



E-waste collection: Small EEE collection in Japan & Current E-waste collection in South East Asia

Aya Yoshida

Center for Material Cycle and Waste Management Research,
National Institute for Environmental Studies, Tsukuba, JAPAN

Email: ayoshida@nies.go.jp

Content

- MOEJ model project on Small EEE collection (FY2008–2010)



- Field survey in the Indonesia, Philippines and Vietnam
- Conclusion

Ministry of the Environment of Japan's Model project on small EEE collections

	Population density (people/km ²)	Box	Pick-up	Station	Community	Collection rate*
Akita	1191	✓	✓			3.8%
Ibaraki*	448	✓	✓			6.2%
Fukuoka*	621	✓	✓	✓		17.9%
Tokyo*	4555	✓			✓	3.2%
Nagoya*	6518	✓		✓	✓	6.3%
Kyoto	1769	✓				0.5%
Minamata	169	✓		✓		9.7%

*Collection rate=Collected amount/ potentially collectable waste amount

The collection rate were 0.5-17.9% and **nationwide collection rate were estimated as 5.2%**

Type of collection methods

Type	Description
Collection box	Setting collection boxes in various places. Consumers directly put waste into the boxes.
Pick-up service	Collect waste according to the current waste collection service, then separate small EEE from other waste.
Station collection	Setting a container for small EEEs at recyclable waste collection station, then collect them regularly.
Community collection	Existed community groups that gather recyclable waste regularly will collect small EEEs.
Collection event	Setting a collection box in community events, then collect small EEEs which brought by participants.

Summary of model projects on small EEE collection

- Ministry of the Environment of Japan has conducted the model projects of small EEE collections in 7 regions for 2 or 3 yrs (FY2008-2010).
- Approximately 330,000 units (120 ton) small EEEs were collected.
- Different collection types were suggested depend on the size of city/area.
 - Large-size city: collection box, collection event
 - Mid-size city: collection box, pick-up service
 - Small-size city (advanced waste collection city): station collection

Future challenges

<Proposed Systems> -Voluntary collection scheme

- ❑ Municipality and Retailers: collections (free-of-charge or charge waste collection fee)
- ❑ Intermediate treatment companies/ Refinery companies (buy or take them from municipalities for free)
- ❑ Manufacturers: DfE

<Challenges>

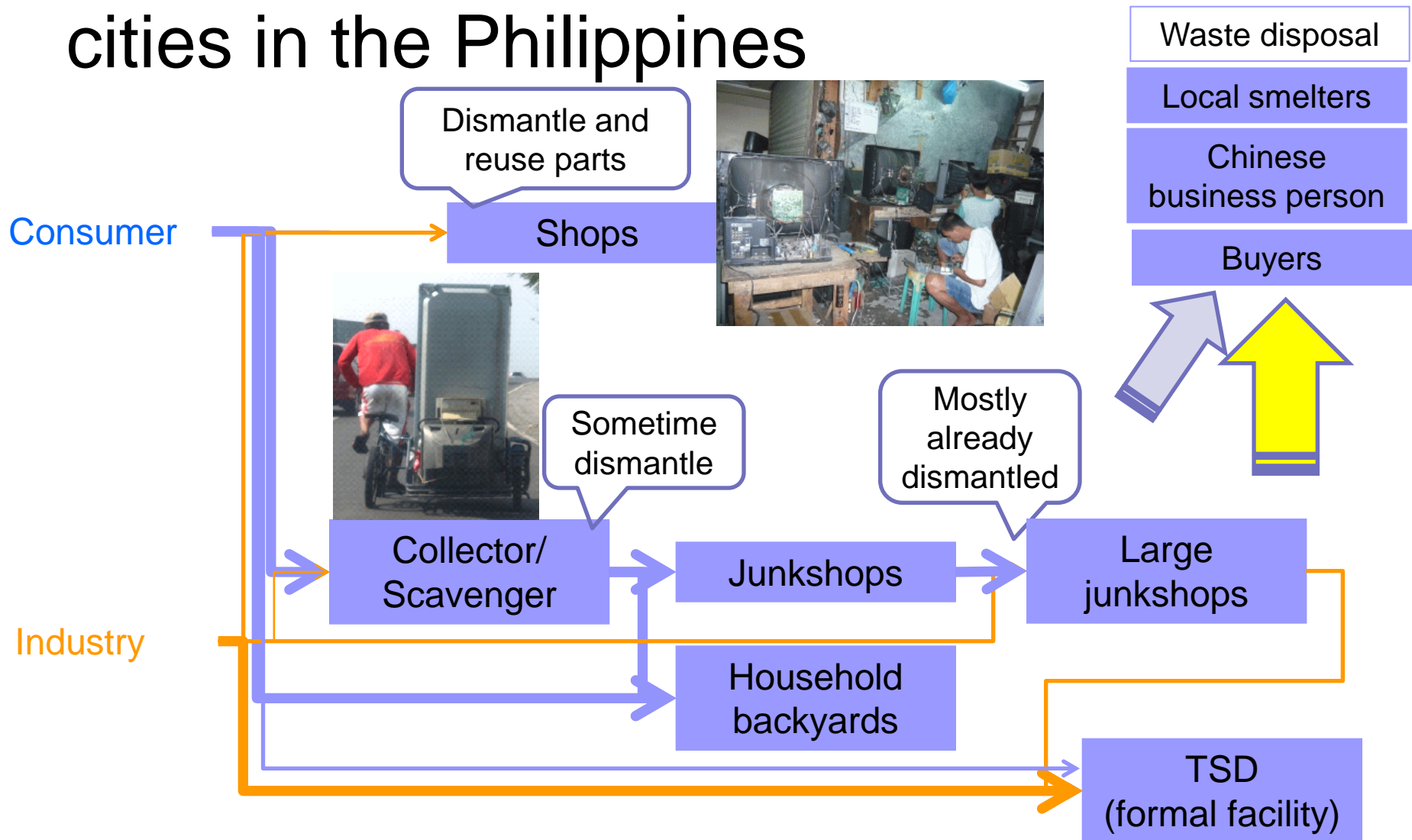
- ❑ Relations between existing scheme (voluntary secondary battery collection, mobile phone collection, PC collections)
- ❑ Items/category of products
- ❑ Cost benefit analysis



Collection box (Hachioji city, Tokyo)

	Akita	Ibaraki	Fukuoka	Tokyo	Nagoya	Kyoto	Minamata
1 Mobile phone	✓	✓	✓	✓	✓	✓	✓
2 Digital camera	✓	✓	✓	✓	✓	✓	✓
3 Video camera	✓	✓	✓	✓	✓	✓	✓
4 Portable music player	✓	✓	✓	✓	✓	✓	
5 Portable MD player	✓						✓
6 Portable CD player	✓						✓
7 Electric diary/databook	✓	✓			✓	✓	
8 Digital dictionary	✓		✓	✓	✓	✓	✓
9 Calculator	✓	✓	✓	✓	✓	✓	
10 Portable LCD TV	✓		✓	✓		✓	✓
11 Portable radio	✓		✓	✓	✓		
12 Portable movie player	✓		✓	✓	✓		
13 DVD player/recorder	✓				✓		
14 Audio	✓				✓		
15 Video cassette recorder	✓				✓		
16 Portable game player	✓						✓
17 Keyholder game player	✓						✓
18 Home video game machine	✓	✓	✓	✓	✓	✓	✓
19 Game software	✓					✓	✓
20 Game controller	✓						✓
21 Car navigation system equipment	✓	✓		✓	✓		✓
22 Car audio	✓						✓
23 Telephone equipment	✓						✓
24 HDD	✓		✓		✓	✓	
25 Word processor	✓	✓			✓		
26 Microwave	✓				✓		
27 IC recorder	✓					✓	
28 Electromagnetic cooker	✓				✓		
29 Other electromagnetic cooker	✓				✓		
30 Toys	✓				✓		
31 Electric toothbrush	✓				✓		7
32 Electric shaver	✓				✓		

E-waste related stakeholders in large cities in the Philippines



Recyclables Collection Events in Metro Manila



Unworkable CRT TV's purchase price 50PHP/unit.



Junkshops



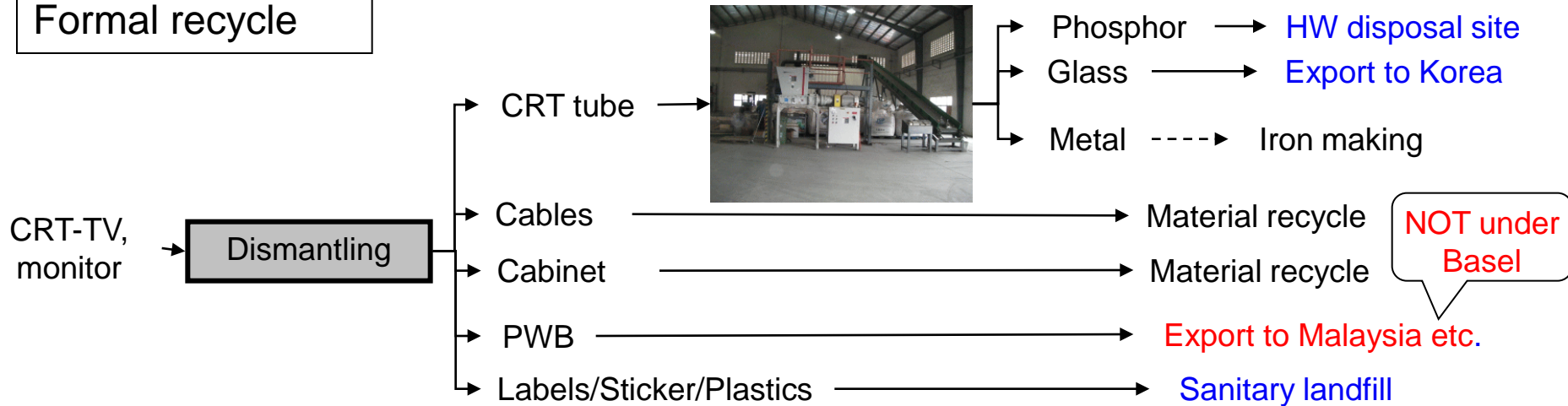
Treatment fee is required.



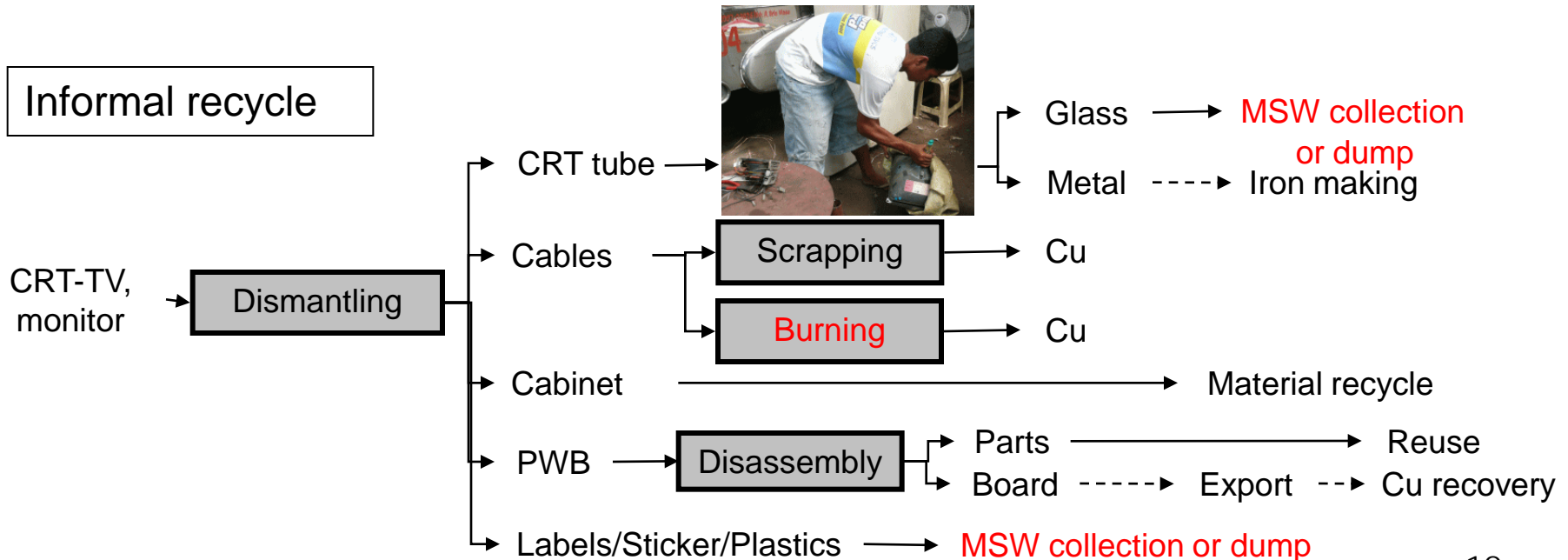
TSD (formal facility)

CRT-TV/monitor Recycling in the Philippines

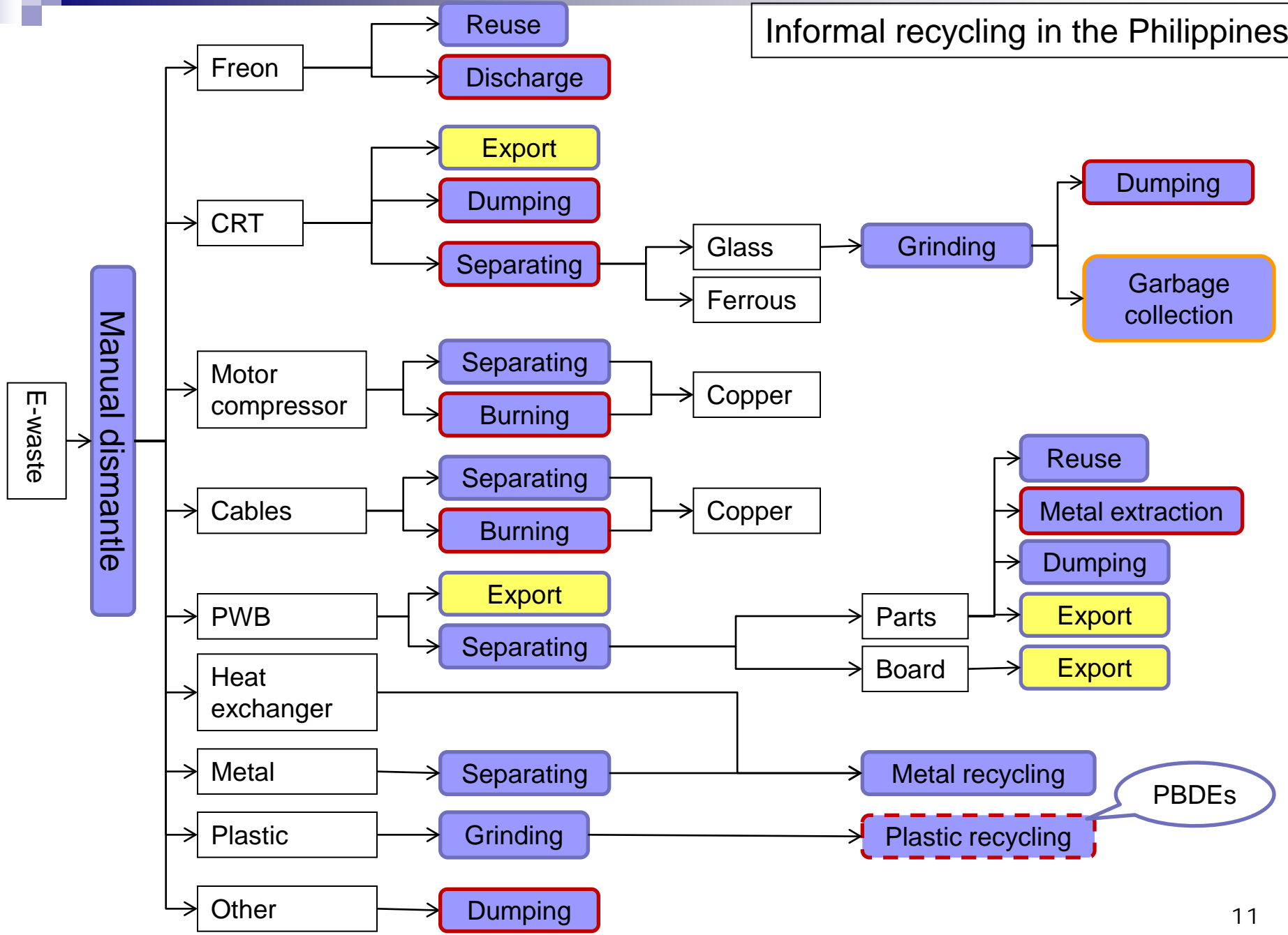
Formal recycle



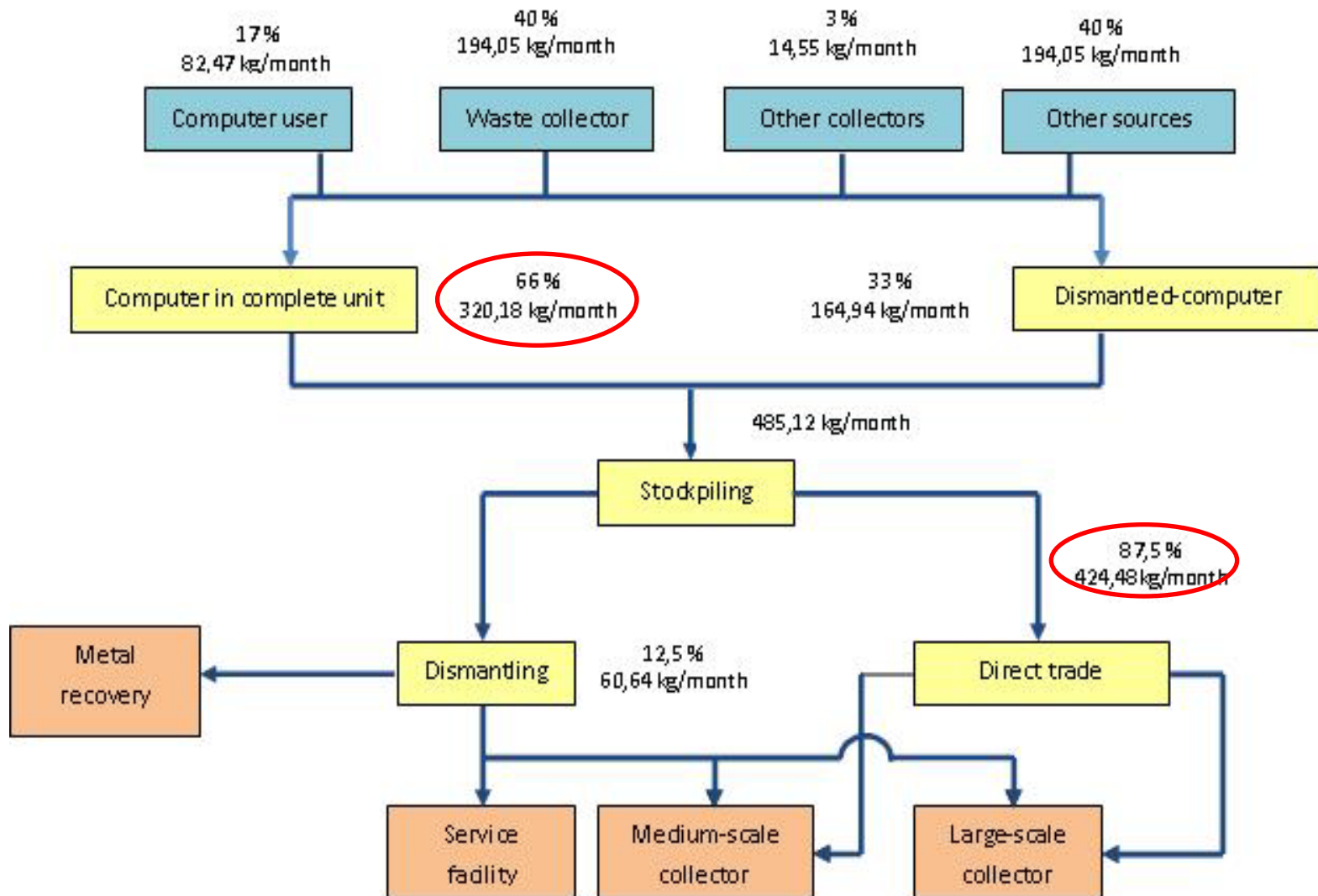
Informal recycle



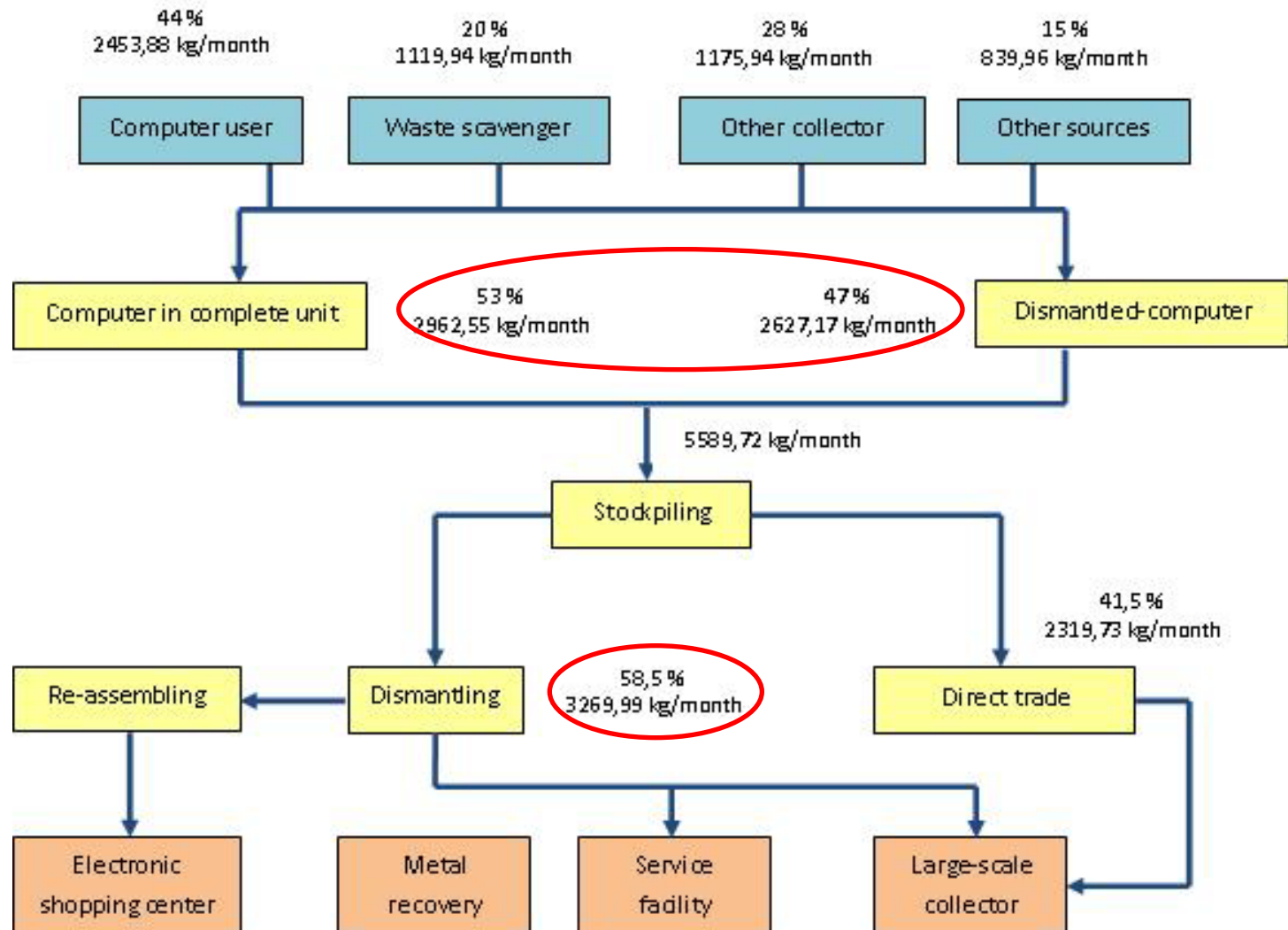
Informal recycling in the Philippines



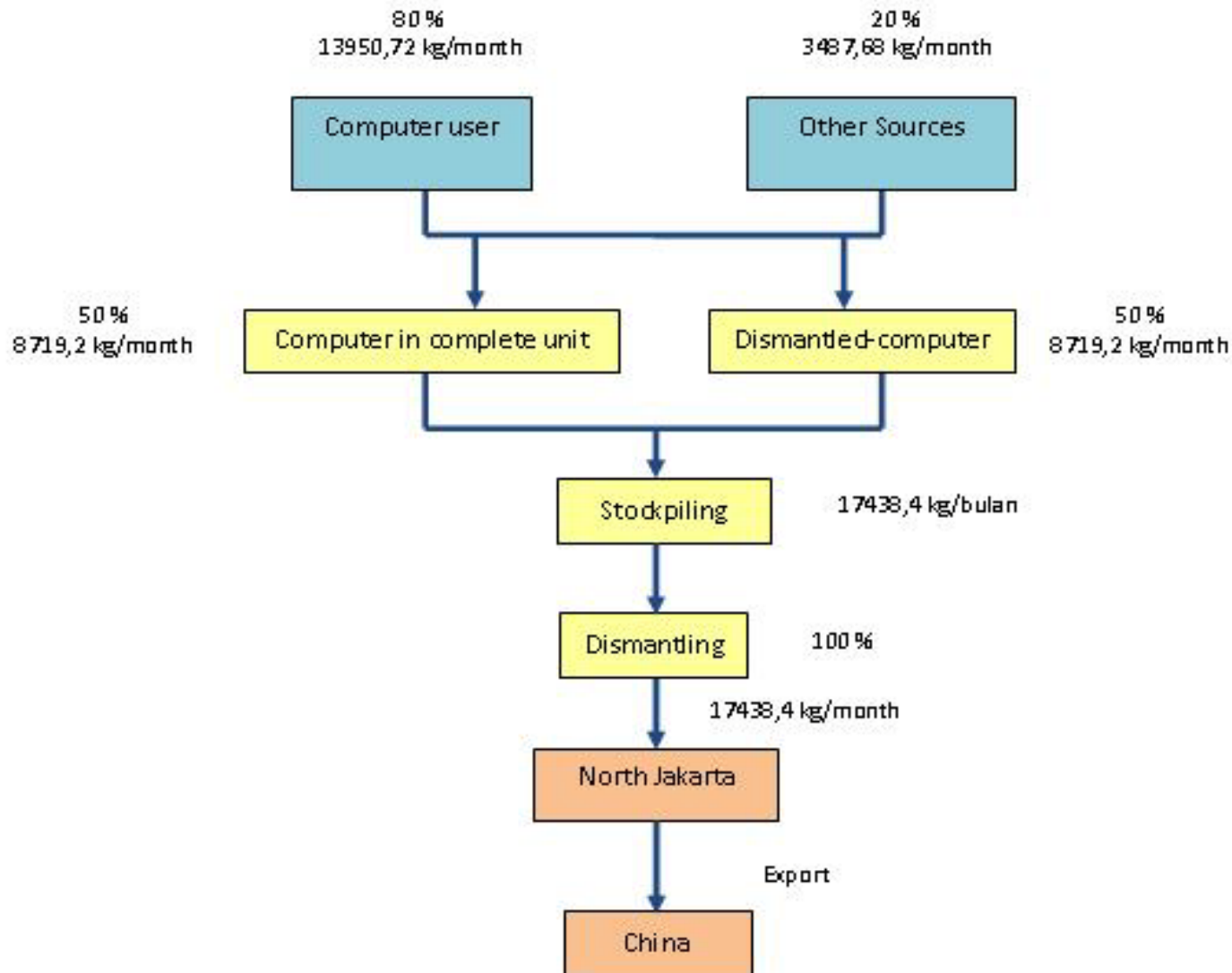
Flow of computer waste in small-scale collector in Bandung city



Flow of computer waste in medium-scale collector in Bandung city



Flow of computer waste in large-scale collector in Bandung city



E-waste Trade between Vietnam and China

- According to the field survey by Hanoi Institute of Technology in 2010, 30,000 -100,000 t of E-waste and lead acid batteries are exported from Mong Cai (Vietnam) to Dong Xing (China).
- Approximately 80% of exported e-waste are TV or PC monitor and the rest is printed circuit boards.



Conclusions & Suggestions

- Waste electrical and electric equipment (WEEE) are being dismantled in midstream.
- Aggregation/concentration of small/medium informal sectors
- Scale expansion of dismantling/separation
- It also helps local government or residents to monitor their activities (to prevent open burning, dumping residues)
- Strengthen environmental monitoring/regulation, licensing scheme, financial support to large sectors' infrastructure also help improving the current condition.
- Gov. should work for proper collection/recycling of hazardous materials from WEEE
- Border control of WEEE/E-waste