Regional Workshop of the GMS to share the lessons learnt from the Viet Nam experience on the National Strategy of Integrated Solid Waste Management/3R

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Thailand’s 3Rs Strategy

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Municipal Solid Waste Management (As of 2009):

- Generation: 15.11 Million Tons
- Collection: 12.08 million Tons
- Recovered: 12.99 Million Tons

- Recyclable: 30%
- Improper Disposed: 53%
- Control/Sanitary Disposed: 47%
- Open Dump Sites: 6.72 Million Tons

- Generated: 100%
- Collected: 86%
- Potential Recyclable/Utilized: 80%

- Recycled 26% from recovery activities: Garbage Banks, Municipal Collectors, junk shops

- Other: 3%
- Hazardous: 3%

- Recyclable: 15.11 Million Tons
- Potential Recyclable: 12.08 million Tons
- Recyclable from recovery activities: 12.08 million Tons

- From recovery activities: Garbage Banks, Municipal Collectors, junk shops

- Improper Disposed: 53%
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- Recyclable: 30%

Industrial Waste Management:

- Industrial Waste: 10.244 MT
- Hazardous Waste: 1.559 MT (18.05%)
- Non-hazardous Waste: 8.685 MT (81.95%)

- Disposal: 56.6%
- Reduce: 22.2%
- Reuse & Recycle: 21.2%

- Disposal: 28.8%
- Reduce: 0.3%
- Reuse & Recycle: 79.9%
Waste Management Policy

Internal Factors
• Socio-economic development
• Government policy
• Resource and energy conservation
• Pollution status

External Factors
• International agreements
• Trade and environment
• International standards
• Global environmental problems

National Policy on Waste Management

3Rs Promotions
Integrated Technology
Clustering Management
Public Private Partnership
Waste-to-Energy

National 3Rs Strategy

• National 3Rs Strategy Development

• Supported by UNEP RRC.AP under Advance Waste Management in Asia and the Pacific (AWMAP)

• Objective: To develop national 3R policy, goal and strategies as a direction of environmental sound management of wastes for all stakeholders

• 3Rs strategy: Apply various principles and measures of waste management to all processes of waste generation such as production, distribution, consumption, waste recycling, treatment and disposal.
3Rs Development Process

Factors

Key issues and necessities for 3Rs

Draft National 3Rs Strategy

- Objective and goal
- Strategies: Resource efficiency, sustainable consumptions, 3Rs promotions, proper treatment and disposal
- 3Rs measures and action plan (target year by 2020)

National 3Rs Principle

Step 1 Reduce wastes and by-products from manufacture processes

Step 2 Reuse wastes and consumed products

Step 3 Recycle wastes, consumed products and unreusable materials

End products (recyclable material, heat, electricity and biogas)
National 3Rs Strategies

- **Resource efficiency**: Control of waste generation, promote use of reusable and recyclable parts or wastes in production and distribution processes.
- **Sustainable consumption**: Awareness rising, promotion for green products, and public participation to reduce wastes at sources.
- **3Rs Promotions**: Promote recycling business, household waste separation, waste to energy applications and community recycling programs.
- **Proper disposal**: Develop best practices and best available technologies for management of waste residues.

National 3Rs Programs

- **Production**
  - Waste reduction programs (Eco-design/CT/CP/environmental labels)
  - Promote reuse and recycling of wastes and recyclable materials
  - Promote production of eco-friendly products
- **Distribution and Consumption**
  - Promote recycling-oriented society
  - Promote use of green products
  - Promote separation and take-back programs
- **Recycling, Treatment and Disposal**
  - Support community-based recycling activities
  - Capacity building on 3Rs and waste management
  - Promote public private partnership programs
  - Promote waste recycling business
  - Standard and guideline for waste disposal
3Rs Ultimate Goal

Recycling-oriented Society

Resources

National 3Rs Strategy

Wastes

Consumption

3Rs Implementations

Short term (1-3 years)

- Policy statement and announcement
- Awareness rising
- R&D on 3Rs (CT/CP/Eco-design, recycling)
- Promotion for recycling business (BOI, SME Bank, Environmental Fund)
- Capacity building
- International cooperation
**3Rs Implementations**

**Medium term (3-5 years)**
- Introduce integrated waste management system in major cities
- Issue technical criteria and guideline
- Implement pollution prevention (CT/CP/Eco-design)
- Conduct green products procurement
- Initiate public private partnership programs

**Long term (5-10 years)**
- Introduce economic instruments (Tax incentives, funding, subsidy, market mechanism, emission fees, pollution charge)
- Laws and regulations (EPR model, trade-related environment, specific control on flow of materials, resource efficiency and pollution control)
Progress in 3Rs Implementation

• Government Green Procurement
  - Lists of green products and services (19 products and 4 services)
  - Guideline and criteria for green procurement
  - Capacity building for stakeholders
  - Road map for promotion of green procurement

Progress in 3Rs Implementation

• Integrated Waste Management: 3Rs and WTE

Solid Waste
  - Recyclable
  - ‘WTE’
  - Combustible
  - Organic

Sold for reuse/recycling
  - ‘3Rs’
  - Residues
  - RDF

Compost
  - Biogas

Heat/Electricity
  - RDF

Landfill
  - Ash

Non-combustible/Non-digestable

Credit/used/sold
Existing Waste-to-Energy Facilities

Operating facilities with total installed-capacity of 5.075 MW

- Phuket incinerator (2.5 MW)
- Biogas from landfill at Rachadeva (950 kW)
- Biogas at Rayong municipality (625 kW)
- Biogas from landfill at Khampeangsan (1 MW)

Progress in 3Rs Implementation

3Rs in Industrial sector

- CT/CP applications
- Green purchasing network
- Industrial waste exchange program
- Ministry notification on sorting, storage and residues management
Progress in 3Rs Implementation

- Take-back Program for End-of-life Products
  - Packaging and packaging waste
  - Mobile phone and batteries
  - Fluorescent lamp
  - Used lead-acid batteries and dry cell batteries

- Capacity Building on 3Rs
  - Regional Conference
  - Guidelines/manuals
  - Waste - specific containers
Progress in 3Rs Implementation

• Promotion for recycling-oriented society
  - Over 200 communities implement the 3Rs activities, some municipalities reduce waste up to 30-50%.

Progress in 3Rs Implementation

• Strengthen informal sectors on waste business: Green junkshop projects
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