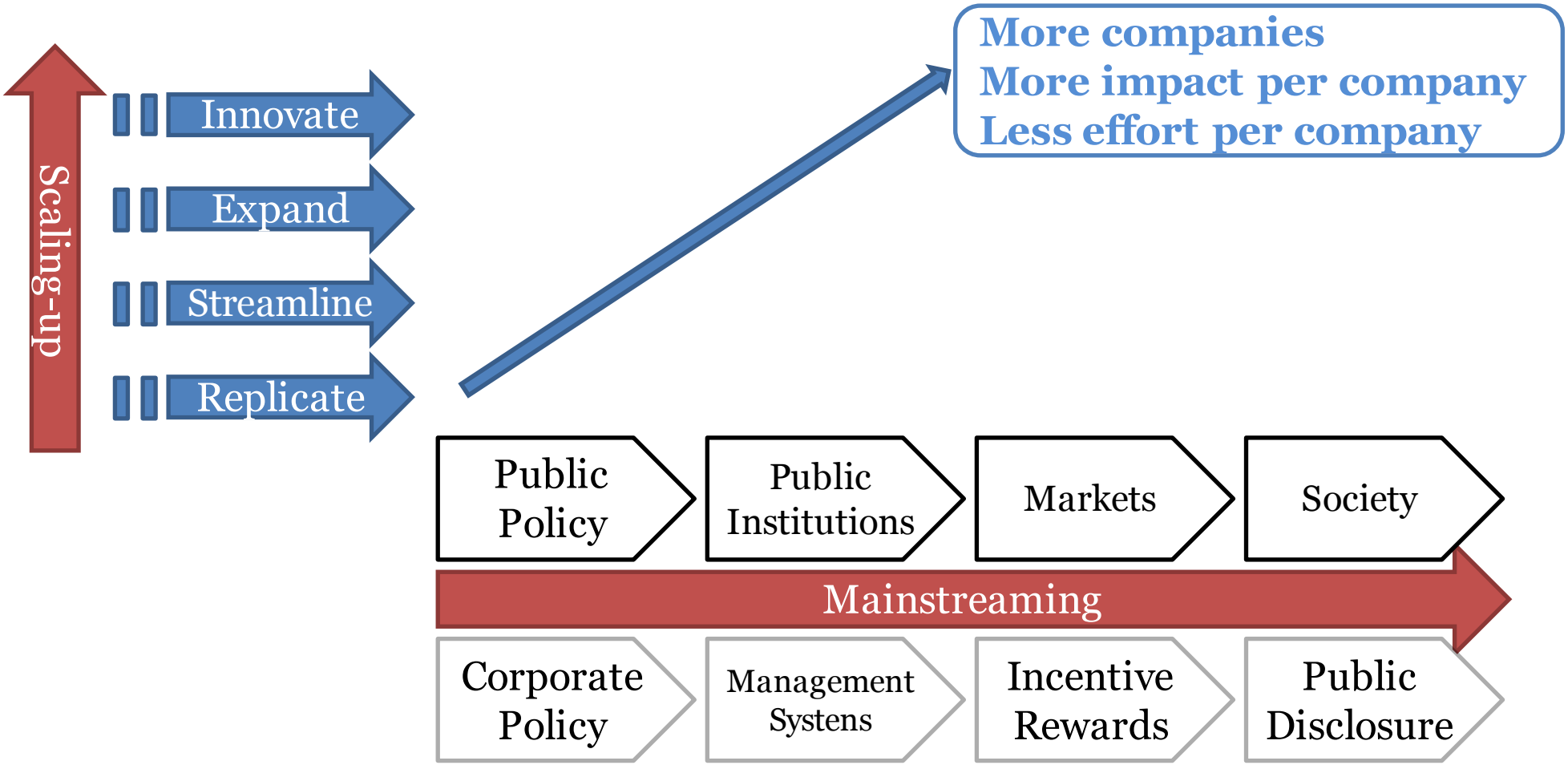
Determine the Barriers of Developing EIP in Indonesia

Conceptual & Motivational	• Preparedness to deviatefrom business as usual
Organizational	• Roles & Responsibilities in enterprise
Technical	• Appropriate Solutions to enterprises circumstances
Economic	• Costs/benefits market acceptance and acess to finance Policy
Policy	• Regulatory uncertainty (future and between institutions) and use of means based targets

Analyzing the Challenges



Mainstreaming and Scaling-up



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rn bạn – Merci Beaucoup - Salamat - Muchas Gracias

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