EPR Policies for Electronics: A Phase-in Approach

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Increasing Concerns on E-waste

- Rapid increase in consumption of e-products.
- Possible source of recyclable resources.
- Informal and often improper treatment of e-waste.
- Disguised and illegal trade of e-waste for resource recovery purposes.
- Heavy metal pollution and air pollution such as dioxin from de-soldering, wet chemical leaching of PCBs, and open burning of plastics and wires.
Three Priority Areas for Implementing Recycling Policy

**Institution/governance**

- Establishment of formal collection and management mechanisms.
- Established capacity of local government to implement regulation.
- Clear policy priorities and direction and financial support.

**Recycling industrial infrastructure**

- Technology and industrial infrastructure backed by proper environmental management
- Development of recycling industries with scale and financial base

**Recycling market**

- Environmentally unsound and cheap treatment of EOL goods only by evaluating economic and resource value.
- Needs of reform in supply-demand control which only depends on market
Three objectives of Extended Producer Responsibility

1. Improved Waste Management and Resource Recovery
   - Difficult to recycle and treat
   - Wasteful products
   - Improper treatment
   - Illegal dumping

2. Integrating Environmental Externalities to Consumption and Production
   - Cost for proper treatment and recycling

3. Design for the Environment
   - Reduce

Materials
Producers
Distributors
Consumers
Recyclers
Waste
Final dispose
## Current Status of EPR in Asia

<table>
<thead>
<tr>
<th>Industrialized</th>
<th>Emerging</th>
<th>Least developed</th>
</tr>
</thead>
<tbody>
<tr>
<td>(e.g. Japan’s Home Appliance Recycling Law)</td>
<td>(e.g. China’s Regulations on Recovery Processing of Waste Electrical and Electronic Products)</td>
<td>[e.g. Cambodia]</td>
</tr>
</tbody>
</table>

| EPR-related specific legislation for e-waste | O | ☐ | ☒ |
| Producers’ responsibility for take-back in legislation | ☐ | ☐ | ☒ |
| Producers’ responsibility for take-back in practice | ☐ | ☒ | ☒ |
| Producers’ responsibility for recycling and treatment in legislation | O | ☒ | ☒ |
| Producers’ responsibility for recycling and treatment in practice | O | ☐ | ☒ |
| Existence of strong informal market | For export of second-hand goods and scraps | O | O |
| Monitoring/enforcement | O | ☐ | ☒ |
| Financial mechanism | O | ☐ | ☒ |

- O, Full application/development; ☐, partial application/development; ☒, no application/development.

# Progress of EPR Legislations in Asia

<table>
<thead>
<tr>
<th>Countries</th>
<th>Specific legislation or draft legislations</th>
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<tbody>
<tr>
<td>India</td>
<td>E-waste Management and Handling Rules (promulgated in 2010, effective in 2012)</td>
</tr>
<tr>
<td>Indonesia</td>
<td>specific article on EPR is under preparation under Solid Waste Management Act 2008.</td>
</tr>
<tr>
<td>Thailand</td>
<td>WEEE Strategic Plan in 2007 and Draft Act on Economic Instruments for Environmental Management (under development)</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Draft regulations on the reclamation and treatment processes for disposal products (under planning: draft was released in 2010)</td>
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</tbody>
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Model of the 3R system based on EPR and its instruments

- Minimum recycled content requirement
- Take-back requirement
- Deposit/refund schemes
- Advanced disposal fees

- Internalizing Externalities: Cost sharing
- Producer Responsibility Organization

- Design for Environment
  - Tax Reduction
  - Subsidies
- Green Market
  - Eco-labeling
  - Awareness Raising

- Business model change:
  - Leasing
  - Servisizing

- Change of materials
  - Material Taxes
- Change of production concept
- Reduce

- Materials
- Producers
- Distributors
- Consumers
- Recycler
- Secondhand market
- Waste
- Appropriate treatment
- DfE: Reduce in Upstream
- Tax/Surcharge according to the quantity

- Final dispose
- Improper treatment
- Illegal dumping
- Strict Penalty

- Recycle

- Improved waste management

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- Improved waste management
Implementation Challenges for Policy Makers in Developing Asia

1. Poor infrastructure for waste collection and treatment

2. Perception of e-waste as valuables

3. Competition with the informal waste management sector

4. Difficulty of identifying the producer

5. Needs for better control of international movement of e-waste
A Phase-in Approach to EPR in Developing Asia

Regional/inter national governance for sustainable resource circulation

Emerging economies (e.g. China, Thailand, Malaysia)
- E-waste seen as valuables
- Basic WM and recycling legislation, poor enforcement
- Polluting and hazardous treatment/recycling
- Emerging recycling industry but strong competition from the informal sector

Industrialized economies (e.g. Japan, Korea, Taiwan)
- Recycling industry functioning as basis for resource circulation policies
- Limited integration of policies towards Design for Environment

Least developed countries (e.g. Cambodia, Lao)
- General & weak WM/recycling legislation
- Poor infrastructure for waste collection and treatment
- Widespread informal collection and recycling
- Difficulty of identifying producers

1: Improved WM & Dev’t of Capacity of Actors
- Interface org. to engage informal collectors
- Cert. of proper recyclers
- Licensing of repairers

2: Integratn of externalities into cons. & prod
- Prod take-back w deposit-refund
- Advance disposal fee & recycling fund
- Sust. public disposal
- Info sharing along prod. chains

3: Design for the env’t
- IPR
- Link EPR to sust. Res. Man’t
- Specific design directives

National E-waste Expert Review (NEWER) Panel
Phase One: Improving waste management and resource recovery

1. Establishment of an interface organization to mediate with the informal sector

2. Recognition of proper recyclers

3. Licensed repairers

Materials

Producers

Distributors

Consumers

Waste

Recycler

Recycle

Strict Penalty

Improper treatment

Illegal dumping

Appropriate treatment

Tax/Surcharge according to the quantity

Final dispose
Phase Two: Integration of externalities into consumption and production

1. Product take-back
   - Deposit/refund schemes
   - Advanced disposal fees

2. Recycle Fund: Producer Responsibility Organization

3. Sustainable Public Disposal

Waste

Appropriate treatment

Tax/Surcharge according to the quantity

Final dispose

Strict Penalty

Improper treatment

Illegal dumping
Phase Three: Design for the Environment

1. Individual Producer Responsibility
   - Change of production concept
   - Reduce

2. Encouraging innovative business approaches
   - Leasing
   - Servicizing

3. Linking EPR with Sustainable Resource Management
   - Change in products
   - Material Taxes

   Recycler
   ↓
   Producers
   ↓
   Distributors
   ↓
   Consumers
   ↓
   Waste
   ↓
   Final dispose
Regional/international collaboration

1. Domestic EPR system can be undermined by international trade of e-wastes.

2. At the same time, many countries face difficulties in dealing e-waste domestically.

3. The major existing global financing mechanisms emphasizes climate change.

4. If EPR is extended to export of secondhand e-products, we can estimate about 14.8 billion to 22 billion Japanese yen will be collected for exported used electronics and home appliances in Japan.

5. This approach may become a significant source of funding for international collaboration for sustainable resource circulation both domestically and internationally.
### Phase-in for Sustainable Resource Management

<table>
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<tr>
<th>Phases</th>
<th>Examples of Policy Concepts</th>
</tr>
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<tbody>
<tr>
<td><strong>Phase 1 Improvement in Resource Recovery and Capacity of Actors</strong></td>
<td>• Interface organization to engage the informal sectors&lt;br&gt;• Nurturing formal industries for resource recovery&lt;br&gt;• Subsidies for recyclers&lt;br&gt;• Certification of good recyclers</td>
</tr>
<tr>
<td><strong>Phase 2 Internalizing Externalities</strong></td>
<td>• EPR&lt;br&gt;• Zero waste factory&lt;br&gt;• Eco-industrial parks&lt;br&gt;• Quality standards for recyclables&lt;br&gt;• Green public disposal&lt;br&gt;• Product replacement campaign</td>
</tr>
<tr>
<td><strong>Phase 3: Reconsideration of Product System and Social Infrastructure</strong></td>
<td>• Greening of Supply chain&lt;br&gt;• Green purchasing&lt;br&gt;• Ban of throw-away products&lt;br&gt;• Virgin material tax&lt;br&gt;• EPR to IPR&lt;br&gt;• Local production and consumption</td>
</tr>
<tr>
<td><strong>Phase 4: International Collaboration</strong></td>
<td>• Climate co-benefit&lt;br&gt;• Multi-lateral financial mechanism for sustainable resource management and resource circulation&lt;br&gt;• Policy collaboration on resource reduction&lt;br&gt;• International funds for sustainable resource management</td>
</tr>
</tbody>
</table>
• EPR should be adjusted to the level of national economic development, capacity for environmental policy enforcement, market structure of products and recyclables.

• EPR implementation should go from a basic focus on improved waste management to finally achieving design for environment.

• Regional collaboration is needed for improved management of e-waste not only between developed and developing countries. Such scheme can include international certification of good recyclers or international fund for recycling.
• **IGES Policy Brief**
  
  EPR Policies for Electronics in Developing Asia: A Phase-in Approach
  
  September 2011,
  
  Author: Akenji, Lewis; Bengtsson, Magnus; Hotta, Yasuhiko and Hayashi, Shiko
  
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