

Table 1

Estimate of discarded WEEE in China (million tons).

Year	PCs	TVs	Refrigerators	Washing machines	Air conditioners
2003	4.48	33.51	9.76	7.56	0.65
2004	7.31	28.81	9.75	9.50	1.43
2005	9.81	32.32	13.57	15.22	1.62
2006	10.73	40.88	11.12	8.00	2.81
2007	12.68	44.49	11.38	10.83	3.23
2008	15.13	44.60	10.79	10.98	4.01
2009	15.57	48.43	12.32	13.40	4.76
2010	19.57	55.73	11.87	12.61	5.50

Furthermore, a lot of foreign electrical wastes were sent into China per year. Based on statistic, the worldwide WEEE can reach five hundred million tons per year, whereas 70 percent of them are discarded in China (Zhou and Lu, 2005; IEEE, 1994; Waste Age, 2001; Electronic Business, 2001; Precious Metals, 1997). If these WEEE are random discarded without scientific treatment, some poisonous components can directly pollute environment, and some components slowly biodegrade or deposit in the soil to affect the growth of plant, furthermore, some components can enter into living environment of human by water and biological chain to imperil the living environments. For example, the traditionally rice-growing community at Guiyu has turned into an intensive e-waste recycling center since 1995. Over 75% of the 300 individual workshops have been involved in the business of dismantling or processing e-waste with nearly 100,000 migrant laborers (from countryside of poorer provinces north of Guangdong Province) employed in Guiyu, with minimal or no consideration to health and environment protection. There are at least three large scale e-waste openburning sites distributed in the rice fields and along riversides, which are still in daily operation. These e-waste recycling activities cause severe damage to the environment and to the workers as well. Local residents are constantly exposed to toxic chemicals through inhalation, dermal exposure and oral intake (of contaminated food and drinking water). Once taken into

the body, the toxic organic chemicals are stored in fatty tissues, bioaccumulating and biomagnifying through the food chains, and consequently increasing the body burden of these toxic chemicals (Wong *et al.*, 2007; Li *et al.*, 2006; Bi *et al.*, 2006; Chen *et al.*, 2004).

China currently has neither a well-established system for separation, storage, collection, transportation, and disposal of waste nor the effective enforcement of regulations relating to hazardous waste management. They do not have legislation dealing specifically with e-waste and there is lax enforcement of existing laws dealing with general waste management. Formal recycling of e-waste using efficient technologies and state-of-the-art recycling facilities are rare. As a result electronic wastes are managed through various low-end management alternatives such as disposal in open dumps, backyard recycling and disposal into surface water bodies. Similarly, there is no integrated framework regarding the monitoring and management of toxic and hazardous materials and wastes in these countries. Limited funding has also caused significant impediments to the effective management of toxic wastes. Apart from scarcity of financial resources, the development of appropriate home-grown technology following the principles of waste minimization and sustainable development has been slow.

Unfortunately, in China, a small amount of literature exists discussing the quantity of WEEE flow and its impact on markets (Lin and Wang, 2003; Liu and Yang, 2005).