Sustainable policy options in dealing with hazardous and e-waste: unique challenges and the way ahead for SMEs

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Presentation Outline

- Hazardous waste management in developing countries- generation and issues
- SMEs and Environmental Management
- Hazardous waste generation in SMEs
- E-waste and problems associated with it
- Recycling of e-waste
- E-waste in developing countries – specific issues and challenges
- Way ahead for SMEs
- Way ahead with e-waste

Hazardous Waste Management in Developing Countries

- Increased generation
- Issues with the definition
- Lack of proper inventory
- Transboundary movement
- Lack of resources and infrastructure
- Poor implementation of 3Rs
- Issues related to informal recycling
- Small to Medium Sized Enterprises

Small to Medium Sized Enterprises (SMEs)

• Australia	Small <20, Medium 21-200
• Japan	SMEs<300
• Malaysia	SMEs<200
• Philippines	Small 10-99, Medium 100-199
• Thailand	50-200 (manufacturing), 25-50 (trading)
• China	300 (industrial), 600 (construction), 100 (retail)

Source: http://enviroscope.iges.or.jp/contents/cgiin/rispo

Small to Medium Sized Enterprises (SMEs)

- Indifferent Strategy: are adopted by SMEs that do not perceive environmental risks associated with their environmental performance.
- Defensive strategy: are adopted by firms when they adopt end of pipe solutions to rectify the environmental impacts
- Offensive strategy: are adopted by SMEs that modify current practices to gain a competitive advantage
- Innovative Strategy: are adopted by introduction of "major and systemic" changes in their products, processes and management methods

Barriers for SMEs

- Information & Expertise
- Awareness associated with environment issues
- Accounting systems which fail to capture environmental externalities
- Financial obstacles
- Internal communication
- Human Resources
- Difficulty in accessing and implementing cleaner technology
- Failure of existing regulatory approaches
- Difficulty in accessing external finance
- Economic cycles

Hazardous Waste Generating SMEs

- Tanneries
- Textile dyeing plants
- Dyestuff producers
- Metal working and electroplating
- Foundries
- Automobile service shops and gas stations
- Lead-acid battery manufacturing
- Chemical industries/laboratories
- Paint shops
- Printers
- Photographic processors
- Dry cleaners

Examples of Hazardous Wastes Generated in SMEs

- Flammable – solvents from chemical manufacturers, laundries & dry cleaners, metal plating, tanneries, print shops etc
- Corrosive – acids and alkalis from cleaning & maintenance, equipment repair, vehicle body shops etc
- Reactive – bleaches and oxidisers from chemical manufacturers, laboratories etc
- Toxic and eco-toxic – heavy metals, pesticides, cyanides from metals manufacturing, photographic processing

E-Waste Facts

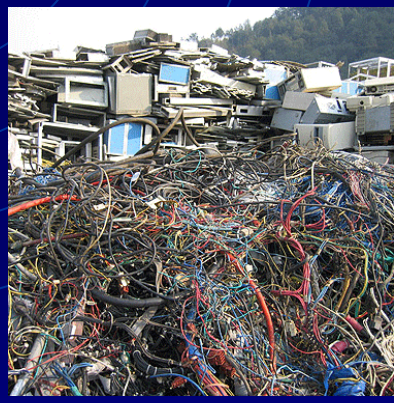
- Every year around 40 million tonnes of e-waste are generated worldwide
- Mobile phones and computers consume 3% of the gold and silver mined worldwide, 13% of palladium and 15% cobalt

- By 2020 e-waste from old computers in South Africa and China will have jumped by 200-400% and by 500% in India from 2007 levels
- By 2020 e-waste from discarded mobile phones will be about 7 times higher than 2007 in China and 18 higher in India

- In 2007, 271 millions computers were sold worldwide
- Globally more than 1 billion mobile phones were sold in 2007

Source: 2009 United Nations Study

Problems Associated with E-waste



- Dangerous chemicals and metals from e-waste may leach into the environment
- Lead (Pb) - most significant concern
- Lead present in the solders used to make electrical connections on printed wire boards and Cathode Ray Tubes (CRTs)
- Mercury found in laptop computers and discharge lamps.
- Cadmium (found in chip resistors, CRTs)
- Brominated Flame Retardants (BFRs)

End-of-Life Management of E-waste

- Reuse
- Servicing
- Recycling
- Disposal

E-waste Recycling Chain

- Collection
- Sorting, Dismantling and Pre-processing
- End-processing

Important to have high efficiencies in all above

Informal E-waste Recycling

Informal E-waste Recycling

E-waste in Asian Countries – Issues & Challenges

- Increased volume of e-waste imported illegally
- Second hand EEE imported are rarely tested
- Admixture of used EEE and e-waste are shipped
- Lack of well-established systems for separation, storage, transportation, treatment and disposal of waste
- Co-disposal of e-waste with domestic waste in open dumps
- Tackling the informal e-waste recycling
- Lack of funds and investment to finance formal recycling infrastructures
- Absence of appropriate legislation to deal with the issue
- Implementing EPR in developing countries is a major challenge to policy makers

Way Ahead for SMEs

- Linkages with communities, organisations and local governments
- Direct technical assistance, extension Services, Demonstration projects, Measuring success, Awards
- Use of economic instruments
- Use of third parties such as suppliers, consumers
- Supply chain pressures

Way Ahead for SMEs - Asia-Pacific Environmental Innovation Strategies (APEIS)

- **Strategy 1**: Minimising environmental costs through resource efficiency
- **Strategy 2**: Mobilising the necessary resources
- **Strategy 3**: Promoting access to information through partnerships and networking
- **Strategy 4**: Disseminating the concept of economic benefits created by environmental performance
- **Strategy 5**: Utilising external pressure to create incentives

Source: http://enviroscope.iges.or.jp/contents/cgiin/rispo

Way Ahead for E-waste

- Well defined regulatory procedure
- Improve country's ability to gather data and inventory on e-waste
- Establishment of proper intuitional infrastructures
- Improving the working conditions of informal recyclers
- Initiate technology transfer programmes for informal sector
- Utilise existing networks to encourage cleaner production activities
- Awareness raising programmes
- Develop public-private-community partnerships
- Address the obstacles related to implementing EPR
- Require the countries that export used EEE to developing countries to formally test the equipment prior to export.
- Prohibit import of e-waste if the receiving country does not possess adequate capacity to manage
- Promote reduction and reuse of EEE

Any Questions??