

## バーゼル条約事務局における電気・電子機器廃棄物の 環境上適正な管理に関するプロジェクト

### 1. 背景

2004年10月に開催された第7回バーゼル条約締約国会議の決議VII/3において、電気・電子廃棄物の削減及び環境上適正な処理推進のためのパートナーシップは条約締約国にとっての最優先事項の一つとして確認されたところである。電子及び電気機器産業は、生産及び組立てが工業化されつつある国（中国、マレーシア、フィリピン、タイ及びベトナムなど）へますますアウトソースされている国際化産業である。電気・電子廃棄物の量の急増に伴う環境及び健康に及ぼす悪影響を防ぐためには、このような廃棄物の発生を防ぎ、最小限化し、又はその資源を再使用、リサイクル又は再利用し、及びこのような作業から生ずる残留物を処理する能力が必要である。特に、バーゼル条約締約国であるアジア及び太平洋発展途上諸国は電気・電子廃棄物に関するリサイクル及び処理能力の向上に係る技術及び資金援助を強く要請しており、そのためには電気・電子廃棄物の環境上適正な処理に関する最新の情報を得る必要性を強調しているところである。

### 2. 目的

アジア及び太平洋諸国のニーズに応えるためにバーゼル条約事務局は、関係諸国、インドネシア及び中国バーゼル条約地域事務所、国連環境計画アジア・太平洋地域事務所及びその他の組織とともに本プロジェクトを作成した。このプロジェクトの目的は当該地域における電気・電子廃棄物を最小限化し、参加国の環境及び経済に利益を与えつつ、資源の有効再利用及び発生する廃棄物を環境上適正な方法で処理がなされることを確実にすることである。

### 3. 参加予定国（対象国）

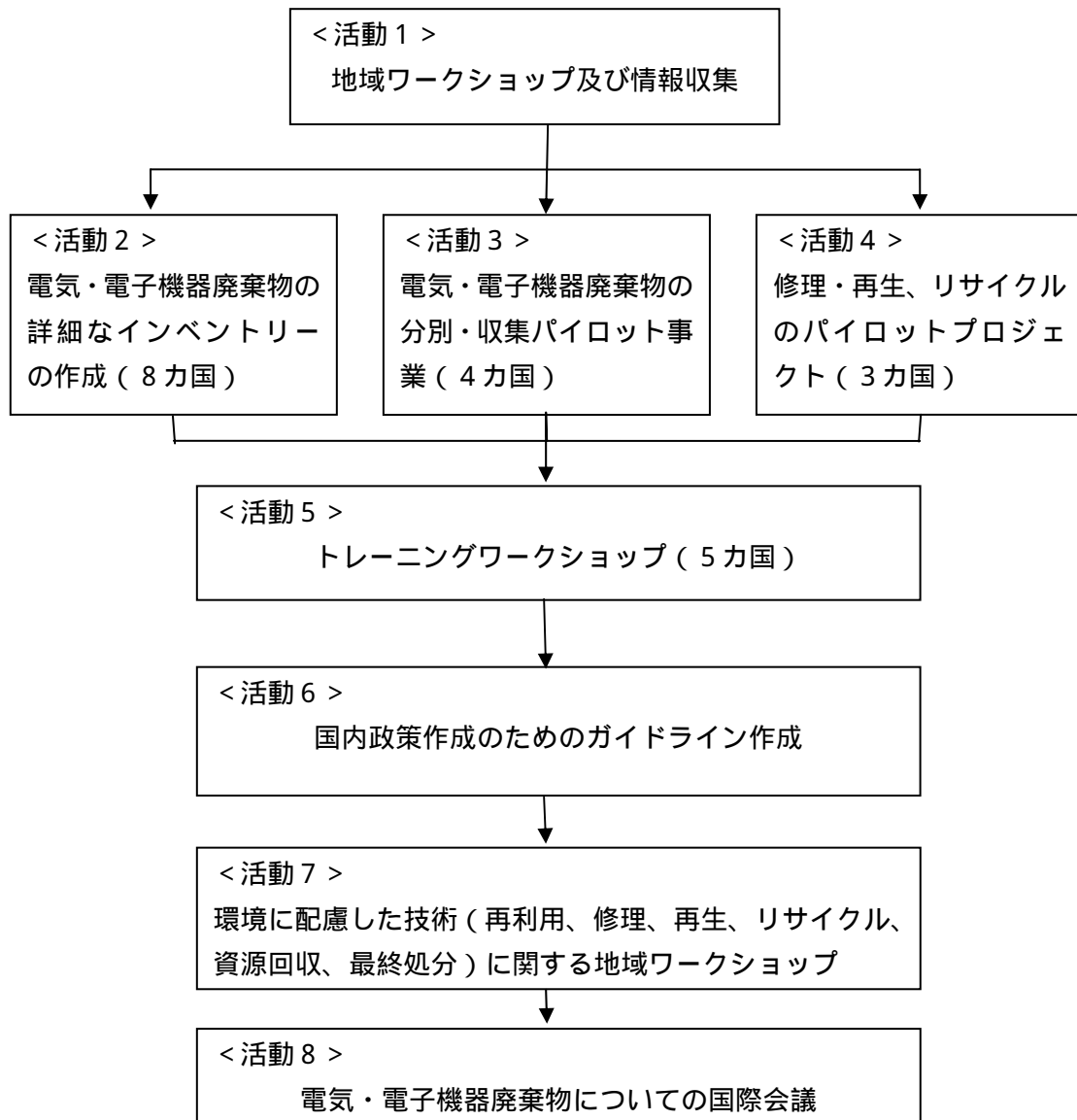
中国、マレーシア、フィリピン、タイ、ベトナム、シンガポール、インド、インドネシア

### 4. 期間

2005年～2008年

### 5. プロジェクト概要

電気・電子廃棄物を削減及び環境上適正な処理をする上での障害に焦点を当てる。人の健康及び環境を保護しつつ持続可能な処理の経済的恩恵が引き出される形で、寿命が来た器材の埋立地への投棄量を削減し、持続可能な再利用及びリサイクルに転換しようとする各国のイニシアチブを支持する。具体的には、電気・電子廃棄物に関する地域の現状を評価し、再利用・修理・改装及びリサイクルに係る政策を策定するためのツールを提供し、これらの政策を地域の締約国、産業界及び地元のNGOとともに実施する能力を構築する。また、寿命が来た電気・電子機器の環境上適正な処理についての人々の認識を高める。



## PROJECT OUTLINE

### THE ENVIRONMENTALLY SOUND MANAGEMENT OF ELECTRICAL AND ELECTRONIC WASTE IN ASIA AND THE PACIFIC

#### SUMMARY

*A proposal is presented for the implementation of a four-year programme to address the critical issues associated with the rapid expansion of e-waste throughout the world and their environmentally sound management. The Programme is presented by the Basel Convention Secretariat jointly with its Regional Centres in Asia and the Pacific, with UNEP and other relevant organizations in the region. The programme aims to address the key obstacles to the environmentally sound management of e-waste. It will support local initiatives to divert end-of-life equipment from landfills towards sustainable reuse and recycling operations, in a way that the economic benefits of sustainable management are derived, while human health and the environment are protected. As a practical initiative, it is designed to strengthen national implementation of the Basel Convention with due regard to existing relevant international obligations. The programme will thus provide an assessment of the regional situation on e-wastes, provide tools to develop policies for re-use, repair, refurbishment and recycling and build capacity to implement these policies in partnership with Parties in the region, industry and local NGOs. The programme aims at raising public awareness on the environmentally sound management of used and end-of-the electrical and electronic equipment and is budgeted at US\$4,159,000.*

#### I. INTRODUCTION

1. In recent years, significant international transboundary movement has evolved in used refrigerators, other electrical appliances, personal computers and associated hardware, used electronic equipment and used cellular telephones for the removal of usable parts, for refurbishment and reuse and for processing for the recovery of raw materials. Import and export statistics provided by Parties to the Basel Convention for the year 2000 show that there were imports of more than 17.5 million tonnes and export of 1.6 million tonnes designated as used electrical and electronic assemblies or scrap. Transboundary movement of these goods is forecast to increase significantly as more and more countries produce electrical and electronic equipment and tighten control over acceptable disposal methods, adopt processes to recover valuable constituents and use safe practices to deal with the hazardous constituents in e-wastes (e.g. cadmium, lead, beryllium, CFCs, brominated flame retardants, mercury, nickel and certain organic compounds). While offering some economic benefits, massive import of e-wastes coupled with the same wastes being generated locally is placing a heavy health and environmental burden, in particular to developing countries.

2. Electrical and electronic wastes (e-wastes) are classified in the Basel Convention as Annex VIII entries A1180, A1150 and A2010 as well as under Annex IX as B1110. Basically, e-wastes are characterized as hazardous wastes under the Convention when they contain components such as accumulators and other batteries, mercury-switches, glass from cathode-ray tubes and other activated glass, PCB-capacitors or when contaminated with cadmium, mercury, lead or PCBs. Also, precious metal ash from incineration of printed circuit boards and glass waste from cathode-ray-tubes and other activated glasses will be characterized as

hazardous wastes. In order to address environmental issues related to the increasing transboundary movements of these wastes, and to ensure their storage, transport, treatment, reuse, recycling, recovery and disposal is conducted in an environmentally sound manner, a proactive approach is essential. Through concrete and well-targeted national efforts supported by the Secretariat of the Basel Convention and other partners, these wastes can be managed in a manner that promotes economic, social as well as environmental objectives.

## II. BACKGROUND

3. The electrical and electronic equipment sector is largely a globalised industry with the production and their assemblage being increasingly outsourced to industrializing countries; this is particular relevant for China, India, Malaysia, the Philippines, Thailand and Viet Nam. The environmental and health effects associated with the fast growing volume of e-wastes, whether in a form of post-consumer goods or end-of-life equipment imported or generated domestically, requires the development of sound capacity to prevent, minimize, re-use, recycle or recover materials from such wastes and to dispose of the residues arising from these operations. Awareness about these new developments is key to assist national authorities to respond to this emerging issue through the development of new environmental regulations, the building of partnerships with industry and the consideration of policies on life-cycle approach, integrated waste management and cooperation and sharing of information at the regional level. In order to understand this problem further, a Scoping Workshop on the Environmentally Sound Management of Electronic Waste was organized in Tianjin, China, in November 2002.

4. The countries in Asia and the Pacific Parties to the Basel Convention have identified e-waste as a priority. They emphasized the need to obtain the latest and relevant information on environmentally sound management of e-waste, inclusive of information regarding know-how on cleaner technologies or processes used in the repair, refurbishment, recycling or recovery of used or end-of-life electrical and electronic equipment.

5. Numerous obstacles have been identified by countries in regard to their ability to manage e-wastes in an environmentally sound way. These include:

***Lack of easily accessible information (on flows, quantities, available technology, legislative/trade requirements of countries importing new products, who will require increasingly strict standards for minimization and re-use, recycling and recovery.)***

### ***Lack of trained personnel***

- Weak or insufficient enforcement
- Lack of technical capacity for environmentally sound management
- Lack of awareness and capacity of small-to medium-size enterprises to deal with e-wastes
- Lack of trained personnel both in the public and private sectors

### ***Legislation***

- Lack of or inappropriate legislation
- Lack of clarity regarding export/import rules for e-wastes
- Lack of regional level-playing field

### ***Lack of infrastructure***

- Inadequate infrastructure for collection, recycling and recovery

- Lack of sound handling and processing during sorting, repair, refurbishment, recycling for material recovery operations to prevent risks to workers, general public and the environment
- No coherent programme on e-waste

### *Lack of public awareness*

- Unsustainable patterns of consumption and production
- Lack of or insufficient awareness in all sectors of society of the potential harmful effects of substances in these equipment and unsound management of e-wastes
- Lack of economic alternatives to activities carried out by the informal sector and small family repair shops

### III. OBJECTIVES

6. To respond to the needs and concerns expressed by countries in Asia and the Pacific, the Secretariat of the Basel Convention in partnership with the Basel Convention Regional Centres, UNEP and other organizations, has developed a programme in pursuance to decision VII/3 adopted by the seventh meeting of the Conference of the Parties, for which financial support is sought. The goal is to ensure that e-waste generation in the region is minimized and what is generated is managed in an environmentally sound manner consistent with the Basel Convention and with other international obligations, with consequent benefits both to the environment and economies of participating countries. To achieve this goal, the programme overall objectives are to develop baseline studies and action plans (guidelines; national strategies); to establish a knowledge base on good practices; set-up and nourish a public/private partnership; initiate pilot schemes on collection, repair, refurbishment and recycling and built awareness and capacity building. The specific objectives of the programme are:

- a) To establish a knowledge management system,
- b) To provide information on line to countries and other stakeholders on the current situation in Asia and the Pacific regarding generation, export and import of e-wastes; the nature and characteristics of such wastes exported/imported; their quantity, destination in the case of export; and fate (e.g. re-use; repair; refurbishment and reuse; recycling for material recovery; landfilling; incineration; dumping);
- c) To establish sustainable partnership between governments, industries, municipalities and non governmental organizations to promote the environmentally sound management of used and end-of-life products and equipment that would:
  - support local initiatives,
  - achieve better product stewardship,
  - influence consumer behaviour towards more environmentally friendly actions, and
  - promote the best repair/refurbishment /recycling/disposal options;
- d) To conduct pilot schemes for the identification, collection and segregation of e-wastes with a view to their sound re-use, repair refurbishment, recycling for material recovery or final disposal;
- e) To conduct pilot schemes on the recycling of e-wastes, in particular regarding personal computers and mobile phones;

f) To develop national normative framework for the environmentally sound management of e-wastes based on the outcome of the pilot projects, including the most appropriate policy strategies to regulate import of such wastes; and

g) To develop and implement public awareness and education campaigns on environmentally sound management of e-waste including information on occupational health and safety procedures as well as on appropriate standards for collection, segregation, transportation, re-use, repair, refurbishment, recycling for material recovery and final disposal.

#### IV. OUTPUTS

7. The following short-and long-term outputs are identified:

##### Short-term (2005-2006)

- Inventory of selected types of e-waste generation, imports and exports completed in several countries
- Information system or network is operational on the environmentally sound management of e-wastes in Asia and the Pacific, including information generated through the pilot schemes
- Training for government officials on environmentally sound management
- Guidance manuals, and information collected on e-waste, are used to prepare national plans
- Selected sustainable partnership between governments, industries and non governmental organizations established
- Public/private initiatives are being launched regarding the collection and segregation of e-wastes
- Legislative framework is developed or revised
- Awareness of the public is enhanced.

##### Long-term (2007 – onward)

- Enforcement of existing or new legislation is strengthened
- Education programmes are launched in schools
- Public/private partnerships are enhanced on several aspects of environmentally sound management of e-wastes
- Sound collection schemes are in place and functioning at a local level (in several municipalities)
- Repair, refurbishment, and recycling facilities are up-graded to standards
- Database on sound technologies or processes for re-use, repair, refurbishment, recycling and final disposal of e-waste is established and operational
- Support from bilateral and multilateral financial institutions for the environmentally sound management of e-waste is accessible
- International conference with equipment and services exhibition on environmentally sound management of e-waste has taken place.

#### V. PROJECT DETAILS

##### Country's specificities

8. Based on common objectives, a flexible approach is required to address the variety of situations in regard to the experience of the countries, the characteristics of the local manufacturing electronic industry, the structure of the economic sector responsible for re-use, repair and refurbishment, the quantity of e-wastes imported, the overall waste management infrastructure, policy response, level of awareness of policy makers, industry, operators and

customers, and the legal, economic and financial system in place in regard to the second-hand market, in particular the role and structure of the small-and-medium sized enterprises. A priority is to develop national policies for stimulating collection, re-use, repair, refurbishment, recovery and recycling of e-wastes whether generated locally or imported with the effect of supporting the local economy while improving health and environmental protection. The effective involvement of all relevant public and private stakeholders is essential to progress. Improved data collection on generation, import and export, on destination of used and end-of-life equipment going for re-use, repair (major repair or minor repair), refurbishment, recycling, dumping in landfills is part of the programme.

#### Collection of e-wastes

9. Collection of e-wastes is the corner stone for the sound management of such wastes. In many developing and rapidly industrializing countries there is, in addition to the import of e-wastes, the generation of such wastes domestically. In order to establish a local environmentally-friendly market for the recycling, repair, re-use and refurbishment of certain types or categories of e-wastes, it is essential to encourage customers to bring back their used and end-of-life equipment to collection points and to develop a system of financial incentive to accompany such collection schemes and involve local NGOs in awareness raising activities. Both local and international information technology manufacturers should be involved in the process, including mobile phones manufacturers and telecom operators. Separation of hazardous from non-hazardous components will be necessary in places where such material is not sent in copper or other smelters. Hazardous components will need to be processed in a way to protect human health and the environment.

#### Small repair and refurbishment shops

10. The handling of e-waste is at its early stage worldwide. Many developing and fast industrializing countries use sub-standard recycling and treatment processes for e-wastes. Family repair shops operate often in a complete legislative vacuum. The important involvement of a multitude of small family businesses in repair and refurbishment makes it difficult to understand the local market mechanisms. It is therefore important to build partnership with NGOs familiar with the local situation, with municipalities and local industry operators. Training for small businesses dealing with repair and refurbishment is critical. Improved local handling of e-wastes will support the local economy. It will provide alternative to the “grey” uncontrolled market. The purpose would be to improve and check the environmental, health and safety aspects in repair and refurbishment workshops. Appropriate and sound repair and refurbishment techniques and technologies should be promoted to cope with the increasing volumes of both e-waste imported and generated domestically. The project shall provide recommendations to national authorities regarding programmes and policies that can be implemented to ensure that the recycling of e-wastes is conducted in an environmentally sound and economically efficient manner. Improved collection of e-wastes will benefit the local economy of re-use, repair and refurbishment and will also lead to the sound recycling of such wastes where such facilities exist and operate to standards.

#### Recycling of e-wastes

11. There are plans in some countries in Asia to develop recycling schemes for e-wastes whether imported or generated locally and to strengthen environmental standards and requirements for such facilities, in light of existing international obligations. Also, work on technology innovations and access to sound technologies is underway to eliminate sub-standard operations. Already, a number of national and foreign recycling companies operate in Asia. It is therefore necessary to review the current situation and needs in regard to recycling capacity for e-wastes in the region. Pilot recycling projects could be undertaken to

either up-grade existing facilities or develop operations to disassemble and recondition for re-use of electronic component and processing machinery, to dismantle obsolete or end-of-life electronic products, breaking them down into components parts, and separating these parts according to their hazardous and non-hazardous characteristics.

## VI. ACTIVITIES

12. The activities designed to implement the programme are meant to enhance each other and to be carried out by different stakeholders (see Section VII).

### **ACTIVITY 1      Regional inceptive workshop and information gathering**

13. The purpose is to bring together major stakeholders (e.g. Governments, intergovernmental organizations, BCRCs, industry and businesses, NGOs, municipalities) to exchange information and share their experience in dealing with e-wastes. The idea is to set up a network on e-waste information which will feed one or more databases that would be accessible to national authorities, BCRCs, economic operators, United Nations bodies and other intergovernmental organizations, civil society, municipalities and academia. The project will include the establishment of a network on e-waste in Asia and the Pacific; review and finalize generic guidelines and methodologies for the undertaking and conduct of baseline studies including inventories at the national level; preparation of national strategies for the handling of e-wastes; establishment of a knowledge base in the region on e-waste issues. The BCRCs, in particular the BCRC-China, will be a key delivery regional mechanism for the promotion of the network and the knowledge management system. The regional workshop shall provide outputs regarding harmonization of reporting on e-waste issues e.g. generation, import/export; prevention; management; best practices; technology transfer; legal measures; administrative measures; training needs; awareness; gaps; estimation of the current status of e-waste; capacity- building needs to address current and forthcoming e-waste issues; promotion of quantitative data on e-wastes; and guidance for handling of e-wastes.

### **ACTIVITY 2      Detailed inventories in 8 countries**

14. The purpose of this project is to gather and complement the information base required to address the needs and to find solutions for the environmentally sound management of e-wastes. It is critical to understand the specificities of the second-hand market for e-wastes. Data on export/import of e-wastes destined for re-use, repair, refurbishment or recycling are required as well as on those going for controlled or uncontrolled disposal. The inventory should provide information on imported e-wastes and those generated domestically, their quantity, characteristics, physical forms and usability. It should also provide information on where e-wastes are being repaired or refurbished, whether these facilities are registered or part of the “grey” or informal sector, where e-wastes are being stored temporarily, how process residuals are being handled, how e-wastes are transported. The detailed inventory should help national authorities in identifying the environmental health and safety problems associated with the handling of e-wastes. Environmentally sound recycling practices will be identified: it will provide information on the substances of potential concerns in used or end-of-life equipment (e.g. lead, mercury, cadmium, chromium, beryllium, antimony, arsenic, copper, nickel, tin, zinc, cobalt, silver). The inventory will identify those unsound or uncontrolled practices that should be abandoned (e.g. sub-standard combustion of organic components such as plastics, liquid crystals or halogens/flame retardants) as well as raising concerns with corrosives when shredding or breakage of e-wastes takes place (corrosive constituents contained in batteries such as potassium hydroxide or lithium ion). Finally, the inventory should assist in determining the problems of exposure to substances of concern in end-of-life management of e-waste through land disposal, waste incineration, metal recovery or plastic recovery.



### **ACTIVITY 3      Pilot schemes on collection/segregation of e-wastes in 4 countries**

15. This pilot project addresses the needs for the establishment of schemes that will encourage and facilitate the separate collection of e-wastes, their temporary storage and transportation to repair or refurbishment workshops, or specialized facilities for processing and recycling, including disposal of the residues arising from such operations. It includes the initial sorting of collected e-wastes, separating those that can be reused (with or without repair or refurbishment) from those that are suitable for recycling for material recovery. The schemes, depending on the local situation, could be established in the form of voluntary or mandatory collection schemes. For such schemes, whether voluntary or mandatory, to operate successfully, it is proposed to establish collection points, consider financial issues (incentives, fees, etc, and develop awareness raising programmes aimed at target groups (e.g. schools; retailers; policy makers; refurbishing and repair shops; technical personnel) and information of the public at large through diverse media.

### **ACTIVITY 4      Pilot repair/refurbishment and recycling schemes in 3 countries**

#### **A. Repair/refurbishment**

16. One preferred option for used electronic equipment is to prolong its life through reuse. In many cases e-wastes such as computers may require repair in particular those reaching the end-of-their useful life. A critical factor of refurbishment or repair is to improve the quality control over such work so that the environmental benefits of extended use will be truly achieved, as well as the protection of the health of workers, without compromising the possibility of economic return. The project will address the requirements of repair and refurbishment shops and will provide guidance for such operations, e.g. product handling; storage; cleaning; disassembly; soldering; reassembly; testing; and management of components and materials removed from used or end-of-life equipment, including guidance on handling of components destined for recycling for material recovery. The project will also address issues regarding the way to deal with process residuals, packaging and transport. Finally, it will cover administrative measures such as record keeping, environmentally sound management, regulatory authorization, personnel training, inspection and monitoring.

#### **B. Recycling for material recovery**

17. A primary purpose of the project is to provide best practice guidelines for the environmentally sound recycling of end-of-life electronic equipment. It will address the issue of the recycling of the basic components of e-wastes, the adequacy of the recycling infrastructure and its capacity for handling the increasing volumes of both e-waste imported and generated domestically. The project should provide recommendations to national authorities regarding programmes and policies that can be implemented to ensure that the recycling of e-wastes is conducted in an environmentally sound and economically efficient manner, and is consistent with existing international obligations.

### **ACTIVITIES 5 and 6      National training workshops in 5 countries and guidance for national plans**

18. Both projects will be derived from the information, know-how and experience gained through the implementation of Activities 1 to 4. The curriculum for training as well as the table of contents for the preparation of the guidance to develop national plans for the environmentally sound management of e-wastes will be based on the outcome of Activities 1-4.

## **ACTIVITIES 7 and 8      Regional workshops on sound technologies and international conference on e-wastes**

19. It is proposed to organize two regional workshops, one in 2005 and one in 2006 in Asia and the Pacific respectively on the use of best practices and sound technologies/processes for the re-use, repair, refurbishment, recycling, recovery and final disposal of e-wastes. The meetings will provide an opportunity to get up-to-date with current practices and their descriptions; they will provide recommendations for improving processes for dealing with specific types of e-wastes (e.g. used or end-of-life computers, TV sets, radios, mobile phones) or their components (e.g. metals, plastics). The workshop will assist in identifying the type of local public/private partnerships that could be set up to improve practices regarding repair, refurbishment and recycling for material recovery. The workshops should also consider the economic dimension of the second-hand market and provide avenues for guaranteeing environmental and health protection while ensuring business profits. Local business and industry partners would include small-to-medium-sized enterprises, industrial recycling facilities, smelters, small family repair and refurbishment shops, electrical and electronic manufacturers, and transporters. The workshop will address the issues of testing of repaired or refurbished e-wastes, the need for certification schemes and environment/health/safety standards, as well as the legislative framework required to create a level playing-field. Transfer of proven and sound technologies that fit local specificities or geographical particularities will be discussed.

20. An international conference and exhibition on the environmentally sound management of e-wastes is planned for 2007. It will benefit from the pioneered work conducted in Asia and the Pacific. Its purpose will be to review ongoing international and regional initiatives launched on e-wastes. The Conference will address the development or use of standards for the environmentally sound repair, refurbishment and recycling of both used and end-of-life electrical and electronic equipment; it will also provide a forum for facilitating capacity building. The Conference, more specifically, will review ongoing or past successful collection and take-back schemes. It will also assist developing and fast industrializing countries to respond to innovations in OECD and other relevant fora regarding e-waste. The issue of the export and import of e-wastes in accordance with existing international obligations will be discussed. Analytical qualitative and quantitative studies will support the work of the Conference.

## **VII. STAKEHOLDERS**

21. The complexity of e-waste issues required the effective involvement of several stakeholders at the national and regional level. The matrix below provides a resumé of the relationship between the different stakeholders.

ACTIVITIES	RESPONSIBLE ENTITIES	COOPERATING STAKEHOLDERS
OVERALL SUPERVISION AND RESOURCE MOBILIZATION	SBC	UNEP/ROAP, BCRCs (China, Indonesia, SPREP)
REGIONAL INCEPTION WORKSHOP ON ASSESSMENT OF INFORMATION NEEDS	UNEP/ROAP	BCRC (China, Indonesia, SPREP), SBC, intergovernmental organizations (e.g. UNEP/DTIE; UNU), Governments; NGOs; industry
DETAILED INVENTORIES	Governments with assistance from SBC	BCRC (China, Indonesia, SPREP), industry, NGOs
PILOT SCHEMES ON COLLECTION	Governments with assistance from SBC	BCRC (China, Indonesia, SPREP), industry, NGOs, municipalities
PILOT RECYCLING SCHEMES	Governments With assistance from SBC	BCRC (China, Indonesia, SPREP), industry, NGOs
TRAINING WORKSHOPS	BCRC (China, Indonesia, SPREP)	UNEP/ROAP, Governments, Industry, NGOs
PREPARATION OF GUIDANCE FOR NATIONAL PLANS	SBC	Governments, UNEP/ROAP, BCRC (China, Indonesia, SPREP)
PREPARATION OF INFORMATION ON KNOW-HOW TECHNOLOGIES APPROACHES, STANDARDS ON ESM OF E-WASTE	SBC	Governments, UNEP/ROAP, BCRC (China, Indonesia, SPREP)
ORGANIZATION OF INTERNATIONAL CONFERENCE	BCRC in China and Indonesia with assistance from SBC	UNEP/ROAP, Governments, industry, NGOs, BCRC-SPREP

## VIII. ORGANIZATIONAL MATTERS

22. In order to ensure the effective coordinated implementation of the programme, it is proposed to set up a Programme Steering Committee composed of representatives from the Secretariat of the Basel Convention, the BCRCs China, Indonesia and SPREP, UNEP/ROAP and other interested public or private stakeholders. Most of the work will be done through electronic exchanges and teleconferences. Occasionally, it may be necessary to organize face-to-face meetings.

## Proposed Project Implementation Plan

Activities	2005												2006												2007												2008													
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D		
Regional Workshop and Information gathering																																																		
Detailed Inventories																																																		
Pilot Schema Collection																																																		
Pilot Repair / Refurbishment																																																		
National Training Workshops																																																		
Guidelines on ESM																																																		
Regional Workshops / Technologies																																																		
International Conference																																																		