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## Summary record of

# International Workshop on Extended Producer Responsibility for Waste Electrical and Electronic Equipment in China

The International Workshop on Extended Producer Responsibility for Waste Electrical and Electronic Equipment in China was co-organised by the OECD Environment Directorate and the Ministry of Environment, Solid Waste and Chemicals Management Center, and was held in Beijing on 14 May 2015.

Extended Producer Responsibility (EPR) is an effective environmental policy approach to reduce and recycle waste based on the polluter pays principle and is increasingly applied not only in OECD countries but also in emerging economies. China established the EPR-based treatment fund in 2012 for five kinds of Waste Electrical and Electronic Equipment (WEEE) which includes TVs, refrigerators, washing machines, air conditioners and personal computers. This has significantly improved the facilitation of environment-friendly recycling and treatment of electronic waste. However, EPR policies and regulations in China are not complete and the recycling industry is still at an initial development stage. This industry is facing many challenges such as poor recognition and implementation of EPR, and environmental pollution in air, water and soil resulting from informal treatment of WEEE.

With this background, the workshop was held to draw on international experience with EPRs, to highlight issues and challenges that exist for implementation and provide guidance for the improvement of the current e-waste EPR system in China. The event was attended by approximately 100 participants from government, academia and private sectors, including a few international experts from the OECD. The meeting provided opportunities to learn from successful experiences on EPR for e-waste in OECD countries, to compare the current situation in China, to discuss the way forward for improving the EPR system in China leading to better environmental management of solid waste.

### I. Session 1: Current Status of Implementation of EPR for E-waste in the OECD

#### **【Mr. Herman Huisman, Ministry of Environment of the Netherlands】**

The topic of this presentation was “The Development Process of EPR Implementation – Experience of the Netherlands”. The speaker introduced the management and implementation process of EPR in the Netherlands for the recycling of wastes. In this system, non-profit organizations play a very important role in collecting and recycling wastes and a clear identification of responsibilities is the key for the success of the EPR system.

#### **【Ms. Caroline Henry, Ministry of Ecology, Sustainable Development and Energy, France】**

The topic of this presentation was “The implementation of EPR in France - Recommendations for Developing Countries”. The speaker introduced the experience of France in EPR management of wastes. Professional recycling organizations play an important role in the successful implementation of EPR. Clear identification of the responsibilities of government departments and social organizations is key for success. The speaker also suggested that based on further improvement of relevant laws and regulations, China should clearly identify the responsibility of each government department for recycling and treatment of wastes, unify environmental standards, and promote non-profit organizations to play a more important role in EPR activities. The presentation also highlighted the French approach to facilitate design for environment incentives through a system of modulated fees based on product design.



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### **【Mr. Shunta Yamaguchi, Environment Directorate, OECD】**

The topic of this presentation was “Extended Producer Responsibility and the Informal Sector in Developing Countries”. Showcasing and comparing different outcomes of Bulgaria and Colombia in terms of different approaches to informal sectors, the speaker pointed out that developing countries should consider incorporating the informal sector within EPR policies. The informal sector in developing countries could play a greater role in EPR compared with that of OECD countries especially in collecting and sorting waste. Therefore, China may want to consider incorporating the informal sector into its e-waste EPR through approaches such training, formalization and standardization and professionalization. The presentation also pointed out that EPR in middle-income countries depends more on the value chain, including the private recycling sectors. This leads to stronger dependence on private finance. Therefore, economic instruments such as price supports and diversion credits could be more widely used for EPR in middle-income countries than in OECD countries, which may also lead to better recycling outcomes for low-value or non-recyclable materials.

### **【Mr. Garth Hickle, Pollution Control Bureau, U.S. State of Minnesota】**

The topic of this presentation was “Review of the Design for Environment and Extended Producer Responsibility”. The speaker introduced the idea of design for environment and efforts and experience of the Province of Ontario in Canada, States of Maine, Washington and Minnesota in the US in using EPR and life-cycle management of products. The presentation indicated that measures such as strengthening the consistency of policies across different jurisdictions, introducing differentiated fees, developing individual producer responsibility (IPR) and improving product service systems could improve design for environment (DfE) outcomes.

### **【Conclusions from session 1】**

1. Identifying the responsibility of product producer, marketer, recycler and user for recycling and disposal of waste are key for the effective implementation of EPR systems.
2. DfE incentives can be strengthened through differentiated fees based on product design criteria.
3. Incorporating the informal sector into EPR systems can lead to better collecting and sorting outcomes. This may be possible through economic instruments such as price supports and diversion credits.

## **II. Session 2: The EPR System for E-waste in China**

### **【Ms. Hu Nan, Senior Engineer, MEP Solid Waste and Chemicals Management Center】**

The topic of this presentation was on “WEEE Policies and Practice in China”. The speaker introduced the EPR-based fund and subsidy system for e-waste in China as well as the current implementation of the system over the past two years. The current system is functioning well for TVs, however, it is struggling to collect other product groups identified in the system, due to insufficient subsidy rates and competition for waste products from the informal sector. As a result, the current system mainly finances recycling of TVs based on collected fees from all target appliances. In addition, the disbursement of subsidies is currently exceeding the income, and therefore, a better financial balance will need to be achieved to ensure the financial sustainability of the system. There is also a challenge to promote DfE incentives. In view of these existing issues the presentation recommended to improve the system by restructuring producer fees, ensuring a better financial balance of the system, and promoting DfE incentives.



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**【Professor Wang Jingwei, Shanghai Second Polytechnic University】**

The topic of this presentation was “Recycling of Metal and Non-metal Resources in E-wastes”. The speaker introduced the value of recyclable metals and non-metal resources in e-waste as well as relevant recycling and treatment technologies and suggested a direction for improving recycling and reuse levels of e-waste dismantling enterprises.

**【Mr. Yang Jianxin, Researcher, Research Center for Eco-Environmental Sciences Chinese Academy of Sciences】**

The theme of this presentation was “Challenges of Life Cycle Management of WEEE in China”. The speaker explained the framework of life cycle management of WEEE. The presentation pointed to the need to optimize waste management processes from the system perspective and the role of life cycle assessment tools to promote the development of a circular economy. The speaker indicated that, the current system would benefit from a better structure of producer fees to improve the coverage of different appliances. The system could be further improved by providing subsidies not only for waste processing but also waste collection. He also stressed that the revision of the current system should consider providing incentives for DfE and consider incorporating the informal sector into the system.

**【Dr. Liu Lili, Environment School, Tsinghua University】**

The theme of this presentation was “E-waste Management — Opportunities and Challenges for EPR in China”. The speaker introduced EPR legislation and its implementation in China as well as opportunities and challenges for EPR in China. The presentation pointed out that with detailed laws and regulations and an associated subsidy fund mechanism, producers could be guided to design and manufacture 3R products and the participation of producers in the development of WEEE recycling system could be promoted.

**【Conclusions from session 2】**

1. Although China has set up an EPR-based fund and subsidy system, relevant policies and regulations are not complete, and the recycling industry is still at an early development stage. There are many challenges, such as poor identification and implementation of producer responsibility as well as environmental pollution of air, water and soil resulting from the informal treatment of wastes.
2. The establishment and improvement of EPR related laws and regulations and their implementation are the primary areas for work at present in the field of e-waste management.
3. The structure of producer fees and subsidies may need to be revisited to promote a better balance and equal coverage of targeted products.
4. DfE incentives need to be strengthened to create incentives for more easily recyclable products on the market.
5. The incorporation of the informal sector into the current EPR system on WEEE may need to be considered to achieve better collection and sorting outcomes.

**III. Current Status of EPR Implementation in WEEE Recycling Enterprises in China**

**【Mr. Wang Chunlin, General Manager, TCL AOBO (Tianjin) Environmental Protection and Development Co., Ltd.】**

The topic of this presentation was “TCL EPR Strategy”. The speaker introduced the efforts of TCL in



the whole of life cycle management of product including design, manufacture, recycling, dismantling and disposal. The presentation suggested that the State should take stronger measures to encourage producers to develop more environment-friendly design and manufacturing ideas, facilitate reduction of waste and minimize obstacles to end-of-pipe treatment.

**【Mr. Wang Jianming, General Manager, Huaxin Environmental Co., Ltd.】**

The topic of this presentation was “EPR of WEEE Recycling Industry”. Taking Beijing as an example, the speaker mainly introduced the problems that formal e-waste recycling enterprises face in the process of implementation of EPR. Problems such as the insufficient stringency of EPR laws, a lack of flexibility of the subsidy fund, low operational load due to inconsistency between targets and actual amounts of end-of-life products and fierce competition from the informal sector impede better outcomes of EPR.

**【Mr. Lu Xijin, Deputy General Manager, Shenzhen GEM High and New Technology Co., Ltd.】**

The topic of this presentation was “Development of GEM Recycling System”. The speaker introduced GEM’s practice in recycling of waste batteries and pointed to the need to establish a more effective recycling mechanism, to strengthen publicity and education on environmental protection and guide public participation in recycling and reuse of wastes.

**【Mr. Chen Long, Manager, GREE Group】**

The topic of this presentation was “Green Exploration of GREE”. The speaker introduced GREE’s efforts to recycle rejected products and estimated the number of major household appliances currently in service as well as the future amount of end-of-life household appliances. The development of the circular economy does not only lead to environmental protection, but it also supports the long-term sustainable development of the economy. The implementation of the Law on the Promotion of the Circular Economy adds will support the comprehensive use of wastes.

**【Conclusions of session 3】**

1. There is still much room for improvement in terms of EPR in China and it is urgent to identify the responsibility of each party.
2. Existing regulations only address the formal sectors, whereas it is difficult to achieve effective management of informal dismantling workshops.

**IV. Overall conclusions from the Meeting**

After in-depth exchanges and discussion, the experts participating in the meeting reached a common understanding on some of the key scientific and technological issues in the area of “**EPR for waste electric and electronic products**”. The meeting identified the following issues in need of urgent solutions:

1. Clear Roles and Responsibilities

Existing laws and regulations in China still require the implementation of the “polluter pays” principle for the disposal of waste. However, they lack clear requirements for the responsibility of producers, leading to difficulties in achieving 3R objectives (reduce, reuse and recycling). Therefore, it is suggested that the responsibilities of producers, marketers, recyclers and consumers in the process of collection, recycling and disposal of waste should be clearly identified so as to promote effective implementation of EPR in China.



2. Expanding the Catalogue of Compulsory Recycling of E-Waste

The current subsidy fund for standard dismantling of e-waste covers a relatively small set of products. Therefore it is difficult to achieve effective and high-quality dismantling and treatment of e-waste that is not part of the catalogue of electronic products. In many cases, proper dismantling of e-waste is not practiced in informal workshops. Moreover, operators currently do not have an incentive to collect, recycle and dispose low-value waste and it is difficult to raise collection and recycling rates under these circumstances. Therefore, there is need to expand the catalogue of compulsory recycling of e-waste to include more applications to be processed through professional recycling organizations and to improve recycling of waste.

3. Revisiting Producer Fees and Subsidies

The current structure of producer fees and subsidies should be revised. The present subsidy fund for e-waste mainly finances the recycling of TVs whereas other target appliances face difficulty in collection. Therefore, there is an unequal sharing of the financial burden across different product groups. Moreover, the current system disburses more subsidies than the revenue collected through producer fees. The amount of subsidies for dismantling and treatment should be adjusted to create sufficient incentives for the collection of all products covered by the EPR. The subsidy structure could be revised to incentivize processing as well as the collection of WEEE.

4. Incorporating and Upscaling the Informal Sector

The informal sector has a significant role in recycling of WEEE, especially in collecting and sorting, and the authorities may want to consider to incorporate these actors into the system rather than excluding them. Economic instruments such as price supports and diversion credits could help to facilitate better collection through informal sector operators. On the other hand, the informal dismantling and treatment of e-waste in China may pose a threat to environmental security and public health. Therefore, measures may be considered to improve or eliminate these operations.

5. Incentivising DfE

The current EPR system for e-waste in China poses a uniform producer fee per product placed on the market which leads to an absence of incentives for DfE at the level of producers. From the examples of the US and France, innovative policy approaches such as differentiated fees, independent producer responsibility (IPR), or service based business models may be effective means to encourage more environment and/or recycling friendly product design.