

Towards green economy by expansion of market of recycling business

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President

DOWA ECO-SYSTEM CO., LTD.

Overview of DOWA

- **Founded:** September 18, 1884
- **Ordinary income:** 13.8 billion yen
- **Incorporated:** March 11, 1937
- **Market value of equity:** 174.5 billion yen (March 31,2010)
- **Common stock:** 36.4 billion yen
- **Revenue:** 307.4 billion yen
- **Employees (consolidated):** 4,970

** All financial data as of March 31, 2010*

Five Core Businesses

Nonferrous metals

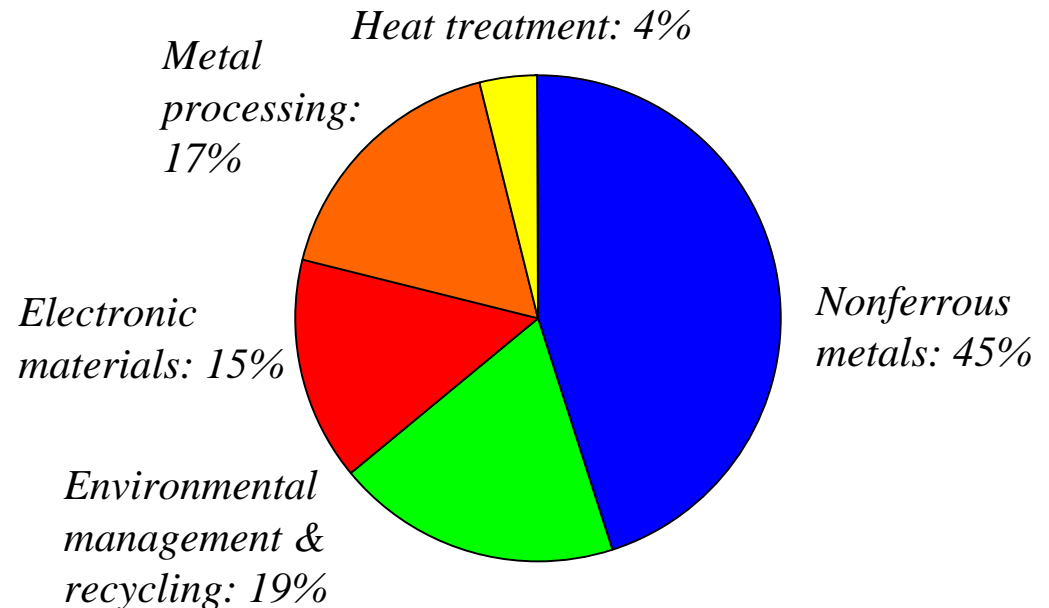
Environmental management & recycling

Electronic materials

Metal processing

Heat treatment

Revenue by Business Segment for Fiscal Year Ending March 31, 2010 (Total:307.4Billion Yen)



Dowa - Contributing to a Sustainable Society

Nonferrous Metals

Production of materials

Gold, silver, copper, zinc, platinum, gallium, indium and other nonferrous metals



Electronic Materials

LEDs, silver powders, ferrite powders, metal powders and other materials



Metal Processing

Copper alloy strips, platings, metal ceramic substrates and other metal processing



Heat Treatment

Heat treatment of automotive parts, sales and maintenance of heat treatment furnaces



Formulation of a sustainable business

Build high value-added materials

Environmental Management & Recycling

Recycling, resource utilization and detoxification

Waste treatment, soil treatment, metal recycling, consulting and other services



Integration into end products

PCs, plasma televisions, mobile phones, batteries, magnetic blank tape media, automobiles and other products



Managed final treatment facility to minimize environmental risks



Improper treatments of waste cause damage of nature / life forms

Human activities



Non hazardous waste



Hazardous / Toxic waste



Used electronic devices

Improper treatments



Production of
greenhouse gas
/ CO₂

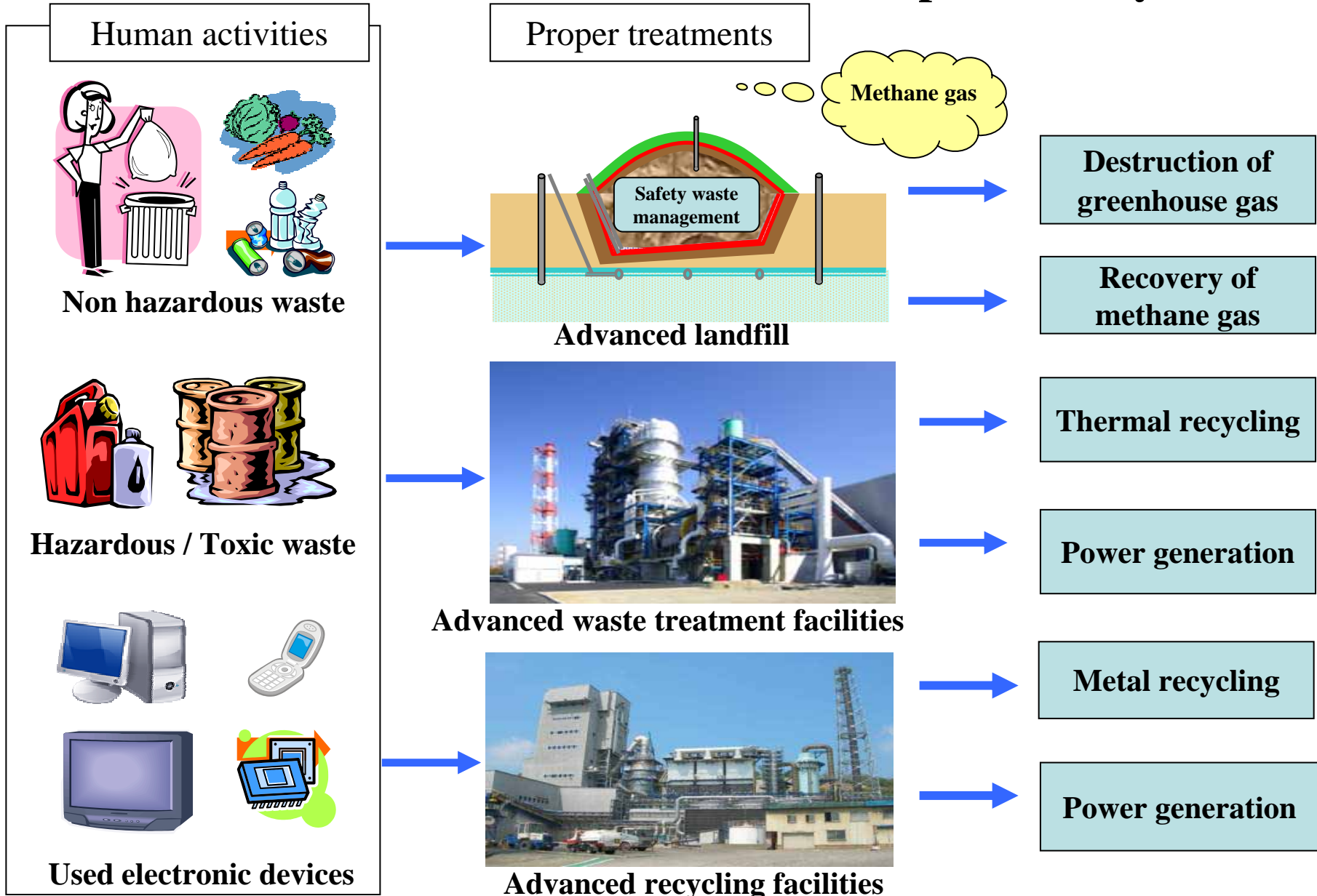
Health damage

Extinction of
life forms

Destruction of
nature

Exhaustion of
resources

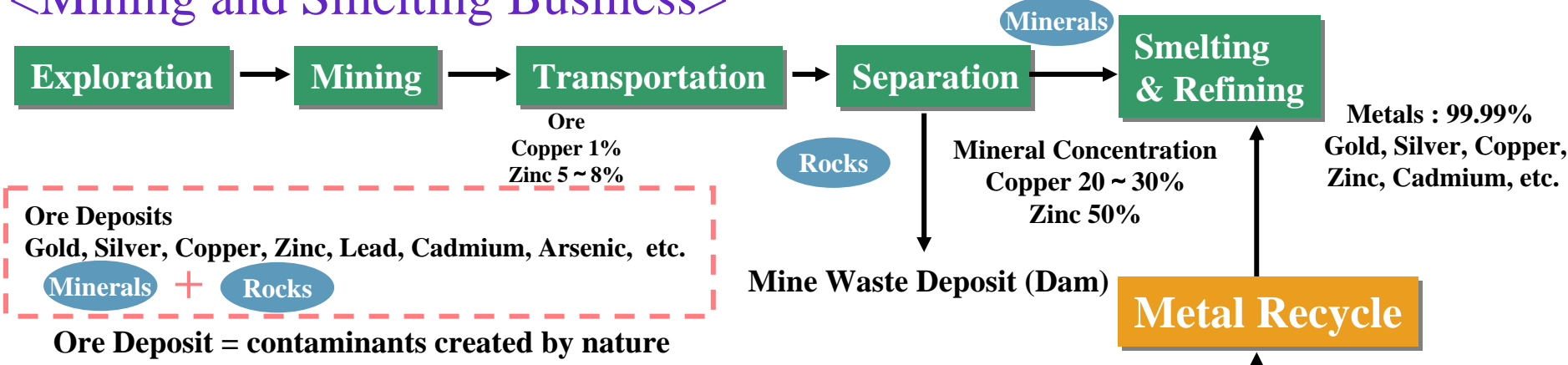
A solution for destruction of nature / life forms provided by DOWA



Returning the environment to the people of Asia

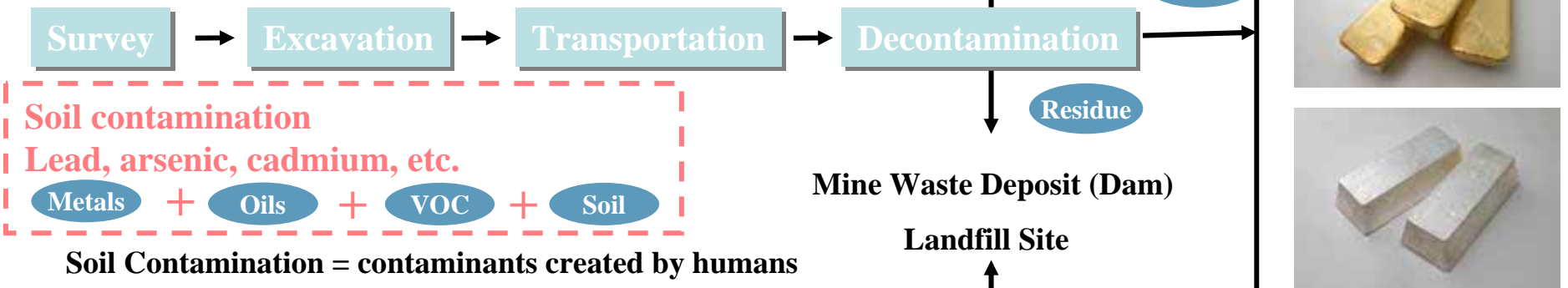
Relationship with Dowa and Environmental Management & Recycling Business

<Mining and Smelting Business>



<Environmental Management Business>

• Soil Remediation



• Waste Recycled products



DOWA s Activities ~ Waste management : Landfill ~

1. Advanced landfill



Facility in Indonesia

2. Decreasing greenhouse gas by methane gas collection



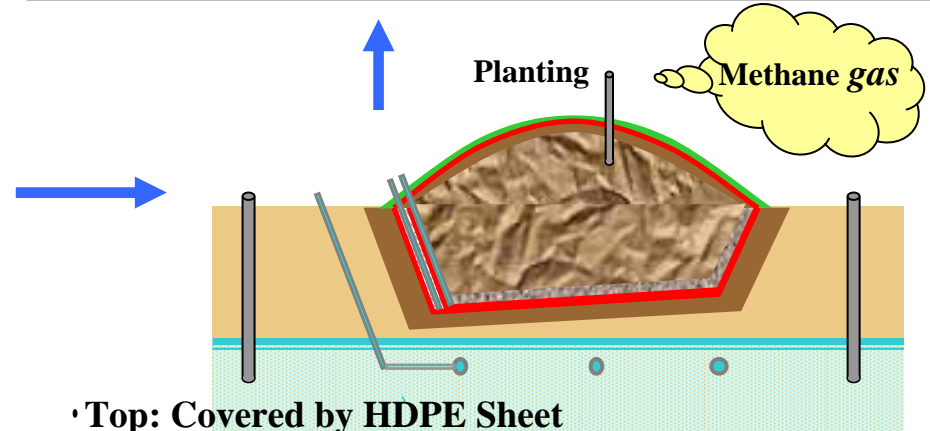
Pig Farm

Excrement

Methane gas

Swine Manure

Recovery and destruction of methane gas CDM



- Top: Covered by HDPE Sheet
- Bottom: Complete sealing by 3 layers of HDPE sheets & clay
- Groundwater control and monitoring
- Waste location system by GPS

~ Waste management : Waste to energy ~

Destruction of hazardous / toxic waste
Power generation by steam recovery



The biggest waste incineration plant in Japan



Power generation



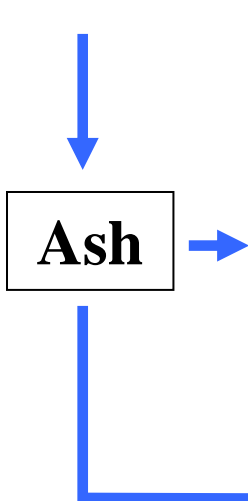
Metal recycling



Molten metal



Artificial gravel



Bottom ash recycling facility



The biggest landfill facility in Japan

The biggest incineration facility for industrial waste in Japan (Eco-system Chiba)



The biggest incineration facility for industrial waste in Japan (Eco-system Chiba)



Panoramic view of Greenfill Kosaka landfill site

Way bridge, Office


Dam of landfill space


Leaked water treatment plant





DOWA's Activities

~ Shift from natural resources to "Urban Mine" ~

Printed circuit boards


Mobile phones


Gold plated wire debris


Gold plated debris


Urban Mine

Open-pit mine = Destruction of nature
Exhaustion of natural resources



Advanced metal recycling facility
in Japan

Recovery of
18 elements



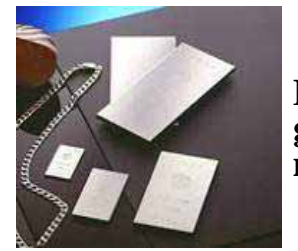
Gold



Silver

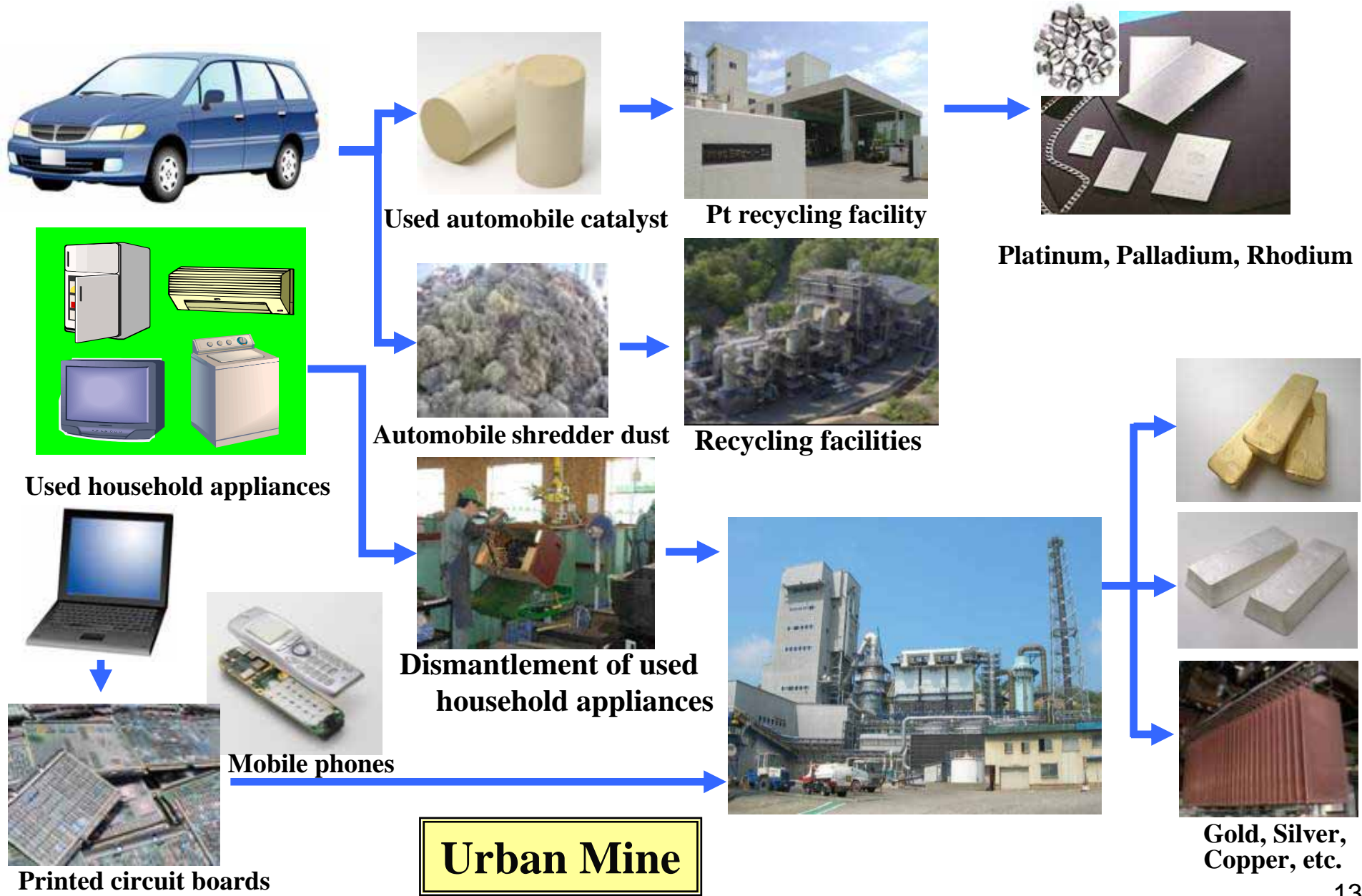


Copper

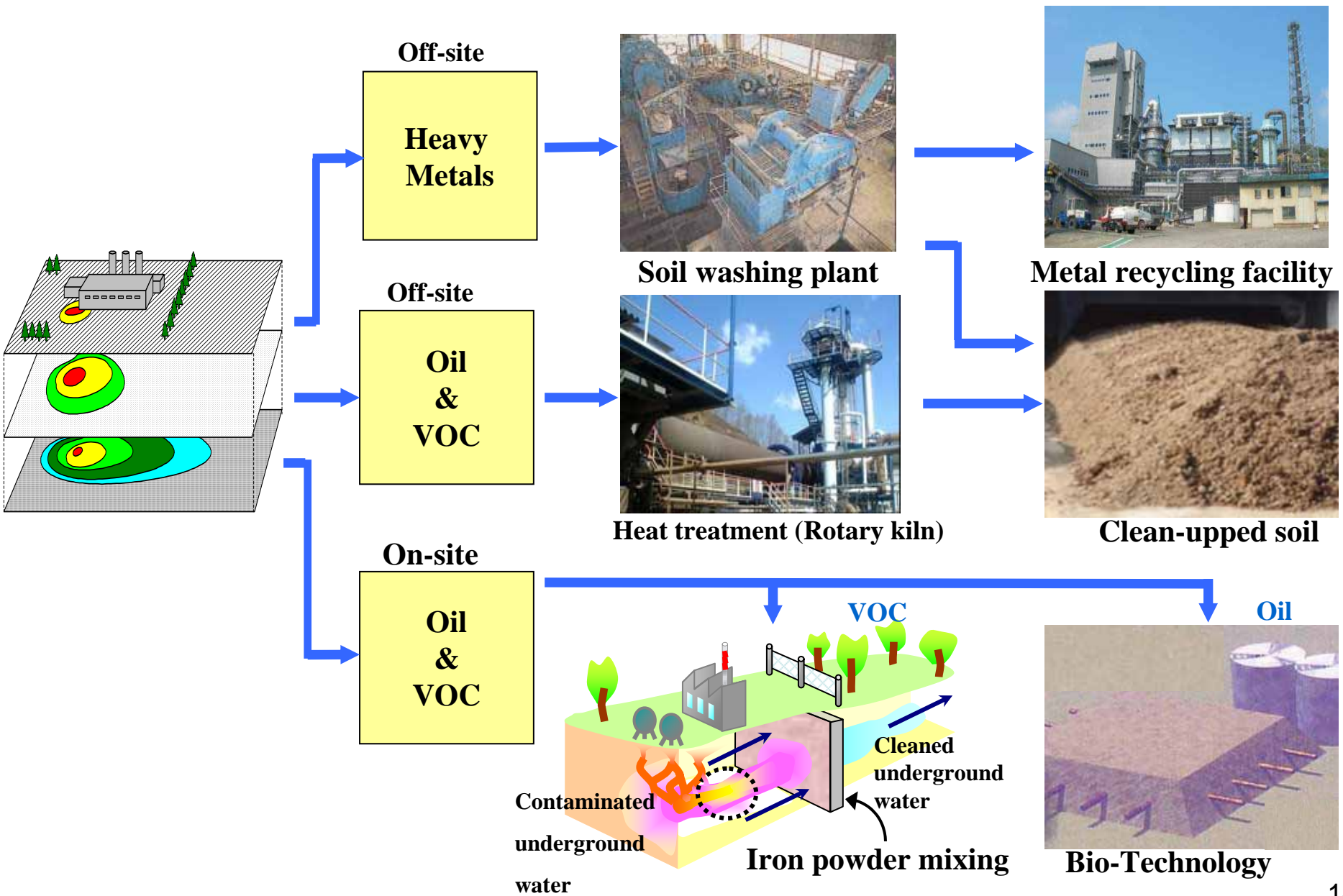


Platinum
group
metals

DOWA's Activities ~ Advanced recycling technologies ~



Dowa's Activities ~ Soil remediation technologies for clean-up ~



Overview of Eco-System Hanaoka, Soil Remediation Plant



Waste Management & Recycling Business in Southeast Asia • MAEH

Outline of MAEH



Company Name: Modern Asia Environmental Holdings, Inc.

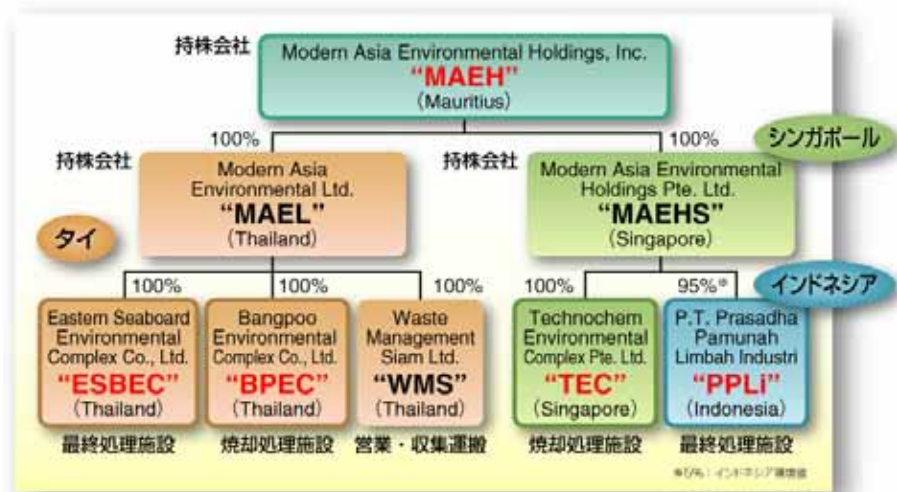
Establishment: 2000

Capital: US\$ 16.39 mil

Numbers of Employee: about 700

Business: Waste management business in Thailand, Indonesia, Singapore
(Collection, Transportation, Incineration, Landfill, Recycling etc.)

MAEH was former oversea division of a USA' waste management company, Waste Management Inc., and it was founded by one of former manager of Waste Management International Inc. (WMI)
DOWA acquired 100% share of MAEH in Feb. 2009



Thailand:

ESBEC (Landfill)



Thailand:

BPEC (Incineration)



Indonesia:

PPLi (Landfill)



Singapore:

TEC (Incineration)



Panoramic view of PPLi (Indonesia)



Facility layout of PPLi



Facility layout of PPLi



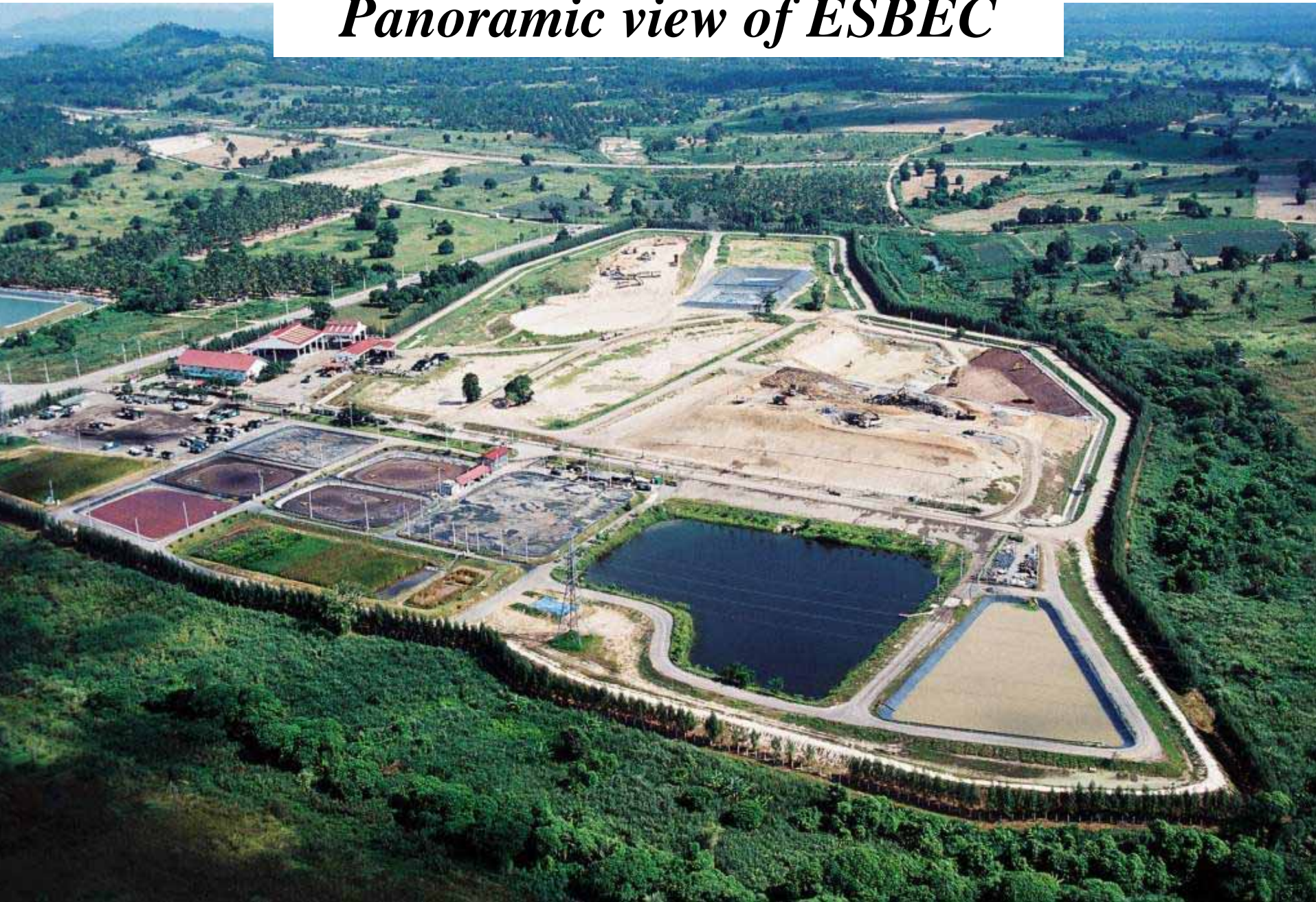
Landfill

Waste water treatment plant

Panoramic view of BPEC



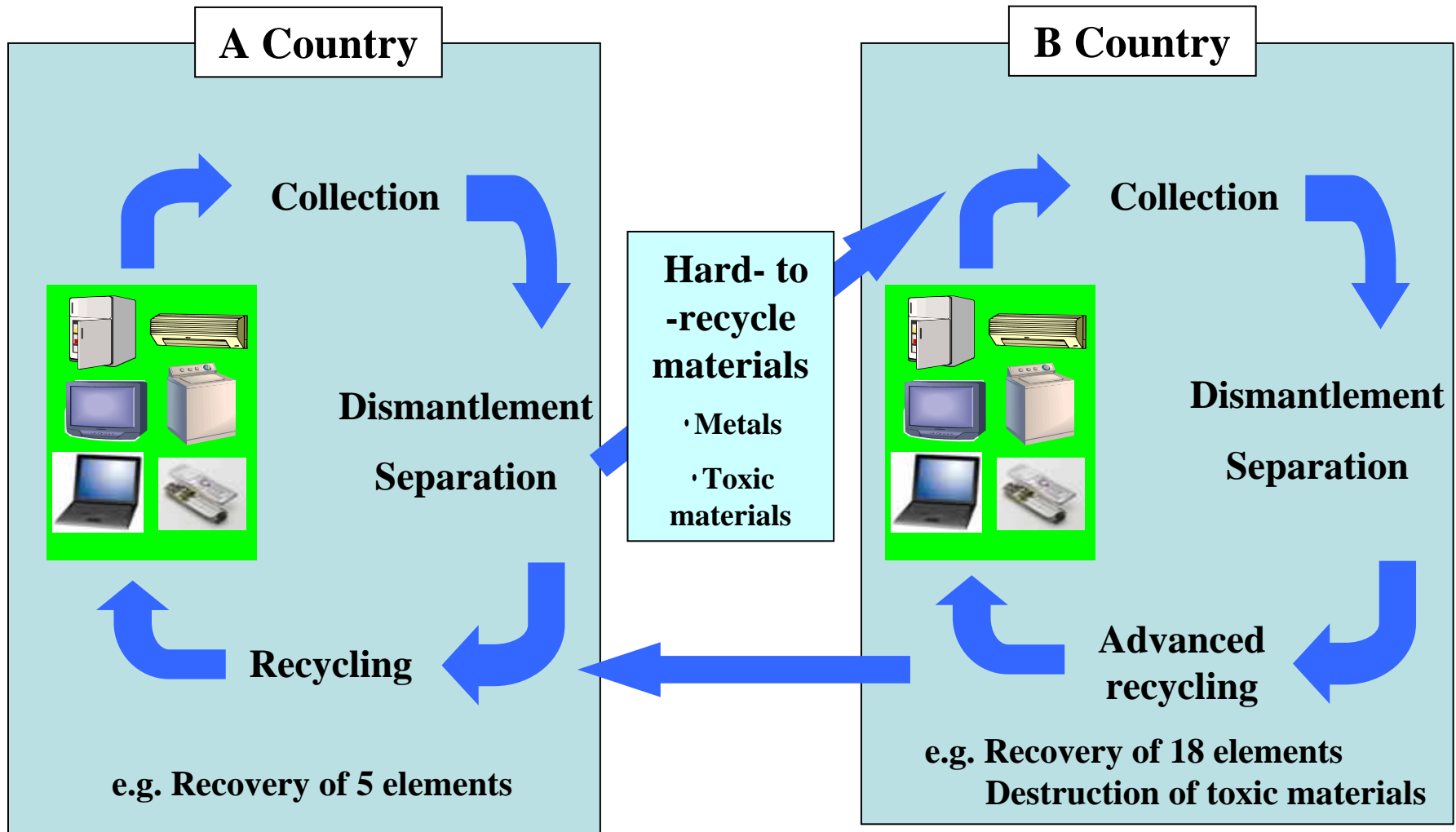
Panoramic view of ESBEC



Proposal about environmental improvement in Asia

- 1 . Establishment of proper waste treatment system
in each country**
- 2 . Establishment of resource recycling system
in each country (Promotion of 3R)**
- 3 . Establishment of resource recycling system
among Asian countries**
- 4 . Promotion of environmental education**

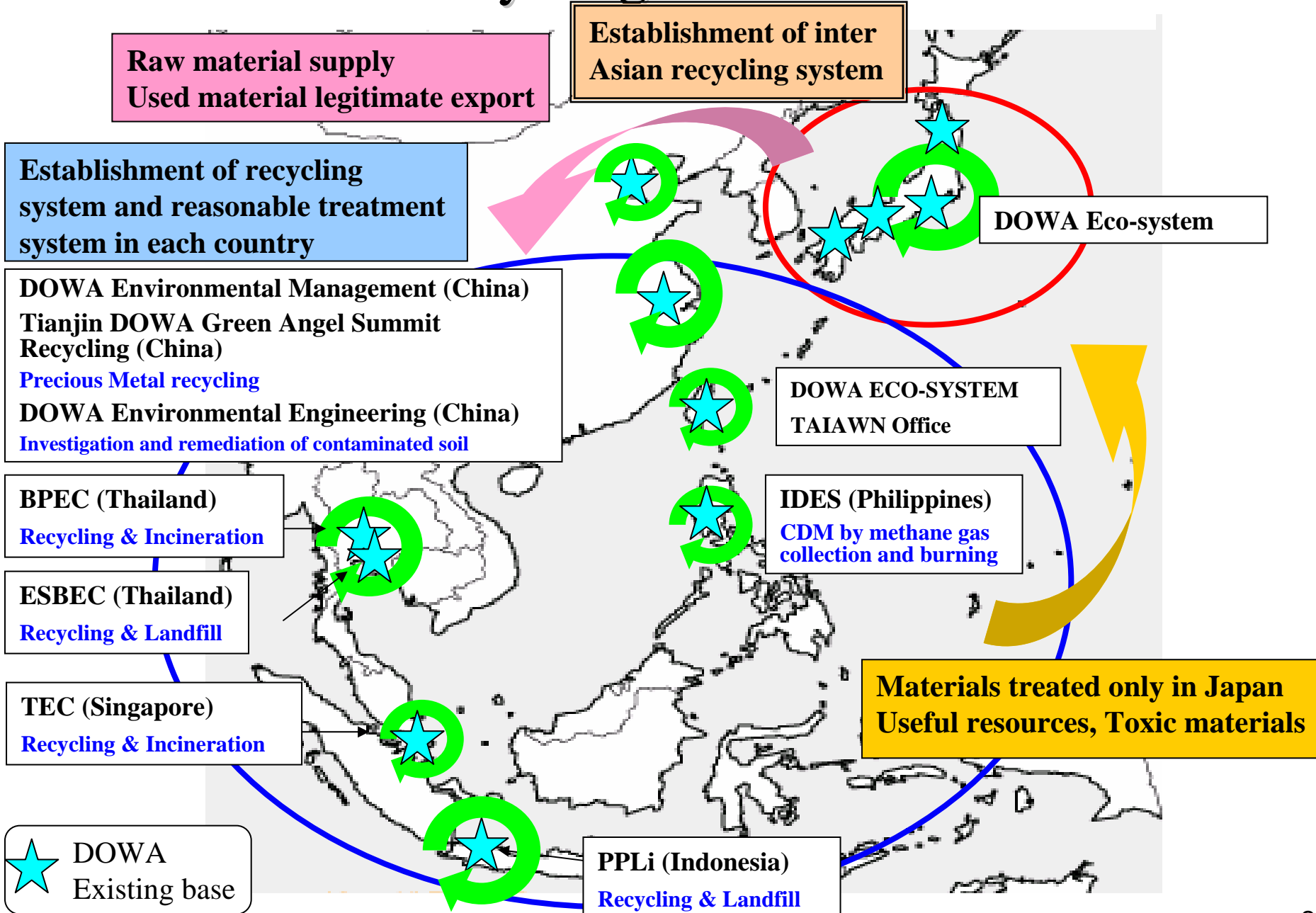
An example of material recycling framework in Asia



1. Proper waste treatment system in each country
2. Resource recycling system in each country

3. Resource recycling system among Asian countries

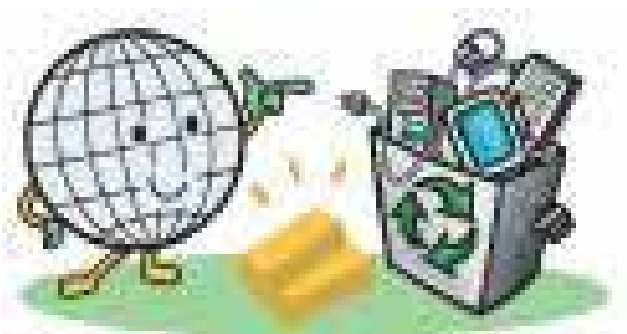
Material recycling framework in Asia



DOWA



Returning the environment to the people of Asia



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