



Industrial solid waste flows and recycling patterns of China: a case study in Suzhou

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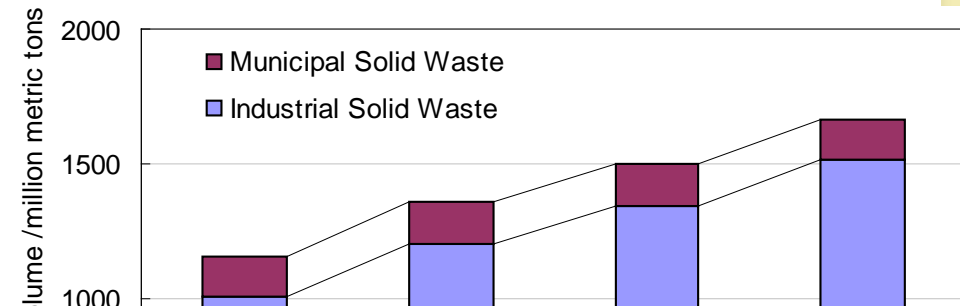




Recycling is become an most important approach towards sustainable development for China



The Law for promoting Circular Economy has come into force since Jan 1st, 2009



Objects

- Character different ISW flows
- Identify impact factors of the patterns and problems
- Giving policy suggestions for further policy making



Suzhou city as case study

research instruments:

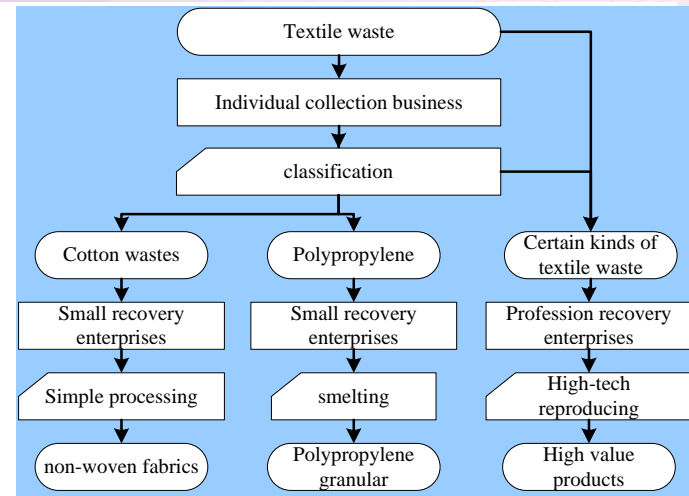
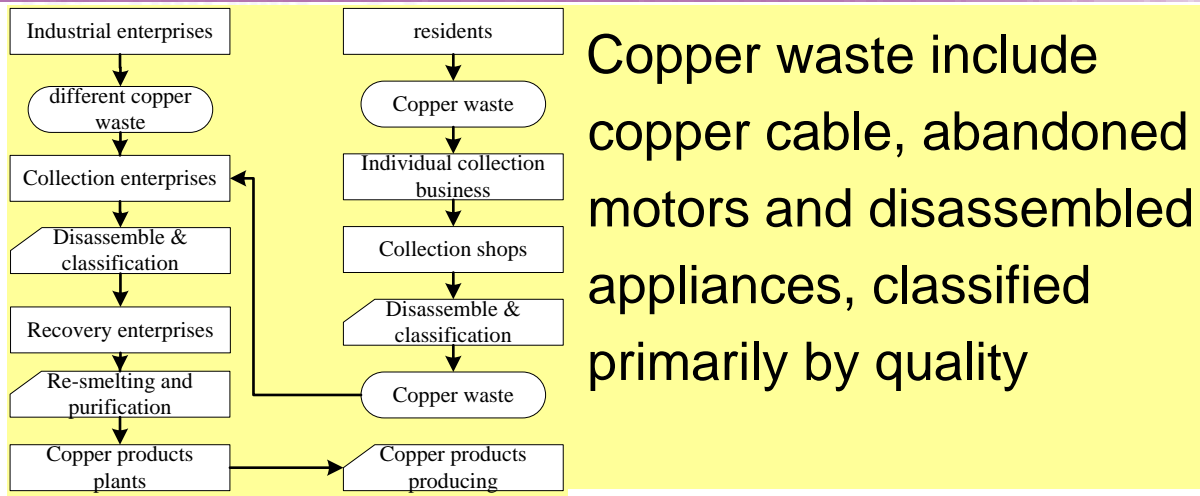
- structured questionnaire
- structured interview
- unstructured interview

Typical actors through the recycling process and their characteristics are shown in tables

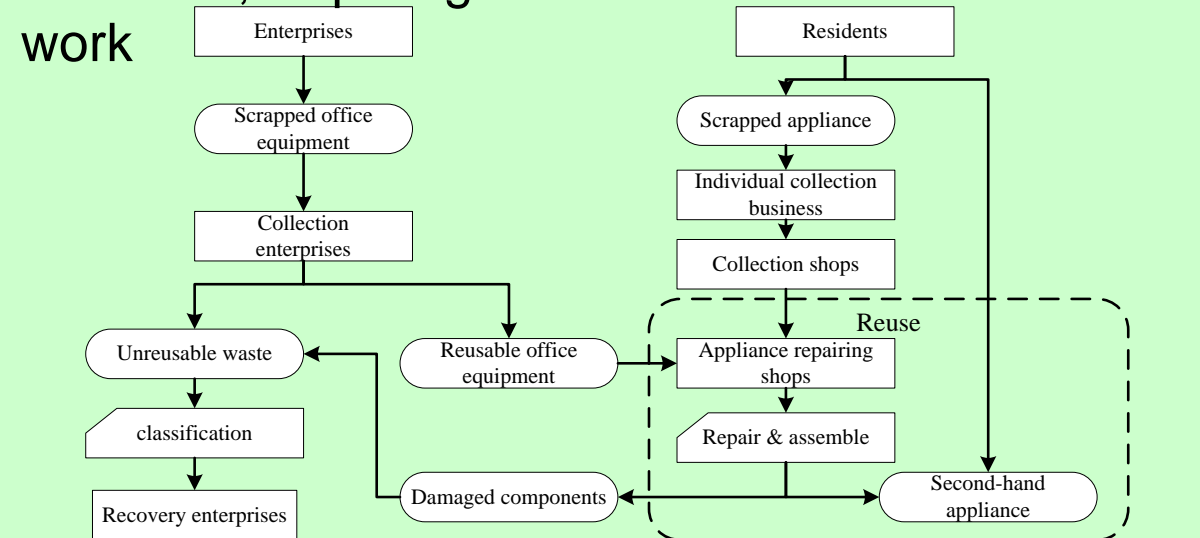
Actor	Collection enterprises	Recovery enterprises producing raw materials	Recovery enterprises producing new products
Main Characteristics	active management mechanism, with clerks in charge of looking for sources of waste, usually get ISW from industry enterprises, and sell it to recovery enterprises	Large-scale enterprises with professional waste-processing equipment, usually combined with raw material producing enterprises	Large-scale enterprises with professional waste-processing equipment, production including recyclable wastes and high value-added products
Recycling Range	usually focus on one or several kinds of recyclable wastes	Only recycle a specific type of waste	Only recycle a specific type of waste
Storage	With a number of storage sites, some big enterprises even have their own terminal	own large storage sites to maintain continuous production	own large storage sites to maintain continuous production
Classification	First classification for reuse, remaining resources can be dismantled and classified in accordance with materials, colors, specifications carefully	Different classification according to material, but usually only recover one specific kind of waste	The classification is very strict and often only accept a specific type of waste with certain materials, colors, specifications
Scale/persons	20-100	more than 50	more than 50
Supervision	Supervised by commercial bureau, mostly tax registration	Tax registration and Special permission for recycling industry	Tax registration and Special permission for recycling industry

Actor	Individual Collection Businesses	Collection Shops	Small Recovery Enterprises
Main Characteristics	Distributed in residential areas, use human carriers such as tricycles to collect the recyclables from residents	Possession of relatively fixed place of business, mostly in residential areas, Majority own small vehicles as a means of transportation	Own some simple waste-processing equipment, recover certain type of wastes acquired (mostly textile, plastic) to produce recyclable wastes
Recycling Range	According to the recycling range and price of collection shops	According to the recycling range of collection enterprises	usually only recycle a specific type of waste with certain materials, colors, specifications
Storage	usually not	own small storage sites, usually along with living area	own storage sites
Classification	simple classification	relatively detailed classification according to the recycling value	The classification is very strict and often only recycle a specific type of waste with certain materials, colors, specifications
Scale/persons	1-2	5-10	2-30
Supervision	rarely	rarely	rarely

Typical route of recycling



Textile wastes are very complex including cottons, silk, various chemical fibers, and mixed materials, requiring labor-intensive classification work



E-waste: residential appliances are mainly collected by individual collection businesses and shops; office equipment in various institutions is primarily collected by collection enterprises

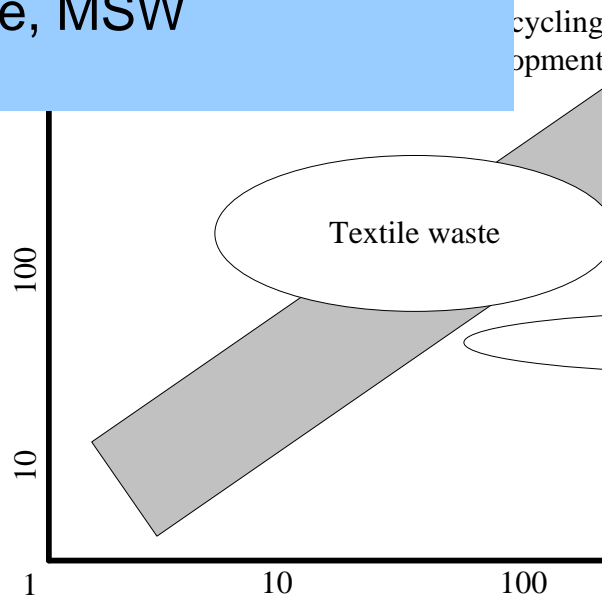


The most important impact factors to the recycling patterns are: 1) recovery value, 2) generation scale

	value	variety	main sources	batch scale	recovery process	recycling pattern
copper waste	high	low	production	large	simple	Mostly formal
E-waste	high	high	consumption	medium	complex	Mixed
textile waste	low	high	production	small	complex	Mostly informal

Encouraging R&D for the ISWs with low recovery value, develop new tech to support profitable recovery
i.e. textile waste, MSW

Tax incentives to balance the ISWs recovered as raw material with high recovery value and large scale
i.e. copper, iron, various metals



Establishing Extended Responsibility of Producer (ERP) system for the ISWs with small generation scale and low recovery value but potential environmental risk
i.e. E-waste



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