IMPACT SHEET • SWITCH-ASIA PROJECT

**REWIN E-WASTE TRACKING SYSTEM**

# IMPROVING RESOURCE EFFICIENCY FOR THE PRODUCTION AND RECYCLING OF ELECTRONIC PRODUCTS BY ADOPTION OF WASTE TRACKING SYSTEM

## IMPLEMENTATION OF AN ADAPTED EXISTING ONLINE WASTE TRACKING SYSTEM (WTS) WITH FOCUS ON THE PRODUCTION OF EEE

switchasia NETWORK FACILITY

## THE CHALLENGE

China is a fast developing economic region, especially the production of electrical and electronic equipment (EEE) is rapidly growing. On the one hand these growing amounts of EEE causes severe environmental damages when not handled properly as waste, on the other hand post-consumer Waste Electrical and Electronic Equipment (WEEE) contain many materials that are valuable when used as secondary raw materials in the production processes of electronics. In addition, the recycling of residual materials from the electronics production industry saves valuable resources. According to a 2009 United Nations Environment Program (UNEP) report "China already produces about 2.3 million tonnes of e-waste (2010 estimate) domestically, second only to the United States with about 3 million tonnes". And, despite having banned e-waste imports, China remains a major e-waste dumping ground for developed countries."

## OBJECTIVE

The overall objective of the action is to contribute to sustainable production for both Chinese producers of EEE and recyclers via promoting resource efficiency in order to lower the environmental impact of WEEE.

- Linking supply and demand of secondary raw materials in electronic production and recycling (chain approach);
- The development of an adequate recycling infrastructure for WEEE as post-consumer waste and secondary raw materials from electronic producing industry; and
- The development of a knowledge structure on Design for Recycling between the recyclers and the electronic producing industry.

## ACTIVITIES / STRATEGY

**ADAPTATION AND IMPLEMENTATION OF THE WASTE TRACKING SYSTEM (WTS):**
Facilitate target SMEs to register to the e-WTS, which shall be used by SMEs in the electronic producing and recycling industry. This needs an adaptation of the existing WTS developed for hazardous wastes regarding the focus on waste types occurring in the production sector of EEE.

**IDENTIFICATION OF IMPROVEMENT POTENTIALS IN THE PRODUCING INDUSTRY:**
Material flows are analysed by key processes; potentials to improve the resource efficiency (e.g. by reduction of cutting and other losses, increased input of secondary materials) are determined and best practice cases identified.

**SCALING UP THE E-WTS BY INVOLVING MORE SMES:**
Aims at scaling-up through registration of more SMEs producers, where training programs as well as stakeholder workshops are developed and implemented.

**WEEE COLLECTION INITIATIVES:**
Set up new initiatives for collecting WEEE from larger generators, such as public institutions and industry. Future development of e-waste recycling includes also the collection and processing of post-consumer e-waste at household level. Therefore the existing formal and informal collection and processing systems at household level in China are screened.

## TARGET GROUPS

The main target group is the Chinese electronics production and recycling industry. In addition, major stakeholders are authorities at national and regional level (e.g. Ministry of Environment - National Solid Waste Management Centre of China, local waste management authorities from the target provinces) and Industrial Associations such as the China Electronics Enterprises Association, the China Association of Environmental Protection Industry, the Guangdong Provincial Electronic Industrial Association, and the Jiangsu Provincial Electronic Information Association.

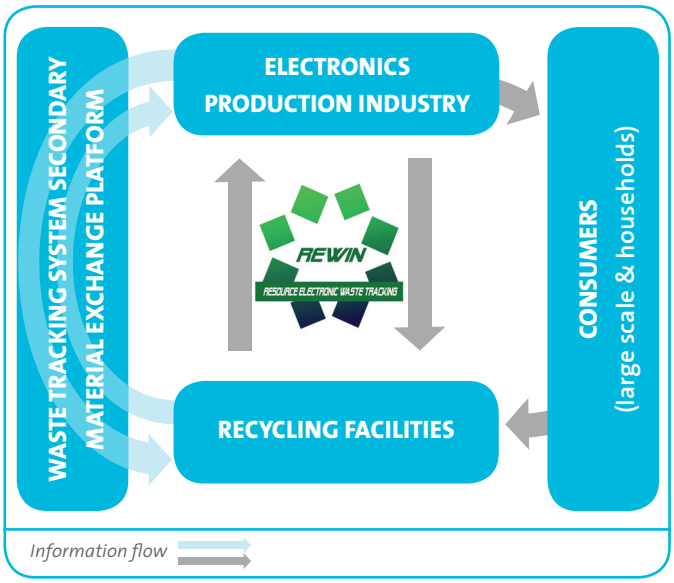
# SCALING-UP STRATEGY

**RECYCLING INITIATIVES FOR ELECTRONIC WASTE GENERATED BY THE PRODUCTION SECTOR AND WEEE:**

Set up new initiatives for using more recycled components and materials in new products by improving the technology of recycling and by making use of the information from the e-WTS.

**POLICY DIALOGUE AND DISSEMINATION:**

Facilitate a norm shift in policy-making towards sustainable production and enabling policy environment for improving sustainable production and consumption in the sectors of electronic production and WEEE-recycling.




**ESTABLISH A NETWORK OF ALL STAKEHOLDERS:**

The establishment of the "e-WTS Central Office" within the NSWMC as central body secures the implementation and networking actions at high policy making level. The training courses address all stakeholders and are based on the exchange of experiences between China and EU to improve capacities for all stakeholders involved.

**DEVELOP E-WTS:**

e-WTS will be included in the existing WTS for hazardous waste and thus it will be adapted and scaled-up. By registering in e-WTS (at the end of this action, there will be 100 recyclers, according to the planning of NSWMC registered in e-WTS), both resource efficiency of electronic products producers and rate of WEEE-recycling will increase substantially. On the one hand the action leads to support enterprises to improve resource efficiency and to link demand and supply of secondary raw materials. On the other hand an information flow regarding waste and material amounts and types will be implemented.

**CENTRALISED DATABASE:**

Via a centralised information database on electronic production and WEEE recycling, WEEE recycling is institutionalised and efficiency and quality of WEEE recycling will be significantly improved. Existing and best practices are brought together in order to develop a system structure and design.

**BUSINESS NETWORK:**

A business network will be established by involving all stakeholders of the value-chain. The implementation of both e-WTS and a Secondary Material Exchange Platform (SMEP) as well as the establishment of a centralised body (e-WTS Central Office) will bring all stakeholders together, and NSWMC and CEEA will be able to ensure that production efficiency and recycling of WEEE can be optimised.

**DESIGN FOR RECYCLING:**

This action will build up capacities of the target EEE producers on integrating concepts of Design for Recycling into the product designing, selecting of materials and technologies and production processes. The development of resource efficiency action plans will support individual SMEs to improve their practices with regard to resource efficiency.

# RESULTS

- The development of a database to optimise the resource consumption in the electronic industry. The database includes information from the e-WTS and from the SMEP, including guidelines for registering and using the e-WTS and SMEP system for producers, recyclers and authorities.
- Published manual for material flow analysis (MFA) for electronic producers.
- Training toolkits and one implemented train-the-trainer course and four training courses on the subject of re-gistration, management and use of the e-WTS and SMEP.
- Setting up a policy framework and action plan for regulating the promotion of resource efficiency and sustainable production coordinated by the e-WTS Central Office.
- An envisaged network of electronics producers and WEEE recyclers involved at the end of this action.
- Related to resource efficiency, the envisaged share of defined environmentally friendly products (by increased use of secondary raw materials) shall increase by 10-15% within the targeted SMEs, as compared to the baseline of 2010.

- Training toolkits in Design for Recycling for producers of EEE and implemented training courses for resource and waste managers of the target companies. One course took place in Guangdong province, one combined training for Zhejiang Province and Jiangsu Province.
- Action plans developed by selected SMEs of the electronics producing industry in order to improve resource efficiency and reducing emissions.
- Adapted technical and financial standard for collecting post-consumer WEEE from large generators and for WEEE-recycling based on best-practices.
- Best practice examples for the use of secondary materials and Design for Recycling.
- Envisaged achieved collection rate of post-consumer WEEE increased by 60% from larger generators among the targeted partners as compared to the baseline of 2010.
- A recycling rate of WEEE increased by 20%-30% at the recycling facilities among the targeted 700-800 SMEs as compared to the baseline of 2010.
- 35 trainers trained and about 200 participants from target groups and final beneficiaries trained.
- Implemented 3 training courses in the target areas and about 120 participants from producers and industrial designer are trained.

# IMPACT IN NUMBERS

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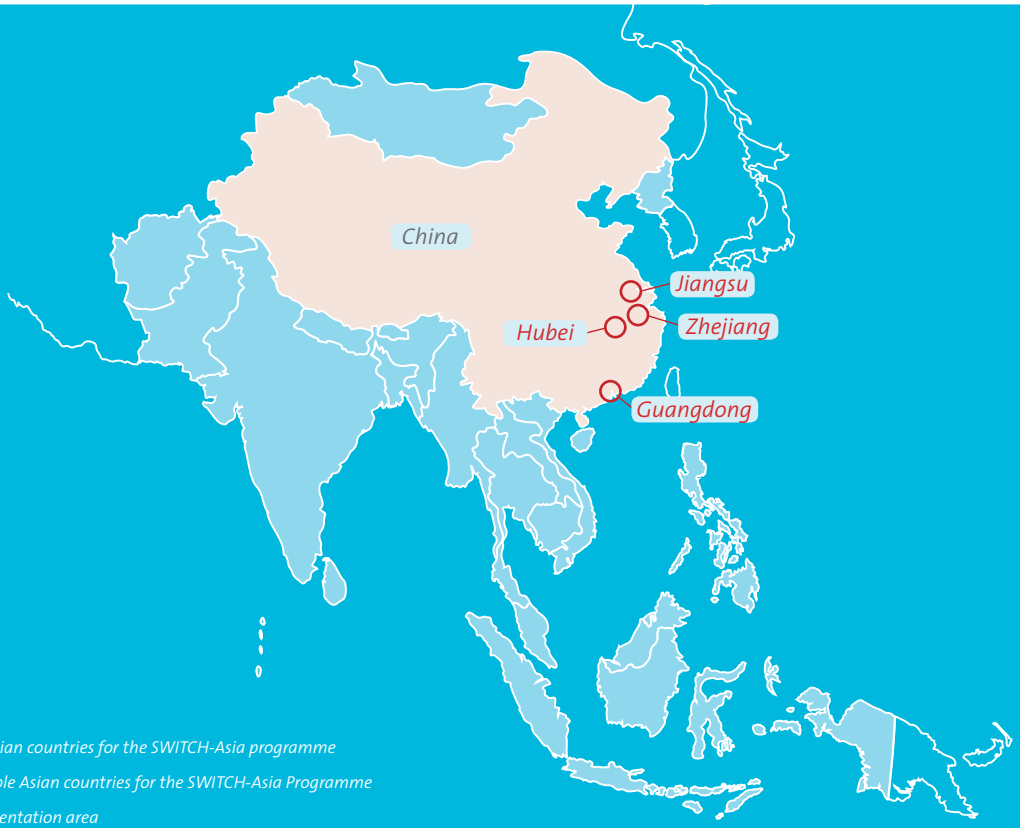
| **ECONOMIC IMPACT** | • Improved competitiveness of the electronics producing industry by increased resource efficiency; improved economic success of WEEE-recyclers by adapted recycling technologies. |
| **ENVIRONMENTAL IMPACT** | • Closing material cycles between recyclers (as producers of secondary materials) and producers (as users of those secondary materials) will lead to better resource efficiency and reduce the environmental impacts from the acquisition of primary resources. |
| **ENGAGEMENT OF TARGET GROUP** | • Producers of electronics as a target group are involved and actively contributing to the MFA case studies and the action plans for improved resource efficiency. In addition training courses and the annual advisory and supervision missions (including company visits) offer possibilities for active participation. |
| **POLICY LINKAGES** | • Policy dialogue to prepare and discuss proposal for future regulations are important parts of the project. The project is based on the existing online Waste Tracking System (WTS) developed within a preceding project. It is a computer based interface for generators of hazardous waste to report the generation of certain waste types. *REWIN* scales-up the existing WTS to the electronics production & recycling sector in order to promote resource savings and reduced environmental impacts. After the project, WTS registration will become compulsory and is intended to be scaled-up to whole China. |


## OBJECTIVES

To contribute to sustainable production for both Chinese producers of EEE and recyclers via promoting resource efficiency in order to lower the environmental impact of WEEE.

## DURATION


## PROJECT TOTAL BUDGET

Total Project Budget: 1,751,391 €

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## PROJECT CONSORTIUM

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China Electronics Enterprises Association (CEEA)

Jingzhou Environmental Protection Bureau

NL Agency