

All Sector Participatory Management of Hazardous Waste from Communities**State of the Problem and Impact**

1. Here, hazardous waste from communities refers to waste material or equipment containing hazardous substances used in households and communities such as aerosol sprays, insecticides, used batteries, used light bulbs, used cell phone batteries and used electrical and electronic equipments, etc.
2. According to the Pollution Control Department's report on the volume of hazardous waste from communities, which is part of the State of Thailand's Pollution in Year 2008 summary report, it was found that communities produced 410,000 tones of hazardous waste annually. Furthermore, at the present time, people are encouraged to speed up their consumption of goods in response to advancing technology, creating more waste from electrical and electronic equipment. Data from the Pollution Control Department's Project to Establish a Standard of Recall for Waste Electrical and Electronic Equipment showed that in 2003 and 2004, 58,000 tones and 70,000 tones of waste electrical and electronic equipment were created, respectively. The rate of increase was 12% per year.
3. Most hazardous waste from communities is not properly handled. They are processed together with other waste because local waste management agencies do not have a specific place for the handling of hazardous waste from communities. People keep hazardous waste such as waste batteries and waste fluorescent bulbs inside their homes. Some hazardous waste from communities such as car batteries can be reused; nevertheless, recycling is not widespread because the technology is still expensive and lacking state support. Furthermore, relevant laws do not facilitate efficient hazardous waste collection from communities in the respect that there is a lack of clear regulations and guidelines for certain procedures; for example, there is no mechanism for the recall of waste products.
4. At present, Thailand is in the process of developing an appropriate system of management for waste electric and electronic equipments. The present practice is that waste electric and electronic equipments from households are collected by recyclers and some parts are donated to agencies who in turn sell them to these recyclers, who then take the equipment apart for resale. Material that cannot be resold is thrown away without any proper management. This practice makes it difficult to control the elimination of waste electric and electronic equipments in a correct and safe way since there is no oversight system and it is not possible to collect data on the volume of waste electric and electronic equipment in the country, which is expected to increase every year and which is important information that would contribute to good management planning.
5. Another significant impact from improper management of hazardous waste from communities, especially community hazardous waste containing pollutants, is environmental contamination and harm to the people's health and the environment. From a case study conducted at Tambon Koke Sa-ard,

Khong Chai District, Kalasin Province¹, a village where people make their living from trading recyclables. These villagers go out to buy waste items and disassemble them. Each month, approximately 64 tones of waste electric and electronic equipments are disassembled and the parts are sorted here. These include, in descending order, electric fans, refrigerators, television sets, computers, washing machines, air-conditioners, electric rice cookers and C.D. players. Remaining parts are thrown away, some items such as power line parts or plastic parts with some metal attached, are incinerated to extract valuable material. Open air incineration creates an accumulation and spread of toxic substances coming from electrical equipment parts, contaminating the environment. A soil test of the incineration area showed the lead content to be 79,520 milligram/kilogram and showed the copper content to be 39,161 kilogram/kilogram. Heavy metal collected in the soil may spread to people who dig into the remaining debris with bare hands and consequently enter the food chain. Furthermore, a Sukothai Thammatirat University research in the Health and Environment Promotion for Garbage Diggers and Related Workers Project, which studied a population of 276 people comprising garbage diggers, families of garbage diggers and tricycle recyclers, found that all members of the target group had high levels of manganese, arsenic, lead and chromium, in descending order, which are substances having direct impact on the people's health.

6. Most hazardous waste from communities such as waste batteries, aerosol spray cans and waste electric and electronic equipments have hazardous substance components and have direct or indirect effect on human health and the environment; for example, waste electric and electronic equipments have carcinogenic bromine components in the power line box and circuit board; lead, which is used in joining battery parts, destroys the nervous system, blood system and brain development when it enters the body; cadmium is a component in semi-conductors and causes severe lung infection, renal failure and itai itai disease; and mercury in fluorescent rods and switches destroys the central nervous system when it enters the body, etc. Apart from this, polycyclic biphenyl-PCB, polybrominated diphenyl ether-PBDE and polychlorinated dibenzo-p-dioxin/polychlorinated dibenzofuran-PCDD/PCDF are toxins that have a long time residual effect on the environment (Persistent Organic Pollutants-POPS) and are dangerous to human health.

Relevant Policies and Measures

7. The major legislation governing hazardous waste from communities, the Public Health Act, B.E. 2535 (1992) and the Amended Public Health Act, B.E. 2550 (2007), empowers local administration bodies to issue local regulations for the control and management of garbage; the drafting of plans for the collection, transport and elimination of garbage; the collection of fees and the assigning of other persons to perform the mentioned acts under the supervision of the local administration body; or permitting any person to do business or take benefit from collecting, transporting or eliminating waste by collecting fees. At present, the Ministry of Public Health is in the process of drafting a

¹ Report on the Study on Impact and Guidelines of Participatory Waste Management, 2009., Supported by the Asia Foundation (Thailand)

ministerial regulation on the management of hazardous waste from communities.

8. The National Environmental Promotion and Conservation Act, B.E. 2535 (1992) governs hazardous waste in situations where other laws do not provide such coverage and supplements other existing specific laws. According to this Act, in cases not specifically prescribed by other laws, the Minister of Science and Technology is empowered, with advice from the Pollution Control Committee, to issue ministerial regulations stipulating control over the kind and type of hazardous waste created by the production or use of hazardous chemical or materials in an industrial, agricultural, public health production process and in other businesses. The ministerial regulation may indicate the criteria, measures and methods for control and collection, maintaining safety, transport, import into the Kingdom, export from the Kingdom, treatment and elimination of such waste by an appropriate method which is correct according to relevant academic principles and the principles for use of hazardous substances. It may also indicate that hazardous waste released into the environment must not exceed the environmental quality standard set by law through this ministerial regulation. In 2002, the Pollution Control Department conducted a study project for the setting up of a hazardous waste elimination center to increase the country's capacity in collecting and eliminating hazardous waste from communities to at least 50% of the hazardous waste volume created in 2006, as laid down by the Environmental Quality Management Plan (2002-2006) to reduce hazardous waste from communities.
9. The import and export of community hazardous waste is governed by the Hazardous Substance Act, B.E. 2535(1992), which is enforced to coincide with the Basel Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their Disposal. According to this law, hazardous wastes are controlled as hazardous substance type 3 and the production, import, use or possession of such substances requires permission from the Department of Industrial Works.
10. Facilities treating or eliminating hazardous wastes including sorting and recycling facilities are required to comply with relevant rules and regulations under the Factory Act, B.E. 2535 (1992), which is the major legislation governing the industrial factory business such as the registration of a factory, the control of pollution released from that factory and the elimination of hazardous waste. The law also governs sorting and recycling factories, as well.
11. The Extended Producers Responsibility-EPR principle is an internationally employed principle for the management of waste electric and electronic equipments since it is a way to support the design and production of electrical and electronic equipments that are environmentally friendly and makes repair, upgrading, reuse, disassembling and recycling easier. The European Union's Waste Electrical and Electronic Equipment directive's major prescription is that entrepreneurs must be responsible for the expenses of eliminating their own waste electrical and electronic equipment². The RoHS directive promotes safety in recycling electrical and electronic equipments by prescribing that electrical and electronic equipment sold in the European Union must be free of

² Details and opinions on WEEE are taken from www.thairohs.org, retrieved August 2009.

lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyl and polybrominated diphenyl ethers³.

12. **The Strategic Plan for the Integrated Elimination of Waste Electrical and Electronic Equipment** proposed by the Pollution Control Department, Ministry of Natural Resources and Environment comprises 5 sub-strategies: 1) development of appropriate technology and methodology for the elimination of waste electrical and electronic equipment and the production of environmentally friendly electrical and electronic equipment, 2) capacity building for the learning and participation process from all sectors in the management of waste electrical and electronic equipment, 3) enhancing the efficiency of law enforcement and development of legislation which facilitates the elimination of waste electrical and electronic equipment, 4) devising financial and fiscal measures as well as promoting investment to support the production of electrical and electronic equipment which is environmentally friendly and to support the management of waste electrical and electronic equipment, and 5) developing an efficient and comprehensive management system for waste electrical and electronic equipment.

Implementation Restrictions and Addressing the Issues

13. There are restrictions to the management of hazardous waste from communities since there is a lack of standard management systems; and a lack of legislation stipulating the existence of a garbage-sorting system and providing guideline for local administration. The local administrative bodies themselves face budgetary and management capacity constraints and are unable to devise a waste management system; and at present, land prices have risen, making it impossible to acquire land for the construction of a treatment/elimination facility. Furthermore, the people are not adequately informed about the dangers of hazardous waste, there is a lack of participation and entrepreneurs focus more on volume production than on quality considerations.
14. Past efforts in the management of hazardous waste from communities have focused on eliminating hazardous waste already produced by communities, which is a means of addressing the issue at the result side, and working on preventive measures including the reduction of hazardous waste created by communities. However, not much action has been taken both in driving public campaign measures with real plans and targets and in implementing promotional measure and control on the producers to take responsibility for their products.
15. In community hazardous waste elimination pilot project areas such as the pilot project area on fluorescent rods, a factor found to be contributing to success is creating an understanding with the people. When the people understand, they will co-operate in sorting hazardous waste and channel it to the appropriate disposal system.
16. The Strategic Plan for the Integrated Elimination of Waste Electrical and Electronic Equipment focuses on collecting, sorting, recycling and building entrepreneurs' capacity in competition. It also aims to have a management center for hazardous waste from communities but has no target to reduce the

³ Information about RoHS prohibited substances taken from www.thairohs.org, retrieved August, 2009.
Main document on All Sector Participatory Management of Hazardous Waste from Communities

volume of waste electrical and electronic equipment, whereas volume reduction is the correct approach in proactively addressing the issue.

Issue for Consideration by the National Health Assembly

The National Health Assembly is requested to consider document: Health Assembly 2/ Draft Resolution 5.