# Eco-Action Partnership for Asia

Asian Way for Harmonious Coexistence with Nature


Ministry of the Environment, Japan

# Global environmental crisis resulting from rapidly-growing Asian economies

**Rapid expansion of Asian economies may lead to not only depletion of energy and other natural resources, but also a global environmental crisis due to associated increase in environmental loads.**

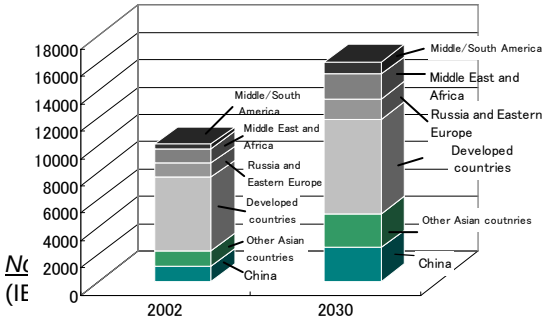
Competition for fossil fuel and water resources

Excessive waste around the globe

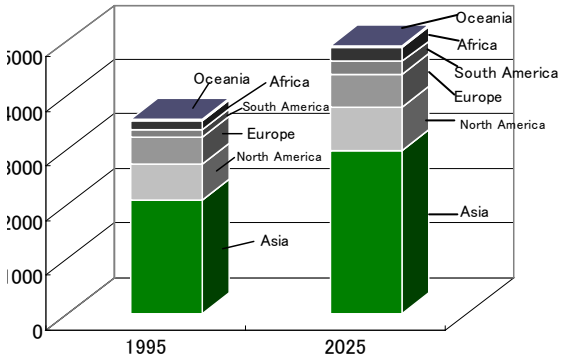
Development of mass-consumption society, such as automobile-oriented society etc.

Prospect for global primary energy demand

Global energy demand is expected to increase by 60%; mainly because of rapid-growing Asian economies

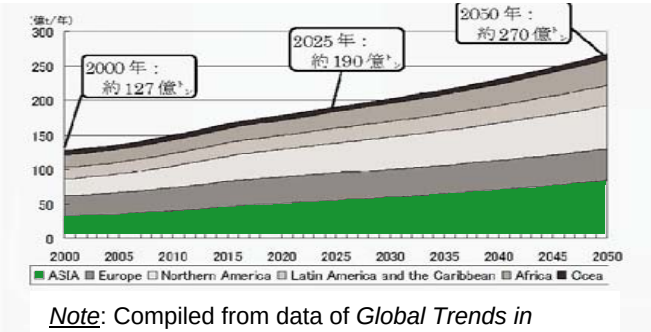



Prospect for global water demand




*Note*: Compiled from data in *Assessment of Water Resources and Water Availability in the World* (WMO, 1996)

Prospect for waste generation by region




*Note*: Compiled from data of *Global Trends in Waste Generation*, Saeko Yoshizawa, et al.

# Asian economies may confront with an environmental crisis in not-so-distant future

Climate change, transboundary air & water pollution, illegal cross-border movement of wastes, etc.

# Enormous socio-economic losses may result from deterioration of the global environment

## Economic losses

- Increases in damages caused by natural disasters, including floods, typhoons, etc.; increases in insurance claims paid

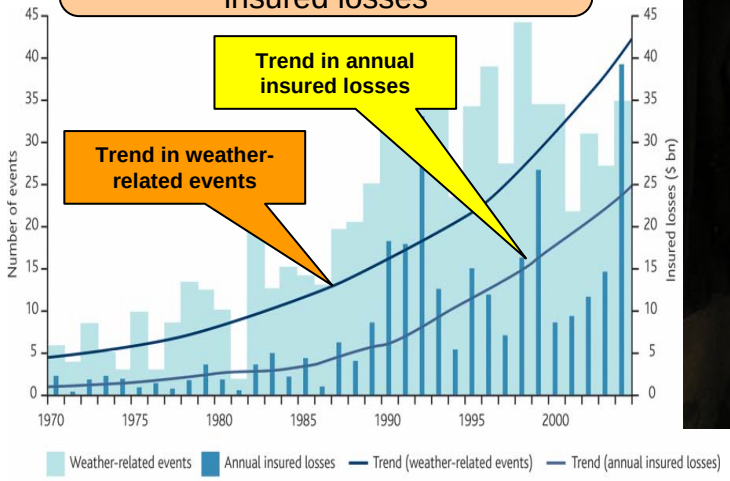
- Japan's experiences with pollution (e.g. air pollution, asbestos) demonstrate that adopting ex post facto relief measures rather than taking precautionary measures results in enormous monetary costs.

## Social losses

- Increase in number of casualties caused by more frequent natural disasters such as floods and typhoons, as well as the spread of infectious diseases, etc. and the emergence of refugees due to loss of homes.

- Aggravation of social unrest brought about by occurrence of severe natural disasters

Increase in damages from extreme weather events and insured losses




Summarized from data compiled by the Association of British Insurers (2005)

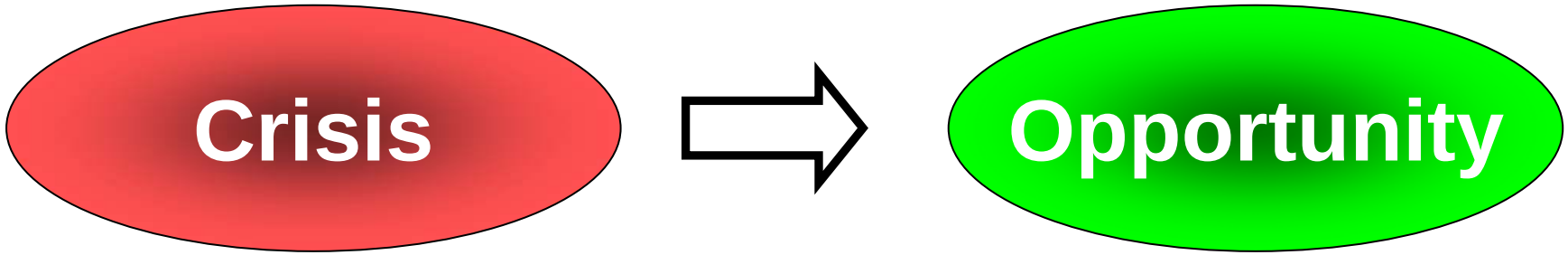

Tuvalu's "King Tide" in Feb. 2006

Comparison of costs of damages incurred vs. costs of preventive measures

| | Annual damage | Annual cost for preventive measures |
|---|---|---|
| Air pollution in Yokkaichi | 21.07 billion yen | 14.795 billion yen |
| Minamata disease | 12.631 billion yen | 123 million yen |
| Itai-itai disease | 2.518 billion yen | 602 million yen |

Compiled from the data "Japan's experience of pollution" of Global Environmental Economy Study Group

# Asia as a Key Player in the “Era of Environment”




**- Asian nations, connected in their air, water and living creatures, are parts of a joint environmental community**

Environmental pollution respects no borders and affects many countries mutually. It is indispensable to establish a global framework within which efforts to improve the environment are appropriately recognized and economically rewarded.

**- Zero-sum competition for fossil fuels**

It is crucial to avoid a “zero-sum” competition for energy resources and instead shift to win-win strategies which utilize emerging environmental technologies and know-how, such as solar and biomass technologies.

**- Failure to prevent the degradation of the global environment will lead to serious problems in the future**

**- Given its importance in the world, Asia should take a leading role for the Era of Environment**

The Era of Environment is the period in which an international framework will be developed in order to address the environmental crisis, and around the globe countries as well as various other actors will compete with regard to conservation, improvement and revitalization of the environment. This will be carried out through harmonization of policies.

# Japan's Proposal: Eco Action Partnership for Asia

- A feature of Asian traditional cultures lies in the respect for nature, i.e. harmonious coexistence with nature, since ancient times (e.g., the spirit of mottainai ['Too precious to waste'] )
- Lifestyles which incorporate both a gratefulness and a reverence for nature are found throughout Asian cultures
- As we face environmental crises at the present, it is necessary to coordinate policies as well as to create a virtuous cycle for business across Asia on the basis of the similarities among Asian cultures.
- Here at the dawn of the Era of Environment, there should be a strong push from Asia. To achieve this, Japan proposes six actions in the areas of information, technology, human development and life-style
- Creating partnership in the environmental field in Asia.

***Six actions to foster the sense of Asia being a joint environmental community***

**Environmental information** as an infrastructure to enable environmental management/business

**Environmental technology** as a trigger for boosting environmental business in Asia

**Environmental experts/business people** as the promoters of the Era of Environment

**Life-style** incorporating Asian indigenous cultures

**Action 1: Environmental Crisis Information Systems in Asia**

**Action 2: Asian Solar Campaign**

**Action 3: Asian Biomass Campaign**

**Action 4: Global Resource Strategy through the 3Rs (Reduce, Reuse, Recycle)**

**Action5: Fostering Human Resources for the Era of Environment**

**Action 6: Asian Eco Life-style Innovations**

*Common Asian environmental policies*
•Harmonization of environmental policies
*Greening of Asian economic activities*
•Expansion of Asian environmental business market

# Action 1: Integrative Information System to deal with Environmental Crisis in Asia

**Various types of environmental information**

- Info on environmental degradation, including floods, droughts, and water quality
- Info on habitats and migration routes of migratory birds
- Info on decreases in forests as $CO_2$ sinks
- Info on coral reefs
- Projections of oil leakages drifting out to sea or ashore

**Integrated information system is needed not only for the enhancement of environmental management capacity but also for the development of business in Asia. This action would aim to formulate an Asian system to collect, analyze and provide high-quality/advanced environmental information.**

Improve/implement/share monitoring infrastructure

Disclosure of environmental information gained by monitoring, etc.; support for access to data

Development and application of tools for utilizing this data in policies and in business

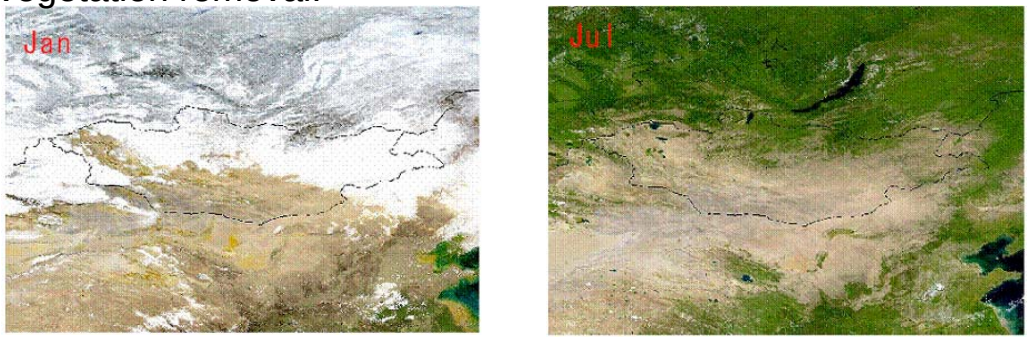
**Present**

- Ocean environment monitoring
- International Coral Reef Initiative
- Operation of the East Asia POPs Monitoring Network
- Operation of the Acid Deposition Monitoring Network in Asia
- Establishment of an early monitoring network on climate change
- Establishment of an early warning system for desertification
- East Asia and Australia regional partnership (migratory birds)
- Development of satellites and sensors
- Establishing a monitoring network for dust & sand storms
- Gathering information on information sources
- Development of analytical tools; proposing of policies and measures (e.g., Utilization of results generated through the early monitoring of climate change)

**Future**

- Launch of Greenhouse Gases Observing Satellite (GOSAT)
- Formulation of international strategies on measures for hazardous metals
- Accumulating information in Asia
- Promoting development of practical tools through the creation of a consortium which would include industry, government, and academia

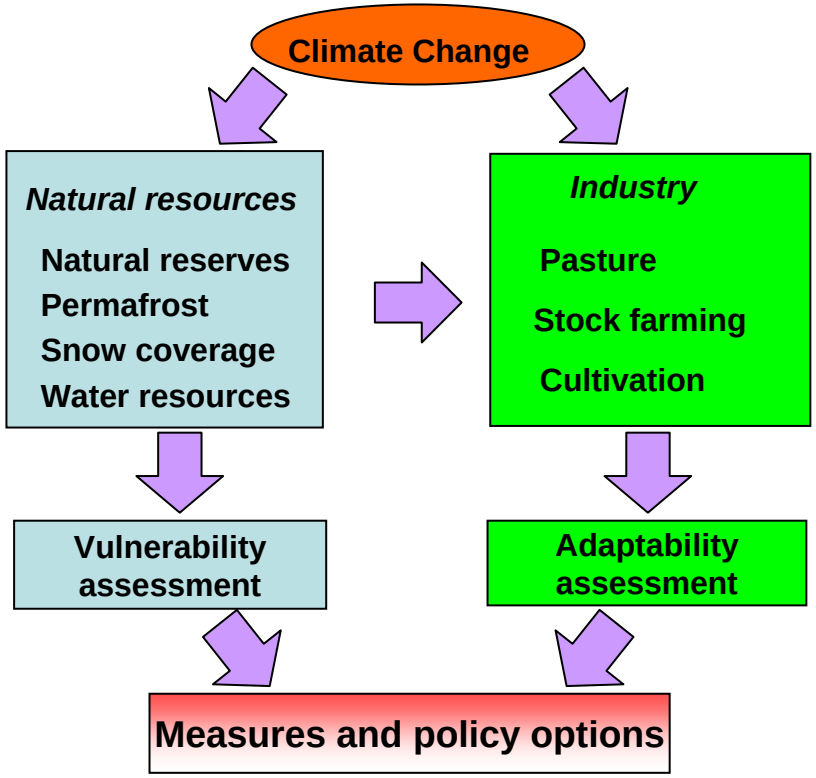
Through the use of satellite data it is possible to understand snow distribution and the state of grasslands in the Gobi Desert at the border of China and Mongolia for better grazing management. This in turn makes possible both reduction of deaths of livestock and control of the incidence of dust and sand storms through the prevention of vegetation removal.




## Data on snow and vegetation coverage on the Mongolian steppes, as observed via MODIS*

**MODIS (Moderate Resolution Imaging Spectroradiometer) is the name of an optical sensor aboard NASA's Earth Observing System (EOS) satellites Terra (EOS AM) and Aqua (EOS PM)*

- **Creation of a network monitoring the effects of climate change capable of covering the entirety of Asia in real time**
- **Provision of high-accuracy information on environmental resources (greenhouse gas emissions, square measure of ice and snow coverage, changes in permafrost, desertification, etc.)**
- **Assessment of impacts on environmental resources and industry resulting from climate change**
- **Development of projection model which integrates geographic information systems, natural environment models, and socio-economic impact models**
- **Development of and recommendations for technology for the maintenance and conservation of permafrost**




- **Real time assessment of climate change-related frontiers**
- **Measures to enable the sustainable use of pasture through water/thermal management (e.g., grazing management for sheep)**
- **Recommendations for policies and technology for the mitigation of climate change, on the basis of observation results**

*Compiled from data provided by Prof. Watanabe of Keio Univ.*

# Action 2: Asian Solar Campaign

Objective

**Through dissemination of advanced technology in photovoltaic (PV) and energy conservation, ensure energy security as well as sustainable development in Asian countries**

**Projections for near future of Asia**

- Energy demand will continue to increase sharply
- Peaking of crude oil production is forecast; resource competition is expected to escalate
- Large numbers of people in certain areas, such as South Asia, will continue to lack access to electricity

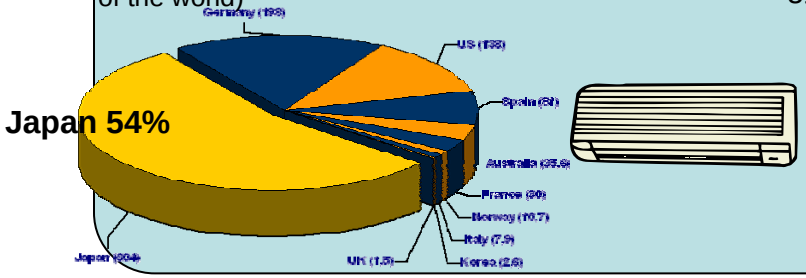
The conventional energy usage patterns will accelerate resource depletion and make climate change more serious

Generation of energy from dispersed sources is crucial for creating the information/education infrastructure in remote areas

**Essential to low-carbon socio-economic systems**

**Technology**

Solar cells (production volume of the world)




Energy-saving appliances

# Asian Solar Campaign

## PV generation technology

**Improvement of renewable energy dissemination policy**

**Regional development projects through which farming villages generate photovoltaic (PV) electricity**

- ➢Enhancement of quality of life
- ➢Improvement of education/communications environment
- ➢Capacity building

**Contribution to the achievement of UN MDGs, including poverty eradication**

**Support for projects; enhancement of business efficiency**

**Proposal of international rules for CDM certification**

## Energy-saving appliances technology

**Improvement of policies for energy conservation**

**Project for introducing energy-saving appliances to reduce energy demand**

e.g., Replace 50 million incandescent light bulbs by high-efficiency fluorescent light (approx. 50 billion yen) to reduce power demand by 2.5 million kW

Saves approx. 250 billion yen in construction costs for five 500-thousand kW thermal power plants

**Launch of projects for shifting to PV electric appliances utilizing advanced technology/for introducing energy saving appliances**
**Creation and expansion of demand within Asia**

**Reduce the number of villages with no electricity in Asia**
**Raise the dissemination rate of energy-saving electrical appliances (e.g., reduce electricity demand by promoting fluorescent light)**

# Action 3: Asian Biomass Campaign

## The current situation in Asian cities and future issues

➢Rapid urbanization of developing countries in Asia
Urban population doubled in 20 years（1980 to 2000）
Fifty percent of total population shall be urban residents in 2050

➢Rapid growth in ownership and usage of automobiles
Number of automobiles in non-OECD countries in latter half of 21st century more than tripled

➢Air pollution in Asia
Pollution in some cases are much worse even than Japan's past experience (most notably, with regard to particulate matter)

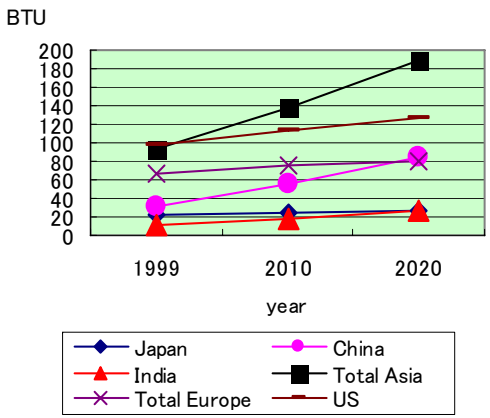
➢Energy demand in Asia
Energy demand in 2020 will stand at 2.6 times the 1999 figure in China and 2.1 times the 1999 figure in India
Expanding share of transportation sector
(China 10.6% [2002]→20.0% [2030])

**Projected crunch in energy demand in Asia**

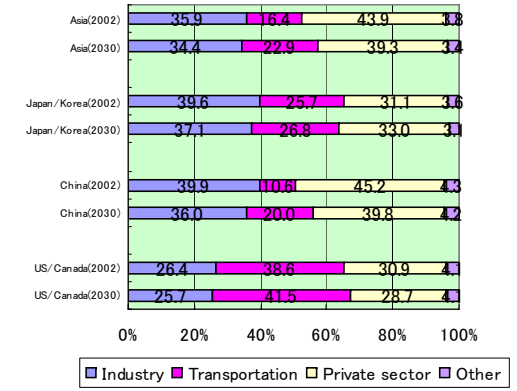
**Utilization of Asia's regional resources (such as biomass)**

**Hanoi (top) may become like Bangkok (bottom) in the future**

Prospect of total energy consumption by region




Energy consmtion structure in 2002 and 2030




***Note**: Compiled from data in material compiled by Japan Petroleum Energy Center*
*BTU is defined as the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit*

Compiled from *IEA World Energy Outlook 2004*

# Dissemination of Biomass Resources

## Local production for local consumption of bio fuel

Bio fuel: Bio ethanol is already widely in use in Brazil
Unstable resources derived from agricultural products
↓
Diversification of producers is needed

**Significance of developing bio-fuels in Asia**
- ➢Secures carbon-neutral resources
- ➢Energy resources produced & consumed within the Asian region
- ➢Creates a basis upon which developing countries in Asia can be included in climate change countermeasures
- ➢Need for urban environment conservation in Asia

**Development of grand design for dissemination of bio fuel made in Asia by 2007**

**Sustainable production of bio fuel**

**By 2010,**
**In Japan: 500 thousand kl (in crude oil equivalent) of bio fuel for use in transport**

**Expansion of use of bio fuel in Asia**

**- Bio diesel fuels (BDF)**
For example,
・Palm oil ― East Asia is a major producing center
・Palm oil comprises 13% of all vegetable oil produced in the world
・Canola oil, sunflower seed oil, etc.

**- Bio ethanol fuels**
For example,
・sugar cane ・cassava
・rice (Thailand is among the largest exporters in the world), etc.

**Sustainable methods of production of bio fuel will be indispensable in order to avoid forest depletion and/or improper waste treatment**

*Trends in bio fuel in Europe and the US*
・EU: Target for bio fuel set (5% by 2010)
・Germany: Increased use of bio fuel as a result of tax exemptions
・US: Government policy to increase the use of bio ethanol (State of the Union address, Jan. 2006)

・Survey on feasibility of supply
・Cost calculations for fuel supply
・Vision for introduction of bio fuel
・Improvements in fuel supply infrastructure
・Improvements in fuel specifications

⇔ **Full introduction of bio fuel automobiles**

# Action 4 Global Resource Strategy through the 3Rs (Reduce, Reuse, Recycle)

"Circulative resources" are wastes and used products that are used as resources

## Current status & issues and efforts to date

### Serious situation regarding recyclable resources in Asia

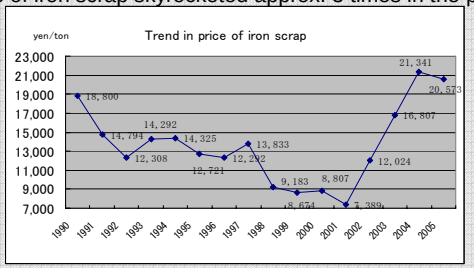
- Environmental pollution caused by illegal dumping of e-wastes (waste electronic appliances)
- Accompanied by economic growth, total waste generation is projected to double over the next 50 years.

Accumulation of e-wastes in developing countries

Compiled from data from The Institute of Developing Economies

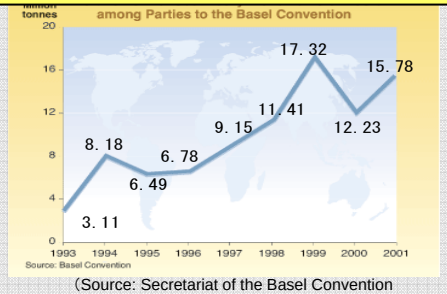
### Price change of circulative resources

Price of iron scrap skyrocketed approx. 3 times in the past 4 years




(Source: Japan ferrous raw materials association)

### Increase in transboundary movement of hazardous wastes




(Source: Secretariat of the Basel Convention

### The 3R Initiative proposed by PM Koizumi

- Taking into account East Asia as a whole, it is a matter of urgency to ensure the sound usage & treatment of recyclable resources
- A virtuous cycle of environment and economy in Asia must be realized by applying the 3Rs to recyclable resources

- The 3R Initiative was agreed upon at the G8 Sea Island Summit (June 2004)
- Ministerial Conference on the 3R initiative (April. 2005)
- Senior Officials Meeting on the 3R Initiative (Mar. 2006)

### Implementation of the Global Resource Strategy through the 3Rs

2008
The G8 Summit to be held in Japan in 2008 will be an opportunity, to accelerate the formulation of a global sound material-cycle society

2010
Formulating the targets/plans for promoting the 3Rs in East Asian countries (with Japan's appropriate supporting these efforts)

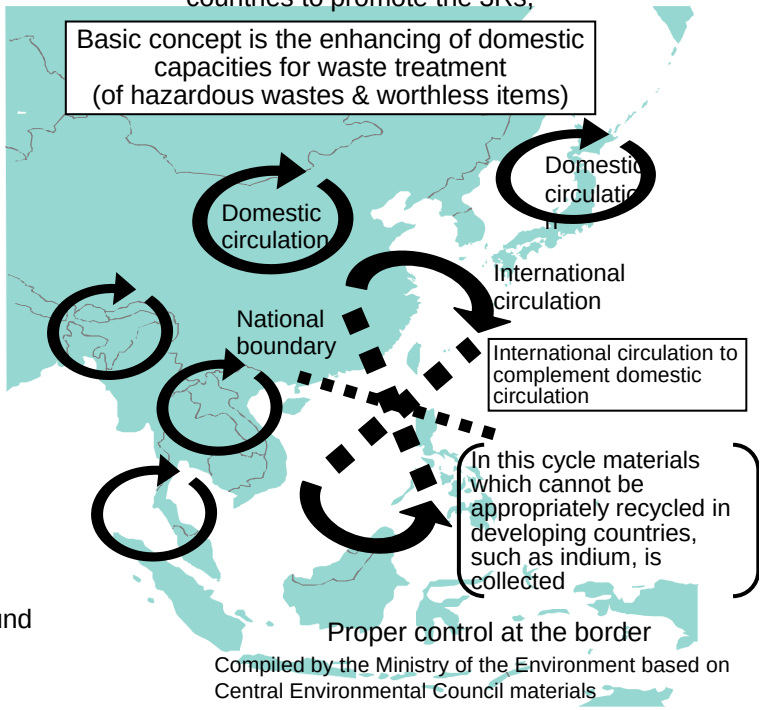
"3Rs" refer to the reducing of wastes, the reuse and the recycling of resources and products

## 2008 2010 Until 2012

### Preparation of the East Asia Sound Material-Cycle Society Vision

Aiming to set common targets/rules such as the improvement in a resource productivity in Asian countries to promote the 3Rs,

Basic concept is the enhancing of domestic capacities for waste treatment (of hazardous wastes & worthless items)




Compiled by the Ministry of the Environment based on Central Environmental Council materials

Note: Targets for material flow in Japan: Fundamental Plan for Establishing A Sound Material-Cycle Society (Targets for 2010)

Input: Resource productivity of approx. 390 thousand yen/ton
Cycle: Recycling rate of approx. 14%
(Improved by 40% total over 10 years, beginning with FY2000)
Output: Final disposal amount of approx. 28 million tons
(Decreased by 50% total over 10 years, beginning with FY 2000)

# Steady Implementation of Global Resource Strategy through the 3Rs

*Two points of view with regard to the utilization of Japan's technologies & systems*

**Pursuing the *most appropriate use* of resources *environmentally and economically***

*Reduction of environmental load through cyclical mechanisms, from design through disposal, reuse/recycling, and creation into a product, such as through eco-design*

Efforts by Fuji Xerox to create a network for the collection, breakdown, and recycling of products in nine countries and regional groups in Asia & the Pacific

【Breakdown/recycle of used products】

**Promotion of efforts towards the *creation and utilization* of resources**

*Formulation of a resource supply chain using cutting-edge resource recovery/recycling technology*

【Efficient collection of rare metals such as indium, etc.】

Note: Indium is used in liquid crystals. Approx. 7.5 mining years remain.
Photo:
Steam recovery furnace for metals developed by Dowa Mining Co.Ltd

*Disseminate Japan's innovative 3R technologies/systems to the world through the private sector's activities: Ensure international competitiveness through environmental conservation*

Promote efforts towards 2008 as a turning point

*Cooperation with international institutions*

*Implementation of joint research with OECD on material flow and resource productivity; holding of international conference with OECD*

*In collaboration with the Asia Development Bank (ADB) and the United Nations Environmental Programme (UNEP), formulate a Knowledge Hub for promoting 3Rs, including information on technology*

*Formulation of international rules to ensure environmentally-sound, smooth distribution*

*Formulation of a database which can be shared among Asian countries with regard to hazardous wastes (Asian Listing)*

*Stipulation of international guidelines for ensuring sound export/import of goods, including e-wastes*

*Cooperation with Asian countries*

*Support formulation of 3R promotion plans, etc. in Asian countries, such as Vietnam*

*Enhancement of technology basis*

*Facilitation of research and development of various technologies for the promotion of the 3Rs*

Preparation of the East Asia Sound Material-Cycle Society Visiton

(Achieve simultaneously the reduction of environmental loads and the efficient use of resources in East Asia)

# Action 5: Fostering Human Resources for the Era of Environment

## Asia's current situation and existing issues

**Need to generate excellent business leaders to lead the Era of Environment**

- Lack of coordination and collaboration on SD courses among different universities
- Inadequate requirements on SD in business schools of Asia
- Insufficient on-the-job training (OJT) regarding SD in Asia
- Lack of Japanese trainers who can engage in SD training internationally

## Objectives

- Generate excellent business leaders who are aware of SD requirements
- Train excellent engineers who will support SD technologies
- Support practical on-the-job training (OJT) on SD
- Develop Japanese trainers who can build capacity in other countries

## Concrete proposals

- Network for international capacity building composed of selected universities (cross-border graduate courses on environment
  - ✓System in which credits are shared among universities belonging to the network to make the best use of particular expertise held by each university
  - ✓Capacity building in academia in Japan through exchanges of professors
  - ✓Development of shared education materials using information-communication technology→ development of online courses
- Incorporation of SD curricula into Asian business schools
- Creation of a support system for OJT on SD in overseas branches of Japanese multinational corporations and overseas affiliates

# Action6: Asian Eco Life-style Innovations

*Aims:*

*In Japan in the summer of 2005, "Cool Biz" fashion, which encourages business people to select clothing that is cool and comfortable even in the hot and muggy Japanese climate (shedding ties and jackets, for example) in order to allow air conditioners to be set at a higher temperature and thereby reduce $CO_2$ emissions, came into style.*

*This "Cool Biz" fashion is now being sent as an anti-climate change message from Asia to the world through collaboration with other Asian countries which have a hot and humid climate similar to that of Japan and which have historically worn ethnic clothes ideally suited for such conditions even during formal or business occasions.*

**・Cool Biz fashion comes into style in Japan in summer of 2005**
**・Cool Biz was widely reported by media and welcomed around the world**
**・Demonstrated CO2 emissions reduction effects and economic effects were achieved**

***The Hot and Humid Countries of Asia***

**Historically, ethnic clothes ideally suited for the Asian hot and humid climatic conditions (Cool Biz) have been worn during formal or business occasions in Asian countries.**


Barong tagalog (Philippines)


Longyi (Myanmar)


Kariyushi (Japan)


Batik (Indonesia)

May 31, 2006 Cool Biz fashion show

**"COOL ASIA 2006"**

**Omotesando Hills**

■Held as a kick-off event
■Cabinet ministers, diplomatic representatives from Asian countries and various celebrities attended as models

Sending an anti-climate change message from Asia to the world

# *Partnership*

**for more effective and efficient actions towards Sustainable Societies**

ECO ASIA 2006