

**Fourth Regional 3R Forum in Asia**  
“3Rs in the Context of Rio+20 Outcomes – The Future We Want”  
Ha Noi, Viet Nam, 18-20 March 2013

## **Country Analysis•Paper**

**(Draft)**

**< Thailand >**

---

This country analysis paper was prepared by Thailand as an input for the Fourth Regional 3R Forum in Asia. The views expressed herein do not necessarily reflect the views of the United Nations.

# **Country Analysis Paper**

## **- Major Initiatives and Achievements in the Promotion of 3Rs -**

### **Country: THAILAND**

#### **1. National Policy on 3R and waste management**

##### **(1) Government Policy**

Royal Thai government has proclaimed the policy to the parliament on land, natural resources and environmental policy. The government has necessitated mainly in the role of natural resources and environment for composing the people happiness and formulating the country potential in competition. The policy highlights on the integration management strategy between economic, social and environment known as sustainable development and strengthen the roles of all sectors and stakeholders to reduce the toxic wastes in trashes, hazardous wastes, air pollution, noise pollution and waste water, to endorse the environmental friendly production and consumption. Moreover, there must have plan to support in applying any technology for recycling wastes, protection of the pollution at the derivation, building up the potential and capacity of the local administrators on the wastewater management, solid disposal, and promoting the clean and green cities.

##### **(2) The National Economic and Social Development Plan**

The Eleventh National Economic and Social Development Plan (2012-2016) has developed under the philosophy that Thailand will be a happy society with equality, fairness and resilience. In the strategy for managing natural resources and the environment to achieve sustainability, there will have promotions of production and consumption that is environmentally sound in order to redirect the country toward a low carbon emission society. One important target is to create a more pleasant environment by reducing the pollution and threats to health from development, especially increasing of municipal solid waste disposal in a sanitary manner at least 50 percent of total solid waste and recycling rate at least 30 percent of total generation. Important strategies are management of an integrated urban environment by using innovative technology for wastewater and solid waste management, using the 3R principles (Reduce, Reuse, and Recycle). Local Administrative Organizations should build capacity to manage the environment efficiently with participation by all stakeholders.

### **(3) National Environmental Management Plan**

The Environmental Management Plan (2012 – 2016) is a specific plan for management of natural resources and environment that is to balance natural resources and environment, which links all areas together, basing on integrity and alliance. These include equity in procurement and utilization, capacity and value of utilization, and ecology and environmental quality conservation. In relation to 3R and waste management, the plan has objectives to reduce waste generation by applying 3R principle, economic instruments, incentives for pollution prevention such as promotion for cleaner technology and production (CT/CP), zero waste technology, green products. Additionally, there are strategies to increase capacity of local authorities in waste management, especially wastewater municipal solid waste household hazardous waste, infectious waste and waste from electrical and electronic equipment (WEEE).

### **(4) Pollution Management Plan**

The Pollution Management Plan (2012 - 2016) was developed by the Pollution Control Department Ministry of Natural Resources and Environment. It is master plan for pollution management in Thailand by considering different sources of pollutant indifferent sectors such as community, agriculture, industry and transportation.

In this plan, 3R principle is given as first priority for cost-effective management. The measures include source reduction, promoting 3R activities, support for waste related recycling business, waste to energy promotion, green industries and eco-town development. It is expected that solid wastes, air pollution wastewater and other pollutants will be managed to meet related criteria and standard for better environmental qualities in the future.

## **2. Major 3R Initiatives and Achievements**

The National Thailand's 3R Strategy applied integrated waste management by considering cradle to grave technique from production, distribution and consumption and recovery treatment and disposal. In detail, four steps of waste management in sound material – cycle society principle of Japan is used as model-based management. They are (i) waste and pollution reduction in production and distribution processes, (ii) reuse of wastes and products after consumption, (iii) recycling of non-reusable products and wastes, and (iv) proper disposal of unrecovered wastes.

Based on the developed National 3R Strategy, 3Rs programs are being introduced and implemented in all sectors and stakeholders including government, manufacturers,

communities and NGOs. In 2011, waste recovery rate was 26 percent of total generation which is mainly from recyclables recovery, composting and waste to energy. Major 3R initiatives and achievements are summarized as follows:

**(1) Social based Activity**

Social strategy focuses mainly on encouragement of knowledge and awareness rising to the public on environmental problems. These activities will lead to public participation in waste management such as campaign for environmental awareness, environmental education, public participation programs such as environmental monitoring volunteer, partnership in take – back program for end-of-life products, and community waste recovery group.

**(2) Research and Development**

The research and development on 3R and waste management are mostly conducted by government units, education institutes, and business sectors. Supportive measures include funding and incentives for research, pilot project and establishment of research network and technology. These would help to promote waste reduction, recovery, utilization and disposal such as research and application of clean technology, methodology development for life-cycle analysis, promotion for eco-design strategy and research on waste- to - energy for municipal solid waste.

**(3) Capacity Building**

The strategy aims to support knowledge on 3R programs and other practices to all involved organizations by transferring experiences, technical guideline suitable technologies which may promote 3Rs activities such as regional 3R conference, 3R information through 3R knowledge hub, training programs on 3R and waste management and technical guideline on waste reduction and recovery.

**(4) International Cooperation**

It is focuses on cooperation with other countries and international environmental organization in study, research knowledge and technology transfers on 3Rs. Additionally, Thailand also proceeds pollution control measures in compliance with international agreement or commitment such as the Basel Convention.

**(5) Economic Instruments**

Economic instruments (EIs) are applied for changing consumption behaviors as well as promoting waste reduction and recovery. Example of EIs applied include deposit-refund system for lead and acid battery, marketing promotions for green products, pilot project for purchasing environmental friendly products and services in governmental organization and promoting private sectors in waste processing and recycling activities by the Board of Investment (BOI) investment supports.

#### **(6) Regulatory System**

The strategy focuses mainly on existing law amendment, strike enforcement and developing a new regulatory or code of practice to promote 3Rs activities such as the Drafted Law for Promotion of Waste Reduction and Utilization, guideline and standard specific waste containers, requirement for the products made from recycled materials, the ministerial announcement on import of certain recyclable materials, and code and practice for municipal solid waste management from generation, separation, transportation, recovery, treatment and disposal.

### **3. Promotion of 3R Technologies**

To drive 3Rs principle into implementation for all stakeholders, Thailand has introduced an enabling environmental sound policy on modernized waste management, as indicated in the Environmental Quality Management Plan and the Pollution Control Plan. The policy focused mainly on applications of integrated and appropriate technologies for environmental sound management of emerging wastes, promotion for effective institutional and financial frameworks towards supporting waste reduction and segregation, improving efficiency of collection and transport, setting up community recycling facilities, shifting from open dumpsite to sanitary landfill, integration of carbon credits and waste management, and encouraging eco-industries and their supply chains. To promote 3R related technologies, central government has conducted specific policies and strategies as follows:

#### **(1) Capacity Building**

Capacity building on the waste management has been implemented by conducting workshops and training courses for waste-related administrators, waste management managers and workers, as well as initiating pilot projects on the proper waste management regarding segregation, reuse, and recycle in communities. These can

help to promote understanding 3R and waste management technologies to local authority and community

### **(2) Guideline, Measure, and Standard**

The instructions considering the proper waste management, such as ways to reduce, reuse, and recycle wastes as well as the ways to dispose of properly, has been developed and disseminated as a guideline for local community. In 2003, the standard concerning the specification of the waste containers had been announced in order to stipulate the proper waste containers for different types of wastes with a view of enhancing the 3R businesses. Quality control standard for products and packages that produced from recycled materials has been studied and published in order to improve the product qualities and to promote uses of recyclable products and its related technologies.

### **(3) Incentive Policy**

Government has promoted co-incineration of wastes in cement kilns as one optional waste disposal other than landfilling, since 2001. The benefits of this program are both energy and material recovery. The program also supports the energy replacement for coal or coke and promotion for alternative waste management technologies. At current, there are incentives from the Ministry of Energy for waste to energy promotions such as adder for electric produced from wastes and subsidy of oil produced from waste plastics. These incentives programs usefully promote 3R related technologies such as waste to oil plants and RDF facilities, and waste producing electricity into local waste management.

## **4. Management of New Emerging Waste Streams**

Household hazardous wastes, infectious wastes and WEEE are managed in other means separated from municipal solid wastes. Policy, initiatives or measures in dealing with new emerging waste streams are listed as follows:

### **(1) National Policy**

National policy dialogue on management of household hazardous wastes, infectious wastes and WEEE is addressed in the Eleventh National Economic and Social Development Plan (2012-2016) and the Environmental Management Plan (2012-2016). The policy mentioned importance of development a sound management system for those

mentioned emerging wastes. Many strategies were introduced including development infrastructure for waste management centre, environmental monitoring to prevent illegal dumping, use of extended producer responsibility principle, development of law and regulation to control import/export wastes, promotion for research and technology for cost-effective management.

### **(2) National Integrated WEEE Management Plan**

The plan aims to provide system management of WEEE by all stakeholders such as government organizations, manufacturers, distributors, consumers and local authorities. Many programs has implements under the plan such as promotion for eco-design, development of product testing center and network, campaign for reuse and recycling of WEEE, feasibility study on product charges, take-back programs and producer responsibility and development of guideline for environmental sound recycling business.

### **(3) Capacity Building**

The capacity building is an important program that helps local authorities to management household hazard wastes generated in their areas. Objective is to create effective mechanism for waste separation, collection, storage, transportation, treatment and disposal. Various activities are implemented such as training programs, support for overall management plan, dissemination knowledge through manual/ seminar and support for specific containers for waste separation campaign.

## **5. Promotion of 3Rs in Industry and Business sectors**

### **(1) Policy Plan**

The Ministry of Industry has created the business opportunities by improving people, increasing knowledge- based, technology, innovation and creativity based on the concept of environmentally-friendly manufacturing industries. Moreover, the government has adopted His Majesty the King's idea of "Sufficiency Economy" in order to continually develop the country forward sustainability.

In addition, the Ministry of Industry as the main department of industry development has strategically planned to support the development of the industry and the sustainable development.

## **(2) Achievements for Promotion of 3Rs**

The goal of environmentally -friendly production is to cause Thailand become a low-carbon society, create appropriate rules to make the balance between industrial development and environmental sustaining, and promote the "Polluter Pays Principle" and the idea of "Payment for Ecosystem Services" in a concrete way.

The Ministry of Industry launched the project of "Green Industry" in 2011 so as to encourage the industries in the Country to be more environmentally-friendly, and more responsible to the society. This is according to the fact that we need the society to stay happily together with the industry while the sustainable development could be achieved.

It is such a pleasure that the Green Industry project has received a great deal of cooperation from all parts. This has made the project grow as planned. It can be seen as a good sign of the country. The Ministry of Industry would like to thank all partners on this occasion and hopes that all organizations which have received the Green Industry license will continue to move up to the next steps. The Ministry of Industry also would like to persuade anyone who haven't applied for the Green Industry to take part in this project so that Thailand can achieve the development equilibrium and have the bright future.

The Ministry of Industry, Department of industrial works has created many projects related about development of green industry such as CSR GREEN NETWORK-DIW: Flagship project, EMS for SMEs project, Energy Management System, Eco Industrial Complex to become Green Industry.

## **(3) Achievements project to support the Green Industry plan**

The Ministry of Industry has joined forces with all related industrial organizations including network institution, Provincial Industrial Bureau, Provincial Industrial Estates and all industrial estates to promote all national entrepreneurs pay more attention in doing business that being friendly to environment and continual development to become "Green Industry" in 5 project dimensions as follow:

### Dimension 1:



Green Database such as LCI-LCA Product database, Carbon Footprint data, GHG Management, and Green Industry database.

Dimension 2:

Green Knowledge such as The Development of staff efficiency and network efficiency, and to give knowledge and understanding about Green Industry.

Dimension 3:

Green Process/Manufacturing such as Promotion of Clean Technology project, Energy Saving for Small Enterprises project, Management of Resource Efficiency by Using 3Rs Principle, Green Productivity project, Reduction CO2 emission by CDM.

Dimension 4:

Green Material such as Zero Waste to Landfill by Waste Utilization Demonstration Project (2009-2013) to promote 3Rs activities in Industrial Waste Management and to reduce waste to landfill. Metal Recovery Project (2009-2012) to conduct simplified metal recovery technology for E-waste and to transfer simplified technology for commercials

Dimension 5:

Green network is the demonstration of network extension throughout green demand chains by promotion business partners and allies entering into accredited green industry process such as Eco-Industrial Development Pilot Project (At Rojana Industrial Park 2010-2014) to implement Eco-Town Concept and 3R activities in industry and communities and to enhance network capacities of Recycling-Oriented Society

Dimension 6:

Green Product such as Green Label and Carbon Label Project, Road map for promotion of green product.

Dimension 7:

Green Technology such as Waste Recycling Technology and Waste to resource.

## **6. Promotion of 3Rs in Agriculture and Rural Sectors**

In Thailand, most people dwell in rural area and agriculture is the most popular career. Every year, there are millions of ton of waste generated in rural area including biomass and general solid waste. Due to lacks of systems management, the waste generation is disposed of by illegal dumping and open burning. These unsanitary disposal practices majorly cause regional haze, nuisances, and diseases from vectors. Recently, government has initiated policy, strategies and plan to cope with these problems. Major achievements include:

### **(1) National Master Plan for Open Burning Control**

The National Master Plan for Open Burning Control was developed under ASEAN Agreement on Transboundary Haze Pollution. In details, there were technical working and conference, leading to development the plan, such as ASOEN Haze Technical Task Force - ASOEN HTTF and ASEAN Ministerial Meeting on Haze – AMMH. Under the concerns of cabinet, the master plan aims to control open dumping by promoting agriculture and solid wastes utilization, strict use of law enforcement campaign for public education and participation and supporting sound waste management with application of 3Rs.

### **(2) Alternative Energy Development Plan: 2012-2021**

Most of energy consumed in Thailand depends on import from oversea and will be subjected to variations in prices and quantities. Promotion alternative energy is an excellent solution to reduce energy import and risk from uncertainty of energy insufficiency. Therefore the Alternative Energy Development Plan (2012-2021) was developed to aim driving the use of alternative energy up to 25 percent of total energy consumption in the next 10 year. In addition to solar and water energy, energy from biomass, biogas and solid waste shall be produced at 4,390 MW by the year plan. The strategies used include promoting community cooperation, incentives for private investment, research and technology support and improvement of existing facilities This is significant plan promote agriculture and solid wastes utilization.

### **(3) Promotion of Community Based Waste Management**

In general, local administrators, responsible for solid waste management in rural areas lack of capacity on management of their waste generation. Due to the problems of budget and personal supported to the local authorities, a new technique called community

based waste management was introduced to increase efficiency of waste management in community level. This technique is based on effective management of waste under limited resources by applying local wisdom- not a complicated technology. Example of simply programs of 3R and waste management in rural area are the use of composting, waste donations, organic waste feeding application and community zero waste programs.

