

## Chapter 6

### Transboundary Movements of Recyclable Resources in Southeast Asia

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#### INTRODUCTION

The controls on the transboundary movements of recyclable resources differ widely among the various countries of Southeast Asia. This chapter looks at the regulations governing imports of hazardous wastes and secondhand goods in six

countries: the Philippines, Vietnam, Thailand, Malaysia Singapore and Indonesia, and introduces some of the problems relating to transboundary movements of wastes that led to the enactment of the regulations<sup>1</sup>.

#### SECTION 1: THE PHILIPPINES

In the Philippines, the Act to Control Toxic Substances and Hazardous and Nuclear Wastes (Republic Act No. 6969) of 1990 provided the basis for a 1992 ministerial ordinance issued by the Department of Environment and Natural Resources (DENR) establishing detailed procedures for the import and export of hazardous

wastes. DENR has subsequently issued numerous additional ministerial ordinances to toughen the regulations. The regulatory framework follows that of the Basel Convention.

A summary of the hazardous wastes permitted for import by the Philippine government in 2003

**Table 6-1: Hazardous Wastes Imported by the Philippines (2003)**

Waste commodity	Volume	Exporter
Lead Solder Dross / Tin Alloy	1020MT	Thailand
Scrap PVP Plastics	20200MT	Germany
Scrap PVP Plastics	536.67MT	Netherlands
Used televisions	100MT	Japan
Used televisions	900units	Korea
Regenerated automotive batteries (ready for use)	17632kgs	Japan
Electronic assemblies and scrap (used television sets, used air conditioners, used amplifier stereos, used electric guitars, used keyboards (manual type)) etc.	595pcs in total +	Korea
Drained whole lead acid battery scrap	30units	
Scrap lead acid batteries (drained whole batteries)	5000MT	Sri Lanka
Scrap Lead Acid Batteries (drained whole batteries)	5000MT	Bulgaria
Scrap Lead Acid Batteries (drained whole batteries)	13000MT	Singapore
Electronic assemblies and scrap (used television sets, used air conditioners, used stereo components, televisions, used videogames)	465pcs in total	Japan
Waste plastics	3000MT	Germany
Non PCB transformers (drained)	308pcs	USA
Used oil without traces of polychlorinated biphenyls (PCB)	12600000litters	Oman
Scrap aluminum metal	1200MT	Japan

Source: compiled from Department of Environment and Natural Resources data

<sup>1</sup> Aside from the literature listed in the References at the end of this chapter, the information of the national reporting section to the Basel Convention Secretariat was used.

is presented in Table 1. Imports from Japan, Korea, and other nations included used household appliances. This is explained by the fact that the prior notification and consent requirement for “all electronic assemblies containing printed circuit boards”, and “electronic components containing hazardous substances, such as T.V.s, VCR and stereos, etc.” outlined in the DENR ministerial ordinance of 1994 “Interim Guidelines for the Importation of Recyclable Materials Containing Hazardous Substances” also applies to used household appliances. However, the authorities were not notified of imports of used PCs from Australia found in a market in Manila, and there is a strong possibility that some imported secondhand goods are not being reported.

Added to which, regenerated batteries and aluminum scrap, which, following the Basel Con-

vention, are exempt from the pre-notification and approval requirement in Japan are subject to this requirement in the Philippines, giving some indication of how broadly the definition of hazardous waste is interpreted in the latter country. In such instances, the government of Japan is required to notify the government of the Philippines that the cargo is not regarded as hazardous waste, after which the government of the Philippines singularly takes a decision authorizing the import.

KP Chemical Inc. in the Philippines imports PET bottles from Europe as bales (PET bottle waste compressed into blocks). The company is Korean and it has a Korean president in residence. It exports PET flakes that have been shredded and washed in the Philippines to China. It imports and processes 200 tons of scrap PET plastics a month, but is investing in

**Table 6-2: Hazardous Wastes Exported by the Philippines (2003)**

Waste commodity	Volume	Exporter
Agrochemical wastes	300kgs	Netherlands
Printed wiring boards	360MT	Japan
Sludge containing silver	1520MT	Japan
Waste motor fuel antiknock mixture sludge	107MT	United Kingdom
N, N-Dimethylformamide Formic Acid Dimethylamide, DMF	130MT	Finland
Polyetherpolyol Polyisocyanate and Detergent EVA Clean Mixtures	140MT	Finland
Precious metal and copper residue, non-ferrous metal hydroxide filter cake	1600MT	Germany
Waste grinding sludge and oil/water mixtures	105MT	Finland
Printed Writing Boards	200MT	Japan
Hydrocarbon and organic contaminated packaging materials	20MT	Germany
Discarded printed wiring	82MT	Singapore
Electronic scrap (printed wiring boards)	382MT	Singapore
Copper sludge	1200MT	Japan
Inkjet printer ink, organic solvent carbon black dye and miscellaneous contaminated wastes	288MT	Finland
Expired organic chemicals / discarded organic chemicals	300MT	Germany
Mould runners	18MT	Japan
Various wastes (transistor rejects (T/R), copper chips, copper frame)	36MT	Japan
Silver sludge	40MT	Korea
Scrap metal	120MT	Japan
Chemical solvents	500MT	Finland

Source: compiled from Department of Environment and Natural Resources data

equipment to expand its processing capacity to 1,000 tons per month. As confirmed by Table 1, the company is undertaking the prior notice and consent procedures when importing bales of PET bottles into the Philippines<sup>2</sup>.

The exports that were subject to the prior notice requirement are shown in Table 2. Sludge with copper and silver reaches 58 percent of total export in terms of volume. Of particular interest are its waste fluorescent light tube exports to Japan in 2002. Large factories waste large quantities of fluorescent light tubes every month. Japanese factories with a workforce of approximately 6,000 waste more than 1,500 fluorescent light tubes per month. Properly processed it with sufficient cost is possible to recycle metal, mercury and glass of the tubes, but there are no companies with the necessary processing capability in the Philippines. Accordingly, arrangements were made with TERM (Total Environmental and Recycling Management), the recycling arm of the Toshiba Group, and Toshiba's Philippine factory, having solicited

the participation of other Japanese companies located in the same industrial park, began exporting their waste tubes to Japan for recycling in 2002.

HMR, an Australian company dealing in used products, has built and is operating a plant for dismantling PCs. It collects processing fees from clients—companies producing end-of-life PCs in large quantities, etc.—and recycles them. HMR has introduced machinery for separating the funnel glass of the monitor, which contains large quantities of lead, from the front panels of the monitor. They began exporting glass cullet (crushed glass) to South Korea in 2004. The printed circuit boards (PCB) are also being exported to South Korea as there are no suitable recycling facilities in the Philippines.

The Philippines might thus be termed an active importer and exporter of waste and used products containing hazardous substances under its pre-notification and approval regulations.

## SECTION 2: VIETNAM

Under Vietnam's Law on Environmental Protection (established on December 27, 1993 and enacted on January 10, 1994), "wastes" are defined as "substances discharged from daily life, production processes or other activities. Wastes may take a solid, gaseous, liquid or other forms" (Article 2). The import and export of wastes is then prohibited in Article 29 of the law.

However, there are instances when the restrictions are relaxed at the request of producers wishing to use certain recyclable wastes as raw materials. The policy lacks consistency and is affecting corporate activity in Vietnam.

Usui Metals Corporation, which collects copper and plastics such as PVC from coated wire scrap in Japan saw its profits from the recovery of low-copper content recyclable wastes deteriorate as wiring spec became increasingly sophisticated and the materials more complex, and the client companies that used the recyclable mate-

rials began shifting production overseas. In 1994, it began outsourcing the work to a Vietnamese company. It provided the necessary equipment and dispatched technicians and contrived to transfer the technologies by providing one-year trainings for Vietnamese workers in Japan. Its exports of coated copper wire from Japan have reached around 3,000 tons annually. In an effort to expand the business, Usui Metals was planning to establish a joint venture company, but was forced to pull out in 2001 when Vietnam tightened its import restrictions<sup>3</sup>.

Nevertheless, in April 2004, the government announced measures easing restrictions on imports of ferrous scrap, used paper and waste plastics (Ministry of Natural Resources and Environment, Ministerial Decree No. 03/2204/QD-BTNMT). The restrictions were issued after lobbying by industry proponents in consequence of dwindling supplies of weapons abandoned during the Vietnamese War, which had, until recently, provided a source of steel scrap.

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<sup>2</sup> Based on a hearing conducted at KP Chemical in July 2004.

<sup>3</sup> Based on New Energy and Industrial Technology Development Organization (NEDO), Japan Association of Industries and Environment [1998], and a hearing with Usui Metals Corporation conducted by the author in March 2004.

The ban on exports of wastes is also affecting business activity. In 1996, Fujitsu began operating a printed circuit board (PCB) production plant in Dong Nai Province near Ho Chi Minh City. It was unable to find a factory to recycle the copper chloride generated during the production process in Vietnam, and thus attempted to export the materials to Japan, but was unable to export the copper chloride in its existing form because the material is covered by the Basel Convention. It finally transformed the copper chloride to copper oxide and is exporting this substance to Japan<sup>4</sup>. This is one example of additional investment that was required in consequence of the ban on exports of hazardous substances.

### SECTION 3: THAILAND

Thailand has no specific laws regulating the transboundary movements of hazardous wastes, but controls trade based on the Hazardous Substance Act of 1992, which controls import and export of hazardous substances in general.

Its checks on imports of hazardous wastes are comparatively strict and approval can take time in certain instances. In one case, a factory involved in the cleaning of CRT (cathode-ray tube) glass attempted to import defective CRT glass produced by a television manufacturer in Singapore as unwashed glass cullet; partly because this was a first attempt, the company reports that it took more than two years to obtain the consent required to import<sup>7</sup>. Moreover, the government has a policy requiring that the residues from the recycling process should be also utilized. They turned it over to cement factories, for example.

Fuji Xerox began operating a plant in Thailand for dismantling and recycling copiers collected in the Asia-Pacific region (excluding Japan and China) in December 2004. It reports that the competent authority demonstrated wariness in regard to certifying the plant.

Thai government also worried that the Thai market would be flooded with e-waste, because

Technical guidelines on imports and exports of used goods were issued as a Ministry of Science, Technology and Environment Ministerial Decree (No. 491/1998/QD-BKHCNMT) in 1998, but were scrapped in 2003<sup>5</sup>. Trade in used goods is currently unrestricted. The area around Ton That Dam Street in Ho Chi Minh City is lined with businesses selling imported used PCs. Meanwhile, used Japanese radios and audio equipment are on sale in Hanoi. Second-hand construction equipment from Japan and Korea is being sold in large quantities along national highways on the outskirts of Hanoi and Ho Chi Minh City<sup>6</sup>.

China imposed a ban on the importation of crushed electronic and electrical products in 2002. In response, the Thai Ministry of Industry issued restrictions on imports of used electrical goods, PCs and other items in October 2003. Used copiers that are imported for reuse are required to have been manufactured less than five years previously, while all other electrical products (28 items) must be less than three years old. Imports of used electrical products that are notified to the authorities are inspected by the Ministry of Industry.

In response to a questionnaire from the Basel Convention Secretariat on hazardous substances covered by the controls on transboundary movements, the Thai authorities stated, in March 2003, that waste plastics are subject to the prior notification and consent requirement. Waste plastics are regarded as non-hazardous substances under the Basel Convention, thus Thailand imposes stricter regulations.

Thailand's cautious stance can be explained by repeated instances of hazardous wastes being dumped after import. In 1988, for instance, it was revealed that hazardous wastes imported from Singapore, Japan, and the US, were being dumped in areas around Klong Toey Port. An abandoned container filled with waste tires was

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4. Based on Matsumoto, Nakayasu and Yamakawa [2001], and hearing conducted at the Vietnamese plant in June 2004.

5. Based on the article entitled, "Decision regulating the withdraw of legal documents on used equipment import" posted on the Directorate for Standards and Quality (TCVN) website (<http://www.tcvn.gov.vn/>).

6. Based on a field survey undertaken in Vietnam in June 2004.

7. Based on a hearing with Siam Asahi Technoglass and Vuteq conducted in November 2004.

also discovered at the port in 2002. Since the restrictions on hazardous substances did not cover this waste commodity, it was not possible to impose the ship-back measure in this instance. In consequence, the Minister of Commerce imposed a ban on imports of waste tires in May 2003.

#### SECTION 4: MALAYSIA

Malaysia ratified the Basel Convention in 1993, and under Section 34B (amended in 1996) of the Environmental Quality Act of 1974, the receipt or shipment of any specified wastes into or out of territorial waters is prohibited without prior written approval from the Director General of Department of Environmental. The specified wastes subject to these restrictions are set forth in the Environment Quality (Scheduled Wastes) Regulations of 1989. Businesses involved in collection and recycling of scheduled wastes are required to obtain a license from the Department of Environment. A list of licensed businesses is published on the Department of Environment's website, and 57 companies were listed as of March 2005. Among scheduled wastes, there are specifications on the minimum content of reusable substances for exports of metal hydroxide sludge and spent catalysts (see Table 3).

In 2002, Malaysia exported 3,110 tons of sched-

Meanwhile, it has been pointed out that Thailand may be exporting hazardous wastes to Laos, among others, and there is thus a need for the country to beef up its controls on the transboundary movements of hazardous wastes, not only for imports, but for exports as well<sup>8</sup>.

uled wastes, including copper chloride and spent catalysts. In terms of destination countries, Japan accounted for 1,034 tons, followed by Italy (569 tons) and the US (532 tons). Exports of scheduled wastes were 6,698 tons in 1998 and 5,186 tons in 1999, evidencing a downward trend in terms of export volumes.

By contrast, between 1998 and 2002, Malaysia was importing copper slag, G.B. furnace slag and spent catalysts on a continuous basis. The G.B. furnace slag was imported from Japan, but was not reported by Japanese government because it is not regarded as a hazardous waste in Japan.

There is evidence that some hazardous substances are being imported illegally. Two incidents of unlicensed imports of industrial waste bound for Malaysia from Taiwan were uncovered in 2004. In total, the authorities found some

**Table 6-3: Malaysian Export Criteria for Hazardous Wastes**

Waste classification	Reusable substances	Minimum content (dry base)
Metal hydroxide sludge	Copper	10%
	Gold	0.05%
	Nickel	5%
	Silver	2.5%
	Zinc	20%
Spent catalysts	Chromium Oxide	10%
	Cobalt	20%
	Copper Compounds	10%
	Nickel Oxide	10%
	Nickel	8%
	Palladium	1.0%
	Platinum	0.2%
Zinc Oxide	10%	

Source: the Department of Environment's website [http://www.jas.sains.my/jas/jas\\_m/panduanlesen/dasar.htm](http://www.jas.sains.my/jas/jas_m/panduanlesen/dasar.htm)

<sup>8</sup>. See Sasaki [2004].

**Table 6-4: Quantity of Scheduled Waste Imports by Malaysia (1998–2002)**

(Unit: tons)

Type of Waste	Exporter	1998	1999	2000	2001	2002
Copper slag	Singapore	117,000	45,382	27,254	36,611	33,945
	Japan	–	12,391	–	–	–
	China	300,000	–	–	–	–
G.B. furnace slag	Singapore	–	–	–	90	170
	Japan	–	–	–	16,054	15,000
	China	300,000	104,917	93,673	15,622	–
	Korea	300,000	–	–	–	–
Spent catalyst	Singapore	16,000	4,040	4,948	1,565	6,878
	Japan	1,000	–	–	–	–
<b>Total</b>		<b>1,034,000</b>	<b>166,730</b>	<b>125,875</b>	<b>69,942</b>	<b>70,763</b>

Source: Department of Environment [2003]

7,000 tons of hazardous waste. The heavy metal concentration of the waste was reportedly very high. The Malaysian import license documents had been forged and submitted in Taiwan. Media attention focused on the fact that hazardous waste had leaked from some of the containers<sup>9</sup>.

## SECTION 5: SINGAPORE

Singapore acceded to the Basel Convention in 1996, and in 1997 established the Hazardous Waste (Control of Export, Import and Transit) Act, thereby setting up procedures for the import and export of hazardous wastes. This law was subsequently amended in 2003. Singapore's trade restrictions conform to the prior notification and consent framework of the Basel Convention.

One company in Singapore collects and recycles electronic waste (e-waste) from around the world. That company is Citiraya. Since around 1990 Citiraya has been operating a recycling business for wastes, such as the defective product generated by the semi-conductor industry during production processing, to recover the precious metals contained therein. It takes computers and so forth collected by manufacturers such as Hewlett-Packard (HP) from clients (mainly corporate) in China and other countries. Citiraya has also invested in pollution controls and reports the results of gas emission and effluent monitoring to the Ministry of the Environ-

ment through online. It has set up collection sites throughout the world and currently has sites in the UK, Germany, Italy and Brazil, as well as the Asian nations of Thailand, China, India, Malaysia, the Philippines and Taiwan. It has also built recycling plants in the UK and Wuxi, China.

Citiraya imports e-waste from around the world, but reports that it does not always undertake the procedures required by the Basel Convention. Since the Singapore government accepts that the company is recycling properly, when prior notice was sent from competent authority of an exporter nation, the Singapore government responds by stating that the shipment is "exempt" or gives the official "consent of the import". Citiraya is not bound by the prior notification and approval framework for imports of e-waste<sup>10</sup>. In fact, the Singapore government's report to the Basel Convention Secretariat on it imports of hazardous wastes in 2001, states that it imported no such waste materials that year.

<sup>9</sup> AFP: "12,000 tons of Toxic Waste enter M'sia with Fake Import License" (June 8, 2004) Borneo Bulletin: "Malaysia Finds More Taiwanese Toxic Waste" (June 17, 2004), New Straits Times: "Toxic Waste Watch at Ports of Entry" (December 21, 2004).

<sup>10</sup> Based on hearing conducted at Citiraya and Singapore's Ministry of the Environment in December 2004.

The government of Singapore is believed to have adopted this stance due to concerns that since it is not a member of the OECD, if it regards the e-waste being imported by Citiraya as hazardous waste then it will cease to be able to import e-waste from the EU and other countries that prohibit the exportation of hazardous waste to developing countries, and in respect of the time-consuming prior notification and consent procedures required when importing from other member countries of the Basel Convention. Its primary objective is to avoid hampering the activities of companies such as Citiraya that are operating appropriate recycling businesses.

Singapore has announced plans to become the recycling center of the ASEAN region. It set up a task force in 2001 comprising representatives from the Economic Development Board, the Trade Development Board (now International Enterprise Singapore), the Productivity and Standards Board (now the National Science and Technology Board), and others, which compiled an action plan aimed at making Singapore a Center of Excellence for recycling in the ASEAN region within ten years. This action plan highlights the following four areas.

- (1) To create a pro-environment culture both in the corporate world and in the community.
- (2) To develop an effective supporting infrastructure to help nurture the waste recycling industry.
- (3) To build a strong foundations for technology development and innovative application of technologies.
- (4) To create a vibrant waste management industry.

The waste management industry in (iv) above not only incorporates the recycling industry but also the engineering and logistics fields that provide essential support to that industry. It is also anticipated that these industries will absorb labor<sup>11</sup>. Singapore has already strengthened its enforcement activities in fields such as pollution control and there are thus few possibilities of improper recycling. The government has publicly committed to further development of domestic recycling industries as a means of absorbing labor.

## **SECTION 6: INDONESIA**

Indonesia ratified the Basel Convention in 1993. The previous year it was discovered that approximately 300 containers of imported waste plastics had been abandoned in the ports of Jakarta and Surabaya for want of importer, an incident that received extensive media coverage. The Minister of Trade announced a ban on imports of waste plastics in November of the same year. Seventy of the abandoned containers were shipped back to the Netherlands in 1995.

In 1994 the government issued an ordinance banning imports of hazardous wastes, but subsequently approved imports of lead acid battery waste in 1995 in the face of strong opposition from companies importing battery waste, such as car battery waste, for lead recycling. In 1991 it was revealed that the recycling of lead from imported lead acid battery waste was generating pollution, and the government force companies to implement pollution prevention measures

between 1992 and 1993. Under the Amended Basic Environment Law of 1997, a ban was again imposed on imports of hazardous wastes, and imports of lead acid battery waste were permitted only for the 5-year period ending September 2002. The law prohibited imports of this commodity thereafter.

The issue of whether or not excavated material generated during the construction of a subway system in Singapore should be regarded as hazardous waste or not has been the cause of repeated contention since 1995. Indonesia initially banned its importation, but the Singaporean company lobbied top officials in Indonesian government, and in 1997 Singapore began exporting the excavated material to Indonesia. Suspicious as to why Singapore should want to export soil generated in the republic when it was importing beach sand for landfills from Indonesia, and based on the results of haz-

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<sup>11</sup> Based on a press release relating to a speech given by Deputy Environment Minister, Lim Swee Say in September 2001. See <http://app.env.gov.sg/view.asp?id=SAS757> for details.

ardous substance analyses, in 2000, Indonesia's environmental minister sent a letter to the government of Singapore notifying it of a ban on imports of excavated material produced in the construction of tunnels, etc. Singapore's minister for the environment sent a response stating that it would not grant licenses for such exports. However, Indonesia's Ministry of Environment continues to receive inquiries from Singapore regarding imports of soil<sup>12</sup>.

In 2004, the local branch of the Environmental Impact Management Agency received a report that something resembling hazardous waste had been found on Galang Baru, one of the islands in the Batam islands. Investigations revealed this to be "fertilizers" that had been exported by a Singaporean company in August 2004, but analysis results showed it to be hazardous waste containing a high concentration of metals. Talks were held with the government of Singapore in the autumn, but Singapore has asserted that the consignment is not hazardous waste and the dispute continues<sup>13</sup>. Moreover, the government repeatedly receives inquiries from Japan and Tai-

wan regarding imports of hazardous wastes.

Indonesia has faced repeated problems in connection with illegal transboundary movements of hazardous wastes, which could explain why it has chosen to impose a ban on their importation.

Used paper, which is not regarded as hazardous waste, is subject to pre-shipment inspection. The restrictions are believed to have been created in consideration of religious and cultural beliefs and state that consignments must contain no documents that slander the Islam faith, nor licentious photographs or illustrations.

Imports of used cars are prohibited, except in certain areas. Imports of secondhand trucks are also banned, with the exclusion of particular kind of trucks such as freezer cars, which are not manufactured in Indonesia. It is also illegal to import used televisions, radios and other secondhand equipment<sup>14</sup>. As evidenced by the exemption on used machinery not manufactured in Indonesia, government policy is strongly in favor of promoting domestic industries.

## SECTION 7: CONCLUSION

The countries of Southeast Asia have various restrictions on transboundary movements of hazardous wastes. The Philippines makes active use of the prior notification and consent system and does many trade in hazardous wastes. Singapore encourages imports of e-wastes by deeming them to be non-hazardous (and thus not subject to regulation), and has announced a policy to become the recycling center of the ASEAN region. The Thai government considers that even if wastes can be recycled, the generation of residual debris is not desirable and has a policy that requires complete reutilization. Indonesia bans importation of hazardous wastes completely. Vietnam prohibits both imports and exports of wastes except imports some non-hazardous recyclable waste.

Bans are imposed on imports in light of past experiences as, for example, with waste tires in Thailand and waste plastics in Indonesia, where recycling technologies exist at the global level, or with factory loss and cleaned waste plastics, which are considered to be easy to recycle.

With secondhand goods, some countries, like the Philippines, require prior notification and consent for imports of used electrical equipment, while others, like Thailand, permit imports of such products on the basis of the year of manufacture. There are also countries that have essentially banned imports of used household appliances and used trucks with a view to protecting domestic manufacturers, such as Indonesia.

<sup>12</sup> See Chapter 5, Hilman[2003].

<sup>13</sup> Based on LKBN Antara: "Singapore Insists matter exported to Indonesia not Poisonous" (November 1, 2004) and a hearing conducted at the Batam Environmental Impact Management Agency.

<sup>14</sup> TV sets and other used household appliances are contained in the list of prohibited imports given in the Minister of Industry and Trade Decree on Imports of Used Equipment (756/MPP/Kpp/11/2002). The ban was effective until December 2003. The list contained in its successor, the Minister of Industry and Trade Decree on Imports of Used Capital Goods (756/MPP/Kpp/11/2003) also includes used household appliances, but the text can be interpreted to mean that only capital goods are subject to the ban. However, during a September 2004 visit to the markets of Jakarta, which used to be lined with stalls selling imported secondhand home appliances, no such products were found.



As evidenced above, there is wide national diversity on the trade restrictions applying to recyclable resources in Southeast Asia, but this might be said to be the reflection of the experiences of the various countries to date, by how developed their manufacturing industries are, and by how strictly pollution controls are being

enforced.

Illegal trade in hazardous wastes continues to be a problem in Southeast Asia and the various countries will need to strengthen their controls on imports and exports of recyclable wastes and to get tougher in enforcing them.

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