

Regional Workshop on the Environmentally Sound Management of E-Wastes
Siem Reap, Cambodia, from 13 to 15 March 2007

REPORT OF THE WORKSHOP

INTRODUCTION

1. Basel Convention Regional Centre for South-East Asia (BCRC-SEA), with the Secretariat of the Basel Convention (SBC) and the Ministry for the Environment of the Kingdom of Cambodia, organized a Regional Workshop on the Environmentally Sound Management of E-Wastes in Siem Reap, Cambodia, from 13 to 15 March 2007. The Workshop was funded by the Government of Japan.
2. The Workshop was attended by 50 participants from 6 Parties to the Basel Convention and 2 Countries in the Southeast Asia region and other regional organisations. The list of participants is presented in the proceeding.

1. Welcoming remarks

3. The Workshop started on 13 March 2007 at 9.30 with welcoming remarks from the director of BCRC-SEA, representative of SBC, and the Senior Minister Ministry for the Environment of Cambodia.
4. Mr. Aboejoewono Aboeprajitno, Director of Basel Convention Regional Centre for South-East Asia expressed his sincerest gratitude to the Ministry of Environment of Kingdom of Cambodia and the Secretariat of the Basel Convention for the cooperation in hosting and organizing this event. He also thanked all the resource persons who had traveled a long way to come and contribute to make the event successful. His welcoming remarks are as appear in the **Annex I**.
5. Mr. Ibrahim Shafii, on behalf of the Secretariat of the Basel Convention expressed his deepest appreciation to His Excellency Senior Minister Dr. Mok Mareth, Minister for the Environment Cambodia for taking the time, to be present at this auspicious occasion. He also extended his gratitude to the Ministry of Environment of Cambodia for hosting the workshop, to the Government of Japan for providing financial support and to the Director and staffs of the Basel Convention Regional Centre for South East Asia for the excellent organization of the workshop. His welcoming remarks are as appear in the **Annex II**.
6. Dr. Mok Mareth, Senior Minister of Environment, Kingdom of Cambodia, on behalf of the government of Cambodia, the Ministry for the Environment and himself, welcomed all delegates and expressed his sincere appreciation to the SBC and BCRC-SEA for the strong support and cooperation in organizing today's workshop. His welcoming remarks appear as in **Annex III**. The Excellency Minister then declared the workshop open.

2. Introduction to the Workshop and International Aspects

7. Mr. Aboejoewono Aboeprajitno, Director of Basel Convention Regional Centre for South-East Asia, provided an introduction of the objectives of the Regional Workshop.
8. Mr. Ibrahim Shafii, Secretariat of the Basel Convention, delivered a presentation on the **Overview of the Basel Convention Partnership Programme** on the ESM of E-

waste, in which he highlighted the E-Waste Classification in the Basel Convention, Environmental effects of uncontrolled recycling of e-waste with a Case Study in China and Hongkong's Observations and Enforcement from Jan 04 to Sept 05 on illegal traffic of e-waste. The presentation also included status of the Asia Pacific E-Waste project in terms of background, goal, strategic objectives, ongoing and completed activities as well as Work Programme for 2007-2008 and beyond under the Nairobi Declaration, and coordination with other e-waste related activities.

9. Mr. Lee Sanghyup, World Customs Organizations Regional Office for Capacity Building (WCO ROCB A/P), delivered a presentation on **Harmonized System & Unique Consignment Reference for enhancing Customs control**. He introduced the WCO and ROCB A/P, the challenges and role of customs and HS Code Amendment 2002/2007. The principle of Unique Consignment Reference, its association with transport data, examples, benefits and implementation strategy by WCO were also presented. It is concluded that more cooperation and coordination between customs and environmental agencies are needed and implementation at the local level is important.
10. Mr. Dennis Chan Tat Wah, Regional Intelligence Liaison Office for Asia and the Pacific presented a paper on **Monitoring System in Prevention and Detection of Illegal Traffic of E-Wastes/Hazardous Wastes**. It included background, objective and operation of the system, as well as role of involved participants in the system and sharing of experience.
11. Discussions following the above presentation are summarized as hereunder :
 - In relation to the presentation by WCO on HS codes, SBC informed the meeting that SBC had submitted proposal for inclusion of some of the Basel Waste list in the Harmonized System code of WCO. At the moment, it was still waiting for approval by the HS Committee regarding some wastes in particular on personal computers and e-wastes. Two waste streams were already approved which were on fly ash and waste paints, ink, etc. There was indication from WCO secretariat that it might be able to be implemented at the next revision of HS system in 2012. WCO revised HS codes every 5 years, therefore the country representatives in the meeting were suggested to encourage their national customs to be aware of these applications.
 - WCO's instruments on UCR were based on voluntary participation and had not yet set up time table for full implementation. First action to be done was harmonizing the data elements used by customs, to have the mechanism of information sharing thru UCR. In response to question on country specific code on used EEE, WCO responded that the HS Convention was basically made for the customs' purposes to customs duties and collect taxes. Six (6) codes were compulsory for every country and after that was flexible based on national needs. More information on countries having country specific code for e-waste needs to be further examined.
 - The tracking system of suspected illegal shipment on the Project Sky Hole

Patching had already been implemented for Phase I on 1 Sept 06 on ODS, and the focus for the second phase would be on e-waste and hazardous wastes starting from 1 March 07. Currently there were 20 customs administration already joined in the project.

- E-Waste issue was quite a new area in the region and national inventory was still ongoing to obtain information such as generation data, facilities etc. There was some limited information regarding national e-waste management. According to article 13 of Basel Convention, countries must declare to each other of facilities for hazardous wastes management and that the information was available on the BC website. More information will be obtained based on the still ongoing e-waste projects.
 - There was an issue of different definition and classification of e-waste and non-e-waste in different countries and this area had been identified as priority work to be done. Some countries not Party to the BC did not have PIC procedure for waste shipment, therefore it depended on the importing countries to ban the shipment. Transboundary movement of hazardous waste between a Party and non-Party could occur if there was a bilateral agreement under Article 11 of the Basel Convention.
 - Issues on legal definition and code of e-waste should be emphasized and information on that matter was shared among countries.
12. Following discussion, Mr. Liu Ning, United Nations Environment Programme Regional Office for Asia Pacific **introduced Experience and Lessons Learnt in Phase I of Project Sky Hole Patching**. He further explained on international environmental crimes assessment, background related to illegal trade, arguments on illegal trade in environmentally sensitive commodities, consultation on the operation, capacity building for the project, and information and intelligence exchange, impact and achievement of the Project, as well as the challenges and recommendation to overcome the challenges.
13. Ms. Kaoru Oka, Overseas Environmental Consulting Group, then presented on the **Comparison of Policies to Manage Waste Electrical and Electronic Equipment (WEEE) in European Union (EU), Japan & United States of America (USA)**. After explaining the policy framework of waste management in EU, concept of 3 R, and measures to manage WEEE in EU, Japan and USA, factors to be considered for environmentally sound management of WEEE were pointed out.
14. Discussions following the above presentation are summarized hereunder :
- Mr. Dadan Wardhana requested Ms. Kaoru Oka's opinion on the most suitable recycling scheme for developing countries. He mentioned some information on a scheme in Netherlands where the price of the e-product was inclusive of the recycling fee and there was system for e-waste collection there, but in the importing country which was Indonesia, and also other developing countries, such system did not exist although the price for the e-product sold in Indonesia was also inclusive of the recycling fee.

- Ms. Kaoru Oka responded that in Japan, there was still discussion ongoing as to the most suitable options, whether fee was inclusive in the product or charged upon discarding and it was hoped that decisions on that matter could be reached this year. Also in response to question from Dr. Nasir Hassan on whether manufacturers in Japan was responsible on recycling of e-product sold from Japan to other countries, she responded that at the moment, they were not. In Japan, the recycling fee was charged upon discarding, and if the importing countries also established the same system, where consumers pay for recycling fee when discarding the used EEE, the manufacturers or importers would be responsible for the recycling. The government of Japan could not control exported e-products.
- The phase 2 of the project Sky Hole Patching would include all streams of hazardous waste and the time period would be based on review of ongoing project results.
- Regarding question from Malaysia as to why the recycling fee is quite high in Japan, Ms. Kaoru Oka replied that this might be due to labor cost and the establishment of facility, since most manufacturers established new recycling facilities for the implementation of the Home Appliances Recycling Law, but the high cost was mostly due to labor cost (dismantling, sorting, put in shredder machines process etc).
- SBC shared an information that in Switzerland, the recycling fee was inclusive in the product, e.g Mobile Phones to be collected by dealers and sent to recycling facility. All discarded appliances would be considered for recycling as the fee already paid for and would be treated the same way (collected and sent to recycling facilities). The net income come were from 2 (two) sources, which were the recycling fund and from the recycling of useful materials. It was difficult to compare recycling fee between countries due to different economic factors and individual country's policy.

3. Presentation by participating countries on the e-waste management activities and issues, including cases of illegal traffic of e-wastes/hazardous

15. Following this general discussion, each participating country made a presentation on their activities and issues on e-waste management, including cases of illegal traffic of e-wastes/hazardous wastes. It is apparent that :
- Environmentally unsound management and illegal traffic and dumping were still major issues that needed to be seriously addressed
 - Most countries had not yet established specific classification and regulations on e-waste management
 - Some countries had completed and or have ongoing projects on e-waste inventory
 - Most countries do not have strategic management plan for e-waste.

The presentation materials are attached to the report.

16. Discussion summary after the country presentations is as in the following :
- Each country had different national definition and classification on e-waste and this issue needed to be resolved
 - In the e-waste issue, Dr. Nasir Hassan (WHO) commented that Thailand was relatively advanced and initiatives taken could be the model for the region. In response to Philippine's question on how to handle Mobile Phone's battery that was not supplied by original manufacturers in the Pilot Project in take-back MP, Thailand responded that the solution was to cooperate with all stakeholders e.g provider, importer, recycling and disposal company so that the recycler would accept any brands.

4. E-Waste Management Issues

17. The session of 14 March 2007 commenced with a presentation by Mr. Damien Hall, Director of Hazardous Waste Section, Department of the Environment, sharing **Australian's experience in controlling transboundary movement of e-waste and end-of-life mobile phones**. It was concluded that cooperation between government and industry needs to be continued and also combined responsibility of governments, industry and the community to continue to work together.
18. Mr. Dadan Wardhana H.S introduced **the Draft Technical Guidelines for e-waste inventory** which was currently undertaken by BCRC-SEA.
19. Ms. Kaoru Oka followed with her presentation on **draft guideline on e-waste inventory development in Cambodia, Thailand and Vietnam**.
20. Discussions following the above session are as summarized hereunder :
- Thailand raised questions on how Australia differentiated between used electrical and electronic equipment (EE) and wastes, how to promote recycling in Australia particularly the used EE, and if all printer cartridges were considered as hazardous wastes.
 - Australia responded that printer cartridges were considered as hazardous wastes and tried in the environment domestically to promote recycling of them. There were two (2) steps to differentiate between used EE and wastes, which were the requirement under the Basel Convention in terms of characteristics and hazardous characteristics combined in the material for exporting, and a set of criteria and policy circulated through industries in Australia through major education programs to give consideration on what was considered as hazardous wastes if they were to be exported, and it was done in regular basis. In terms of e-wastes, Australia developed a guideline criteria to determine whether the waste is hazardous wastes, or non-hazardous wastes, or products. For final disposal, recycle and recovery would normally be considered as hazardous wastes. Anything in working order would be considered as non-hazardous wastes. Recycling promotion was done at different levels through states and territories. Each territory has its own requirement for recycling and promotion was done in

normal fashion depending on the budget and focus on each territory, and at the moment e-wastes was one of the focus. Promotion was conducted through media campaign, education, schools, etc.

- In response to direct questions from BCRC-SEA regarding whether Australia exported used EE to developing countries and how to monitor it as well as the policy on e-wastes, Australia informed that two (2) permits had been granted, one of them was to Fuji Xerox that exported e-wastes that Australia had sanctioned, to Fuji Xerox Facility in Thailand, which was the only legal export in close loop EPR. The monitoring was performed through normal monitoring process under the Basel Convention, and Australia also submitted national reporting to the SBC on annual basis. Policy on e-wastes was continued to be reviewed on annual basis given the role of the government, the IT industries and different sectors through Australia. At this stage, anything for final disposal, major refurbishment or recycling would be considered as hazardous wastes and could only be exported under the PIC procedures and otherwise would remain and be traded in Australia depending on requirement of each state and territory. Donation was only for used EE in working order and also under the PIC procedures.
- Also in response to Malaysia's question on how to regulate e-wastes in Australia, whether they were regarded similar to other hazardous wastes, Australia informed that dismantling of components of e-wastes were done in a controlled way under the state and territory's regulations. The landfill was regulated to correct procedure and must meet certain criteria to be environmentally safe, and also for other process associated with e-wastes including for exporting.
- Regarding on question whether domestic consumer of producer pay for recycling fee and public participation from Cambodia, Australia responded that both parties paid for the fee. In terms of big companies, they had take-back scheme of their product at the end of their warranty and the used EE would be processed by the company itself. The consumers would pay premium on purchasing. On public participation, there were lots of work in Australia, where voluntary, public, local and government level were all involved in recycling activities in different stages depending on the states and territories' requirement. There was high public interest in recycling in Australia.
- In response to Indonesia's suggestion that electronic and electrical manufacturers as well as cases on environmental problem be incorporated into the Technical Guidelines on e-waste inventory, Mr. Dadan Wardhana mentioned that electronic and electrical manufacturers were identified in the BCRC-SEA's Technical Guidelines on e-wastes inventory as one of potential sources, however the impact was not covered since the Technical Guidelines specifically dealt with inventory and methodology, and the same also applied to cases of environmental problems. Also as to Indonesia's question on the most critical point in the assumption in the e-waste estimation, he responded that in using secondary data, assumption must be used and there was no accurate assumption. It was important to keep the

objective of inventory in mind, which was a tool for decision making for policy or regulatory development or just to gain information, and it must be followed by the ESM. In case of area populated with different characteristics, it was recommended to conduct initial assessment first. On suggestion from Thailand of merging the technical guidelines on e-waste inventory conducted by BCRC-SEA and EX Corporation, BCRC-SEA, EX Corporation and SBC commented that there was no problem in merging or inserting some information from each other's guidelines to be consistent and it would also be helpful to users.

21. Following the above discussions, Mr. Sukandar, Lecturer and Researcher, Solid and Hazardous Waste Laboratory, Bandung Institute of Technology, introduced **the draft Technical Guidelines on 5 R of e-wastes** currently undertaken by BCRC-SEA.
22. Mr. Dadan H.S, Basel Convention Regional Centre for South-East Asia then presented on **hazardous characteristics of e-waste**.
23. Dr. Nasir Hassan, Environmental Health Advisor (Cambodia & Lao PDR), World Health Organization, further briefed on **health aspects of hazardous wastes with special emphasis on e-wastes**. He presented on magnitudes of environmental health risks as global challenges, chemical safety and regional initiative on environmental health.
24. After the presentations above, the discussions are summarized as follow :
 - On suggestion that The Technical Guidelines on 5 R of e-wastes also mentioned suitability of location from Thailand, Mr. Sukandar mentioned that he would consider to include it in the Technical Guidelines and with regard to including whatever existing national technical guidelines and regulations in the countries in the region as suggested by Dr. Nasir Hassan, he responded that it would be difficult since he had not yet found similar technical guidelines related to e-wastes in the region.

5. Working Group on Draft Guidelines for E-Waste Inventory and 5 R of E-wastes

25. Two working groups were established to discuss and make recommendation to the draft guidelines for e-waste inventory and 5 R of e-waste currently undertaken by BCRC-SEA.

The recommendations and outcome can be found in **Annex IV**.

6. 5 R of E-Wastes

26. The session of 15 March 2007 commenced with a presentation by Mr. Damien Hall on **Australia's experience in 5 R of e-wastes** including the Australian Recycling Context, the Federal Government's Response, cooperation between local government and industry and future directions. He also elaborated on the environmental purchasing guideline which contains references to Green Purchasing. In response to a direct question from the BCRC-SEA regarding

Australia's position on Ban Amendment, Australia responded that it is not supportive of the Ban Amendment since Australia do not see the value of restricting trade of hazardous waste if the importing countries have the technical capacity to handle such waste and which is still carried out in accordance with the provision of Basel Convention. Therefore, Australia will probably not ratify the Ban Amendment.

27. After the presentation, Mr. Sukandar continued with **e-waste disposal and health and safety in 5 R of e-wastes**. The topic presented included electronic products lifecycle, hazardous materials in e-wastes, 5 R activities of e-wastes, occupational health and safety, way of release of hazardous material from e-waste, safety management system, current improper practices in most developing countries, ecological risk of 5 R of e-wastes, and e-wastes disposal.
28. After the presentation, discussion summarized hereunder :
 - The hazardous waste material produced from e-waste system whether in the waste form or by-product of waste may be more hazardous than the e-waste processed itself, e.g. dismantling of printed circuit boards (PCBs) released fume from the smelting process can be more dangerous than the PCB itself.
 - It was proposed to expand the list in the presentation of e-waste disposal and health and safety in 5 R of e-wastes-waste and health impact matrix and vulnerable group.
 - Indonesia shared its experience in management of incineration residue containing pollutant, including permit mechanism, obligation to monitor air emission at least every 3 months and residue were sent to hazardous waste disposal facility approved by the government.
 - It was suggested to elaborate technical criteria on performance of hazardous waste incinerator.
 - In view of achieving economic of scale to set up a recycling/recovery facility in developing countries, the current approach in Australia was to cooperate between industry and government, provide incentives to private sectors and government to set up facility on site. There was an approach in e.g. a regional approach for the management of POPs waste in the Pacific whereby the wastes were collected and brought back to Australia for destruction. It was suggested that similar cooperation on e-waste could be implemented for countries in the region as well.
 - Cambodia had serious challenges with transboundary movement of second hand e-products and highlighted the problem with movement of e-waste-how to control second hand e-products with short life time for example 3 months, 6 months, etc.
 - On this issue, Indonesia said that some items are regulated under Ministry of Industry and Trade, for example, Indonesia banned import for second hand e-products, however there were still cases of imports that were still uncontrolled.

7. Presentation of recommendation of formulated by the Working Groups for Draft Technical Guidelines on Inventory and 5 R of e-wastes

29. After the discussions by the working groups on the draft guidelines on inventory on and the draft guidelines for 5 R of e-waste on day 2, the recommendation are presented as can be seen in **Annex IV**.
30. Discussion following the presentation of the working groups' recommendation are summarized as follow:
- For Technical Guidelines on 5 R of e-wastes, the inclusion of medical equipment into the guidelines was not possible, due to scarcity of reference material in this subject.
 - It was recommended to change the word "e-wastes" on the Title of Technical Guidelines on 5 R of e- wastes into "end-of-life e-products".
 - The SBC appreciated the seriousness of issue raised by Cambodia regarding capacity and technology to test the quality of imported used EEE based on environmentally sound technology. There should be future work programme on e-waste management to develop scheme for testing and quality control of imported used e-products in this region.
 - There would be a Regional Workshop on Prevention of Illegal Transboundary Movement of Hazardous Wastes in Beijing on 28-29 March 2007 . There would be discussion on how to distinguish the second-hand EEE and hazardous wastes, and what to do in the future in terms of international cooperation. Participants would be required to prepare presentation on what kind of judgment criteria to distinguish genuine second-hand EEE from hazardous wastes.
 - Thailand suggested on the Technical Guidelines on 5 R of e-wastes to put in matrix containing information of residue after each process, so that users can notice and aware about the origin of the 3 R processes.
 - Sharing information on e-waste including technologies and other aspects would be conducted through website of BCRC-SEA which is going to be launched April 2007, with the URL address of www.bcrc-sea.org. In addition, information on technologies may be obtained from other sources, such as the 3R Knowledge Hub established by UNEP IETC/ADB/AIT.
 - It was recognized that the guidelines is a living document. It was also recommended that the document refer to some authorized website related to issue such as the Basel Convention website and the OECD website, to keep validity of the content of the guidelines since the websites would be continuously updated.
 - Malaysia suggested that roles of consumers in reduce of e-wastes were also included in the Technical Guidelines on 5 R of e-wastes since consumers can also play important role in the reduce activities.
 - It was encouraged to have cooperation with regional organizations such as UNEP/ROAP, RILO, and WCO in the future work to cooperate with BCRC-SEA –

for example on Project Sky Hole Patching on monitoring of illegal traffic of hazardous wastes as well as training for customs officers, especially on the Green Customs Initiative.

- Regional Forum on Environment and Health, initiative of WHO and UNEP and countries' National Environmental Health Action Plan (NEHAP) were relevant to this e-waste issue. WHO's role was related to the health impacts of e-waste management. Poison Centres established in the region could be useful information related to acute contamination of hazardous wastes.
- Australian government continued to work with other Focal Points and Competent Authorities in the region with respect to limit and reduce to zero the illegal transboundary movement of hazardous wastes. It was constantly facing battle to make sure that the communication during transboundary movement is in timely manner based on the PIC procedure.
- The link to website on Asian Network for Prevention of Illegal Transboundary Movement of Hazardous Wastes can be found on homepage of Ministry of Environment of Japan's website or searched using the key words. Information on each country definition of hazardous waste and regulation to control trade of those wastes in Asian countries could be found there and also summary and handouts of the last two (2) workshops held by the Network.
- Information exchange between countries to enable more seizures, public awareness in this issue, cooperation between Ministry of Environment and customs is important and also between importing and exporting countries.
- It was recognized that the Technical Guidelines on 5 R of e-wastes is not legally binding. Philippines recommended that the portions on Testing and Repairing of Appliances (Chapter VIII) , Testing Sequence (Chapter X), General Repairs and Retesting (Chapter XI) and Testing and Repairing of Specific Appliances (Chapter XII) be converted into Annexes to the Technical Guidelines as recommended protocol in the formulation of national policies. The consultant, Mr. Sukandar replied that this comment will be considered in the review, prior to finalization of the Technical Guidelines on 5 R of e-wastes.
- There were a lot of resources, work and other agencies required to assist BCRC-SEA in performing its functions since the work was not only 1 way. In response to questions of capacity building and funding, Australian government would consider providing some sort of capacity building that would be appropriate and share information to SBC and BCRC-SEA for dissemination to the countries in the region.
- Malaysia suggested that training on how to use the guidelines on e-waste inventory be conducted so that inventory could be conducted systematically. It was also suggested to conduct training on how to conduct audit on e-waste and hazardous wastes generation to make sure the product processed, waste recovered and inventoried residues were conducted as well. This was important to curb illegal disposal of e-wastes and hazardous wastes. There was a need to share

information on available technologies and facilities for the treatment and disposal of e-wastes.

- BCRC-SEA had plans for training and capacity building as discussed in the 2nd Steering Committee Meeting on 12 March 2007. Information exchange was expected through BCRC-SEA's website which would be launched shortly. Any information from countries in the region and linkages to other related organizations would be compiled and synchronized on the website.
- In relation to information exchange issue, SBC informed that they had been involved in the programme under UNEP/ROAP called the 3R Knowledge Hub programme. It was launched last year by UNEP, ADB, UNCRD & other IGOs as a useful source of information on recyclable materials as well as technologies for handling of those wastes.

8. Adoption of the report of the Workshop and closure of the workshop

- It was agreed that the BCRC-SEA will finalize the draft report in close consultation with the SBC. The full draft summary report will be circulated to all participants for comments before it is finalized.
- At the closing session, Mr. Aboejowono the Director of BCRC SEA, Mr. Shafii on behalf of SBC, and HE Mr. Heng Nareth of the Ministry of Environment Cambodia delivered their closing remarks.
- After the usual formalities and expression of thanks to the host country, the workshop was officially closed at 3.30 pm on 15 March 2007.