

Final Report

Development of E-Waste Inventory in Thailand

By

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Executive Summary

The study utilized primary and secondary data to create a national inventory on e-waste. It was assumed in the study that indirect export of EEE has been very minimal in relation to logistic cost. Therefore, imported EEE was only for domestic sales.

It was found in the study that large home appliances—refrigerators, washing machines, air conditioners, and television tended to be used longer other small ones before discarding, mostly 11 years. Ten percent of respondents discarded washing machines, air conditioners, and television sets within year and a half, only 5% of refrigerator respondents did in the same duration.

For smaller equipment—personal computers and mobile phones, they were mostly used by respondents for three years. After one year, 20% of mobile phone respondents discarded and after year and a half, 15% of PC users reported discarding.

Used home appliances were repaired as the first destination priority with exception of PCs that were given to individuals or charity as priority. It was also responded high proportion of reuse parts derived from washing machines, high proportion of recycled parts from refrigerators, and high proportion of residues from air conditioners.

In compiling information from the Customs Department, harmonized codes for used EEE has been available since the onset of 2007. Previous information was examined when it was evident that some imported finished goods were declared at very low prices. In this study distinguish was made for used EEE from new EEE, i.e., the value of used mobile phones <300 Baht/set, used air conditioners <2,000 Baht/set, used washing machines <1,500 Baht/set, used refrigerators <2,000 Baht/set, used PC <10,000 Baht/set, and used TV < 500 Baht/set. Exported counter part was however very minimal due to minimal indirect export as stated.

In collecting data, company information on production and sales was hardly collected as one would expect, because it is confidential to company. Mis-recalling problem seemed to frequently appear among household respondents, because the respondents who stay at home during the day for interview tended to be elderly. Dates of receiving and discarding equipment might not be as accurate as they should be. An alternative is to record serial numbers at the back of equipment and subsequently track the production years of corresponding serial numbers. This may of course slightly delay dates in case equipment was produced at the end of year and was sold in the next year.

Another recalling problem was about type of equipment, number of respondents might not know in detail or differentiate types of TV screens (flat versus PDP) and brand names or specifications. These data collection problems need to be taken into consideration in the next survey in order to build up a more reliable inventory.

Chapter 1

1. Introduction

1.1 Thailand's Electrical and Electronics Industries

The electrical and electronic industry consists of assemblers and suppliers. While most electric suppliers are Thai SMEs, electronic suppliers are mainly joint-ventures. Some electronic suppliers deliver 'ready-to-use' parts to assemblers for use in the production process.

The overall picture of the electrical and electronic industry is a reflection of supply and demand. Thai domestic demand for electrical and electronic product drives production volumes for the domestic market and for imports. Electrical goods are mainly for local use and comprise items such as electric rice cookers, refrigerators, electric fans, and televisions, etc. Electronic product makers are joint-ventures with non-Thai companies such as the Taiwanese, the Koreans, and the large producers which are generally foreign owned. The perceived trend in demand for both electrical and electronic products is upward.

For domestic consumption, the Thais have consumed large numbers of EEEs for more than 60 million of the population over the last three years (www.nso.go.th). Total market size of certain EEEs gathered by Asia Pte Ltd (GfK) can be reported as follows.

Table 1: Thailand's Domestic Sales of Certain Electrical and Electronic Products

Product	Unit: unit			
	2006	2005	2004	2003
Air conditioners	361,459	371,812	288,786	237,695
Color television sets	2,658,245	2,462,800	2,114,067	1,894,712
Desktops & laptops (Bangkok & vicinity)	409,315	357,137	561,701	366,275

Source: Electrical and Electronics Institute, "Monthly Report on Industrial Economics Situation: Electrical and Electronics," January 2007

The development of the electrical and electronics industries in Thailand began 40 years ago when electricity was first introduced on a national scale. Electric appliances have increasingly played an important role in Thai daily life and include electric fans, refrigerators, air-conditioners, radio-tape recorders, televisions, etc. These appliances were initially imported merchandise from Japan and Taiwan however the Thai government later created an investment promotion policy of appliance production in response to the overwhelming domestic need. Around the same time Japanese investors moved their production bases to Thailand to mitigate the high cost of production in Japan. Several domestic manufacturers were established and their number has increased over time, as depicted in Table 1. Electric appliance production has since evolved from the assembly of imported components to the production of components. This shift has been strongly supported by the Thai government.

The electrical and electronic infrastructure, in 2006, in Table 2, there were 828 electrical factories, 602 were small, 126 were medium and 94 were large. From 912 electronic factories, 572 factories were small and the rest is medium and large accounting for 196 and 143 factories respectively.

Table 2: Number of Electrical and Electronic Factory by Size: 2006

	Registered Capital (million baht)				Total
	< 50	50-200	> 200	Not specified	
Electrical manufacturers	602	126	94	6	828
Electronic manufacturers	572	196	143	1	912
Traders	117	16	5	3	141
Repairers	74	6	1	0	81
Software-related business	138	5	5	1	149
Not specified	116	37	36	63	252
Total	1,619	386	284	74	2,363

Source: Electrical and Electronics Institute manufacturers database, 2007

Electrical and electronic assemblers are generally large joint-venture companies that produce brand name products for domestic and international markets. Of the total enterprises in Table 3, most Thai

entrepreneurs have small electrical businesses. Most foreign entrepreneurs have small to medium electronic businesses. Medium to large electronic businesses are mostly joint ventures.

Multinational corporation (MNC) investment in 2006 was significant. Foreign investors invested in 349 electrical and electronic (EE) factories--152 small enterprises, 92 large enterprises, and 105 medium enterprises. Joint ventures amounted to 427 factories—224 small enterprises, 119 medium enterprises, and 84 large enterprises.

Table 3: Number of Factories by Size and Investment Type

Unit: Number

	Investment Capital (million baht)			Total
	< 50	50-200	> 200	
<i>Electrical Product</i>				
100% Thai	449	52	12	513
Joint Venture	112	43	38	193
100% Foreign	54	24	38	116
<i>Electronic Product</i>				
100% Thai	309	44	21	374
Joint Venture	112	76	46	234
100% Foreign	98	68	67	233

Source: Electrical and Electronics Institute manufacturers database, 2007

Thailand's major export markets were Japan, USA, ASEAN, EU and China (details in Table 4). For electrical products, Japan ranked first in the Thai export market with a value of 104,603 million Baht (mB), EU ranked fourth with 83,062 mB. For electronic export market from Thailand, EU was the second with a value of 166,571 mB, and Japan was the fifth with a value of 118,645 mB.

EEEs are likely to become 'end-of-life' in future. From the survey results in 2005 (BCRC), television and personal computer users were likely to have a TV/PC repaired. This implies a prolonging of the lifetime of TV/PCs. Worn-out parts are therefore replaced by used or new parts. End-of-life TVs and PCs could be donated to charity or refurbished and resold for further use.

Thailand's waste management has not been uniformly managed. End-of-life household products are dismantled by informal collectors. Saleable parts needed by the material refinery business are then sold to private traders. Off-specification or defective products in factories are destroyed, stabilized with calcium carbonate (CaCO₃), and sent to landfill.

Table 4: Export Market of Thai Electrical and Electronic Products: 2006

Market	Value (Million Baht)	Proportion (%)
<i>Electrical Products</i>		
Japan	104,603.20	18.65
USA	97,960.00	17.46
ASEAN	87,252.61	15.55
European Union	83,062.33	14.81
China	27,272.11	4.86
Others	160,849.33	28.67
<i>Total</i>	560,999.58	100.00
<i>Electronic Products</i>		
ASEAN	174,066.84	17.43
European Union	166,571.23	16.68
USA	161,571.30	16.18
China	129,714.72	12.99
Japan	118,645.43	11.88
Others	248,238.43	24.85
<i>Total</i>	998,807.95	100.00

Source: Electrical and Electronics Institute, "Monthly Report on Industrial Economics Situation: Electrical and Electronics," January 2007

1.2 Objective

The development of E-waste inventory aims at gathering information, establishing a database required to address the needs, and finding solutions for the environmentally sound management of used and end-of-life electrical and electronic equipment.

1.3 Methodology

1.3.1 Target E-waste, Data Sources and Collection Methods

Data of computers, TV sets, air conditioners, mobile phones, refrigerators to be collected will be from primary and secondary sources. Primary data will be gathered using questionnaires, secondary data in terms of lists of sample population will be existing data derived from various sources, e.g., the Department of Industrial Works (DIW). Sources of waste quantity of corresponding products, contents of E-waste inventory, methods of collection, and documentary information are listed below.

Table 5: Data to be Collected, Source, and Collection Method

Data	Data Source	Collection Method
Waste Quantity		
-Number of collected used Personal Computers (PC)/ Notebooks/ Television Sets (TV), Air Conditioners (AC), Mobile Phones (MP), Refrigerators (RF)	- Customs Department (CD) - Charity Organizations - Repair Shops - Second-hand Shops	- Statistical Report - Survey Interview - Faxed Questionnaire
-Number of imported used PC/ Notebooks/ TV/ AC/ MP/ RF	- CD	- Statistical Report
-Number of exported used PC/ Notebooks/ TV/ AC/ MP/ RF	- CD	- Statistical Report
-Number of repaired used PC/ Notebooks/ TV/ AC/ MP/ RF	- DIW - Repair Shops - Charity Organizations - Website	- List of Repair Shops - Survey Interview - Faxed Questionnaire
-Number of sold used PC/ Notebooks/ TV/ AC/ MP/ RF	- CD	- Statistical Report
-Number of dismantled used PC/ Notebooks/ TV/ AC/ MP/ RF	- DIW - Dismantlers	- List of Dismantlers - Faxed Questionnaire - Survey Interview
-Number of recycled used PC/ Notebooks/ TV/ AC/ MP/ RF	- DIW - Recyclers	- List of Recyclers - Survey Interview - Faxed Questionnaire
Process		
-Collection of used PC/ Notebooks/ TV/ AC/ MP/ RF	- Used Materials Collectors - Charity Organizations - Tri-cyclers	- Survey Interview - Faxed Questionnaire
-Import of used PC/ Notebooks/ TV/ AC/ MP/ RF	- Second-hand Shops	- Survey Interview - Faxed Questionnaire
-Export of used PC/ Notebooks/ TV/ AC/ MP/ RF	- Used Materials Collectors? - Repair Shops? - Second-hand Shops?	- Survey Interview - Faxed Questionnaire
-Repair of used PC/ Notebooks/ TV/ AC/ MP/ RF	- Repair Shops - Charity Organizations	- Survey Interview - Faxed Questionnaire
-Reassembling of used PC/ Notebooks/ TV/ AC/ MP/ RF	- Repair Shops - Charity Organizations	- Survey Interview - Faxed Questionnaire
-Dismantling of used PC/ Notebooks/ TV/ AC/ MP/ RF	- Used Materials Collectors - Dismantlers	- Survey Interview - Faxed Questionnaire
-Recycling of used PC/ Notebooks/ TV/ AC/ MP/ RF	- Used Materials Collector - Recyclers	- Survey Interview - Faxed Questionnaire
Production		
-Number of domestically produced PC/ Notebooks/ TV/ AC/ MP/ RF	- Office of Industrial Economics (OIE) - Customs Department (CD)	- Statistical Report

Table 5: Data to be Collected, Source, and Collection Method, cont.

Data	Data Source	Collection Method
-Number of imported PC/ Notebooks/ TV/ AC/ MP/ RF	- Customs Department (CD)	- Statistical Report
Documentary Information		
-Description of Current Situation of Mobile Phones	Pollution Control Department (PCD)	Presentation File
- Description of Notification of the Department of Industrial Works on Permission Conditions of Trans-boundary Movement of Used Electrical and Electronic Equipment	DIW	Official Document
- Description of Notification of the Ministry of Industry on Hazardous Substances List	DIW	Official Document

1.3.2 Tool

Questionnaires will be utilized for data collection. The interview surveys will be conducted according to the Guideline on Development of E-waste Inventory. The questionnaire details for entities are shown in the respective Annexes of Annex I.

- Questionnaire for households in Annex A
- Questionnaire for business entities and institution in Annex B
- Questionnaire for importers and exporters in Annex C
- Questionnaire for associations of importers and exporters in Annex C-2
- Questionnaire for collectors in Annex D
- Questionnaire for associations of collectors in Annex D-2
- Questionnaire for associations of manufacturers in Annex E

1.3.3 Samples

The interview surveys include 1,200 samples with the following entities.

① Households

Household Questionnaire (Annex A) was administered to 400 samples

② Offices (business entities and institutions)

Questionnaire (Annex B) was administered to 400 samples of companies, institutions, hotels, apartments.

③ Recyclers including importers/exporters, collectors, second-hand shops, repair shops, dismantlers, and processors of recyclable materials from used EEE)

Questionnaire (Annex D) was administered to 400 samples of collectors, second-hand shops, repair shops, dismantlers, and recyclers.

④ Other entities

Questionnaires (Annexes C and C-2) were faxed to the associations of importers/ exporters and manufacturers.

1.3.4 Sampling Method

Step1:

List of telephone area codes by provinces were acquired (http://www.e15d.com/faq_phoneno.html), the codes are in sequence of the Central, the North, the Northeast, the East, and the South. Then, household income was added into the list province by province (http://service.nso.go.th/nso/g_knowledge/down.htm). The average income in each area code was calculated. The results are depicted in Table 6.

Table 6: Telephone Areas Codes and Household Income by Province

Region	Area Code	Province	2004 Monthly Household Income (Baht)	Average Household Income (Baht)
Central	O32	Prachuap Khiri Khan	13,806	15,571
		Phetchaburi	13,040	
		Ratchaburi	19,867	
	O34	Kanchanaburi	12,122	15,174
		Nakhon Pathom	20,701	
		Samut Songkhram	12,528	
		Samut Sakhon	15,347	
	O35	Suphan Buri	15,781	14,538
		Phra Nakhon Si Ayutthaya	14,980	
		Ang Thong	12,855	
	O36	Lop Buri	15,003	16,177
		Saraburi	18,742	
		Sing Buri	14,788	
	O2	Bangkok	29,843	24,494
		Pathum Thani	21,530	
		Nonthaburi	26,658	
		Samut Prakan	19,946	
North	O53	Chiang Rai	8,920	10,506
		Chiang Mai	12,586	
		Mae Hong Son	8,676	
		Lamphun	11,843	
	O54	Phayao	9,643	10,575
		Nan	10,751	
		Phrae	11,333	
		Lampang	10,576	
	O55	Kamphaeng Phet	12,776	11,488
		Tak	9,549	
		Phitsanulok	12,751	
		Sukhothai	11,427	
	O56	Uttaradit	10,940	10,779
		Chai Nat	13,383	
		Nakhon Sawan	10,200	
		Phichit	10,951	
Northeast	O42	Phetchabun	9,548	9,572
		Uthai Thani	9,817	
		Nakhon Phanom	81,68	
		Mukdahan	9,284	
		Loei	10,013	
		Sakon Nakhon	8,971	
		Nong Khai	11,466	
	O43	Nong Bua Lam Phu	8,318	10,497
		Udon Thani	10,789	
		Kalasin	8,908	
	O44	Khon Kaen	13,088	9,321
		Maha Sarakham	10,178	
		Roi Et	9,817	
		Chaiyaphum	9,161	
	O44	Nakhon Ratchasima	11,398	9,321
		Buri Ram	8,632	

Table 6: Telephone Areas Codes and Household Income by Province, cont.

Region	Area Code	Province	2004 Monthly Household Income (Baht)	Average Household Income (Baht)
		Surin	8,095	
	O45	Yasothon Si Sa Ket Amnat Charoen Ubon Ratchathani	9,410 8,745 11,423 11,697	10,318
East	O37	Nakhon Nayok	13,096	12,968
		Prachin Buri	15,032	
		Sa Kaeo	10,777	
	O38	Chachoengsao	16,938	19,395
		Chon Buri Rayong	22,286 18,962	
	O39	Chanthaburi Trat	15,897 14,080	14,988
South	O73	Narathiwat	9,240	10,987
		Pattani	11,837	
		Yala	11,886	
	O74	Phattalung	14,985	14,097
		Songkhla	15,481	
		Satun	11,826	
	O75	Krabi	16,877	15,998
		Trang	17,038	
		Nakhon Si Thammarat	14,079	
	O76	Phangnga Phuket	16,965 25,082	21,024
O77	Chumphon Ranong Surat Thani	11,482 14,328 16,150	13,987	

Step 2:

Average household incomes are arranged in order following the National Economic and Social Development Board (NESDB) quintiles (www.nesdb.go.th). In 1998, income inequalities in Thailand were reported that household percentage that fell into quintiles 1, 2, 3, 4, and 5 were 4.2%, 7.6%, 11.9%, 19.8%, and 56.5%, respectively. Twenty-one average household income levels are assigned to each quintile as in Table 7. Quintiles 1 and 2 accounting for 11.8% is defined as high household income level, quintiles 3 and 4 accounting for 31.7% is medium, and the quintile 5 is low accounting for 56.5% of the total households, as in Table 8.

Table 7: Household Income Levels by Quintile

Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
1	2,3	4,5	6,7,8,9	10,11,12,13,14,15,16,17,18,19,20,21

Table 8: Household Income Levels by Province

Region	Telephone Area Code	Province	2004 Monthly Household Income (Baht)	Average Household Income (Baht)	Average Household Income Level	Household Income Level
Central	02	Bangkok	29,843	24,494	21	H
Central	02	Pathum Thani	21,530	24,494	21	H
Central	02	Nonthaburi	26,658	24,494	21	H
Central	02	Samut Prakan	19,946	24,494	21	H
South	076	Phangnga	16,965	21,024	20	H
South	076	Phuket	25,082	21,024	20	H
East	038	Chachoengsao	16,938	19,395	19	H
East	038	Chon Buri	22,286	19,395	19	H
East	038	Rayong	18,962	19,395	19	H
Central	036	Lop Buri	15,003	16,177	18	H
Central	036	Saraburi	18,742	16,177	18	H
Central	036	Sing Buri	14,788	16,177	18	H
South	075	Krabi	16,877	15,998	17	H
South	075	Trang	17,038	15,998	17	H
South	075	Nakhon Si Thammarat	14,079	15,998	17	H
Central	032	Prachuap Khiri Khan	13,806	15,571	16	H
Central	032	Phetchaburi	13,040	15,571	16	H
Central	032	Ratchaburi	19,867	15,571	16	H
Central	034	Kanchanaburi	12,122	15,174	15	H
Central	034	Nakhon Pathom	20,701	15,174	15	H
Central	034	Samut Songkhram	12,528	15,174	15	H
Central	034	Samut Sakhon	15,347	15,174	15	H
East	039	Chanthaburi	15,897	14,988	14	H
East	039	Trat	14,080	14,988	14	H
Central	035	Suphan Buri	15,781	14,538	13	H
Central	035	Phra Nakhon Si Ayutthaya	14,980	14,538	13	H
Central	035	Ang Thong	12,855	14,538	13	H
South	074	Phattalung	14,985	14,097	12	H
South	074	Songkhla	15,481	14,097	12	H
South	074	Satun	11,826	14,097	12	H
South	077	Chumphon	11,482	13,987	11	H
South	077	Ranong	14,328	13,987	11	H
South	077	Surat Thani	16,150	13,987	11	H
East	037	Nakhon Nayok	13,096	12,968	10	H
East	037	Prachin Buri	15,032	12,968	10	H
East	037	Sa Kaeo	10,777	12,968	10	H
North	055	Kamphaeng Phet	12,776	11,488	9	M
North	055	Tak	9,549	11,488	9	M
North	055	Phitsanulok	12,751	11,488	9	M
North	055	Sukhothai	11,427	11,488	9	M
North	055	Uttaradit	10,940	11,488	9	M
South	073	Narathiwat	9,240	10,987	8	M
South	073	Pattani	11,837	10,987	8	M
South	073	Yala	11,886	10,987	8	M
North	056	Chai Nat	13,383	10,779	7	M
North	056	Nakhon Sawan	10,200	10,779	7	M

Table 8: Household Income Levels by Province, cont.

Region	Telephone Area Code	Province	2004 Monthly Household Income (Baht)	Average Household Income (Baht)	Average Household Income Level	Household Income Level
North	O56	Phichit	10,951	10,779	7	M
North	O56	Phetchabun	9,548	10,779	7	M
North	O56	Uthai Thani	9,817	10,779	7	M
North	O54	Phayao	9,643	10,575	6	M
North	O54	Nan	10,751	10,575	6	M
North	O54	Phrae	11,333	10,575	6	M
North	O54	Lampang	10,576	10,575	6	M
North	O53	Chiang Rai	8,920	10,506	5	L
North	O53	Chiang Mai	12,586	10,506	5	L
North	O53	Mae Hong Son	8,676	10,506	5	L
North	O53	Lamphun	11,843	10,506	5	L
Northeast	O43	Kalasin	8,908	10,497	4	L
Northeast	O43	Khon Kaen	13,088	10,497	4	L
Northeast	O43	Maha Sarakham	10,178	10,497	4	L
Northeast	O43	Roi Et	9,817	10,497	4	L
Northeast	O45	Yasothon	9,410	10,318	3	L
Northeast	O45	Si Sa Ket	8,745	10,318	3	L
Northeast	O45	Amnat Charoen	11,423	10,318	3	L
Northeast	O45	Ubon Ratchathani	11,697	10,318	3	L
Northeast	O42	Nakhon Phanom	81,68	9,572	2	L
Northeast	O42	Mukdahan	9,284	9,572	2	L
Northeast	O42	Loei	10,013	9,572	2	L
Northeast	O42	Sakon Nakhon	8,971	9,572	2	L
Northeast	O42	Nong Khai	11,466	9,572	2	L
Northeast	O42	Nong Bua Lam Phu	8,318	9,572	2	L
Northeast	O42	Udon Thani	10,789	9,572	2	L
Northeast	O44	Chaiyaphum	9,161	9,321	1	L
Northeast	O44	Nakhon Ratchasima	11,398	9,321	1	L
Northeast	O44	Buri Ram	8,632	9,321	1	L
Northeast	O44	Surin	8,095	9,321	1	L

Step 3:

Number of population in each province from the Department of Local Administration (www.nso.go.th) was inserted into and samples are selected by population size. In this project, samples are selected from the population of exceeding 500,000 because provinces with smaller size of population generate fewer wastes than those with larger population. In addition to population size, the Southern remote areas, namely, Pattani and Narathiwat provinces are excluded in the samples. Data from 29 provinces out of 76 provinces are collected. The number of samples falls in each province as in Table 9.

Table 9: Number of Samples by Selected Province

Region	Telephone Area Code	Province	Average Household Income (Baht)		# of Samples	# of 2004 Population
Central	O2	Bangkok	24,494	H	45	5,634,132
Northeast	O44	Nakhon Ratchasima	9,321	L	20	2,539,344
Northeast	O45	Ubon Ratchathani	10,318	L	14	1,763,061
Northeast	O43	Khon Kaen	10,497	L	14	1,741,749
North	O53	Chiang Mai	10,506	L	13	1,630,769
Northeast	O44	Buri Ram	9,321	L	12	1,524,261
Northeast	O42	Udon Thani	9,572	L	12	1,518,502
South	O75	Nakhon Si Thammarat	15,998	M	12	1,500,343
Northeast	O45	Si Sa Ket	10,318	L	12	1,440,404
Northeast	O44	Surin	9,321	L	11	1,371,429
Northeast	O43	Roi Et	10,497	L	10	1,310,250
South	O74	Songkhla	14,097	L	10	1,281,509
North	O53	Chiang Rai	10,506	L	10	1,214,405
Central	O38	Chon Buri	19,395	H	9	1,142,985
Northeast	O44	Chaiyaphum	9,321	L	9	1,117,118
Northeast	O42	Sakon Nakhon	9,572	L	9	1,101,619
North	O56	Nakhon Sawan	10,779	L	9	1,077,458
Central	O2	Samut Prakan	24,494	H	8	1,049,416
North	O56	Phetchabun	10,779	L	8	1,001,180
Northeast	O43	Kalasin	10,497	L	8	971,293
Central	O2	Nonthaburi	24,494	H	8	942,292
South	O77	Surat Thani	13,987	L	8	938,253
Northeast	O43	Maha Sarakham	10,497	L	7	935,051
Northeast	O42	Nong Khai	9,572	L	7	895,722
North	O55	Phitsanulok	11,488	L	7	841,524
Central	O35	Suphan Buri	14,538	M	7	840,055
Central	O32	Ratchaburi	15,571	M	7	815,077
Central	O34	Kanchanaburi	15,174	M	6	810,265
Central	O34	Nakhon Pathom	15,174	M	6	798,016
North	O54	Lampang	10,575	L	6	778,926
Central	O2	Pathum Thani	24,494	H	6	769,998
Central	O36	Lop Buri	16,177	M	6	749,484
Central	O35	Phra Nakhon Si Ayutthaya	14,538	M	6	740,397
North	O55	Kamphaeng Phet	11,488	L	6	726,436
South	O73	Narathiwat	10,987	L	0	0
Northeast	O42	Nakhon Phanom	9,572	L	6	691,160

Table 9: Number of Samples by Selected Province, cont.

Region	Telephone Area Code	Province	Average Household Income (Baht)		# of Samples	# of 2004 Population
Central	O38	Chachoengsao	19,395	H	5	643,432
South	O73	Pattani	10,987	L	0	0
North	O55	Sukhothai	11,488	L	5	611,379
Northeast	O42	Loei	9,572	L	5	610,472
South	O75	Trang	15,998	M	5	596,087
Central	O36	Saraburi	16,177	M	5	595,870
North	O56	Phichit	10,779	L	4	560,427
Central	O38	Rayong	19,395	H	4	543,887
Northeast	O45	Yasothon	10,318	L	4	541,320
Central	O37	Sa Kaeo	12,968	L	4	536,204
North	O55	Tak	11,488	L	4	515,877

Sample selection from the above applies to households, companies, institutions, hotels, and apartments. The questionnaire in Annex A was applied to household samples and the one in Annex B was used to collect data from companies, institutions, hotels, and apartments in the same province in order to save time, travel costs, field workers, and field supervisors.

The national average household income reported by the NSO was 17,222 Baht a month (http://service.nso.go.th/nso/g_knowledge/down.htm). In this study, household with monthly income of greater than 19,300 Baht is classified as high, between 14,500 and 19,300 Baht is medium, and less than 14,500 Baht is low.

For company, institution, hotel, apartment, collectors, second-hand shops, repair shops, dismantlers, and recyclers, according to Thailand's Ministry of Industry ordinance, medium to small business enterprises are classified for manufacturing, servicing, wholesaling, and retailing.

Small business enterprises are businesses that employ not more than 50 workers or owning business assets not more than 50 million baht for manufacturing and servicing. While business that employs no more than 25 people and withholding not more than 50 million baht assets are generally for wholesaling, on the other hand while business that employs no more than 15 people and owning assets of not more than 30 million baht are considered as retailing.

Medium enterprises are businesses that employ no less than 50, nor more than 200 employees – and also withholding not less than 50 million baht, or more than 200 million baht for manufacturing and servicing. For business that employs more than 25 employees, but less than 50 or owning assets of more than 50 million baht but not more than 100 million baht for wholesaling. Businesses that employ more than 15 people but not more than 30 people or possession of assets more than 30 million baht but not more than 60 million baht are considered as retailing.

In particular cases that the employment matches the small enterprises, though the assets matches medium enterprises, or the other way around – in this case, the industrial code will set the criteria on the basis of lower employment level.

Onto the case of employment, in general employees will pass the stage of labor law to acquire the right to work, while the whole assets are considered as a whole, excluding the estates, this can be viewed by monthly report done by interior accountants of the enterprises, or compiled by outside accounting firms. In cases that the whole assets differ, we will focus on the lesser value and consider it as the final assets. (The 2002 Ministerial regulation regarding employment and assets for medium to small business enterprises) (www.sme.go.th)

1.3.5 Method of Data Collection

Telephone interview

Household questionnaire tends to interview those who do not work. They are more likely to be the elderly, females, and the sick persons. The telephone numbers are acquired from websites (<http://phonebook.tot.co.th/> and http://www.yellowpages.co.th/specific/specific_t.php)

Fax and telephone interview

Questionnaires for associations are faxed to them and if there is missing information or discrepancies, the trained interviewer will conduct a follow-up interview via telephone.

Face-to face interview

Questionnaires for collectors, second-hand shops, repair shops, dismantlers, and recyclers were administered face-to-face at the interviewee's premise. List of repair shops in each province are in Annex 1. Collectors, dismantlers, and recyclers are listed in Annex 2.

There are field workers in individual selected provinces, teams of field workers in each region, and regional supervisors are responsible for the regional data.

1.3.6 Quality Control

The data collection has been consistently consulted with stakeholders and the data collected will be reviewed by series of workshops to be held on 27 February 2007 and 12 March 2007. For the inception report and the progress report to be reviewed by the Steering Group that consists of pronounced representative from reputable organizations, they are listed below.

-Takahiro HASEGAWA (Mr.), Basel Section Chief, Office of Waste Disposal Management, Ministry of the Environment, Japan

-Ms. Kaoru Oka, Manager, Overseas Environmental Consulting Group, EX Corporation, Japan

-Ms. Sunee Piyapanpong, Director of Waste and Hazardous Substance, Management Bureau, PCD, Thailand

-Dr. Li Jinhui, Administrative Director, Basel Convention Regional Center for Asia-Pacific, China

-Mr. Ibrahim Shafii, Programme Officer, Secretariate of the Basel Convention, Switzerland

-Dr. Somthai Wongcharoen, Wongpanit Group, Phitsanulok 65000, Thailand

-Dr. Thumrongrut Mungcharoen, Expert, National Metal and Materials Technology Center, Science Park, Thailand

Field Work Supervisors are from 23 QC centers all over the country.

- BMA: Bangkok (8)
- Central: Nonthaburi (1), Samut Prakan (1), Nakhon Pathom (1), Saraburi (1), Samut Sakhon (1), Suphan Buri (1)
- East: Prachin Buri (1), Nakhon Nayok (1), Chon Buri (2)
- North: Phayao (1), Lampang (1), Phitsanulok (1),
- South: Trang (1), Nong Khai (1)

1.3.7 Stakeholder Meeting

Three stakeholder meetings were held at EEI on March 1 and 20, 2007 and June 19, 2007. The conclusions were as follows.

- Data quality

Stakeholders wanted clearer information on discarding and keeping of used EEE, flat screen and LCD television

- Recall problems

In case used EEE were discarded long time ago, it is difficult to recall the year that was discarded and it was even harder to recall when the discarded EEE was received.

- Hard-to-get responses

In general people tend not to disclose income information. Production information is generally confidential among producers. English brand names, CPU types are samples of most difficult answers.

- Misreporting problems

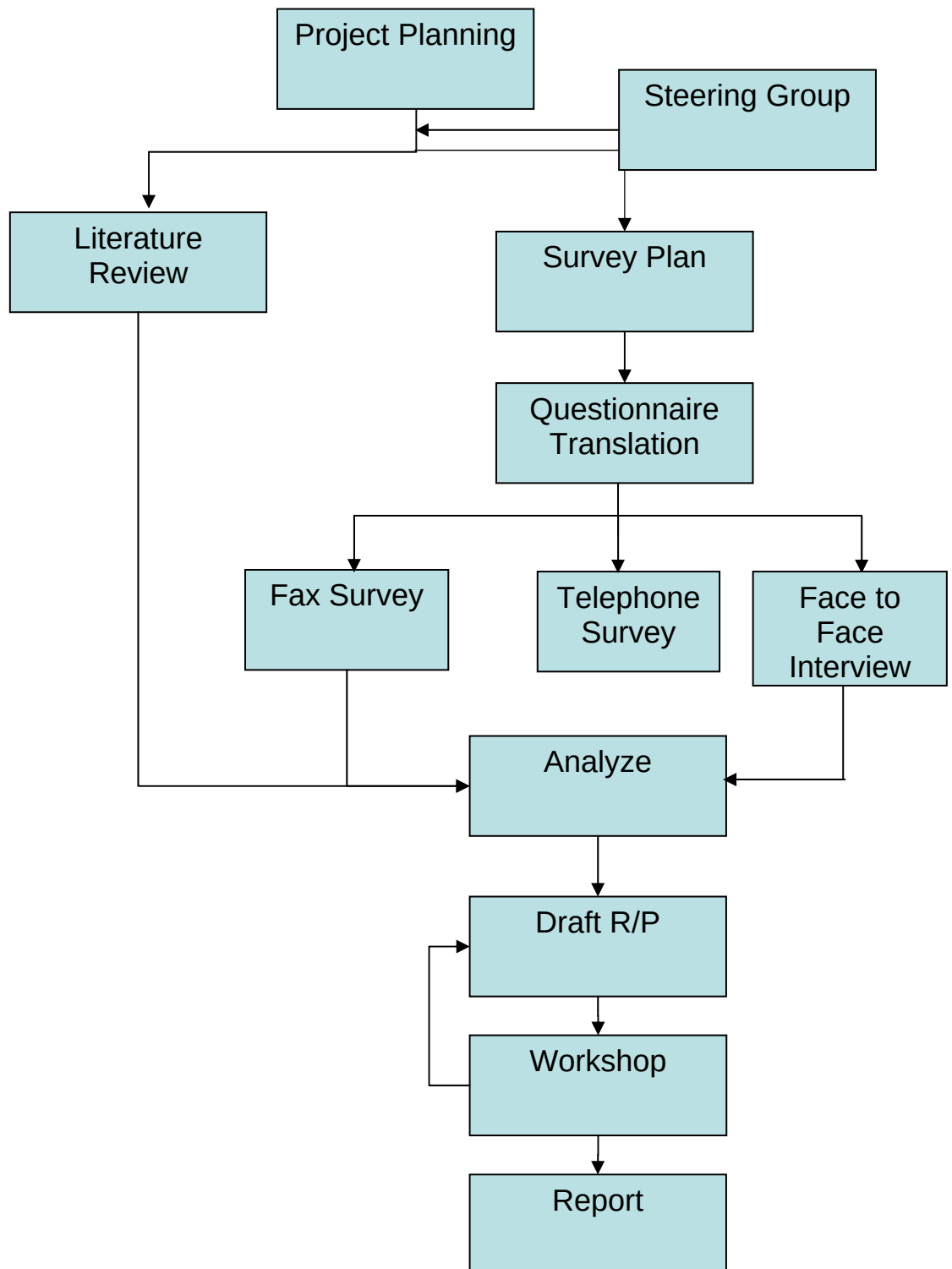
Non-brand products tend to be missing from marketing estimation. Information of certain product needed to be properly administered, e.g., mobile phone information administered for hotels, washing machine information administered for offices, etc.

Detail information can be found in Annex IV.

1.3.8 Time Schedule

Activity	December 2006	January 2007	February 2007	March 2007	April 2007	May 2007	June 2007
Inception Report			✓				
Steering Group Setup			✓				
Steering Group Meeting			✓	✓	✓	✓	✓
Desk Study -Review and compilation of information	✓	✓	✓	✓	✓	✓	✓
Field Work		✓	✓				
- Translation of questionnaires including publication		✓	✓				
- Prepare and carry out survey of households		✓	✓				
- Prepare and carry out survey of companies and institutions		✓	✓				
- Prepare and carry out survey of WEEE collectors		✓	✓				
- Prepare and carry out survey of WEEE importers		✓	✓				
- Prepare and carry out survey of WEEE exporters		✓	✓				
- Prepare and carry out survey of electrical and electronic second-hand shops		✓	✓				
- Prepare and carry out survey of electrical and electronic repair shops		✓	✓				
- Prepare and carry out survey of WEEE dismantlers		✓	✓				
- Prepare and carry out survey of WEEE recyclers		✓	✓				
- Prepare and carry out survey of associations of importers/ exporters		✓	✓				
- Prepare and carry out survey of associations of collectors		✓	✓				
- Prepare and carry out survey of associations of manufacturers		✓	✓				
- Plan and perform WEEE collecting and recycling operations visits						✓	
- Data analysis and report preparation			✓	✓	✓	✓	✓
Stakeholder consultations			✓	✓			✓
Workshop			✓	✓			
Delivery of project report							✓

In summary, the methodology may be plotted as follows.



Chapter 2

Identify how used EEE are collected, imported/exported, repaired, sold, dismantled, and recycled

2.1 Flow of used EEE

Electrical and electronics users in Thailand like to send their appliances to repair shop after having problems. When the repair shop could not restore, the users would discard their appliances. On the other hand, some users liked to purchase second - hand appliances that were in good condition rather than first – hand products.

When the electrical and electronics appliances were obsolete, these products became E-waste gathered by various collectors.

Tri-cyclers

One of the oldest traditional methods to discard obsolete products was to be picked up by tri-cyclers. Tri-cyclers are private and operate individually so they are convenient to commute to households. Having received e-waste, they would separate valuable parts from obsolete products into different types such as paper, glass, plastic, and metal. These valuable parts would be sold to concerned businesses. Non-valuable parts would be discarded into municipal garbage containers. Obsolete products that had good condition would then be sold to repair shops or second-hand shops.

Charity Organization

E-waste or obsolete products were donated to charity organizations such as Suan Keaw Temple. This organization would refurbish those products and sold at low price to the public. The purpose of such organization was to generate income and occupation for people living in communities nearby. The waste from their activity was sent private company.

Pawn Shop, Used Material Collector and Trader

Used appliances would be collected by pawn shop. Then tender would be organized in order to sell appliances to second hand shop. Presently, private firms had tendency to start this kind of business.

Local Administration Organization (LAO)

E-waste collected by Local Administration Organization (LAO) was very small quantity because there were many preceding collecting processes such as tri-cyclers or municipal waste collectors. Normally, most of local administration organizations had no records of exact number of e-waste quantity. However, from the questionnaire, it indicated that e- waste generated in the area of LAO was disposed in landfill.

Displayer

Some of E-waste was sold to displayer to be refurbished and sold back to consumers as OTOP (One Tumbol One Product). For example, in Pitsanulok province there was displayer making aquarium from obsolete television or radio. Used parts from the equipment were disposed to garbage containers of municipality or local administration organization.

Uni Copper Trade

The business of Uni Copper Trade was to sort/collect materials and electronics parts from electronics waste for recycling. The electronics waste mostly came from obsolete computers that contain PCBs. PCBs consist of IC and other electronics components. When these electronics products were recycled, gold, silver and copper will be extracted and can be used as raw material for electronics manufacturing.

Wongpanit Co., Ltd.

The company's business was recycling municipality waste. Metal, plastic bottle, paper or other kinds that could be recycled were segregated from the waste. The plant could support waste purchased from household or municipality 80,000 – 100,000 kilogram per day. The plant acquired high technology machines to segregate and sort the waste into different categories. Having processed, final materials would be sold to specialized related industries

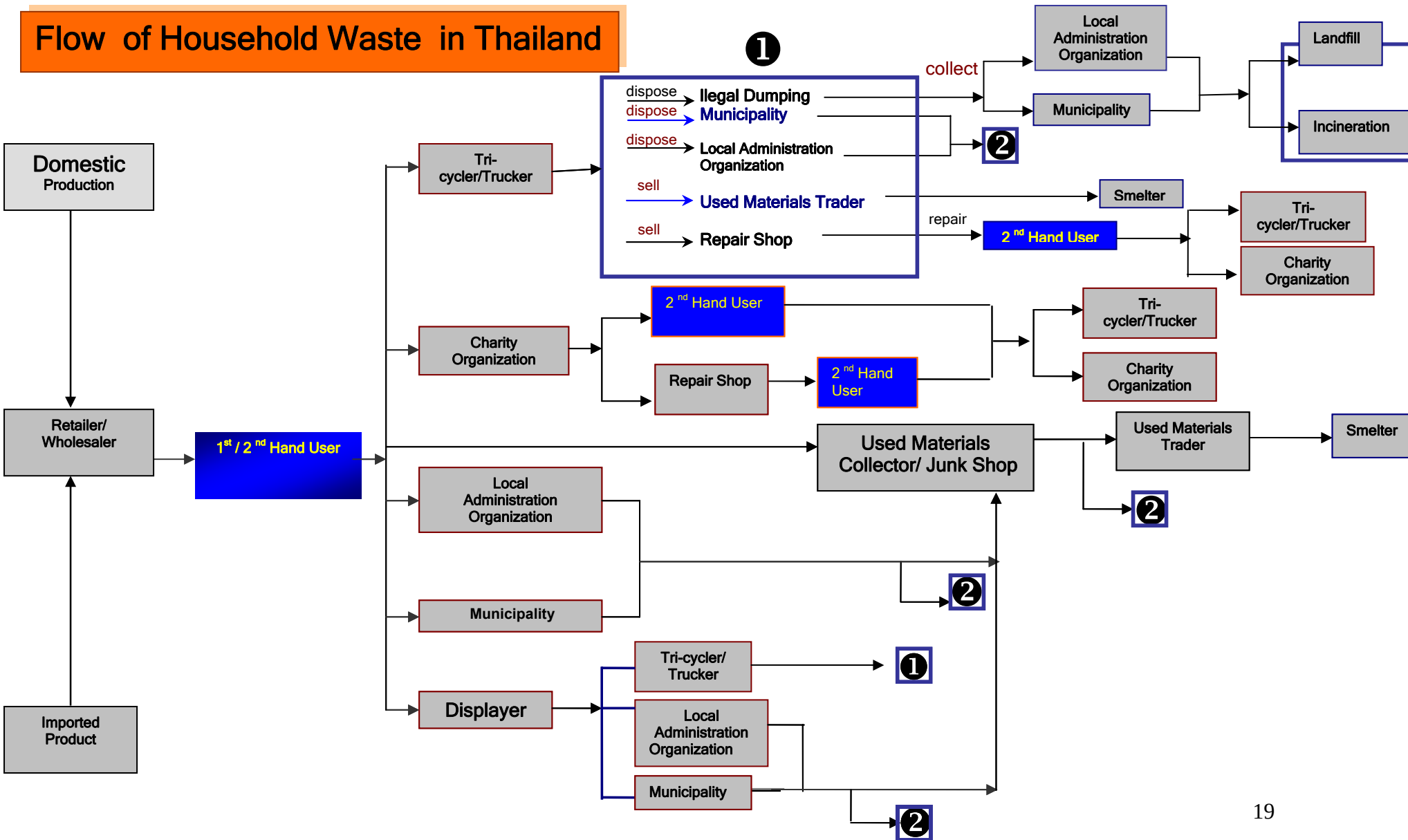
of particular materials. For hazardous waste such as battery, fluorescent lamp or chemicals, it would be sent to companies that had responsibilities for appropriate disposals.

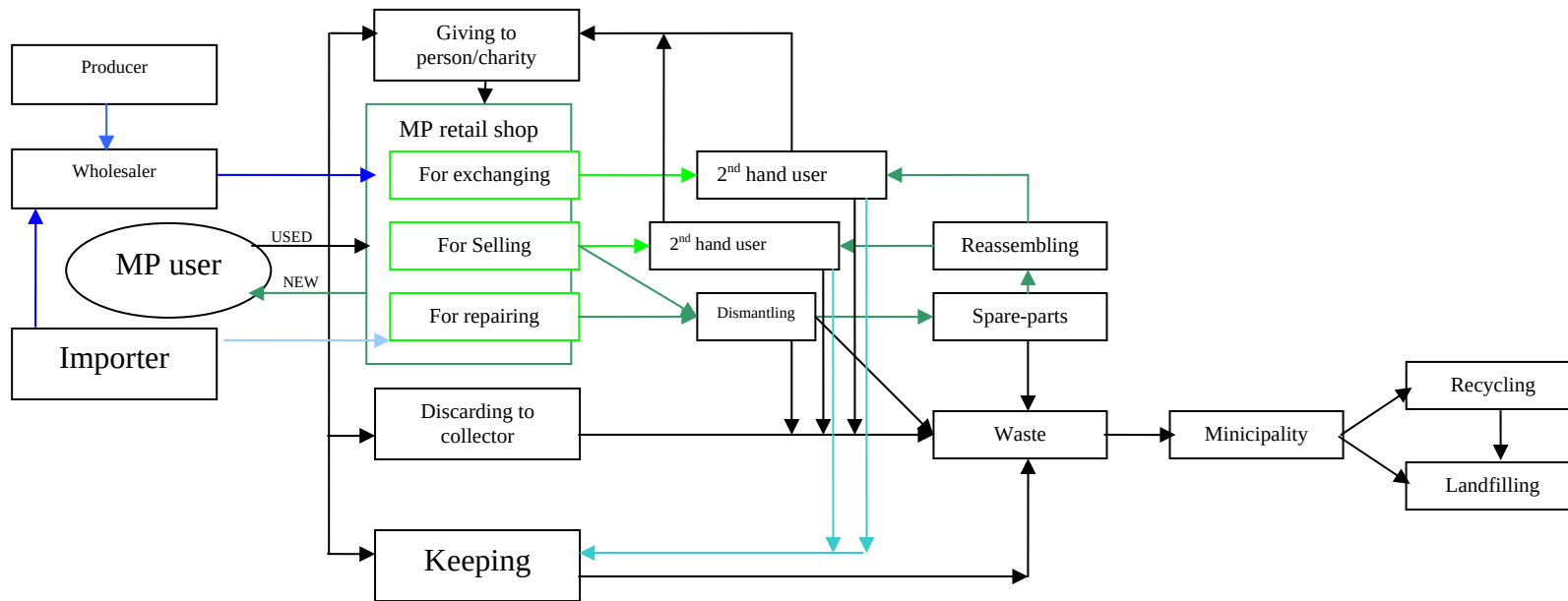
GENCO

GENCO was established for the purpose of protecting environment from the development of Thailand industry that generated large amount of waste. At present, there were two centers to operate the task--Marbtaputh Center in Rayong province and Samhaedum Center in sub-province of Bang Khuntien, Bangkok and Research and Development Center in Ratburi Province

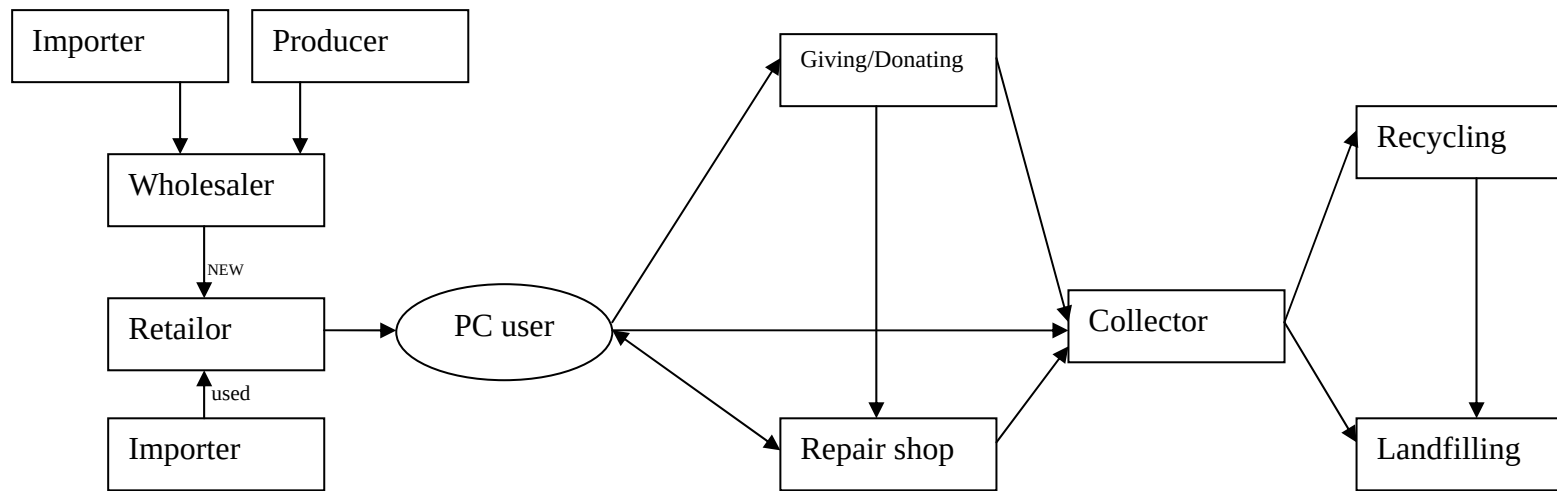
The movement of wastes in Thailand (EEI, 2005), from households, may be outlined as follows.

Flow of Household Waste in Thailand





Flow of Waste Mobile Phone



Flow of Waste PC

2.2 Stakeholders involved in collection of used EEE

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
1	SS Phone	2nd. Fl. Carrfour Bang-Bon(in front of Bangkok Bank) BKK.	089 5128899					100			
2	Rung-Anan Sound	65/8 Eka-cha Rd. Soi 82-84 Bang-Bon BKK	02 8944724	60	10						
3	S.T. PHONE	2nd. Fl. Carrfour Bang-Bon BKK.						360			
4	FREE PHONE	2nd. Fl. Carrfour Bang-Bon BKK.	014 255545					60			
5	Pongpaitoon Computer	71/4 Moo.8 Eka-chai Rd. Bang-Bon BKK. 10150	0 2893 2637			304					
6	Chareon Service	2/1 Moo.10 Eka-chai Rd. Bang-Khun-Tien BKK.	02 4153778								60
7	Pongpitak Electric	Opp. Soi. Prachautit 123 Thung-Kru BKK.	02 8406026, 081 8387670	50	30				60	2	60
8	OA.Computer Service	20/81 Prachautit Rd. Thung-Kru BKK 10140	02-873-8394,083-046-2100			54	35				
9	J.R.K.Electric	326/149 Prachautit Rd. Thung-Kru BKK. 10140	089-760-4277,02-426-1164						100	20	16
10	D Phone	574/13 Talad-mai Booth18 Thung-Kru BKK.	081-988-6550					210			
11	S.T.K Air Sales and Service	320 Moo.1 Prachautit Rd. Bang-Mod Thung-Kru BKK 10140	02-870-3804-5,081-826-9308						4	20	
12	Electronics	482/1 Soi Prachautit 22 Ratchaburana BKK. 10140	086-571-2056,02-870-9509	60	30						

2.2 Stakeholders involved in collection of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
13	Mr. Theerawat	498-100 Pan-tip Plaza Fl. 4 Petchaburi Rd. BKK.	02-656-6036			95					
14	Mr. San-ti	503 Pan-tip Plaza Fl. 5 Petchaburi Rd. BKK.	02-656-6142				1350				
15	Mobile Clinic	BIC C Ratburana Fl. 2 BKK.	089-733-697					110			
16	C & N Phone	BIC C Ratburana Fl. 2 BKK.	089-039-0953					95			
17	N.Tech Comshop	212 Pan-tip Plaza Fl. 2 Petchaburi Rd. BKK.	081-458-1008			25					
18	Professional Computer	523 Pan-tip Plaza Fl. 5 Petchaburi Rd. BKK.	02-252-9933 #4107			61	30				
19	Khon-Rak-Com	145 Pan-tip Plaza Fl. 1 Petchaburi Rd. BKK.				127	80				
20	SR.Electronic	3/39 n.Eka-chai Bang-khun-tien BKK.	081-999-4784	40	4	8					
21	ATI PHONE	Carrfourre Bang-bon Fl. 2 (booth 5) BKK.	085-179-3086					120			
22	J.P.Electronics	26/89-90 Eka-chai Rd. Bang-bon Bang-bon BKK. 10150	02-415-5579,081-628-1943	80							
23	Opor Service	Prachautit Rd. Bang-mod Thung-Kru BKK.	02-428-6051						40	40	40
24	Rung-roj AIR House	636 Moo1 Bang-mod Thung-Kru BKK.	02-427-7148						10	20	

2.2 Stakeholders involved in collection of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
25	Sa-tien Electric	56 Moo.2 Ratburana Thung-Kru BKK. 10400	089-933-7856	60							
26	Wichien Electronics	28/2 Moo.4 Bang-mod Thung-Kru BKK. 10140	02-871-6374,087-733-4135	60							
27	Sompol Electronics	39/165 Thung-Kru BKK. 10140	02-815-8773	100							
28	P 2	Ta-lad Prachautit BKK.	08-407-7247					270			
29	PK.Com & Service	604/3 Fl. 3 Room 3149,51,54,55 Pan-tip Plaza Ratchadeve BKK. 10400	06-326-3354			90	60				
30	P & Y Computer Notebook	604/3 Pan-tip Plaza Fl. 4 Room 498-4100 Petchaburi Rd. Phya-tai BKK. 10400	02-254-9825			160	135				
31	FREE PHONE	BIC C Ratburana Fl. 2 BKK.	086-514-6323					104			
32	C-NIX Expert Corporation	Pan-tip Plaza Fl. 5 ,52331 Petchaburi Rd. Phya-tai BKK. 10400	02-254-9797-9 # 5129			460	130				
33	P.Phone	Carrfourre Bang-pa-kok BKK.	05-808-2840					140			
34	G mobile	8/37/1 Borirak Rd. Uthaimai Muang Uthai-thani 61000	089-0536463					52			
35	Wat Suan-kaew Foundation	Moo 1 Bang-lane Bang-yai Nonthaburi 11140	081-2967439	1050	1	1200	1		400	250	400
36	Ms. Narumol Sukrit	79 Moo.3 Nikom Sa-hat-sa-khan Kalasin 43140	084-1113880						3		1

2.2 Stakeholders involved in collection of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
37	Mr. Subin Wichachai	46/2 Moo.11 Joneburi Sa-hat-sa-khan Kalasin 43140	043-871277						3		2
38	Emmy Computer	175/112 Moo.2 Chang-puek Muang Chiangmai 50000	053-410111			44	24				
39	Sri-rat Service	198 Meneenopparat Rd. Sri-poom Muang Chiangmai 50220	081-0230570	45	17	18	4				
40	Beauty Phone	20/2 Ratchavongs Rd. Chang-moi Muang Chiangmai 50300	084-0449218					140			
41	Central Parts	22-23 Chang-moi Rd. Muang Chiangmai 50000	086-6728441	23	18				12		16
42	Saha-panich Chiangmai	62 Chotana Rd. Muang Chiangmai 50300	053-243211-3	55	60	65	60	60	50	35	50
43	Num-chok 93	74 Maneenopparat Rd. Muang Chiangmai 50000	053-243017-9	18	45	5	3		13		9
44	Chiangmai Sujarit panich	39 Chang-moi Rd. Muang Chiangmai 50000	053-241953-4	23	17				25		23
45	Lieng-kee and sun	94 Chang-moi Rd. Muang Chiangmai 50000	087-1769889	40	20				55	55	55
46	Niyom panich Chiangmai	62 Mahidol Rd. Suthep Muang Chiangmai 50200	053-510024	70	50	45	45	75	55	50	55
47	Num fon Phone	138 Moo.8 Baan-klang Sanpatong Chiangmai 50120	081-0269694					18			
48	BB Phone	47/4 San-ti-tham Rd. Chang-puek Chiangmai 50300	081-0312306					25			

2.2 Stakeholders involved in collection of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
49	HAPPY I.T.	Pan-tip Plaza (Ngam-wong-wan) Nonthaburi	081-373-7220	24	10	146	87				
50	Dong Dung Mobile	66 Moo.2 Baan-pong Wieng-pa-pao Chiangrai 87170	081-6722900				15	20			
51	C C Computer	272 Moo.2 Baan-khu Muang Chiangrai 57000	089-4147411			30	10				
52	Baan-Khu Mobile	124 Moo.4 Baan-dhu Muang Chiangrai 57000	089-4333078					40			
53	SV.Phone	74 Moo. 3 Baan-klang Muang Lumphun 51000	087-935-5421					100			
54	Noparat Service	198/6 Sribuabaan Muang Lumphun 51000	053-554-712							130	
55	Jub Jib Electric	65/3 Sri-keng Muang Lumphun 51000	085-327-9532	35					20	20	20
56	Theera Service	108 Moo.12 Baan-klang Muang Lumphun 51000	083-715-8763	32	30	3			11		12
57	Friend Mobile	53/5 Moo.4 Baan-klang Muang Lumphun 51000	053-552-204	2				55			
58	Queen Mobile Phone	141 Moo.3 Baan-khe-lek Baan-klang Muang Lumphun 51000	053-554-152-141					101			
59	Kan Mobile	137/1 Moo.22 Baan-klang Muang Lumphun 51000	081-026-2587	1		1		40	1		
60	Viyada Electronics	72/5 Baan-klang Muang Lumphun 51000	081-713-5428	38	25	3			15		19

2.2 Stakeholders involved in collection of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
61	Pra-yudh Service	204/17 Moo. 1 Baan-klang Muang Lumphun 51000	086-673-5121	60	40	35	10		18	14	16
62	A.B. Electronics	200 Moo.11 Baan-hor-chai Baan-klang Muang Lumphun 51000	083-517-6837	35	28				17		18
63	S.K.Phone	44/55 Moo.6 Baan-klang Muang Lumphun 51000	089-958-7732					30			
64	U-TURN Mobile	72 Moo.5 Sribuabaan Muang Lumphun 51000	089-530-7218					125			
65	Anan Computer	128 Moo.6 Baan-thi Muang Lumphun 51000	089-656-3324			58	45				
66	Nikhom Electronics	14/17 Baan-phyra-pan Baan-klang Muang Lumphun 51000	086-184-8047	25	17	7			15		4
67	Premier Phone	96/55 Moo.6 Baan-klang Muang Lumphun 51000	084-041-9024					130			
68	KK Phone	107/5 Moo.4 Baan-klang Muang Lumphun 51000	085-717-3226		1			50			
69	99 Mobile	71/16 Baan-phyra-pan Baan-klang Muang Lumphun 51000	087-192-6648					100			
70	Jit-Jareon Service	288/11 Moo.6 Baan-klang Muang Lumphun 51000	081-035-9305	25	23				20		18
71	J and J Mobile	62/2 Moo.7 Baan-klang Muang Lumphun 51000	053-552-708					70			
72	Pat and S and Air Service	78/123 Fl. 5 Baan-Sukhumvit 77 BKK.	081-8282854							90	

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
1	Somchai Cooling	150/6 Moo.7 Napho Sawee Chumporn	081-979-7261						10		8
2	Galileo computer & service	44/8 Prachautit Rd. Soi 30 Thung-Kru BKK 10140	02-872-7374,02-872-7711			75	8				
3	POP EYE	2nd. Fl. Central Plaza Phraram2 BKK.						70			
4	1 Gig Mobile	2nd. Fl. Central Plaza Phraram2 BKK.	06-128-5250,07-689-3198					60			
5	Mobile 2	2nd. Fl. BIG-C Phraram2 BKK.	081-939-1125					95			
6	JP Shop	2nd. Fl. BIG-C Phraram2 BKK.	086-000-0723,086-045-0366					60			
7	Taweesak Air	458/7 Moo.5 Napho Sawee Chumporn	081-719-2390						20	10	16
8	Nong Dodge	127/1 M. 7 Napho Sawee Chumporn	077-583-207					30			
9	Future Computer	118 M. 5 Napho Sawee Chumporn	077-531-483			20					
10	PP Mobile	126 Moo. 5 Napho Sawee Chumporn	084-191-5766					50			
11	JR Communication	319/9 Moo 5 Napho Sawee Chumporn	084-191-6086					50			
12	Korn Electric	161/4 Moo.12 Sawee Chumporn	083-593-3648	90	10						

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
13	PST Computer	313/5 Dhevabiban Rd. Muang Roi-ed 45000	043-522-413			100	6				
14	Yourk Mobile Clinic	Boon-kwang Intersecion Ratchadumneon Rd. Muang Roi-ed 45000	08-6974-3442,08-9163-3149					40			
15	Sieng Thailand Service Center	181 Dhevabiban Rd. Muang Roi-ed 45000	043-512-472	100	10						
16	Wiwat Electric	454/3-4 Phadung-panich Rd. Muang Roi-ed 45000	043-520-459,09-709-8103	20	10		2		30	10	30
17	Mr. Raruan Rattanathep	317 Ban-Huay Muang Roi-ed 45170	089-709-4152	20	10		3				2
18	Mr. Tosapol Sakayavong	38/5 Ratchachupakarn Rd. Nai-Muang Muang Roi-ed 45000	043-514015			30	3				
19	Supaluck Srikuakin	160 Ronachai-charnyudh Rd. Nai-Muang Muang Roi-ed 45000	98427122	30	2			30			2
20	SS Phone	2nd. Fl. Carrfour Bang-Bon(in front of Bangkok Bank) BKK.	089 5128899					100			
21	Rung-Anan Sound	65/8 Eka-cha Rd. Soi 82-84 Bang-Bon BKK	02 8944724	60	10						
22	S.T. PHONE	2nd. Fl. Carrfour Bang-Bon BKK.						360			
23	FREE PHONE	2nd. Fl. Carrfour Bang-Bon BKK.	014 255545					60			

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
24	Pongpaitoon Computer	71/4 Moo.8 Eka-chai Rd. Bang-Bon BKK. 10150	0 2893 2637			304					
25	Chareon Service	2/1 Moo.10 Eka-chai Rd. Bang-Khun-Tien BKK.	02 4153778								60
26	Pongpitak Electric	Opp. Soi. Prachautit 123 Thung-Kru BKK.	02 8406026, 081 8387670	50	30				60	2	60
27	OA.Computer Service	20/81 Prachautit Rd. Thung-Kru BKK 10140	02-873-8394,083-046-2100			54	35				
28	J.R.K.Electric	326/149 Prachautit Rd. Thung-Kru BKK. 10140	089-760-4277,02-426-1164						100	20	16
29	D Phone	574/13 Talad-mai Booth18 Thung-Kru BKK.	081-988-6550					210			
30	S.T.K Air Sales and Service	320 Moo.1 Prachautit Rd. Bang-Mod Thung-Kru BKK 10140	02-870-3804-5,081-826-9308						4	20	
31	Electronics	482/1 Soi Prachautit 22 Ratchaburana BKK. 10140	086-571-2056,02-870-9509	60	30						
32	BIOS Computer Express Co.,ltd	64/18 Don-Nok Rd. Talad Muang Surat-Thani 84000	077-282-075,077-223-591	5	5	100	40				
33	Southern IT Co., Ltd.	18/3 Rautit Rd. Talad Muang Surat-Thani 84000	077-217-788	20	10	50	30				

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
34	Mobile Plus	1st Fl. Lotus Surat-Thani Muang Surat-Thani 84000	077-220-181					330			
35	Pattana Electric	51/9 Don-Nok Rd. Talad Muang Surat-Thani 84000	077-287-472	15	5						15
36	IT Service	381/45 Don-Nok Rd. Makham-tei Maung Surat-Thani 84000	077-205-192	5		20	10				
37	P Electronics	432-469 Visessuk-nakorn Village Prachautit 79 Thung-Kru BKK. 10140	09-890-9605	30	10						
38	JOHN Mobile	Phrapadang Plaza Opp. BIG-C Suksawas Samut-prakarn	089-225-8699					170			
39	Uae-Ar-thorn Electric	Soi Prachautit 79 BKK	089-687-1645	80	40						
40	Anu-pong Service	804/2 Soi Prachautit 79 BKK	02-426-0750								10
41	79 Television Satellite	804/1 Soi Prachautit 79 Prachautit Rd. Thung-Kru Thung-Kru BKK. 10140	02-426-0749	30	20						
42	R G B Electronics Service	693/5 Prachautit Rd. Thung-Kru BKK 10140	02-872-6515 ext 0	43	10						
43	VAX Shop	BiC-C Suksawas BKK.	02-464-4220					15			
44	AP Mobile Phone	2nd. Fl. BIG-C Suksawas BKK.	081-684-8688					30			

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
45	Mr. Pairoj Ying-kong	98 Moo. 5 Taling-chan Thasala Nakorn-Si-Thammarat 80160	075-351-082	3		20					
46	SV mobile	2nd Fl. Central Plaza Phraram 2 BKK	02-872-4397					230			
47	Jumbo Mobile	2nd Fl. Central Plaza Phraram 2 BKK	089-458-8818					45			
48	Hand Phone	2nd Fl. Central Plaza Phraram 2 BKK	081-666-3393					35			
49	Noppadol Engineering	2-32 Moo. 3 Bang-Chak Pra-pa-dang Samut-prakarn 10130	02-463-5066						20	20	10
50	M C Marko Pra-pa-dang	31/3 Moo. 7 Suksawas Rd. Ratchaburana BKK. 10140	081-837-6938							21	
51	Bird Electronics	Soi Prachautit 79 BKK.	081-308-2114	10							
52	Sa-wang Electronics and Service	132/63 Moo. 1 Soi. 79 ถ. Prachautit Thung-Kru Thung-Kru BKK. 10140	02-426-7197	10					5		7
53	P Service	709/108 ถ. Prachautit Soi. 79 Thung-Kru BKK.	085-187-7598						100		100
54	Suk-Jai TV	Front King Momkut Institute of Technology Thonburi BKK.	081-489-2678	20							
55	Chareon Shop	Soi Prachautit 25 BKK.	02-870-9601	20							
56	SSW mobile	Pra-pa-dang Plaza booth M.15-16,L11 Samut-prakarn 10130	081-917-5809					120			

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
57	2J mobile	Pra-pa-dang Plaza booth M.36 Samut-prakarn	081-172-0980					90			
58	GREAT RICH COMPUTER LTD.,PART	119/28 Moo.14 Soi.Budharaksa 2 Bang-pueng Pra-pa-dang Samut-prakarn 10130	02-463-7465			220					
59	Mr.Service	Ta-lad Kru-Nai Samut-prakarn	084-007-4586			150					
60	FREE PHONE	BIG C (Suk-sa-was) Fl. 2 BKK.	086-998-3332					150			
61	Mr. Theerawat	498-100 Pan-tip Plaza Fl. 4 Petchaburi Rd. BKK.	02-656-6036			95					
62	Mr. San-ti	503 Pan-tip Plaza Fl. 5 Petchaburi Rd. BKK.	02-656-6142				1350				
63	Mobile Clinic	BIC C Ratburana Fl. 2 BKK.	089-733-697					110			
64	C & N Phone	BIC C Ratburana Fl. 2 BKK.	089-039-0953					95			
65	N.Tech Comshop	212 Pan-tip Plaza Fl. 2 Petchaburi Rd. BKK.	081-458-1008			25					
66	Professional Computer	523 Pan-tip Plaza Fl. 5 Petchaburi Rd. BKK.	02-252-9933 #4107			61	30				
67	Khon-Rak-Com	145 Pan-tip Plaza Fl. 1 Petchaburi Rd. BKK.				127	80				

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
68	Sirichai Service	118/14 Jom-thong Rd. Bang-kor Jom-thong BKK. 10150	02-875-7464,089-522-8395	60							
69	Taweechai Electronics	112/387 Soi. Eka-chai 15 Bang-khun-tien Jom-thong BKK. 10150	02-415-3443	30							
70	SR.Electronic	3/39 ถ.เอกา-ชัย Bang-khun-tien BKK.	081-999-4784	40	4	8					
71	ATI PHONE	Carrfourre Bang-bon Fl. 2 (booth 5) BKK.	085-179-3086					120			
72	ACtion Phone	Carrfourre Bang-bon Fl. 2 booth 4 Entrance SE-ED Book shop BKK.	084-104-0748					150			
73	J.P.Electronics	26/89-90 Eka-chai Rd. Bang-bon Bang-bon BKK. 10150	02-415-5579,081-628-1943	80							
74	Opor Service	Prachautit Rd. Bang-mod Thung-Kru BKK.	02-428-6051						40	40	40
75	Rung-roj AIR House	636 Moo1 Bang-mod Thung-Kru BKK.	02-427-7148						10	20	
76	Sa-tien Electric	56 Moo.2 Ratburana Thung-Kru BKK. 10400	089-933-7856	60							
77	Wichien Electronics	28/2 Moo.4 Bang-mod Thung-Kru BKK. 10140	02-871-6374,087-733-4135	60							
78	Sompol Electronics	39/165 Thung-Kru BKK. 10140	02-815-8773	100							

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
79	P 2	Ta-lad Prachautit BKK.	08-407-7247					270			
80	PK.Com & Service	604/3 Fl. 3 Room 3149,51,54,55 Pan-tip Plaza Ratchadeve BKK. 10400	06-326-3354			90	60				
81	P & Y Computer Notebook	604/3 Pan-tip Plaza Fl. 4 Room 498-4100 Petchaburi Rd. Phya-tai BKK. 10400	02-254-9825			160	135				
82	C & N Phone	BIC C Ratburana Fl. 2 BKK.	09-669-9538,06-568-5755					170			
83	FREE PHONE	BIC C Ratburana Fl. 2 BKK.	086-514-6323					104			
84	C-NIX Expert Corporation	Pan-tip Plaza Fl. 5 ,52331 Petchaburi Rd. Phya-tai BKK. 10400	02-254-9797-9 # 5129			460	130				
85	P.Phone	Carrfourre Bang-pa-kok BKK.	05-808-2840					140			
86	TIP Computer	Fl. 3 Com-ko-sa Bldg. Muang Khon-kaen 40000	043-389040			120	40				
87	KT Electronics	310 Moo.12 behind Bldg.10 Sila Muang Khon-kaen 40000	043-342386, 089-4217041	15					3		3
88	Perfect Computer	800 Moo.12 Off-side Apartment Room101 Sila Muang Khon-kaen 40000	087-7729515			20	10				

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
89	Computer Clinic	148/7 Soi. Seri-samphan Mitraphab Rd. Nai-Muang Muang Khon-kaen 40000	086-642269			13	7				
90	Khon-kaen J NET Computer Co.,Ltd.	250/1 Fl. 3 Com-ko-sa Bldg. Sri-chan Rd. Nai-Muang Muang Khon-kaen 40000	089-7144591, 043-389446			15	23				
91	B C Computer shop	250/1 Com-ko-sa Bldg. Fl. 3 Sri-chan Rd. Nai-Muang Muang Khon-kaen 40000	087-2339914	10	8	25	15				
92	Mr Ittipat	57/37 Moo.14 Mitraphab Rd. Nai-Muang Muang Khon-kaen 40000	043-347479					10			
93	Mr. Thitinan panya	102 Moo.7 Pra-cha Rd. MuangDej Dej-udom Ubol-ratcha-thani 34160	086-5324270					400			
94	Mobile shop	434 Moo.5 MuangDej Dej-udom Ubol-ratcha-thani 34160	084-6059360					80			
95	Pong-pan Electronics	189/2 Moo.24 MuangDej Dej-udom Ubol-ratcha-thani 34160	085-4953954	20							
96	Oxygen mobile phone	1092 Moo.24 MuangDej Muang Ubol-ratcha-thani 34160	083-3761355					150			
97	Tha-vorn Electronics	108 Moo.24 MuangDej Muang Ubol-ratcha-thani 34160	085-0273816	40							
98	Rung-Nippon Electronics	642 Dej -Namyuen Rd. MuangDej Dej-udom Ubol-ratcha-thani 34160		15							
99	Boonchai AIR B C Service	364/7 Dej -Boondarik Rd. MuangDej Dej-udom Ubol-ratcha-thani 34160	089-8484757						20	10	25

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
100	Prasert Electronics	364 Moo.5 Dej -Boondarik Rd. MuangDej Dej-udom Ubol-ratcha-thani 34160	081-4706350	20							
101	Supatra AIR	38/8 Sud-ban-tad Rd. Soi. 9 (Taweekij Complex) Pak-preaw Muang Saraburi 18000	036-302314						5	30	23
102	S Cooling	70 Tesaban 4 Rd. Pak-preaw Muang Saraburi 18000	081-9435913						5	20	20
103	Chai-cha-na Cooling	Rod-Fai Rd. Pak-preaw Inter-section Muang Saraburi 18000	081-7707500						5	12	6
104	O-larn Radio	578/1 Pi-chai Rd. Pak-preaw Muang Saraburi 18000	036-312070	15							
105	Chuan Electronics	68 Pi-chai Rd. Soi. 7 (Sukhumal) Pak-preaw Muang Saraburi 18000	036-312168	20							
106	Mr. Artit Boonlue	176/2 Udorn-Sakol Rd. Muang Udornthani 41000						11			
107	Mr. Chamnan Polharn	31 Moo.5 Pho-rub Muang Nong-bua-lum-phu 39000	087-0866190	10				8			2
108	Mr. Supoj Sathorn	31 Moo.2 Pho-chai Muang Nong-bua-lum-phu 39000	087-0866890					7			
109	Vong-silp AIR	48 Vadhana Rd. Muang Udornthani 41000	081-2612370							4	
110	FRAME Electronics	37/5 Nitpo Rd. Muang Udornthani 41000	085-7394173	3	2	6	2				

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
111	B.K. Home Air and Service	227/1 Rob-Muang Rd. Nong-bua Muang Udonthani 41000	081-6266345							4	
112	Mr. Tanong Tesvong	225/34 Udon-Sarm Rd. Hmak-Kaeng Muang Udonthani 41000	081-7297688							10	
113	Ruam-chareon Service	Soi. Samakkee Baan-kao-jai Hmak-Kaeng Muang Udonthani 41000	086-6388930							4	3
114	Yai Service	27/1 Slarng-luang Rd. Muang Udonthani 41000	042-223512								2
115	Veerachai AIR	125/5 Pon-pi-sai Rd. Hmak-Kaeng Muang Udonthani 41000	042-325810							9	
116	G mobile	8/37/1 Borirak Rd. Uthaimai Muang Uthai-thani 61000	089-0536463					52			
117	Sathaporn Computer	49/8 Rak-karn-dee Rd. Uthaimai Muang Uthai-thani 61000	056-511999			6					
118	Sal-Sel Computer	328/6 Tha-chang Rd. Uthaimai Muang Uthai-thani 61000	085-0509260			100	15				
119	Montri TV	111 Tha-chang Rd. Uthaimai Muang Uthai-thani 61000	056-511731	35		4					
120	Somkid Service	69 Rak-karn-dee Rd. Uthaimai Muang Uthai-thani 61000	089-8580043						10	4	5
121	Direk Electric	90/10 Term-siri Rd. Muang Uthai-thani 61000	056-571534	30					15	5	10
122	Somkuan TV	120 Term-siri Rd. Uthaimai Muang Uthai-thani 61000	084-6246879	15							

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
123	M.U. Mobile	624 Opp. Hansa Café Khet 8 Rat-u-tit Rd. Haad-yai Haad-yai Song-klar 90110	074-362117					39			
124	Lek Cooling	130 Saengsri Rd. (Front of Tidanutkroo School) Haad-yai Song-klar 90110	074-351095, 081-2777727						21	50	
125	N P Electronics	79 Kanjanavanich Rd. Haad-yai Haad-yai Song-klar 90110	074-428975	52							11
126	Taweephan Air and Electric Service	492/9-10 Petcha-kasem Rd. Haad-yai Song-klar 90110	074-245737							12	
127	Haad-yai Monitor Circuit	571 Supasarn-rungsan Rd. Haad-yai Song-klar 90110	074-464225, 074-220075	110	10	43	16				
128	Mr. Chatchawan Hwanvong	173 Chotvidayakul Rd. Haad-yai Song-klar 90110	074-239352			10					
129	Wat Mobile Phone	16-5 Padung-pakdee Rd. Haad-yai Song-klar 90110	074-350677					140			
130	Haad-yai Service and Supply	255 Sajjakul Rd. Haad-yai Haad-yai Song-klar 90110	074-255102, 074-255592			5					
131	Ms. Kanok-nipa Disara	3 Soi. Juti-u-tit 1 Juti-anusorn Rd. Haad-yai Song-klar 90110	074-243678, 074-236453								80
132	Rattanapron AIR	480 Rat-u-tit Rd. Haad-yai Song-klar 90110	074-362195						21	16	
133	P.G.Com World	Underground Fl. Central Pinklao BKK.	084-166-6321			28	13				

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
134	Comp World Service	Central Pinklao (Fl. Underground) BKK.	089-919-3678			20	10				
135	BEST TEC Computer	Room 42 Fl. 5 PATA Pin-klao Bang-yee-khan Bang-plad BKK. 10700	089-097-9896			8	13				
136	NN.Group	Fl. 4 PATA Pin-klao BKK.	086-550-7753					60			
137	Mu-nin Phone	Fl. 1 Future Park Bang-Kae BKK.	089-127-1280					100			
138	A.I.Mobile	Fl. 2 The mall Bang-Kae(Opp. Nana Boutique Shop) BKK.	086-536-5439					70			
139	SMS.Tel	Fl. 2 The Mall Bang-Kae (Front of Saroluk Beauty Center) BKK.	09-812-6512,04-804-5559					65			
140	Dee-D-Phone	Fl.1 Future Park Bang-Kae BKK.	086-541-2263,089-662-4010					100			
141	P Phone 1	Fl. 2 The Mall Bang-Kae Booth M 2 BKK.	089-566-6622					60			
142	Tung-Tun shop	Future Park Bang-Kae Fl. 2 BKK.	05-056-0148					150			
143	M.K.Telecom	T23 Fl. 2 The Mall Bang-Kae Opp. DTAC BKK.	081-626-8395					60			
144	Bank Mobile	Ta-lad Bang-Kae near IT Grand BKK.	083-135-8044					30			
145	Phone Service	Fl.1 Future Park Bang-kae BKK.	084-975-6000,081-553-3394					150			

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
146	Computer World	PATA IT World Fl. 5 PATA Pin-khao BKK.	02-883-5401-5 Ext 168			20	20				
147	Somsak Electric	86/35 Nong-kam Plaza Nong-kang-plu Nong-kam BKK. 10160	085-048-3767	10	3						
148	Amorn Nong-kham	86/7 Moo. 2 Nong-kam BKK. 10160	02-814-5387	100	20						
149	S& T Computer service	IT World PATA Pin-khao BKK.	02-681-4841 Ext 9,086-689-8445			12	6				
150	Mint Phone	Thai-chuay-Thai Plaza (Opp. The Mall Thapra) Soi 2 BKK.	05-927-9918,09-044-9338					90			
151	108 QA	IT Grand Bang-Kae Fl. Ground BKK.				15	13				
152	Joke Service	The Mall Bang-Kae Fl. 5 BKK.				12	10				
153	Na-korn Service	Village 9 Vadhana Nong-kang-plu Nong-kam BKK. 10160		5	9						
154	I DEA SERVICE	Village 9 Vadhana Nong-kang-plu Nong-kam BKK. 10160				9	7				
155	Keng Mobile phone	Fl. Underground Central Pinkhao BKK.						20			

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
156	Mr.mobile	Fl. Underground Central Pinklao BKK.						23			
157	TOP Telephone	Fl. 4 PATA Pin-khao Bang-yee-khan Bang-plad BKK.						33			
158	HWH IT GRAND BANGKAE	Fl. 1 IT Grand Bang-Kae BKK.	02-804-6302			20	14				
159	FAH Telephone	Soi Petcha-kasem 79 Nong-kang-plu Nong-kam BKK. 10160						23			
160	MAY Mobile	near 7-11 Shop (Village Sethakij) BKK.						16			
161	IT Mobile	Thai-chuay-Thai Plaza Soi 3 B35-36 BKK.	089-144-4741,02-878-9658					170			
162	S Mobile	Front of Ta-lad Bang-Kae BKK.						12			
163	FON Mobile	Thai-chuay-Thai Plaza Soi 1 Booth C17-18 BKK.	09-535-1711					70			
164	Omnan Computer & Notebook	Fl. 5 IT World PATA Pin-khao BKK.	02-883-5407-8 Ext. 144			10	8				
165	HOME Computer	40/395 Nong-kang-plu Nong-kam BKK. 10160				10	4				
166	Mr. First	Front of Ta-lad Bang-Kae BKK.						11			

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
167	N.C.Telephone	Fl. 4 PATA Pin-khao Bang-yee-khan Bang-plad BKK.	089-229-3088,086-741-4171					30			
168	Kong Mobile	Fl. 4 PATA Pin-khao Bang-yee-khan Bang-plad BKK.						23			
169	AP Mobile Phone	Thai-chuay-Thai Plaza Booth C45 BKK.	07-074-8310					24			
170	P J 2 shop	198 Moo.5 Nah-om Kan-tra-luck Sri-sa-ket 33110	081-0624415			43		70			
171	Prom-sap Computer	146/1 Moo.5 Nah-om Kan-tra-luck Sri-sa-ket 33110	045-661109			410	6				
172	P J Phone	37 Moo.5 Nah-om Kan-tra-luck Sri-sa-ket 33110	045-635378					150			
173	Uthai Cooling	83 Moo.3 Nah-om Kan-tra-luck Sri-sa-ket 33110	081-3933712						15		20
174	CFD Co.,Ltd.	156 Sin-pra-dit Rd. Nah-om Kan-tra-luck Sri-sa-ket 33110	045-661818	35							
175	Tung Electronics	300/6 Moo.8 Sin-pra-dit Rd. Kan-tra-luck Kan-tra-luck Sri-sa-ket 33110	245-662699	30							
176	Compresso	11/23 Moo.2 Tub-ma Muang Rayong 21000	038-610225	10	20	20	20				
177	DEW Shop	Big C Rayong Fl.1 IT JUNCTION Room B.30 Rayong						350			

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
178	S P Ra-yong AIR Service	133/28 Sukhumvit Rd. Soi. Ratchavimol2 Muang Rayong 21000	038-617150						1	60	1
179	U.F.O Mobile	74/6 Moo.6 Natakwan Muang Rayong	086-1132790					50			
180	LUX Mobile	BIG-C Rayong Fl. 1 ZONE IT Rayong	089-8327994	50	30			80			
181	Nikom Computer	1210 Star Shopping Plaza Muang Rayong 21000	038-861446			60					
182	K-ha Electronics	227/04 Moo.6 Bang-la-mung Bang-la-mung Chonburi 20150	089-7947211	25							
183	Methee TV	506/3 Moo.11 Nong-kham Sri-ra-cha Chonburi 20230	086-3957945	20					10		10
184	Clinic Phone	110/36 Moo.5 Bung Sri-ra-cha Chonburi 20230	038-760159					90			
185	Champ A Sound	209/79 Moo.5 Nong-kham Sri-ra-cha Chonburi 20150	089-9328524	15							2
186	South Pattaya Electronics	Opp. Mosque 49/89 Pattaya-Tai Rd. Bang-la-mung Chonburi 20260	038-426492	10						30	25
187	N&M mobile Phone	241/75 Moo.5 bung Sri-ra-cha Chonburi 20150	086-3165788					120			
188	Pattaya Mobile Center	84/3 Moo.11 Theprasit Junction Nong-prue Bang-la-mung Chonburi 20150	086-3097195	8				15	3		2

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
189	Thep-pra-sit Telecom	336 Moo.12 Theprasit Rd. (Opp. Eakmongkol) Nong-prue Bang-la-mung Chonburi 20260	038-303427					70			
190	Clinic AIR	238/7 Chai-ya-phum - Baan-Kwao Rd. NaiMuang Muang Chai-ya-phum	044-812549							80	
191	Roong-cha-reon AIR Group	466/1-2 Niwesrat Rd. (Opp. Chai-ya-phum Bus Terminal) NaiMuang Muang Chai-ya-phum 36000	044-812442						8		
192	Pichai AIR	187/10 Chai-ya-phum - Baan-kwao Rd. Muang Chai-ya-phum	044-822439							3	
193	P K Computer	631/5-6 Chaiprasit Rd. NaiMuang Muang Chai-ya-phum 36000	044-838049				30				
194	P.D.V computer	68/1 Moo.7 NaiMuang Muang Chai-ya-phum 36000	081-0033110	15	5						
195	Chai-ya-poom Telecom	171/58-60 Moo.4 Sanambin Rd. NaiMuang Muang Chai-ya-phum 36000	044-817777					30			
196	S.S. Mobile	Lotus Chai-ya-phum Muang Chai-ya-phum 36000	086-8711811					35			
197	mobile Clinic	384/1 Niwesrat Rd. NaiMuang Muang Chai-ya-phum 36000	086-2551222					100			
198	Ar-noong phone	Sompop Plaza Om-yai Samutsakorn	089-4868452					90			
199	Giffarine	265/1 Moo.17 Bang-pung Pra-pa-dang Samut-prakarn 10130	086-8905806						3		4
200	IT Plaza	Pra-pa-dang Plaza Booth B12 Pra-pa-dang Samut-prakarn 10130	084-2-0292826			30					

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
201	Roj Service	337/85 Moo.18 Bang-pung Pra-pa-dang Samut-prakarn 10130	028-172365	10							
202	154 Electronics	154 Moo.11 Soi. Suk-sa-was 70 Bang-kru Pra-pa-dang Samut-prakarn 10130	028-191381	20							
203	TAI Mobile and Service	Pra-pa-dang Plaza Opp. Big C Suk-sa-was Booth M1 Pra-pa-dang Samut-prakarn 10130	089-9263134					35			
204	Antony	Ta-lad Tungnathong Muang Kalasin	086-2041960					90			
205	INTER shop	2/5 Moo.1 None-buri Sa-hat-sa-khan Kalasin 43140	087-7741192					30			
206	Suk-sant Sales	89/9 Chaisoonthorn Rd. Muang Kalasin	089-0260296					300			
207	Nik Kai Mobile	130 Moo.1 None-buri Sa-hat-sa-khan Kalasin	087-0332335					30			
208	Nung Electronics	105 Moo.1 None-buri Sa-hat-sa-khan Kalasin 43140	043-871334	13							
209	Kong Phone	79 Moo.3 Sa-hat-sa-khan Sa-hat-sa-khan Kalasin 43140	086-6464922					20			
210	Emmy Computer	175/112 Moo.2 Chang-puek Muang Chiangmai 50000	053-410111			44	24				
211	Washing Machine Repair shop	112/115 Moo.5 Kweng-singha Muang Chiangmai 50300	089-1284612								11

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
212	Tom Computer	144 Moo.1 San-ti-tham Rd. Muang Chiangmai 50300	084-9490664			7	10				
213	M B Mobile	11/113 Moo.7 Chang-kien Muang Chiangmai 50000	084-1749964					100			
214	Sri-rat Service	198 Meneenopparat Rd. Sri-poom Muang Chiangmai 50220	081-0230570	45	17	18	4				
215	Beauty Phone	20/2 Ratchavongs Rd. Chang-moi Muang Chiangmai 50300	084-0449218					140			
216	Central Parts	22-23 Chang-moi Rd. Muang Chiangmai 50000	086-6728441	23	18				12		16
217	Saha-panich Chiangmai	62 Chotana Rd. Muang Chiangmai 50300	053-243211-3	55	60	65	60	60	50	35	50
218	P.P. PHONE	74/4 Chang-moi Muang Chiangmai 50300	086-1914761					200			
219	Lieng-kee and sun	94 Chang-moi Rd. Muang Chiangmai 50000	087-1769889	40	20				55	55	55
220	Niyom panich Chiangmai	62 Mahidol Rd. Suthep Muang Chiangmai 50200	053-510024	70	50	45	45	75	55	50	55
221	Siam TV	29/3 Singharat Sripoom Muang Chiangmai 50200	053-273546-48	55	45	23	23	70	55	36	60

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
222	Boy Phone	132/9 San-ti-tham Rd. Chang-puek Muang Chiangmai 50300	084-0456608					80			
223	A P Computer	3/2 Moo.12 Tha-sa-la Tha-sa-la Nakorns-ithammarat 80160	075-330254			15	6				
224	D S Computer	210 Moo.1 Tha-sa-la Nakorns-ithammarat 80160	085-0434848	10		5	6				
225	Technic Sound	140 Moo.1 Tha-sa-la Nakorns-ithammarat 80160	075-521558	10							10
226	Somboon Technic	274/25 Moo.1 Tha-sa-la Nakorns-ithammarat 80160		15					8		8
227	South VDO	Tha-sa-la Tha-sa-la Nakorns-ithammarat 80160	085-7892110	30	4				3	10	
228	P S Phone	274/11 Moo.1 Tha-sa-la Tha-sa-la Nakorns-ithammarat 80160	081-0828711					30			
229	Rasmee Phone	274 Moo.1 Tha-sa-la Tha-sa-la Nakorns-ithammarat 80160	075-522897					255			
230	Maree Telephone	234/12 Moo.12 Samyak Leong-nok-ta Yasotorn						90			
231	Maree Telephone	225 Moo.2 Chayangkul Rd. Amnaj Lue-amnaj Amnaj-chareon						70			
232	Maree Telephone 2	288/210 Moo.9 Vichitsin Rd. Bung Muang Amnaj-chareon						300			
233	Maree Telephone 3	136-137 Moo.9 Vichitsin Rd. Bung Muang Amnaj-chareon						30			

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
234	T Electronics	40/2543 Tasai Muang Nonthaburi	089-664-4580	8	2						4
235	S R Production	Pan-tip Ngam-wong-wan Nonthaburi	081-830-7864	10		5					
236	Chai Shop	Baan-moh BKK.	084-706-5949	20	20						
237	S Electronics	10 Baan-moh BKK.	081-684-7591	10							
238	Rung Service	6 Asa-dang Rd. (Baan-moh) Wangburapha Pra-na-korn BKK. 10200	02-223-4332	6	15						
239	Chien Electronics	10/1124 Pra-cha-ni-wes 3 Tasai Muang Nonthaburi 11000	02-589-4296	80	2						
240	STS Air Service	Moo.1 Tasai Muang Nonthaburi 11000	02-589-4609						1	6	
241	Lucky Phone	Fl. 3 The Mall Ngam-wong-wan Nonthaburi	086-302-5992					300			
242	Amorn The Old Siam Plaza	The Old Siam Plaza BKK.	085-809-9634	60	60				30	60	300
243	HAPPY I.T.	Pan-tip Plaza (Ngam-wong-wan) Nonthaburi	081-373-7220	24	10	146	87				
244	Three Plus Power Service	69/21 Moo. 2 ถ. Ngam-wong-wan (Pan-tip Ngam-wong-wan) บางเขน Muang Nonthaburi 11000	02-953-6595	2	2	40	30				
245	Ms. Kanikar lam-ma	Pan-tip (Ngam-wong-wan) Muang Nonthaburi 11000		15		42					

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
246	Telephone Shop	Ma-boon-krong Fl. 4 BKK.	081-447-2774					75			
247	Hello mobile	Ma-boon-krong Fl. 4 BKK.	081-779-3277					210			
248	Dragon Phone	Ma-boon-krong Fl. 4 BKK.	089-413-8388					75			
249	ATM 1&2 Branch 1	Ma-boon-krong Fl. 4 BKK.	086-625-9929					180			
250	Phone Plus	Ma-boon-krong Fl. 4 BKK.	089-888-7755					200			
251	Choke-chai Electric	614 Phang-Muang 4 Rd. Sa-taeng Muang Yala 95000	073-242-623	17							
252	San-ti-pong Auto Air	23 Phang-Muang Rd. 4 Sa-taeng Muang Yala 95000	073-259-334							55	
253	Muang-mai electric	275/1 Ta-lad Muangmai Muang Yala 95000	01-599-3621	15							10
254	Easy Phone	112/4 Rod-Fai Rd. Sa-taeng Muang Yala 95000	087-390-0258					100			
255	Bukerry Electric&Cooling	14/7 Sa-taengnok Muang Yala 95000	081-963-8395								10
256	Ms. Orn-a-nong Sonsem	2 Phang-Muang Rd. 4 Sa-taeng Muang Yala 95000	073-216-656					120			
257	Pitak TV	934 Phang-Muang Rd. 4 Sa-taeng Muang Yala 95000	087-967-1155	15							

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
258	Ms.Coril Hayeekode	41 Phang-Muang Rd. 4 Sa-taeng Muang Yala 95000	089-898-9414			8					
259	MOD AIR	65/6 Neon-hu-kwang Rd. Moo.2 Sa-taeng-nok Muang Yala 95000	084-1964818							15	
260	Nam-Lad Computer	56 Moo.3 Rimkok Muang Chiangrai 57000	085-8671576				10				
261	Nut Electronics	25 Moo.3 Rimkok Muang Chiangrai 57000	053-712852	20							
262	Chaisawas Mobile	56 Moo.3 Rimkok Muang Chiangrai 57000	083-2082088					15			
263	Friend Mobile	241/3 Moo.9 Baan-khu Muang Chiangrai 57000	053-776355					20			
264	K.V.C. Computer	265/3 Moo.4 Baan-khu Muang Chiangmai 50000	053-776317			50					
265	Baan-Khu Electric	403/3 Moo.3 Baan-khu Muang Chiangrai 57000	053-793239			5					
266	Baan-Nam-Lad Electronics	367 Moo.3 Rimkok Muang Chiangrai 57000	081-5310801	30							
267	P.T. Electronics	121/90 Moo.3 Baan-khu Village Muangmai Muang Chiangrai 57000	089-7588876	35							
268	Keng Electronics	117 Moo.7 Nanglae Muang Chiangrai 57000	086-6568960	40							
269	Weberick	132/11 Moo.4 Ratchabhat Rd. Muang Chiangrai 57000	053-776361			20		15			

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
270	ODD Electronics	235 Moo.2 Rinkok Muang Chiangrai 57000	085-6141618	6							
271	Baan-Khu Mobile	124 Moo.4 Baan-dhu Muang Chiangrai 57000	089-4333078					40			
272	E.V.C. Cooling	7/10 Moo.19 Rob-vieng Muang Chiangrai 57000	081-8846443							10	
273	SV.Phone	74 Moo. 3 Baan-klang Muang Lumphun 51000	087-935-5421					100			
274	Noparat Service	198/6 Sribuabaan Muang Lumphun 51000	053-554-712							130	
275	Jub Jib Electric	65/3 Sri-keng Muang Lumphun 51000	085-327-9532	35					20	20	20
276	Theera Service	108 Moo.12 Baan-klang Muang Lumphun 51000	083-715-8763	32	30	3			11		12
277	Queen Mobile Phone	141 Moo.3 Baan-khe-lek Baan-klang Muang Lumphun 51000	053-554-152-141					101			
278	Kan Mobile	137/1 Moo.22 Baan-klang Muang Lumphun 51000	081-026-2587	1		1		40	1		
279	Viyada Electronics	72/5 Baan-klang Muang Lumphun 51000	081-713-5428	38	25	3			15		19
280	Pra-yudh Service	204/17 Moo. 1 Baan-klang Muang Lumphun 51000	086-673-5121	60	40	35	10		18	14	16
281	A.B. Electronics	200 Moo.11 Baan-hor-chai Baan-klang Muang Lumphun 51000	083-517-6837	35	28				17		18

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
282	S Electronics	198 Moo.3 Baan-khe-lek Baan-klang Muang Lumphun 51000	053-554-756	20	14				8		12
283	S.K.Phone	44/55 Moo.6 Baan-klang Muang Lumphun 51000	089-958-7732					30			
284	U-TURN Mobile	72 Moo.5 Sribuabaan Muang Lumphun 51000	089-530-7218					125			
285	Anan Computer	128 Moo.6 Baan-thi Muang Lumphun 51000	089-656-3324			58	45				
286	Nikhom Electronics	14/17 Baan-phyra-pan Baan-klang Muang Lumphun 51000	086-184-8047	25	17	7			15		4
287	Premier Phone	96/55 Moo.6 Baan-klang Muang Lumphun 51000	084-041-9024					130			
288	KK Phone	107/5 Moo.4 Baan-klang Muang Lumphun 51000	085-717-3226		1			50			
289	99 Mobile	71/16 Baan-phyra-pan Baan-klang Muang Lumphun 51000	087-192-6648					100			
290	Ong-Chai Phone	Center One Shopping Center Fl. 3 BKK.	081-808-0336					40			
291	101 Telecom	Center One Shopping Center Fl. 3 BKK.	081-643-9956					1450			
292	Service 2	Center One Shopping Center Fl. 3 BKK.	089-520-5000					460			
293	JJ Phone	Booth D-14 Ma-boon-krong Fl. 4 BKK.	08-929-6161					300			

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
294	Petch Mobile	Century Plaza Fl. Underground BKK.	08-9162-3560					140			
295	Digital Computer	102 Samutdevaraj Rd. MuangNan Nan 55000	054-750-653,054-750-144			30	15				
296	Thanachote Fertech	70/2 Moo.2 Tha-wang-pha Tha-wang-pha Nan 55140	089-852-2666					36			
297	Cooling Service Center	4/8 Kha-lueng Rd. MuangNan Nan 55140	081-022-694	10	2	5			10	1	10
298	TV Service	236 Woranakorn Pua Nan	054-756-132	30							20
299	Comtech Hi-Tech and Supply	106/18 Sumondevarai-nai-vieng Rd. MuangNan Nan 55000	085-106-4467	3		30	5				
300	ThanaTham Marketing	24 Kha-lueng Rd. Nai-vieng Muang Nan 55000	054-711-529-30			20	10		10		10
301	Somnuk Electronics Service	53/1-2 Moo. 2 Tha-wang-pha Tha-wang-pha Nan 55140	054-799-631	40							
302	M T V Electronics	99/2 Mahavongs Rd. nai-vieng MuangNan Nan 55000	081-603-7276,054-711-220	10					10		10
303	Samarn Electronics	280 Moo. 5 Wang-wa Tha-wang-pha Nan							3	2	4
304	P P Service	230/1 Moo.7 Tha-wang-pha Tha-wang-pha Nan 55140	054-750-062						10	5	10
305	Somkid Motor	20/14 Moo. 2 Saladaeng Muang Ang-Thong	081-495-3180	30	3				15		20

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
306	Mr.Wasunt Pinto	72/67 Posa Muang Ang-Thong	089-004-4690	5					5	10	4
307	Ang-Thong Type Writer	20/13 Ang-Thong-Pho-thong Rd. Ta-lad Lueng Muang Ang-Thong	035-611-117			6					
308	Mr. Noppadol Raksasath	6 Ang-Thong-Pho-thong Rd. Ta-lad Lueng Muang Ang-Thong	035-611-408	30							
309	Singer PLC.	90/5 Moo. 2 Saladaeng Muang Ang-Thong	035-611-303	70					40		60
310	Beat Mobile	91/10 Moo. 8 Om-yai Sam-pran Nakornpathom 73110	086-312-3857					60			
311	Sam-pran Telecom	Ta-lad Sam-pran Opp. Bank of Ayuddhaya Nakornpathom	034-311-463					35			
312	Family Mobile and Telecommunication	46/4 Moo. 7 Sam-pran Sam-pran Nakornpathom 73110	086-622-6761					50			
313	BEST ELECTRONIC	61/167 Tha-Ta-lad Sam-pran Nakornpathom 73110	08-1628-4130	12				22			
314	Mr. Thawatchai Wongsritha	Suppamongkol Tha-Ta-lad Sam-pran Nakornpathom 73110	08-9076-2943	5							
315	Golf Inter Phone	Lovely Plaza Ta-lad Om-yai Nakornpathom 73110	08-1838-0904					90			
316	DOT COM	Bang-Boh Bang-Boh Samut-prakarn	0-2707-9962			30	1				
317	Teletech	23/2 Tat-cheng-chum Muang Sakon-nakorn						17			

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
318	Mobile Clinic	11/12 Tat-cheng-chum Muang Sakon-nakorn						19			
319	PhoneTech	20/1 Tat-cheng-chum Muang Sakon-nakorn						22			
320	Top Electronics	80/1 Moo. 1 Nong-tum-lueng Panthong Chonburi 20160							2	14	
321	KraiSri Electronics	17/6 Moo. 1 Nongchok Bangpakokg Chacheongsao 24130	083-136-0989							90	
322	ChaiYos Electronics and Computer	156/13 Teparak Rd. Bang-sao-thong Samut-prakarn 10540	0-2706-3013	5		30					
323	P and P Engineering	129/6 Teparak Rd. Teparak Bang-sao-thong Samut-prakarn 10540	081-206-7131-						30	50	
324	N P corporation	Bang-plee-yai Bang-plee Samut-prakarn 10540	081-624-0825						5	2	15
325	Baan-Com	165/91 Bang-plee-yai Bang-plee Samut-prakarn 10540	0-2752-1993			30					
326	Am-porn Cooling	Bang-plee-yai Bang-plee Samut-prakarn 10540	0-2312-2801						40	10	
327	Champ Service	440/1 Ratpattana Rd. Bangpakok BKK. 10140	0-2872-2024			90	30				
328	Winai Electronics	19/30 Moo. 7 Nong-tum-lueng Panthong Chonburi 20160	038-206-747						12	2	
329	Dang Internet	202/20 Bang-plee-yai Bang-plee Samut-prakarn 10540	0-2312-2219			5					

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
330	PS Service	130 bang-pung Rd. Pra-pa-dang Samut-prakarn 10130	089-817-0720						10	2	8
331	M TECH	Bang-Boh Bang-Boh Samut-prakarn	086-106-8899			10		100			
332	TV Service Center	45/1 Moo. 9 Bang-plee-yai Bang-plee Samut-prakarn 10540	0-2312-3391	40							
333	SongPhol Electronics	46/57 Moo. 9 Bang-plee-yai Bang-plee Samut-prakarn 10540	085-913-7113							1	15
334	Winai Service	109/27 Teparak Rd. Bang-sao-thong Bang-sao-thong Samut-prakarn 10540	464621	120							
335	S Paisarn Sound	96/1 Moo.1 Nong-tum-lueng Panthong Chonburi 20160	081-8657534	20							
336	595 Mobile Telecom	226/8 Moo.1 Rattana Raj Rd. Bang-Boh Samut-prakarn	081-4868977					170			
337	A Air Thailand Co.,Ltd.	17/12 Moo.20 Bang-plee-yai Bang-plee Samut-prakarn 10540	081-844-1261							106	
338	CH. Electronics (BangPlee)	165/93 Moo.11 Sukhapiban 5 Rd. Bang-plee-yai Bang-plee Samut-prakarn 10540	089-880-9909	30	40					10	10
339	Pra-pan-pong Electronics	123/6 Teparak Rd. Bang-sao-thong Bang-sao-thong Samut-prakarn 10540	089-1046947	30	20						
340	J.N.K. AIR Engineering	129/63 Teparak Rd. Moo.21 Bang-sao-thong Bang-sao-thong Samut-prakarn 10540	081-4470071						80	50	

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
341	Telephone Clinic	339/6 Moo.1 Rattana Raj Rd. Bang-Boh Bang-Boh Samut-prakarn	2151677					200			
342	Toy Electronics	354/7 Soi Phetviton Village Bang-Boh Samut-prakarn	086-8207315	60	60						
343	Light and Sound Electronics	61/19 Moo.9 Teparak Rd. Bang-plee-yai Bang-plee Samut-prakarn 10540	02-312-2815	100	20				50		100
344	BangPlee Electronics	202/18 Opp. Bang-plee Nakorn Teparak Rd. Bang-plee Samut-prakarn 10540	089-5189491	30	30						
345	T 2 S Computer Repair	94/644 Moo.2 Teparak Rd. Bang-sao-thong Bang-sao-thong Samut-prakarn 10540	081-9204407			30	2				
346	Office System	23/44 Thepkunakorn Rd. Sothorn Muang Chacheongsao 24000	038-821923			25					
347	Pong-sarn Washing Machine	50/40-41 Thepkunakorn Rd. Sothorn Muang Chacheongsao 24000	087-1475851						30		30
348	Rattana Cooling	1138 Thepkunakorn Rd. Sothorn Muang Chacheongsao 24000	038-514586 / 081-8622668						20		
349	Su-ri-yon	40/7 Muang Chonburi	081-6839386						2	15	
350	Wattana Electronics	29/2 Chareonnakorn Rd. Klongsarn BKK. 10600	089-6718931	60							
351	AIR	1074-1076 Chareonnakorn Rd. Banglumphu BKK.	02-8626933							80	

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
352	Body Phone	A 17 Klongsarn Pier Plaza Klongsarn BKK.	02-8612071					55			
353	Pitcha-luck	208/17 Moo.9 Prachautit Rd. Ratburana Ratburana BKK. 10140	02-8747505							80	
354	Sahakit V P AIR	191/2 Samyak Sanambinnam Ti-wa-nont Rd. Tasai Muang Nonthaburi 11000	02-5915078						10	100	
355	IT Mobile	22/32 Pon-pi-sai -Nong-kai Rd. Pho-chai Muang Nong-kai 43000	042-349511					17			
356	A.B Mobile	227/3 Rim-nam-khong Rd. Pho-chai MuangNong-kai Nong-kai 43000	081-4565965					21			
357	STEP Mobile	155/4-5 Reab-nam-khong Rd. Pho-chai Muang Nong-kai 43000	085-9493925					21			
358	A Mobile	160/2 Rim-nam-khong Rd. Pho-chai Muang Nong-kai 43000	081-4565965					29			
359	Jame Phone	14/5 Pon-pi-sai Rd. Pho-chai Muang Nong-kai 43000						16			
360	Sri-chareon Service	71 Mahaisawan Rd. Bookhalow Thonburi BKK.	085-8274612	40					10		10
361	M Telecom	130/5 Udorn-Sakon Rd. Tat-cheng-chum Muang Sakon-nakorn						14			
362	A Phone	128 Moo.3 Tat-cheng-chum Muang Sakon-nakorn						24			
363	U-Dorn Communication	13 Nittayo Rd. Hmak-kaeng Muang Udornthani 41000						19			

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
364	Sakol Telecom	233/1 Moo.3 Tat-cheng-chum Muang Sakon-nakorn						23			
365	Shop Electronics	306 Moo.15 Nong-bua Muang Nong-bua-lum-phu 39000	081-0523301						4	2	2
366	P O Net	487 Moo.3 Visai-udornkit Nong-bua Muang Nong-bua-lum-phu 39000	042-312212			11					
367	Team Telecom	327 Moo.3 Visaivit Rd. Nong-bua Muang Nong-bua-lum-phu 39000				20	10				
368	U-Dorn Phone	51/2 Phosri Rd. Hmak-kaeng Muang Udonthani 41000						15	8		
369	Top Cool Service	122/568 Soi. Prachautit 91 n.Prachautit Thung-Kru BKK.	233058						4	30	
370	Pat and S and Air Service	78/123 Fl. 5 Baan-Sukhumvit 77 BKK.	081-8282854							90	
371	Tawat AIR	903/34 Taksin Rd. Soi. 21 Bookalow BKK. 10600	02-4387533						15	105	
372	JOH Mobile	32/5 Prachak Rd. Watthart Muang Nong-kai 43000						15			
373	Am-porn Cooling	Bang-plee-yai Bang-plee Samut-prakarn 10540	0-2312-2801						40	10	
374	Champ Service	440/1 Ratpattana Rd. Bangpakok BKK. 10140	0-2872-2024			90	30				
375	Winai Electronics	19/30 Moo. 7 Nong-tum-lueng Panthong Chonburi 20160	038-206-747						12	2	

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
376	POP EYE	2nd. Fl. Central Plaza Phraram2 BKK.						70			
377	1 Gig Mobile	2nd. Fl. Central Plaza Phraram2 BKK.	06-128-5250,07-689-3198					60			
378	Mobile 2	2nd. Fl. BIG-C Phraram2 BKK.	081-939-1125					95			
379	JP Shop	2nd. Fl. BIG-C Phraram2 BKK.	086-000-0723,086-045-0366					60			
380	Yourk Mobile Clinic	Boon-kwang Interseccion Ratchadumneon Rd. Muang Roi-ed 45000	08-6974-3442,08-9163-3149					40			
381	Tang-Kong shop	292-294 Ronachai-charnyudh Rd. Nai-Muang Muang Roi-ed45000	043-527-688,072-303-129	20	20		4	25	3		5
382	Mr. Pittaya Thongteerapap	60-62 Prempracharat Rd. Nai-Muang Muang Roi-ed 45000	(043) 515533, 520080	10	20		4	10			3
383	SS Phone	2nd. Fl. Carrfour Bang-Bon(in front of Bangkok Bank) BKK.	089 5128899					100			
384	Pongpaitoon Computer	71/4 Moo.8 Eka-chai Rd. Bang-Bon BKK. 10150	0 2893 2637			304					
385	Pongpitak Electric	Opp. Soi. Prachautit 123 Thung-Kru BKK.	02 8406026, 081 8387670	50	30				60	2	60
386	OA.Computer Service	20/81 Prachautit Rd. Thung-Kru BKK 10140	02-873-8394,083-046-2100			54	35				

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
387	D Phone	574/13 Talad-mai Booth18 Thung-Kru BKK.	081-988-6550					210			
388	Mobile Plus	1st Fl. Lotus Surat-Thani Muang Surat-Thani 84000	077-220-181					330			
389	JOHN Mobile	Phrapadang Plaza Opp. BIG-C Suksawas Samut-prakarn	089-225-8699					170			
390	R G B Electronics Service	693/5 Prachautit Rd. Thung-Kru BKK 10140	02-872-6515 ext 0	43	10						
391	VAX Shop	BiC-C Suksawas BKK.	02-464-4220					15			
392	SV mobile	2nd Fl. Central Plaza Phraram 2 BKK	02-872-4397					230			
393	Jumbo Mobile	2nd Fl. Central Plaza Phraram 2 BKK	089-458-8818					45			
394	Hand Phone	2nd Fl. Central Plaza Phraram 2 BKK	081-666-3393					35			
395	S Mobile	IT 28/2 2nd Fl. Central Plaza Phraram 2 (close to DTAC) BKK.	02-872-4404					45			
396	M C Marko Pra-pa-dang	31/3 Moo. 7 Suksawas Rd. Ratchaburana BKK. 10140	081-837-6938							21	

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
397	SAFE Phone	Pra-pa-dang Plaza M3,P3,Q3 (3 Branchs) Samut-prakarn	09-811-4858					30			
398	SSW mobile	Pra-pa-dang Plaza booth M.15-16,L11 Samut-prakarn 10130	081-917-5809					120			
399	2J mobile	Pra-pa-dang Plaza booth M.36 Samut-prakarn	081-172-0980					90			
400	Stamp Mobil Phone	BIG C (Suk-sa-was) Fl. 2 BKK.	089-019-1988					100			
401	Mr. Theerawat	498-100 Pan-tip Plaza Fl. 4 Petchaburi Rd. BKK.	02-656-6036			95					
402	Mobile Clinic	BIC C Ratburana Fl. 2 BKK.	089-733-697					110			
403	C & N Phone	BIC C Ratburana Fl. 2 BKK.	089-039-0953					95			
404	N.Tech Comshop	212 Pan-tip Plaza Fl. 2 Petchaburi Rd. BKK.	081-458-1008			25					
405	Professional Computer	523 Pan-tip Plaza Fl. 5 Petchaburi Rd. BKK.	02-252-9933 #4107			61	30				
406	Khon-Rak-Com	145 Pan-tip Plaza Fl. 1 Petchaburi Rd. BKK.				127	80				
407	P 2	Ta-lad Prachautit BKK.	08-407-7247					270			
408	PK.Com & Service	604/3 Fl. 3 Room 3149,51,54,55 Pan-tip Plaza Ratchadeve BKK. 10400	06-326-3354			90	60				

2.2 Stakeholders involved in repair/reassembling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
409	Shoman	455-7 Fl. 4 Pan-tip Plaza BKK.	02-656-6035			50	50				
410	AV Computer	286 Pan-tip Plaza Fl. 2 Petchaburi Rd. Phya-tai BKK. 10400	084-033-0001			40	40				
411	P & Y Computer Notebook	604/3 Pan-tip Plaza Fl. 4 Room 498-4100 Petchaburi Rd. Phya-tai BKK. 10400	02-254-9825			160	135				
412	C & N Phone	BIC C Ratburana Fl. 2 BKK.	09-669-9538,06-568-5755					170			
413	FREE PHONE	BIC C Ratburana Fl. 2 BKK.	086-514-6323					104			
414	C-NIX Expert Corporation	Pan-tip Plaza Fl. 5 ,52331 Petchaburi Rd. Phya-tai BKK. 10400	02-254-9797-9 # 5129			460	130				
415	TIP Computer	Fl. 3 Com-ko-sa Bldg. Muang Khon-kaen 40000	043-389040			120	40				
416	Khon-kaen J NET Computer Co.,Ltd.	250/1 Fl. 3 Com-ko-sa Bldg. Sri-chan Rd. Nai-Muang Muang Khon-kaen 40000	089-7144591, 043-389446			15	23				
417	TWZ COPORATION ILC	Com-ko-sa Bldg. Fl. 2 Sri-chan Rd. Muang Khon-kaen 40000	043-389420-1					10			
418	B C Computer shop	250/1 Com-ko-sa Bldg. Fl. 3 Sri-chan Rd. Nai-Muang Muang Khon-kaen 40000	087-2339914	10	8	25	15				
419	Mr. Thitinan panya	102 Moo.7 Pra-cha Rd. MuangDej Dej-udom Ubol-ratcha-thani 34160	086-5324270					400			
420	Mobile shop	434 Moo.5 MuangDej Dej-udom Ubol-ratcha-thani 34160	084-6059360					80			
421	Supatra AIR	38/8 Sud-ban-tad Rd. Soi. 9 (Tawee kij Complex) Pak-preaw Muang Saraburi 18000	036-302314						5	30	23

2.2 Stakeholders involved in dismantling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
1	Pongpaltoon Computer	71/4 Moo.8 Eka-chai Rd. Bang-Bon BKK. 10150	0 2893 2637			304					
2	OA.Computer Service	20/81 Prachautit Rd. Thung-Kru BKK 10140	02-873-8394,083-046-2100			54	35				
3	GREAT RICH COMPUTER LTD.,PART	119/28 Moo.14 Soi.Budharaksa 2 Bang-pueng Pra-pa-dang Samut-prakarn 10130	02-463-7465			220					
4	Mr. Theerawat	498-100 Pan-tip Plaza Fl. 4 Petchaburi Rd. BKK.	02-656-6036			95					
5	Mr. San-ti	503 Pan-tip Plaza Fl. 5 Petchaburi Rd. BKK.	02-656-6142				1350				
6	N.Tech Comshop	212 Pan-tip Plaza Fl. 2 Petchaburi Rd. BKK.	081-458-1008			25					
7	Professional Computer	523 Pan-tip Plaza Fl. 5 Petchaburi Rd. BKK.	02-252-9933 #4107			61	30				
8	Khon-Rak-Com	145 Pan-tip Plaza Fl. 1 Petchaburi Rd. BKK.				127	80				
9	PK.Com & Service	604/3 Fl. 3 Room 3149,51,54,55 Pan-tip Plaza Ratchadeve BKK. 10400	06-326-3354			90	60				
10	P & Y Computer Notebook	604/3 Pan-tip Plaza Fl. 4 Room 498-4100 Petchaburi Rd. Phya-tai BKK. 10400	02-254-9825			160	135				
11	C-NIX Expert Corporation	Pan-tip Plaza Fl. 5 ,52331 Petchaburi Rd. Phya-tai BKK. 10400	02-254-9797-9 # 5129			460	130				
12	Computer World	PATA IT World Fl. 5 PATA Pin-klao BKK.	02-883-5401-5 Ext 168			20	20				
13	Emmy Computer	175/112 Moo.2 Chang-puek Muang Chiangmai 50000	053-410111			44	24				

2.2 Stakeholders involved in dismantling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
14	P.P. PHONE	74/4 Chang-moi Muang Chiangmai 50300	086-1914761					200			
15	Three Plus Power Service	69/21 Moo. 2 ถ. Ngam-wong-wan (Pan-tip Ngam-wong-wan) บางเขน Muang Nonthaburi 11000	02-953-6595	2	2	40	30				
16	Ms. Kanikar lam-ma	Pan-tip (Ngam-wong-wan) Muang Nonthaburi 11000		15		42					
17	Noparat Service	198/6 Sribuabaan Muang Lumphun 51000	053-554-712							130	
18	Pra-yudh Service	204/17 Moo. 1 Baan-klang Muang Lumphun 51000	086-673-5121	60	40	35	10		18	14	16

2.2 Stakeholders involved in recycling of used EEE, cont.

No	Company Name	Address	Tel	A Number of Units Per month							
				CRT TV	LCD TV	Desktop Computer	Notebook Computer	Mobile Phone	Refrigerator	Air conditioner	Washing Machine
1	Yai Service	27/1 Slarng-luang Rd. Muang Udonthani 41000	042-223512								2
2	Emmy Computer	175/112 Moo.2 Chang-puek Muang Chiangmai 50000	053-410111			44	24				

2.3 Level of repair/ refurbishment necessary for reuse or recycling

Description of repair process

N o	Product	Repair Process	Equipment
1	TV, CRT	Ask about problem/symptom	Screwdriver, plier, soldering iron, solder wire, multi-meter, cotton, tinner, desoldering tool, oscilloscope
		Diagnose the problems with multi-meter or oscilloscope	
		Check Power supply, Control circuit, CRT, Receiving signal circuit	
		Inform customer about cause and cost	
		Repair or change parts in TV	
		Return to customer	
2	LCD TV	Ask about problem/symptom	multi-meter, screwdriver, soldering iron, oscilloscope, Logic probe, plier
		Check Power supply, Screen, Tuner, Sound, Control circuit, Wiring	
		Inform customer about cause and cost	
		Repair or change parts in TV	
		Return to customer	
3	Desktop PC	Ask about problem/symptom	screwdriver, plier, CD Program, multi-meter, oscilloscope, semiconductor
		If Software problem : Check virus Check OS, Application Software Format HDD Install software/driver	
		If Hardware problem : Check Power supply, Ram, Main board, HDD, VGA Card	
		Inform customer about cause and cost	
		Repair or change parts or send to claim at distributor	
		Return to customer	
4	Notebook	Ask about problem/symptom	screwdriver, hot-air blower, soldering iron, voltage test screwdriver, plier, CD program, multimeter
		If Software problem : Check virus Check OS, Application Software Format HDD or Flash BIOS Install software/driver	
		If Hardware problem : Check Power supply, Regulator, Ram, Main board, HDD,	
		Inform customer about cause and cost	
		Repair or change parts or send to claim at distributor	
		Return to customer	

5	Mobile phone	Ask about problem/symptom	soldering iron, hot-air blower, DC Power supply, screwdriver, CD program, plier, small screwdriver, multi-meter, PCB, battery, phone mask, internet, computer, soldering wire, screw, Flash EEprom
		If Software problem : Flash program/Update software	
		If Hardware problem : Check battery, Battery pole, circuit, press button, wiring	
		Inform customer about cause and cost	
		Repair or change parts or send to claim at distributor	
		Update software	
		Clean up	
		Return to customer	
6	Refrigerator	Ask about problem/symptom	screwdriver, Multimeter, soldering iron, pressure guage, multi-meter, refrigerant, refrigerant accessories, freon 134a
		Check compressor, Diode, Motor, Refrigerant, Control circuit	
		Inform customer about cause and cost	
		Repair or change parts or send to claim at distributor	
		Fill refrigerant	
		Test run	
		Return to customer	
7	Air-conditioner	Ask about problem/symptom	refrigerant, welding equipment, hardware tools, multi-meter, soldering iron, refrigerant pump, vaccum Pump, compressor, coil
		Check compressor, Motor, Refrigerant, Control circuit, refrigerant	
		Inform customer about cause and cost	
		Repair or change parts or send to claim at distributor	
		Fill refrigerant	
		clean up and Test run	
		Return to customer	
8	Washing machine	Ask about problem/symptom	screwdriver, clamp, multimeter, hardware tool, pressure guage, valve, seal, winding machine, electric motor
		Check Motor, Rotor, Control circuit,	
		Inform customer about cause and cost	
		Repair or change parts or send to claim at distributor	
		Clean up and Test run	
		Return to customer	

2.4 Level of dismantling and recycling

Description of dismantling process

Products	Dismantling Process	Tool used
CRT TV	Dismantle parts Separate Copper, CRT, Plastic cover Sell to recycler	Screwdriver
LCD TV	Dismantle parts Separate Copper, LCD , Plastic cover Sell to recycler	Screwdriver
Desktop PC	Dismantle parts Separate Copper, CRT , Plastic cover, PCB Sell to recycler	Screwdriver
Notebook	Dismantle parts Separate Copper, LCD , Plastic cover, PCB Sell to recycler	Screwdriver
Mobile Phone	Dismantle parts Separate LCD panel, Plastic cover, PCB, Rubber parts Sell to recycler	Screwdriver
Refrigerator	Dismantle parts Release freeon/ refrigerant Separate compressor , metal parts, plastic parts, Rubber parts Sell to recycler	Screwdriver
Air Conditioner	Dismantle parts Release freeon/ refrigerant Separate compressor , metal parts, plastic parts, Sell to recycler	Screwdriver
Washing Machine	Dismantle parts Separate motor, copper , metal parts, plastic parts, glass, other Sell to recycler	Screwdriver

Full operation of EEE recycling does not appear in Thailand at present. Some factories tend to recover precious metals out of electronic parts (only) using physical properties and getting recovered oversea.

2.5 Disposal method for residues from dismantling and recycling operation (in particular plastic casing)

Residues from repair per month

	Type of Residue	Avg.Quantity (Kg./month)	% Ratio Ways of Disposal				
			Dispose as municipal waste	Pay for disposal	Give away	Other	
						%	Ways of Disposal
1	Plastics	9.92	58.49	5.28	2.26	33.96	For sale/ return to customer
2	Metals	22.04	39.83	4.76	2.16	53.25	For sale/ return to customer
3	Glass	11.74	58.97	2.56	1.28	37.18	For sale/ return to customer
4	Glass with lead (CRT)	8.83	66.67	4.44	5.56	23.33	For sale/ return to customer
5	Oil	20.33	22.22	33.33	-	44.44	For sale
6	CFC (Chlorofluorocarbon)	8.38	-	10.26	-	89.75	Released into air
7	Rechargeable battery (from notebook computer)	8.64	56.82	-	4.55	38.64	Kept as spare part
8	Rechargeable battery (from mobile phone)	8.00	72.80	0.80	1.60	24.80	For sale/ return to customer
9	Dry cell battery	5.00	77.78	11.11	-	11.11	For sale
10	Mixture of different types of materials	7.52	67.39	-	4.35	28.26	For sale/ return to customer
11	Other (Power Supply)	50.00	-	-	-	-	-
12	Other	5.06	47.06	-	-	52.94	For sale/ return to customer
13	Mixture from Copper Parts	10.10	-	-	-	100.00	For sale
15	Other (wire/inside parts)	0.31	100.00	-	-	-	-
16	Other (Body ,MainBoard)	4.93	28.57	-	-	71.43	Kept as spare part
17	Other (used parts)	15.00	-	-	-	100.00	Kept as spare part

Note: Customers who receive returned residues, as proof of evidence from repair shop, may sell to individual collectors/junk shops or discard as municipal waste by customers themselves.

Residues from dismantling process per month

	Type of Residue	Avg.Quan (Kg./month)	% Ratio Ways of Disposal		
			Dispose as municipal waste	Pay for disposal	Other
1	Plastics	26.86	6.94	3.38	89.68
2	Metals	30.76	16.32	0.02	83.65
3	Glass	16.40	6.10	-	93.90
4	Glass with lead (CRT)	2.00	100.00	-	-
7	Rechargeable battery (from notebook computer)	20.83	8.00	-	92.00
8	Rechargeable battery (from mobile phone)	7.00	52.38	-	47.62
10	Mixture of different types of materials	7.50	100.00	-	-

Residues from recycling process per month

Type of Residue	Quantity(kg/Month)	Way of Disposal	Entity that Accepts the Residues
Cover	4	Sell	Second-hand Shop
Plastic	3	Sell	Plastic Smelter

2.6 Environmental problems due to reuse/recycling and disposal of used EEE

Problems related to E-waste in Thailand may be directly and indirectly due to E-waste. In cases where there was an illegal dumping and people inhaled odor of hazardous waste and open burning of the waste. These were cases directly due to WEEE. In another case where electronic factory released hazardous waste into ground and caused harmful environment and impacted to human health. This is considered as indirect effect from WEEE.

The Case of Circuit Board (Matichon Newspapers, 13 April 2003)

People in the community Pah-daeng, Tambol Tab-kwang, Amphur Kaeng-koy, Saraburi Province protested to the mayor of Tab-kwang due to smell like insecticide as a result of E-waste illegally dumped by an electronic company. If the people inhale, they will be head-ache and dizzy. The mayor assigned the city clerk to investigate and found hazardous waste of circuit board. The company was officially notices to remove the waste out within 15 days otherwise legal conduct will be in force.

The Case of liquid waste from electronic factory (Siam-rath Newspapers, 7 November 2005)

The Muang-chum people reside in Tambol Klong-krachang, Amphur Sri-tep, Petchaboon Province, about 140 altogether, led by member of local administrative office, protested at the Petchaboon City Hall about heaping coal of fire on their heads. After the Chou Company was established and dumped chemical waste in the area of Tambol Klong-krachang, the people wanted the Governor and the Senators sought for urgent assistance. The 191 affected people were suffered from respiratory disease, sore throat, chest pain, and interrupted respiration, when they smelt the hazardous waste odor. The leader said the factory was established 4-5 years ago on more than 100 rai of land. The factory executive took public opinions to get a list of supporters for factory permission, and said to be an electronic dismantling plant. Later, a truckload of liquid waste was dumped in a big and deep hole, in addition to burning of electronic parts. Whenever the liquid waste was dumped, the odor would be smelt. The people who inhaled the odor would be headache, dizzy, and admitted. So far, 10 were severely admitted. The natural and environment official said the complaints were often

fined and under investigation. At preliminary information would be collected and examined for further implementation.

The Case of burning electric wire (Daily News Newspapers, 20 June 2005, and 3 November 2005)

The Suanluang citizen fined complaints via newspaper, but did not work, wanted to complain to the Prime Minister. As a factory collected used electric wire and transformers, located on Suanluang Rd., Amphur Kra-toom-ban, Smuthsakorn Province, burned electric wire for copper. Black smoke was created and very bad odor was given off. IF it was protested, electrical wire would be burned at night. The odor would be smelt strong even the windows closed. The factory owner did not pay attention to what has been done realizing that the odor was harmful to health. The factory inspector should have put into an end. The person who complained asked for assistance from media and the Prime Minister, because the Governor, the Senator, the local administrator office.

The Case of Lumphun Industrial Estate

Electronic factory workers' health was affected and reported in the Seminar (Renu Sukharon, 2006)

- On 5 November 1993, the plaintiff filed a petition for subsidies to the Lumphun Social Security Office. She was medically certified from the Chiangmai McCormic Hospital the she was ill due to alumina poison
- On 18 February 1994, the plaintiff appealed and the Committee on Compensation Funds removed it.
- On 20 April 1994, the Rajvithi's Doctor issued the medical certification indicating that the plaintiff was suffered from heavy metal poison, alumina poison, and solvent poison, altogether.
- 28 October 1996, the judgment of the court was dismissed the case, but the plaintiff deserved compensation a little more than 6,000 Baht for one year, following the Ministry of Interior on Determination of Compensation. The lawsuit requested six million Baht.

When the problems existing related to E-waste and risk generating to health, the decision made seemed to be not severely enough to stop the case. This is because there are no legal requirements about what should be particularly implemented for manufacturers, what the threshold values for judgment when the case is in court, and most of the cases have no reliable and accurate information to plea the case. Systematic implementations are required for local administrative officials, environmental officials, and legal officials to manifest the case to the public, avoid the case, and keep conforming to international standards.

The Case of used electrical equipment (Khao Sod Newspapers, 4 September 2001)

It is debatable whether the Cleansing Act supervised by the Ministry of Public Health is extended to E-waste discarding. It is actually perceived that only general waste is regulated by the Act. Some people, in Phitsanulok city municipality, who make living by modification of electrical products For example, television and computer monitor were modified to household furniture such as aquarium without knowing hazards from e-waste. Therefore, proper prevention and management were avoided. It was noticeable that the maker seemed to be pale from his outlook that may be well suffered from certain disease, for example, lead poison disease.

Figure: Displayer Modified from PC Monitor



from TV/PC Monitor



Backyard

Chapter 3

Identify the status of implementation of measures for environmentally sound management of used and waste EEE

3.1 Regulatory regimes and guidelines for used and waste EEE management (i.e., collection, transportation, dismantling, recycling, residues management, import/export)

► **Name:** Notification on import control of used electrical and electronic products, 2003

Target type: Notification permits importing electrical and electronic product only for sales, reused, repair/ recondition for the original purposes. The import for dismantling and recycling is considered under various conditions case by case. The import is only from the member countries of the Basel Agreement.

The product coverage includes radio receiver, video-tape player, video recorder, VCD payer, television receiver, air conditioner, washing machine, dryer, dry cleaning machine, electric ice cooker, electric water boiler, microwave oven, electric oven, electric fan, cooling water machine, hair dryer, electric iron, electric alarm, compressor, calculator, electric typewriter, copy machine, telephone, fax machine, telegram receiver, mobile phone, computer and accessories.

Legal requirements: Criteria of the conditions for importing control are as follows.

- The service years have been less than or equal to 2 years.
- The products have been certified by the TISI standards.
- The products have been certified by the manufacturers.
- The products are economically valuable.
- The quantity is appropriate for the factory capacity.

In repairing/ reconditioning and dismantling/ recycling, waste will be imported to manage in a factory permitted by the DIW. If there is a waste leftover from processing, it will be returned to the original country for treatment or treated at the factory permitted from the DIW with documentation.

Competent authorities: Department of Industrial Works, Customs Department

► **Name:** Notification of the Ministry of Industry on criteria for permission of factory types 105 and 106, 2002

Target type:

- Factory type 105 is a factory to separate or landfill waste or unused materials defined in the other notifications of the Ministry.

- Factory type 105 is a factory to landfill waste or unused materials as a result of industrial processes.

- Factory type 106 is a factory to recycle unused industrial products or industrial waste.

Legal requirements: Study and preventive measures and impact solutions to environmental quality or report on environmental impact assessment

Competent authorities: Department of Industrial Works, Office of Environmental Policy and Planning

► **Name:** Notification of the Ministry of Industry on prohibition of household refrigerator producers using CFC in production, 1992

Target type: Household refrigerator producers

Legal requirements: Using CFC in production

Competent authorities: Department of Industrial Works, Pollution Control Department

► **Name:** The Enhancement and Conservation of the National Environmental Quality Act 1992

Target type: The Act prevents deterioration of environmental quality, e.g., polluted soil, polluted water, polluted air, forestry, rivers that are destroyed as a result of population increase, improper utilization of resources, and industry. The Act encourages the public and the private sector to participate in environmental quality promotion and conservation. It defines functions of the government, public enterprise, and local government, and defines implementation direction in which no offices are directly responsible. It also defines pollution control measures with managing of air pollution treatment systems, water pollution treatment systems, sewage treatment systems, and tools or equipment to resolve the pollution problems. In addition, responsibilities of parties related to pollutants and the use of environmental funds are also defined.

Legal requirements: Enforcement of the Act lays down the environmental policies, formulation of environmental quality standards, planning of environmental quality management, promulgation of conservation areas and environmental coverage areas, and the need for mega projects to report environmental impact analyses, etc.

For measures related to environmental promotion of factories, the Act requires factory owners or source of polluters to be responsible for waste treatment systems of air, water, or others, that entitle to government support and promotion privileges on import tax reduction of waste treatment equipment and foreign consultants or experts for quality control of installation or implementation of waste treatment systems.

The Act requires the establishment of Environmental Funds (Article 22) for activity expenditures specified in the Article 23. This includes waste treatment systems invested and implemented by government or local government offices, or lent by local government of federal enterprises that need waste treatment systems, or lent by the private sector that is also required to manage waste treatment systems or individuals permitted to operate as subcontractors for waste treatment services. Supporting and financing businesses related to environmental promotion and conservation are limited by Funding Committee approval and agreed to by the National Environment Board.

The Article 52 stipulates that the Pollution Control Committee proposes action plans and recommends amendments or revisions of related laws in controlling, preventing, reducing, or treating pollution, and recommends measures related to tax promotion and private investment in pollution control and promotion of environmental conservation, and recommends service fees of overall waste treatment systems.

Competent authorities: Ministry of Natural Resources and Environment, Ministry of Finance, Ministry of Industry

► **Name:** Industrial Product Standards Act, 1968

Target type: This Act is a tool for controlling industrial products complying with the standards and permitting import of products complying with the standards.

Legal requirements: This Act is used for selection of products complying with safety standards to be permitted to be imported or sold in the country. Persons allowed to use labels of standards must produce products complying with standards or import standardized products. Industrial standards labels are to be placed on the products. The persons who are not permitted are strictly prohibited to use labels of standards. Provision that no-one imitates labels of standards which are fraudulent is also in force.

Competent authorities: Thai Industrial Standards Institute

3.2 Management status of WEEE considered as hazardous wastes

WEEE defined as hazardous waste

1. Refrigerators
2. Television receivers
3. Radio receivers
4. Video players
5. DVD players
6. VCD players
7. Cassette, record, disc players
8. Air conditioners
9. Washing machines
10. Dryers
11. Dry cleaning machines
12. Rice cookers
13. Electric water heaters
14. Microwave ovens
15. Ovens
16. Telephone sets
17. Facsimile machines
18. Radio telephony or telegraphy
19. Electronic calculators

20. Typewriters
21. Photocopying apparatus
22. Cellular phones
23. Automatic data processing machine including monitors, printers, and scanners
24. Fans
25. Coolers
26. Hair dryers
27. Electric irons
28. Alarms
29. Air conditioning compressors

Criteria for identification

- Importing for sales or reuse must meet the following criteria.
 - Equipment condition is as the original production and not older than 5 years from production
 - Standards of the complied product are no less than Thailand's industrial standards
 - Certified within six months before importing by producer or agency acceptable to the Department of Industrial Works
- Importing for repair or refurbishment must meet the following criteria.
 - If the equipment was sent to be repaired or refurbished overseas and brought into the Kingdom, a re-importation certificate or export entry must be submitted for permission.
 - If the equipment was temporarily imported to be repaired or refurbished in the Kingdom, a re-exportation intention must be filed with the DIW, including broken parts. The exporter must submit the export document within 30 days from export. Broken parts may be left locally if the equipment was produced in Thailand, but a management plan of the parts must be shown to the DIW.
- Importing for reassemble or refurbishment of manufacturing purposes must meet the following criteria.
 - Economically valuable
 - Imported quantity corresponded to the factory capacity
- Importing for separation or recycling must meet the following criteria.
 - Economically valuable
 - Imported quantity corresponded to the factory capacity
 - Imported from a member country of the Basel Convention Agreement

Legal basis

- Hazardous Substances Act, B.E. 2535, enforces hazardous substances type 3 following the Ministry of Industry Notification on List of Hazardous Substances (Version II), B.E. 2547, that corresponds to the Annex of the Basel Convention and requires importer be permitted by the DIW
- The DIW Notification on import of chemical wastes as hazardous substances into the Kingdom, B.E. 2538
- List of the hazardous substances that partially corresponds to those appears in the Annexes of the Basel Convention Agreement
- Wastes or residues or parts of electrical and electronic equipment that is composed of any of the following
 - Capacitor or other battery including material or substance on List A
 - Electric switch partially functioned by mercury
 - Glass or cullet from cathode ray including activated glass
 - Capacitor contaminated by PCB substances
 - Parts contaminated by substances in the Annex I at hazardous quantity under the Annex III

3.3 Management status of import of WEEE

Type of WEEE required the DIW permitting for importation

1. Refrigerators
2. Television receivers
3. Radio receivers

4. Video players
5. DVD players
6. VCD players
7. Cassette, record, disc players
8. Air conditioners
9. Washing machines
10. Dryers
11. Dry cleaning machines
12. Rice cookers
13. Electric water heaters
14. Microwave ovens
15. Ovens
16. Telephone sets
17. Facsimile machines
18. Radio telephony or telegraphy
19. Electronic calculators
20. Typewriters
21. Photocopying apparatus
22. Cellular phones
23. Automatic data processing machine including monitors, printers, and scanners
24. Fans
25. Coolers
26. Hair dryers
27. Electric irons
28. Alarms
29. Air conditioning compressors

Procedures for obtaining the DIW permit is the same as the one required for importing hazardous substances type 3

- Apply for registration of hazardous substances
- Accompany a permission certificate that is allowed by official
- A storage of hazardous substances is required by the Hazardous Substances Act and the Ministry Notification
- Submit the form (Vor-or/ Or-kor 6) to official prior to importing
- Submit the form (Vor-or/ Or-kor 7) (<http://www2.diw.go.th/haz/vook7/login.asp>) to official in case of the substance is listed in the Annex of the MOI Notification on manifestation of producer, importer, exporter, or possessor of the hazardous substances required authorization by the DIW, B.E. 2537
- Required document, e.g., copy of B/L and Invoice = 1 copy
- Vor-or/ Or-kor 6 (วอ.ร. ๖) Form = 2 copies
- Copy of Registration Form (if available) = 1 copy
- Copy of Permission Certificate = 1 copy
- Effective duration of permission certificate is 3 and 5 years and existing conditions attached to for certain items

3.4 Actions taken by manufactures

Products: Mobile phone, batteries, and accessories

Started Date of the Project: 23 September 2005

Companies:

- CAT Telecom signed an MOU on management of waste batteries, anticipating as take-back centers of batteries and mobile phones using take-back boxes placed at the 130 CAT Telecom Customer Service Offices located nationwide since October 2005
- Hutch, Advance Info Service, GST World, and Digital Phone take back waste mobile phone batteries at all branches.
- Total Access Communication (DTAC) initiated "Batteries for Life" Project by taking back waste batteries in battery take-back box placed in front of Customer Service

Offices, and 400 DTAC shops across the country. DTAC also distributed the boxes to the Bank of Thailand and Chiangmai University. Waste batteries were collected 3 tons per annum in 2002 and 2003

- Nokia (Thailand) involves in the take-back campaign assigning take-back points specifically for waste Nokia mobile Phones, batteries, and accessories for environmentally sound treatment. Nokia is solely responsible for costs of recycling and disposal.
- Concrete Products and Aggregate Company initiated the so-called "CPAC & DTAC cooperation in environmental preservation" project to take-back waste batteries and accessories from the workers and the public and delivers to DTAC.
- MBK Plc implements MBK business center also involves in take-back mobile phone batteries.
- Nomchit Incorporation Co involves in the hazardous waste batteries project with the following activities--walking campaign, guest lecture, refund coupons, exhibition, and fashion shows on catwalk.

Products: Fluorescent lamps

Started Date of the Project: 29 September 2006

Companies:

Thai Toshiba Lighting Co and Philips Electronics (Thailand) Co take back waste fluorescent lamps from 13 banks, 33 department stores, 12 hospitals, 22 hotels, 39 other organizations, 25 schools and universities, 22 government offices, and 104 factories.

Chapter 4

Estimate amount of used and waste EEE generated

4.1 Amount of brand-new EEE domestically produced/shipped and imported/exported

Yr	Brand-new TV				Used Import ²	Domestic Shipment ⁵	Used Export ²
	Production ⁴	New Import ¹	New Export ¹	New Domestic Shipment ³			
2001	9,709,418	144,945	8,343,910	1,510,453	20,840	1,531,293	17,044
2002	12,352,627	386,260	11,047,180	1,691,707	11,983	1,703,690	20,052
2003	12,628,469	369,392	11,103,149	1,894,712	29,236	1,923,948	23,590
2004	14,001,476	624,644	12,512,053	2,114,067	22,870	2,136,937	27,753
2005	14,404,712	641,709	12,583,621	2,462,800	31,624	2,494,424	32,651
2006	11,960,928	765,988	10,068,671	2,658,245	102,083	2,760,328	59,944

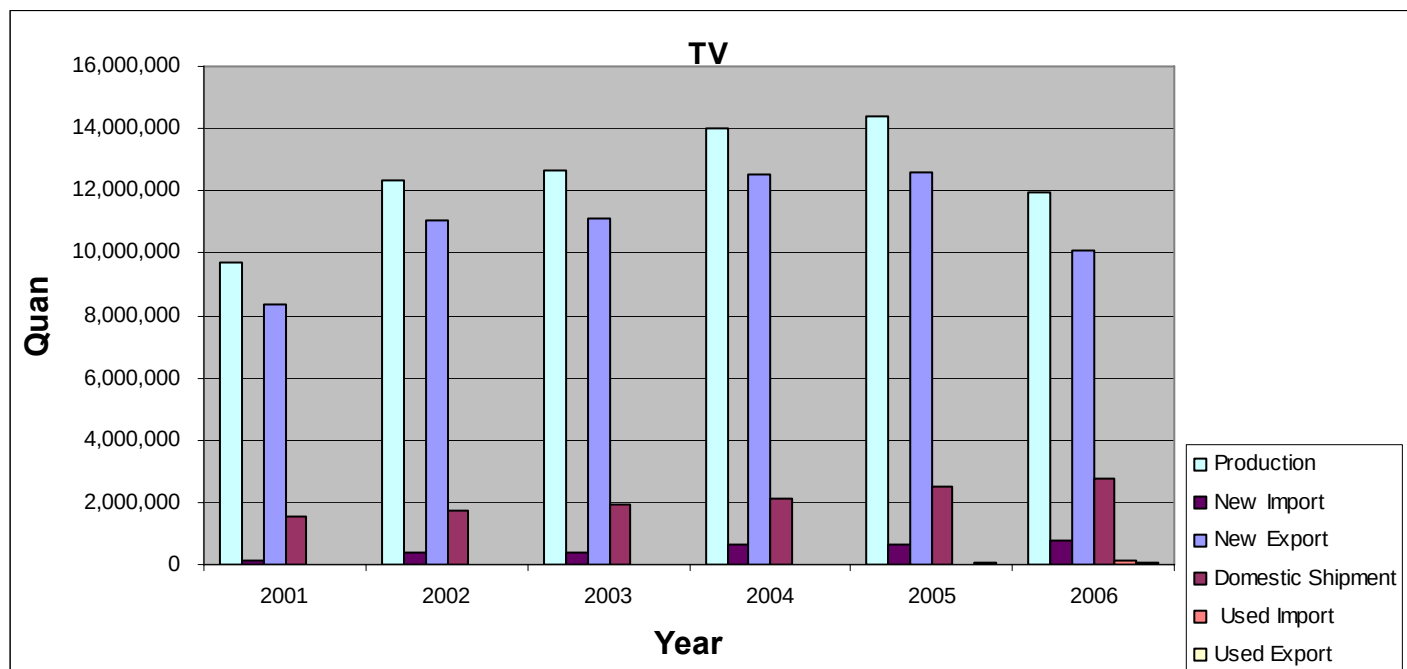
Source: ¹ Customs Department

Remarks: ² Unit price is less than 500 Baht ;

³ From Office of Industrial Economics, GFK Marketing;

⁴ = New Export + New Domestic Shipment – New Import;

⁵ = New Domestic Shipment + Used Import



Yr	Brand-new PC				Used Import ²	Domestic Shipment ⁵	Used Export ²
	Production ⁴	New Import ¹	New Export ¹	New Domestic Shipment ³			
2001	707,790	234,098	3,364	938,524	199,112	1,137,636	3,132
2002	996,484	217,231	12,405	1,201,310	83,348	1,284,658	18,188
2003	1,293,352	251,339	7,014	1,537,677	52,221	1,589,898	18,553
2004	1,645,774	325,722	23,156	1,948,340	74,928	2,023,268	22,664
2005	2,159,720	450,060	7,956	2,601,824	53,754	2,655,578	18,481
2006	2,804,956	476,334	12,223	3,269,067	49,574	3,318,641	20,476

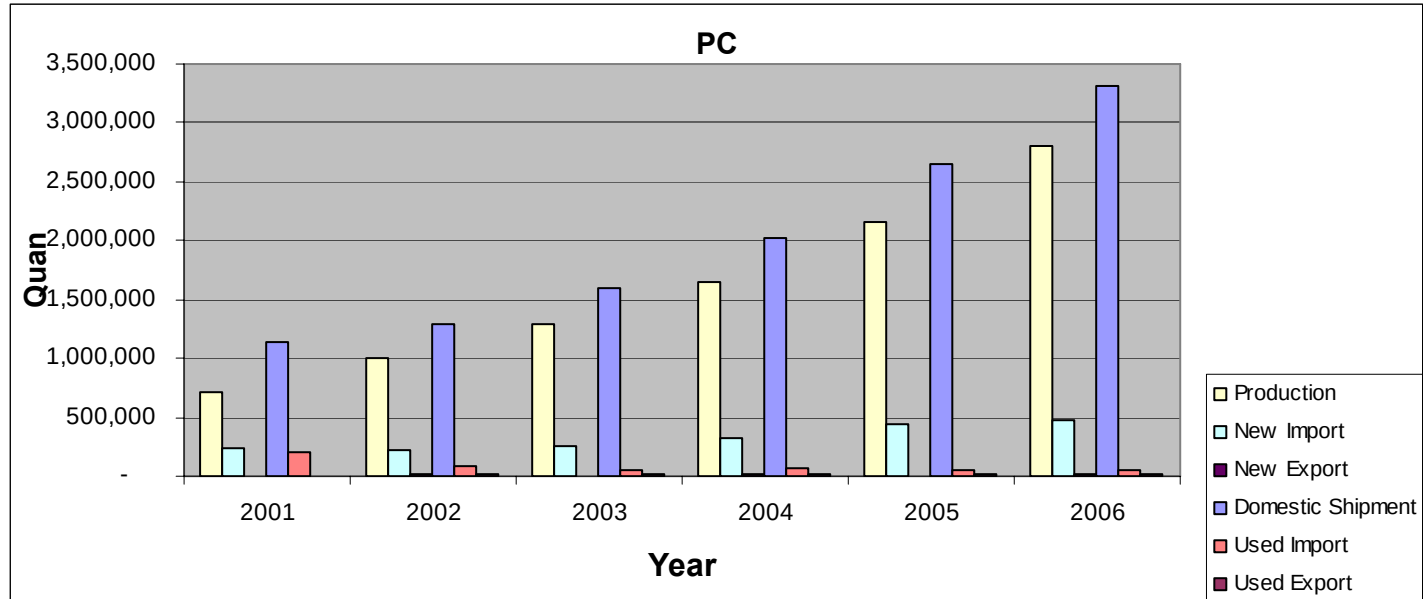
Source: ¹Customs Department

Remarks: ²Unit price is less than 10,000 Baht

³ From Office of Industrial Economics, GFK Marketing;

⁴ = New Export + New Domestic Shipment – New Import;

⁵ = New Domestic Shipment + Used Import



Yr	Brand-new RF				Used Import ²	Domestic Shipment ⁵	Used Export ²
	Production ⁴	Import ¹	Export ¹	New Domestic Shipment ³			
2001	2,987,024	48,192	2,041,803	993,413	-	993,413	-
2002	3,149,350	27,456	2,133,722	1,043,084	1,255	1,044,339	1,274
2003	3,535,349	66,040	2,506,151	1,095,238	3,415	1,098,653	9,461
2004	3,962,918	85,702	2,898,620	1,150,000	9,501	1,159,501	9,647
2005	4,706,837	59,632	3,556,469	1,210,000	7,891	1,217,891	7,353
2006	4,943,929	46,093	3,768,922	1,221,100	3,600	1,224,700	11,313

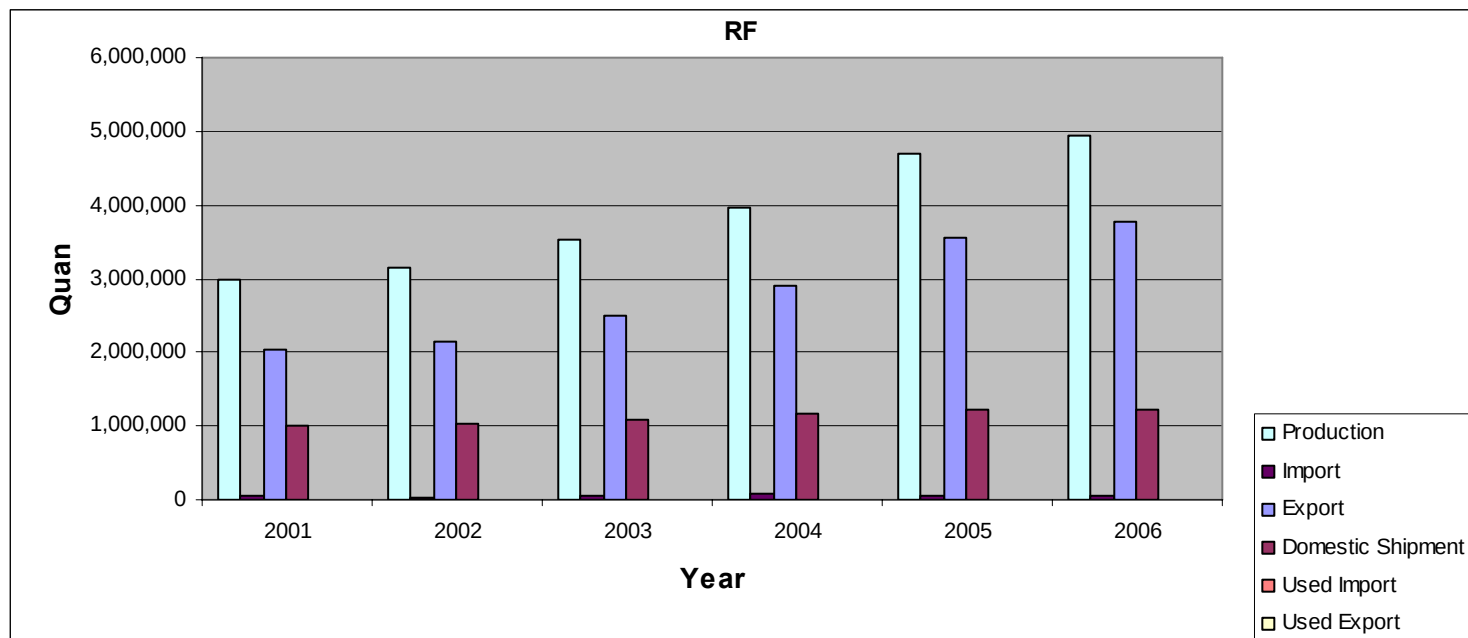
Source: ¹ Customs Department

Remarks: ² Unit price is less than 2,000 Baht

³ From Office of Industrial Economics, GFK Marketing;

⁴ = New Export + New Domestic Shipment – New Import;

⁵ = New Domestic Shipment + Used Import



Yr	Brand-new AC				Used Import ²	Domestic Shipment ⁵	Used Export ²
	Production ⁴	Import ¹	Export ¹	New Domestic Shipment ³			
2001	7,621,421	120,398	7,500,116	241,703	-	241,703	1,328
2002	6,294,903	133,365	6,126,139	302,129	3,714	305,843	1,563
2003	8,087,499	89,931	7,757,573	419,857	5,535	425,392	1,839
2004	9,224,654	328,319	9,032,710	520,263	13,285	533,548	2,163
2005	12,444,075	322,405	12,142,164	624,316	17,706	642,022	2,545
2006	16,081,664	319,485	15,651,970	749,179	36,384	785,563	2,994

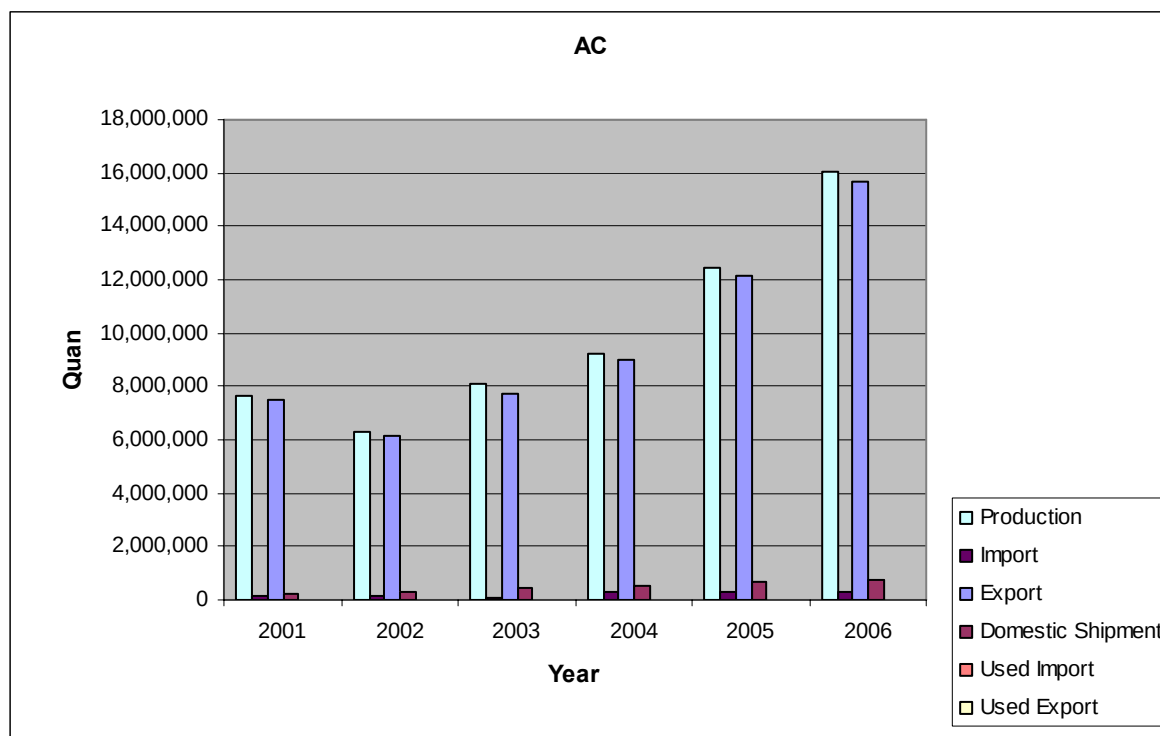
Source: ¹ Customs Department

Remarks: ² Unit price is less than 2,000 Baht

³ From Office of Industrial Economics, GFK Marketing;

⁴ = New Export + New Domestic Shipment – New Import;

⁵ = New Domestic Shipment + Used Import



Yr	Brand-new WM				Used Import ²	Domestic Shipment ⁵	Used Export ²
	Production ⁴	Import ¹	Export ¹	New Domestic Shipment ³			
2001	1,722,322	397,185	1,478,428	641,078	852	641,930	5,299
2002	2,273,197	325,970	1,861,927	737,240	544	737,784	6,234
2003	2,629,109	977,740	2,759,023	847,826	2,830	850,656	7,334
2004	3,679,854	567,790	3,272,644	975,000	38,420	1,013,420	8,628
2005	4,919,897	313,278	4,178,175	1,055,000	19,366	1,074,366	10,151
2006	5,305,670	366,209	4,596,293	1,075,586	12,116	1,087,702	11,942

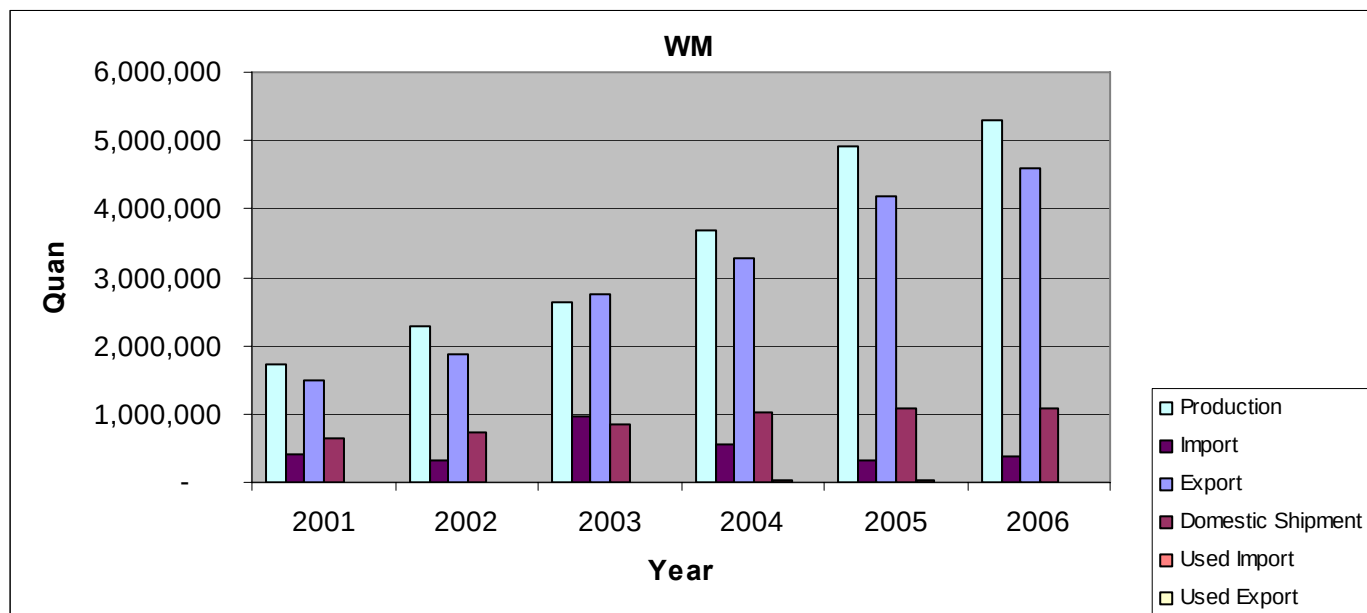
Source: ¹ Customs Department

Remarks: ² Unit price is less than 1,500 Baht

³ From Office of Industrial Economics, GFK Marketing;

⁴ = New Export + New Domestic Shipment – New Import;

⁵ = New Domestic Shipment + Used Import



Yr	Brand-new MP				Used Import ²	Domestic Shipment ⁵	Used Export ²
	Production ⁴	Import ¹	Export ¹	New Domestic Shipment ³			
2001	9,856,832	6,828,678	2,981,510	13,704,000	-	13,704,000	-
2002	10,393,675	9,501,166	2,764,841	17,130,000	14,775	17,144,775	2,769
2003	14,552,462	8,376,324	1,198,786	21,730,000	19,688	21,749,688	41,478
2004	21,795,756	8,226,736	1,342,492	28,680,000	543,910	29,223,910	10,604
2005	26,577,911	10,194,015	1,731,926	35,040,000	1,084,843	36,124,843	38,325
2006	30,784,083	12,071,672	1,455,755	41,400,000	390,648	41,790,648	14,817

Source: ¹ Customs Department

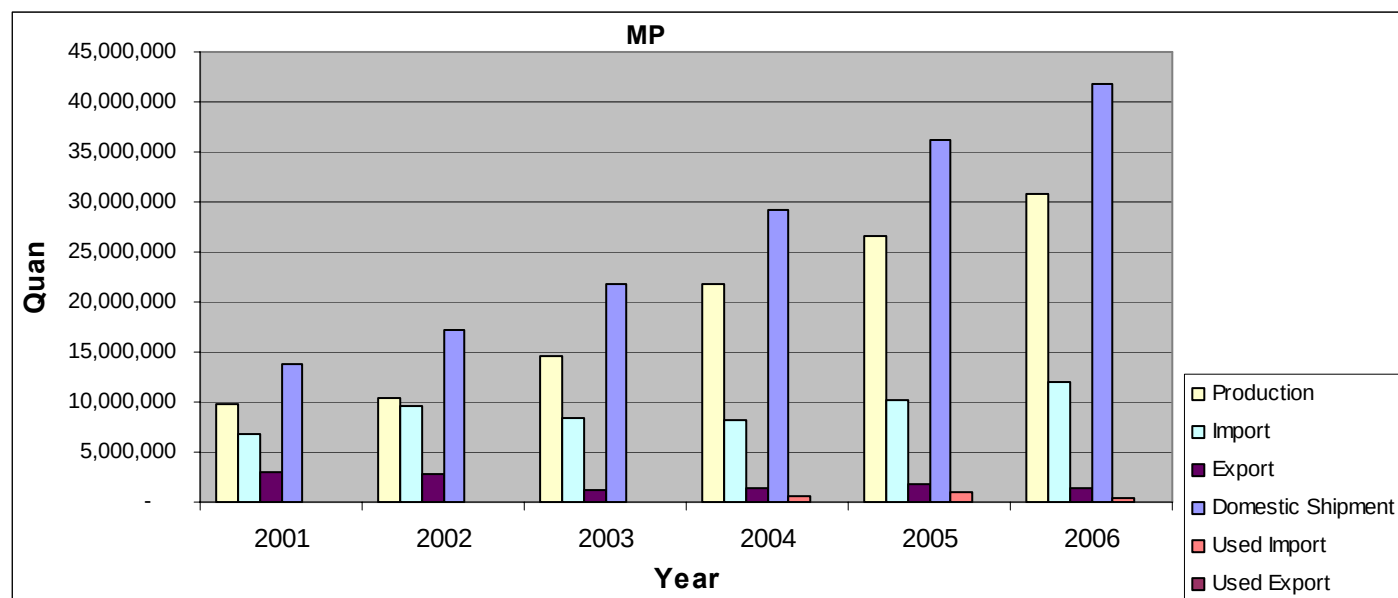
Remarks: ² Unit price is less than 300 Baht

³ From Office of Industrial Economics, GFK Marketing;

⁴ = New Export + New Domestic Shipment – New Import;

⁵ = New Domestic Shipment + Used Import

Yr	Export Destination (in unit)		
	Cambodia	Lao	Mynmar
2004	241	39	253
2005	164,670	9,231	52
2006	12,315	15,552	1,035



4.2 Purchase / use pattern

Annex A		
Monthly Household Income Level	#	%
High (> 50,000 Baht)	77	18.4
Medium (20,000 - 50,000 Baht)	128	30.5
Low (<20,000 Baht)	214	51.1
	419	100.0
Annex B		
Hotel/ Apartment		
Size	#	%
Small (Room<=100)	201	48.0
Medium (100 < Room < 300)	93	22.2
Large (Room > 300)	21	5.0
	315	100.0
Office		
Size	#	%
Small (Employee <=15)	344	82.1
Medium (16 < Employee < 30)	28	6.7
Large (Employee > 30)	21	5.0
	393	100.0

TV	Household Income Level				# of Hotel Rooms				# of Office Employees			
	H	M	L	Total	Small	Medium	Large	Total	Small	Medium	Large	Total
# units discarded during the past 5 years	21	35	32	88	1,128	1,019	1,240	3,387	32	3	13	48
# units currently possessed	250	284	368	902	10,360	17,856	10,117	38,333	304	108	232	644
PC	Household Income Level				# of Hotel Rooms				# of Office Employees			
	H	M	L	Total	Small	Medium	Large	Total	Small	Medium	Large	Total
# units discarded during the past 5 years	5	7	1	13	10	329	30	369	32	21	3	56
# units currently possessed	110	102	82	294	902	1707	1755	4364	695	251	292	1238
MP	Household Income Level				# of Hotel Rooms				# of Office Employees			
	H	M	L	Total	Small	Medium	Large	Total	Small	Medium	Large	Total
# units discarded during the past 5 years	98	117	52	267	0	0	0	0	27	0	0	27
# units currently possessed	312	385	386	1083	305	411	171	887	242	27	93	362
RF	Household Income Level				# of Hotel Rooms				# of Office Employees			
	H	M	L	Total	Small	Medium	Large	Total	Small	Medium	Large	Total
# units discarded during the past 5 years	8	21	20	49	480	523	100	1103	20	0	1	21
# units currently possessed	134	162	255	551	8257	16882	10575	35714	410	50	212	672

	Household Income Level				# of Hotel Rooms				# of Office Employees			
	H	M	L	Total	Small	Medium	Large	Total	Small	Medium	Large	Total
AC												
# units discarded during the past 5 years	14	4	1	19	556	341	2	899	16	0	6	22
# units currently possessed	174	103	48	325	8959	11102	6470	26531	728	194	319	1241
	Household Income Level				# of Hotel Rooms				# of Office Employees			
	H	M	L	Total	Small	Medium	Large	Total	Small	Medium	Large	Total
WM												
# units discarded during the past 5 years	9	18	1	28	20	6	0	26	10	0	1	11
# units currently possessed	94	118	177	389	386	345	108	839	148	14	8	170

Data from 419 households												
Type of TV	Household Income Level				# of Hotel Rooms				# of Office Employees			
	High	Medium	Low	Total	Small	Medium	Large	Total	Small	Medium	Large	Total
Color CRT	154	180	327	661	208	95	22	325	298	23	18	339
Mono-color CRT	4	2	9	15	1	0	0	1	1	1	0	2
LCD	40	36	14	90	9	3	2	14	44	6	5	55
Not applicable	1	1	15	17	10	5	2	17	10	0	0	10
				783				357				406
Type of PC	Household Income Level				# of Hotel Rooms				# of Office Employees			
	High	Medium	Low	Total	Small	Medium	Large	Total	Small	Medium	Large	Total
Desktop with CRT display	71	78	70	219	110	76	22	208	214	30	21	265
Desktop with LC display	16	14	6	36	47	19	3	69	54	5	8	67
Notebook	26	11	4	41	21	4	1	26	17	1	1	19
Not applicable	1	6	1	8	8	3	1	12	8	0	0	8
				304				315				359

Average use duration in years of discarded EEE

		Household Income Level			# of Hotel Rooms			# of Office Employees		
		High	Medium	Low	Small	Medium	Large	Small	Medium	Large
TV	new	8.9	6.9	8.3	11.6	12.6	9.7	6.5	-	12.5
	2 nd hand		10 (1 case)	7 (1 case)	-	-	-	-	-	-
		Household Income Level			# of Hotel Rooms			# of Office Employees		
		High	Medium	Low	Small	Medium	Large	Small	Medium	Large
PC	new	5	3.3	4.5	8.6	6.8	9	7.8	-	16 (1 case)
	2 nd hand	1.5 (2 cases)	-	-	-	-	-	8 (6 cases)	-	-
		Household Income Level			# of Hotel Rooms			# of Office Employees		
		High	Medium	Low	High	Medium	Low	High	Medium	Low
Mobile Phone	new	1.4	2.8	2.6	-	-	-	4 (2 cases)	-	-
	2 nd hand	2	-	1.8 (4 cases)	-	-	-	-	-	-

		Household Income Level			# of Hotel Rooms			# of Office Employees		
		High	Medium	Low	Small	Medium	Large	Small	Medium	Large
RF	new	8.5	7.8	9.6	12.2	13	-	9.3	-	13 (1 case)
	2 nd hand	-	-	-	-	-	-	-	-	-
		Household Income Level			# of Hotel Rooms			# of Office Employees		
		High	Medium	Low	Small	Medium	Large	Small	Medium	Large
A/C	new	10.3	4.7	-	12.3	12	-	8.7	-	9.7
	2 nd hand	-	-	-	-	-	-	-	-	-
		Household Income Level			# of Hotel Rooms			# of Office Employees		
		High	Medium	Low	Small	Medium	Large	Small	Medium	Large
W/M	new	7.6	6	4	14.3	-	13.5	7.3	-	-
	2 nd hand	-	6 (1 case)	-	-	-	-	-	-	-

Disposal Method (%)

TV	Household Income Level			Hotel (by # of Rooms)			Office (by # of Employee)		
	High	Medium	Low	Small	Medium	High	Small	Medium	High
Discard as municipal waste	3.08	2.77	3.67	0.89	0.97	7.69	3.77	-	-
Sell to the collector	21.03	24.51	30.51	54.46	45.63	50.00	23.48	28.00	21.43
Pay to collector	-	-	-	-	-	-	0.29	-	-
Give to friend/relatives	31.79	21.74	18.08	19.20	22.33	23.08	26.96	16.00	17.86
Bring to recycling station	-	0.40	0.28	0.45	2.91	3.85	2.03	8.00	17.86
Keep at home without and specific purpose	22.05	29.25	29.10	16.07	21.36	-	22.32	28.00	17.86
Keep at home and reuse for specific purpose	20.00	20.55	16.95	7.59	5.83	15.38	18.55	16.00	17.86
Other	2.05	0.79	1.41	1.34	0.97	-	2.61	4.00	7.14
Total	100	100	100	100	100	100	100	100	100

RF	Household Income Level			Hotel (by # of rooms)			Office (by # of Employee)		
	High	Medium	Low	Small	Medium	High	Small	Medium	High
Discard as municipal waste	0.77	7.27	2.85	1.43	-	-	5.31	-	14.29
Sell to the collector	49.23	31.52	37.80	58.10	52.69	54.55	31.56	34.62	47.62
Pay to collector	-	-	-	-	-	-	-	-	-
Give to friend/relatives	24.62	16.36	11.79	15.24	19.35	9.09	26.56	15.38	9.52
Bring to recycling station	-	0.61	0.81	0.48	3.23	4.55	3.13	3.85	4.76
Keep at home without and specific purpose	17.69	29.70	26.42	17.62	19.35	9.09	18.13	19.23	14.29
Keep at home and reuse for specific purpose	6.15	13.33	15.04	5.71	5.38	13.64	12.81	23.08	9.52
Other	1.54	1.21	5.28	1.43	-	9.09	2.50	3.85	-

WM	Household Income Level			Hotel (by # of rooms)			Office (by # of Employee)		
	High	Medium	Low	Small	Medium	High	Small	Medium	High
Discard as municipal waste	6.00	6.84	5.20	0.63	2.35	-	7.95	-	-
Sell to the collector	60.00	35.90	44.51	70.63	50.59	61.11	37.75	36.36	-
Pay to collector	-	-	-	-	1.18	-	-	-	-
Give to friend/relatives	11.00	17.95	12.72	10.63	15.29	16.67	21.19	45.45	-
Bring to recycling station	-	0.85	-	1.25	2.35	5.56	0.66	-	-
Keep at home without and specific purpose	14.00	22.22	25.43	11.88	18.82	5.56	11.26	-	33.33
Keep at home and reuse for specific purpose	8.00	11.97	9.83	4.38	7.06	11.11	19.21	18.18	33.33
Other	1.00	4.27	2.31	0.63	2.35	-	1.99	-	33.33

AC	Household Income Level			Hotel (by # of rooms)			Office (by # of Employee)		
	High	Medium	Low	Small	Medium	High	Small	Medium	High
Discard as municipal waste	4.48	2.38	4.44	0.47	2.06	5.56	5.18	-	6.90
Sell to the collector	77.61	40.48	48.89	65.26	56.70	55.56	34.30	45.16	48.28
Pay to collector	-	-	-	-	1.03	-	0.32	-	-
Give to friend/relatives	7.46	13.10	4.44	13.15	12.37	11.11	14.24	9.68	10.34
Bring to recycling station	-	-	-	0.47	2.06	5.56	3.24	3.23	10.34
Keep at home without and specific purpose	3.73	35.71	28.89	12.21	17.53	11.11	16.50	19.35	3.45
Keep at home and reuse for specific purpose	5.97	7.14	11.11	6.57	7.22	11.11	22.33	9.68	13.79
Other	0.75	1.19	2.22	1.88	1.03	-	3.88	12.90	6.90

MP	Household Income Level			Hotel (by # of rooms)			Office (by # of Employee)		
	High	Medium	Low	Small	Medium	High	Small	Medium	High
Discard as municipal waste	2.96	2.39	2.61	-	-	-	2.22	10.00	-
Sell to the collector	36.45	37.54	36.81	64.34	52.86	45.00	40.74	40.00	20.00
Pay to collector	-	-	-	-	1.43	-	0.74	-	-
Give to friend/relatives	5.91	9.22	11.30	3.10	-	5.00	7.41	-	20.00
Bring to recycling station	2.46	1.37	0.29	0.78	-	25.00	2.96	-	10.00
Keep at home without and specific purpose	38.42	39.25	36.52	16.28	37.14	10.00	31.85	30.00	10.00
Keep at home and reuse for specific purpose	11.33	6.48	6.38	14.73	8.57	15.00	11.11	20.00	40.00
Other	2.46	3.75	6.09	0.78	-	-	2.96	-	-

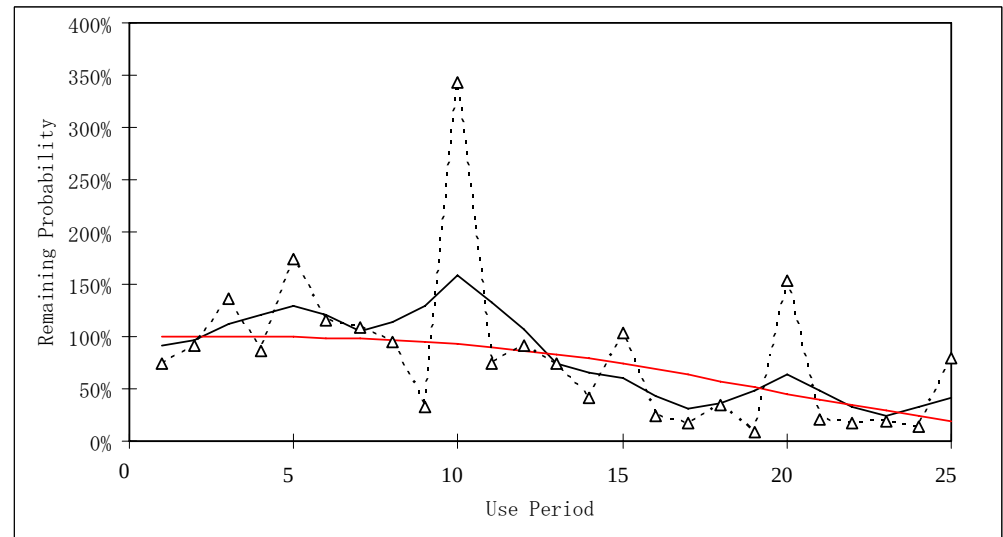
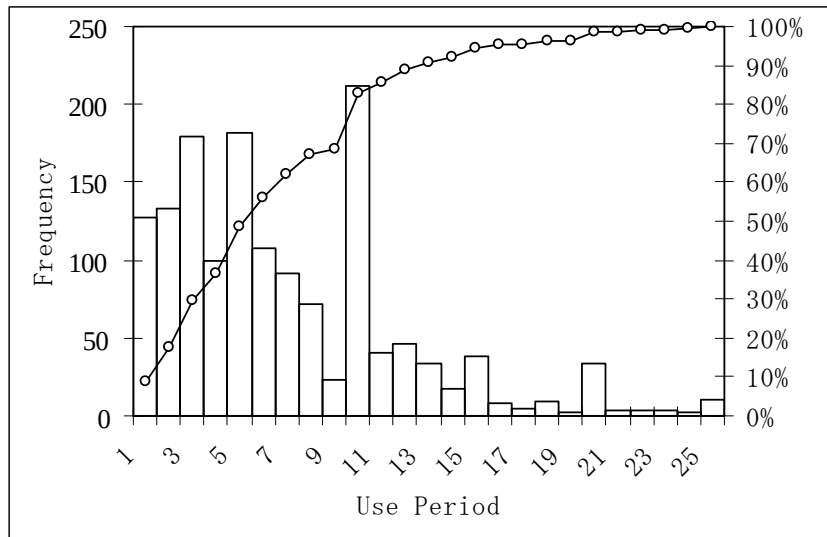
		Household Income Level			# of Hotel Rooms			# of Office Employees		
		High	Medium	Low	Small	Medium	Large	Small	Medium	Large
TV	% new	96.02	94.95	95.73	100	100	100	99.72	100	100
	% 2 nd Hand	3.98	5.05	4.27	-	-	-	0.28	-	-
	2 nd Hand /new	0.04	0.05	0.04	-	-	-	0.00	-	-
PC	% new	90.60	92.79	85.54	97.31	100	100	97.27	97.22	96.67
	% 2 nd Hand	9.40	7.21	14.46	2.69	-	-	2.73 (8 cases)	2.78 (1 case)	3.33 (1 case)
	2 nd Hand /new	0.10	0.08	0.17	0.03	-	-	0.03	0.03	0.03
Mobile Phone	% new	93.40	90.42	90.88	96.92	98.33	100	97.12	100	90
	% 2 nd Hand	6.60	9.58	9.12	3.08 (4 cases)	1.67	-	2.88 (4 cases)	-	10
	2 nd Hand /new	0.07	0.11	0.10	0.03	0.02	-	0.03	-	0.11
RF	% new	95.71	91.80	90.88	99.52	100	100	100	100	100
	% 2 nd Hand	4.29	8.20	9.12	0.48	-	-	-	-	-
	2 nd Hand /new	0.04	0.09	0.10	0.00	-	-	-	-	-
A/C	% new	95.71	90.82	90.38	100	100	100	99.36	100	100
	% 2 nd Hand	4.29	9.18	9.62	-	-	-	0.64	-	-
	2 nd Hand /new	0.04	0.10	0.11	-	-	-	0.01	-	-
W/M	% new	90.09	89.93	88.66	100	100	100	98.69	100	100
	% 2 nd Hand	9.91	10.07	11.34	-	-	-	1.31	-	-
	2 nd Hand /new	0.11	0.11	0.13	-	-	-	0.01	-	-

4.3 Amount of used EEE discarded at present and in future (Domestic sales are estimated to 10% decrease before 2000 and 10% increase after 2006.)

Television

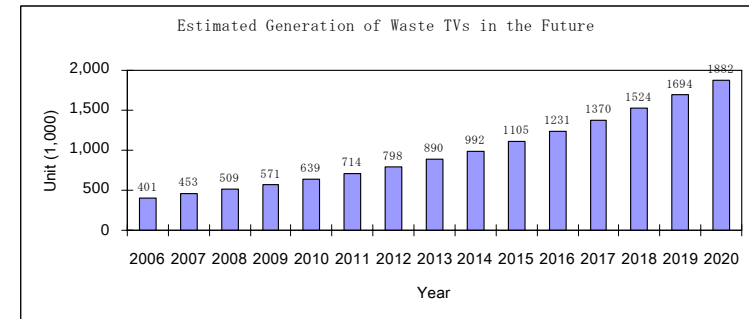
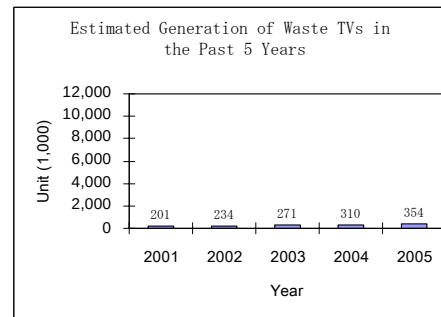
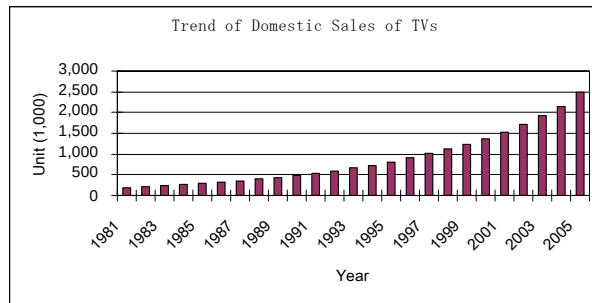
TV	Households & Offices										
Use Period (Years)	Frequency (A)	Accumulative %	Calendar Year	Domestic Sales (1,000) (B)	Adjustment of Sales (C)= (A/B)	Use Period (Years)	Smoothing of (C) using values in previous and following years	Resmoothing of (C) using values in previous and following years (D)	Standardization of (D) (E)	1- Weibull Accumulation	Standardization of (C) (F)
1	127	8.57%	2005	2,494	5.09%	1	5.66%	6.27%	92%	100%	74.53%
2	133	17.54%	2004	2,137	6.22%	2	6.87%	6.55%	96%	100%	91.10%
3	179	29.62%	2003	1,924	9.30%	3	7.13%	7.68%	112%	100%	136.19%
4	100	36.37%	2002	1,704	5.87%	4	9.02%	8.23%	120%	100%	85.92%
5	182	48.65%	2001	1,531	11.89%	5	8.53%	8.87%	130%	99%	173.98%
6	108	55.94%	2000	1,378	7.84%	6	9.05%	8.27%	121%	99%	114.71%
7	92	62.15%	1999	1,240	7.42%	7	7.23%	7.22%	106%	98%	108.57%
8	72	67.00%	1998	1,116	6.45%	8	5.39%	7.78%	114%	96%	94.41%
9	23	68.56%	1997	1,005	2.29%	9	10.73%	8.79%	129%	95%	33.51%
10	212	82.86%	1996	904	23.45%	10	10.26%	10.86%	159%	92%	343.20%
11	41	85.63%	1995	814	5.04%	11	11.59%	9.10%	133%	90%	73.75%
12	46	88.73%	1994	732	6.28%	12	5.44%	7.25%	106%	87%	91.94%
13	33	90.96%	1993	659	5.01%	13	4.72%	5.05%	74%	83%	73.28%
14	17	92.11%	1992	593	2.87%	14	5.00%	4.53%	66%	79%	41.95%
15	38	94.67%	1991	534	7.12%	15	3.88%	4.06%	59%	74%	104.18%
16	8	95.21%	1990	481	1.66%	16	3.31%	2.97%	43%	69%	24.37%
17	5	95.55%	1989	432	1.16%	17	1.71%	2.12%	31%	63%	16.92%
18	9	96.15%	1988	389	2.31%	18	1.35%	2.50%	37%	58%	33.85%
19	2	96.29%	1987	350	.57%	19	4.45%	3.32%	49%	52%	8.36%
20	33	98.52%	1986	315	10.47%	20	4.15%	4.32%	63%	46%	153.21%
21	4	98.79%	1985	284	1.41%	21	4.35%	3.27%	48%	40%	20.63%
22	3	98.99%	1984	255	1.17%	22	1.30%	2.27%	33%	34%	17.20%
23	3	99.19%	1983	230	1.31%	23	1.15%	1.66%	24%	29%	19.11%
24	2	99.33%	1982	207	.97%	24	2.55%	2.29%	34%	24%	14.15%
25 +	10	100.00%	1981	186	5.37%	25	3.17%	2.86%	42%	19%	78.63%
Total	1482				139%	Total	125%	6.83%			

r2	0.20795	9.9942
a	21.5	Sum of Squares
b	3.3	
c	0	
Average use period	19.3	
Standard Deviation	6.4	
Cumulative Volume	33%	



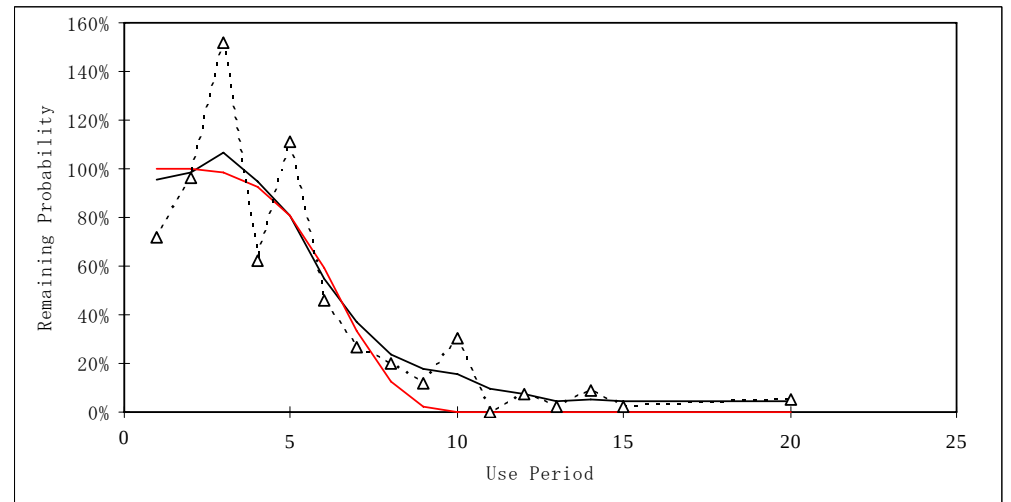
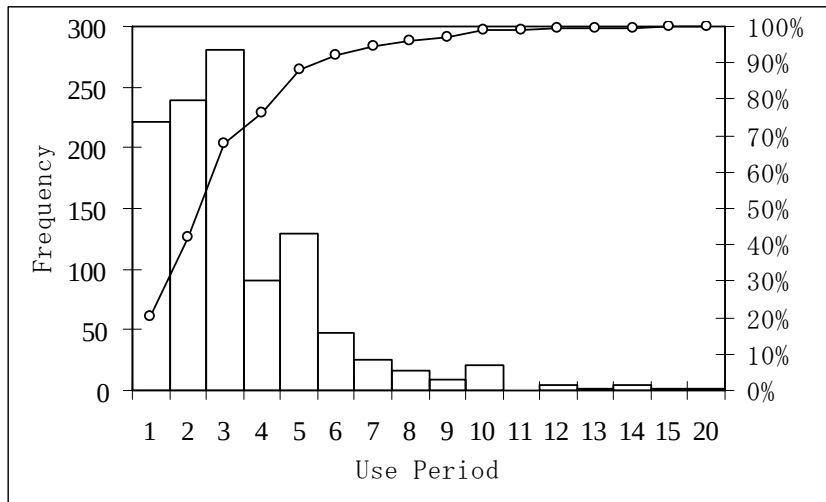
TV Households & OfficeParameter a 21.523
b 3.3228

Calendar Year	Domestic Sales (1,000)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
1981	186	0	0	0	1	1	1	2	3	4	4	5	6	7	8	9	10	11	11	11	11	11	10	10	9	8	7
1982	207		0		0	1	1	2	2	3	4	5	6	7	8	9	10	11	12	12	12	12	12	11	11	10	9
1983	230			0	0	0	1	1	2	3	3	4	6	7	8	9	10	11	12	13	13	14	14	13	13	12	11
1984	255				0	0	0	1	1	2	3	4	5	6	7	9	10	11	13	14	14	15	15	15	15	14	13
1985	284					0	0	0	1	1	2	3	4	5	7	8	10	11	13	14	15	16	17	17	17	16	16
1986	315						0	0	0	1	2	2	3	5	6	8	9	11	13	14	16	17	18	19	19	19	18
1987	350							0	0	1	1	2	3	4	5	7	8	10	12	14	16	17	19	20	21	21	21
1988	389								0	0	1	1	2	3	4	6	8	9	11	13	15	17	19	21	22	23	23
1989	432									0	0	1	1	2	3	5	6	8	10	13	15	17	19	21	23	24	25
1990	481										0	0	1	1	2	4	5	7	9	12	14	17	19	22	24	26	27
1991	534											0	0	1	2	3	4	6	8	10	13	16	18	21	24	26	28
1992	593												0	0	1	2	3	5	7	9	11	14	17	20	24	27	29
1993	659													0	0	1	2	3	5	7	10	13	16	19	23	26	29
1994	732														0	0	1	2	4	6	8	11	14	18	21	25	29
1995	814															0	1	1	3	4	6	9	12	16	20	24	28
1996	904																0	1	1	3	5	7	10	13	17	22	26
1997	1,005																	0	1	2	3	5	8	11	15	19	24
1998	1,116																		0	1	2	3	6	9	12	17	22
1999	1,240																			0	1	2	4	6	10	14	19
2000	1,378																				0	1	2	4	7	11	15
2001	1,531																					0	1	2	5	8	12
2002	1,704																						0	1	3	5	9
2003	1,924																							0	1	3	6
2004	2,137																								0	1	3
2005	2,494																									0	2
2006	2,760																										0
2007	3,036																										
2008	3,340																										
2009	3,674																										
2010	4,041																										
2011	4,446																										
2012	4,890																										
2013	5,379																										
2014	5,917																										
2015	6,509																										
2016	7,160																										
2017	7,876																										
2018	8,663																										
2019	9,529																										
Waste Generation		0	0	0	1	2	4	6	10	15	21	28	38	49	63	80	98	120	144	171	201	234	271	310	354	401	453



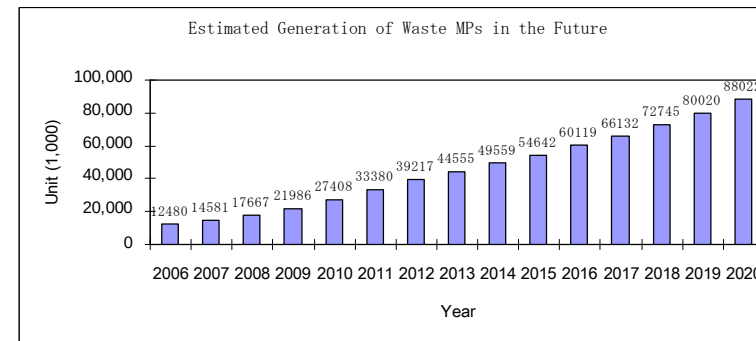
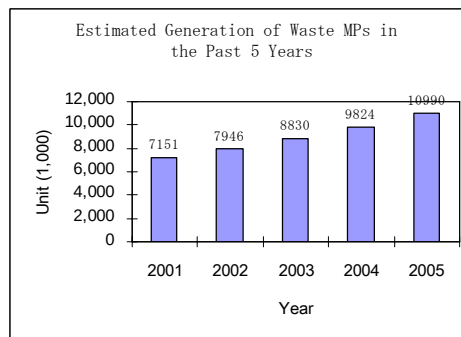
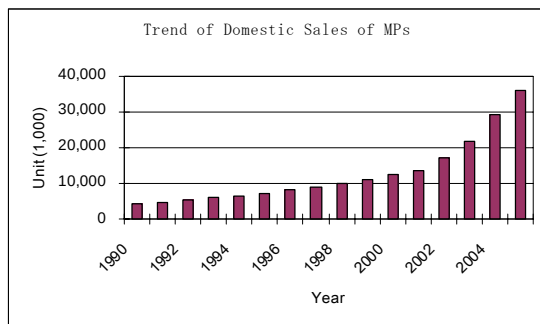
Mobile Phone

MP Households & Offices											
Use Period (Years)	Frequency (A)	Accumulative %	Calendar Year	Domestic Sales (1,000) (B)	Adjustment of Sales (C)= (A/B)	Use Period (Years)	Smoothing of (C) using values in previous and following years	Resmoothing of (C) using values in previous and following years (D)	Standardization of (D) (E)	1- Weibull Accumulation	Standardization of (C) (F)
1	221	20.22%	2005	36,125	.61%	1	.71%	0.81%	95%	100%	72.03%
2	239	42.09%	2004	29,224	.82%	2	.91%	0.83%	98%	100%	96.29%
3	281	67.80%	2003	21,750	1.29%	3	.88%	0.90%	106%	98%	152.12%
4	91	76.12%	2002	17,145	.53%	4	.92%	0.81%	95%	93%	62.49%
5	129	87.92%	2001	13,704	.94%	5	.62%	0.69%	81%	81%	110.83%
6	48	92.31%	2000	12,334	.39%	6	.52%	0.47%	55%	59%	45.82%
7	25	94.60%	1999	11,100	.23%	7	.26%	0.32%	37%	33%	26.52%
8	17	96.16%	1998	9,990	.17%	8	.17%	0.20%	24%	12%	20.04%
9	9	96.98%	1997	8,991	.10%	9	.18%	0.15%	18%	2%	11.79%
10	21	98.90%	1996	8,092	.26%	10	.12%	0.13%	16%	0%	30.56%
11	0	98.90%	1995	7,283	.00%	11	.11%	0.08%	10%	0%	.00%
12	4	99.27%	1994	6,555	.06%	12	.03%	0.06%	7%	0%	7.19%
13	1	99.36%	1993	5,899	.02%	13	.05%	0.04%	5%	0%	2.00%
14	4	99.73%	1992	5,309	.08%	14	.04%	0.05%	5%	0%	8.87%
15	1	99.82%	1991	4,778	.02%	15	.05%	0.04%	5%	0%	2.46%
20	2	100.00%	1990	4,300	.05%	20	.03%	0.04%	5%	0%	5.48%
Total	1093				6%	Total	6%	0.85%			
										r2	0.79238
										a	6.9
										b	4.8
										c	0
										Sum of Squares	
											0.7011



MP Households & Office parameter a 6.86
b 4.84

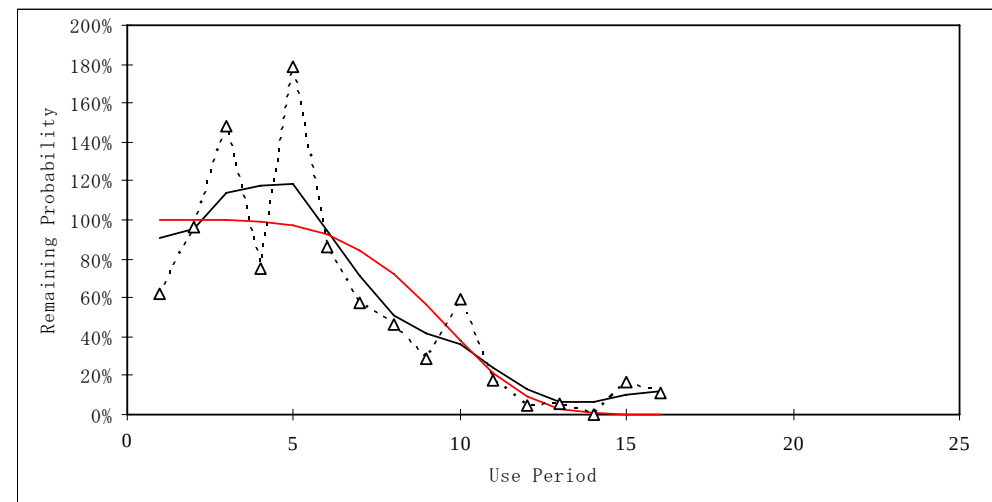
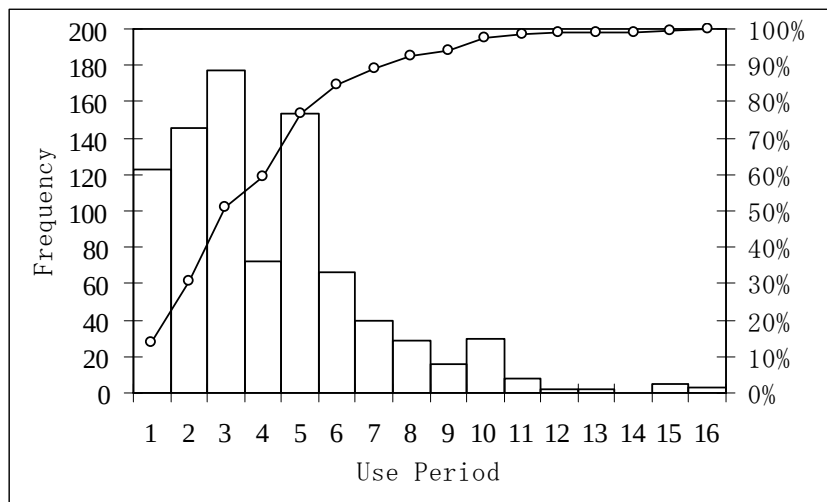
Calendar Year	Domestic Sales (1,000)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1990	4,300										2	27	124	355	724	1073	1088	670	210	27	1	0	0	0	0	0	0	0	0	0	0
1991	4,778											2	30	138	394	804	1193	1209	744	234	30	1	0	0	0	0	0	0	0	0	0
1992	5,309												2	33	153	438	894	1325	1343	827	260	33	1	0	0	0	0	0	0	0	0
1993	5,899													3	37	170	486	993	1472	1493	919	289	37	1	0	0	0	0	0	0	0
1994	6,555														3	41	189	540	1103	1636	1658	1021	321	41	2	0	0	0	0	0	0
1995	7,283															3	45	210	600	1226	1818	1843	1134	356	45	2	0	0	0	0	0
1996	8,092																4	50	234	667	1362	2020	2048	1260	396	50	2	0	0	0	0
1997	8,991																	4	56	260	741	1513	2244	2275	1400	440	56	2	0	0	0
1998	9,990																		4	62	289	824	1681	2493	2528	1556	489	62	2	0	0
1999	11,100																			5	69	321	915	1868	2770	2809	1729	543	69	3	0
2000	12,334																				5	76	356	1017	2076	3078	3121	1921	603	77	3
2001	13,704																					6	85	396	1130	2306	3420	3467	2134	670	85
2002	17,145																						7	106	495	1414	2886	4279	4338	2670	839
2003	21,750																							9	135	628	1793	3661	5428	5503	3387
2004	29,224																								13	181	844	2409	4919	7293	7394
2005	36,125																									16	224	1044	2978	6080	9016
2006	41,791																										18	259	1207	3446	7034
2007	45,970																											20	285	1328	3790
2008	50,567																												22	313	1461
2009	55,623																													24	344
2010	61,186																														27
2011	67,304																														
2012	74,035																														
2013	81,438																														
2014	89,582																														
2015	98,540																														
2016	108,394																														
2017	119,234																														
2018	131,157																														
2019	144,273																														
Waste Generation		0	0	0	0	0	0	0	0	0	2	29	156	528	1311	2529	3899	5001	5768	6435	7151	7946	8830	9824	10990	12480	14581	17667	21986	27408	33380



Personal Computer

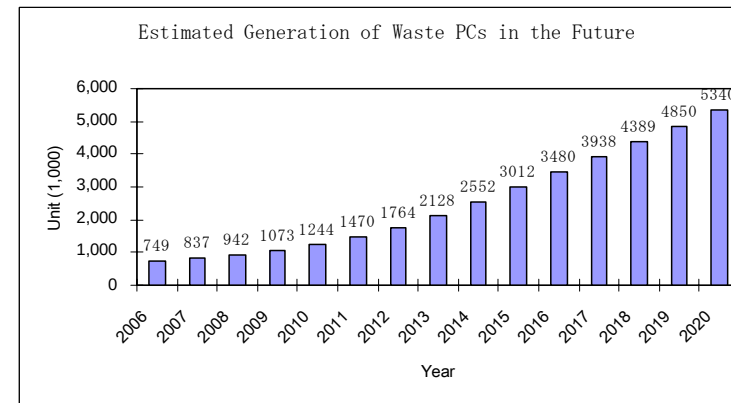
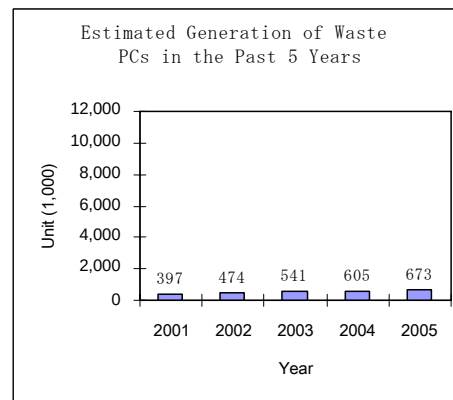
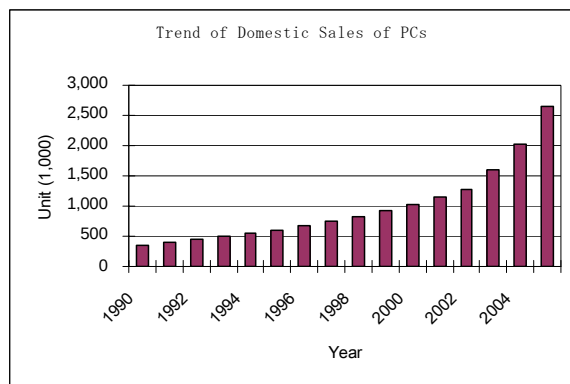
PC	Households & Offices										
Use Period (Years)	Frequency (A)	Accumulative %	Calendar Year	Domestic Sales (1,000) (B)	Adjustment of Sales (C)= (A/B)	Use Period (Years)	Smoothing of (C) using values in previous and following years	Resmoothing of (C) using values in previous and following years (D)	Standardization of (D) (E)	1- Weibull Accumulation	Standardization of (C) (F)
1	123	14.11%	2005	2,656	4.63%	1	5.92%	6.79%	90%	100%	61.62%
2	146	30.85%	2004	2,023	7.22%	2	7.66%	7.19%	96%	100%	96.00%
3	177	51.15%	2003	1,590	11.13%	3	7.98%	8.57%	114%	100%	148.10%
4	72	59.40%	2002	1,285	5.60%	4	10.06%	8.85%	118%	99%	74.56%
5	153	76.95%	2001	1,138	13.45%	5	8.50%	8.88%	118%	97%	178.92%
6	66	84.52%	2000	1,024	6.45%	6	8.08%	7.11%	95%	92%	85.76%
7	40	89.11%	1999	921	4.34%	7	4.76%	5.39%	72%	84%	57.75%
8	29	92.43%	1998	829	3.50%	8	3.33%	3.82%	51%	72%	46.52%
9	16	94.27%	1997	746	2.14%	9	3.37%	3.11%	41%	56%	28.52%
10	30	97.71%	1996	672	4.47%	10	2.64%	2.69%	36%	38%	59.41%
11	8	98.62%	1995	605	1.32%	11	2.05%	1.80%	24%	21%	17.60%
12	2	98.85%	1994	544	.37%	12	.70%	1.00%	13%	10%	4.89%
13	2	99.08%	1993	490	.41%	13	.26%	0.50%	7%	3%	5.43%
14	0	99.08%	1992	441	.00%	14	.56%	0.51%	7%	1%	.00%
15	5	99.66%	1991	397	1.26%	15	.70%	0.77%	10%	0%	16.77%
16	3	100.00%	1990	357	.84%	16	1.05%	0.88%	12%	0%	11.18%
Total	872				67%	Total	68%	7.52%			

r2	0.65027	1.4247
a	10.1	Sum of Squares
b	4.9	
c	0	



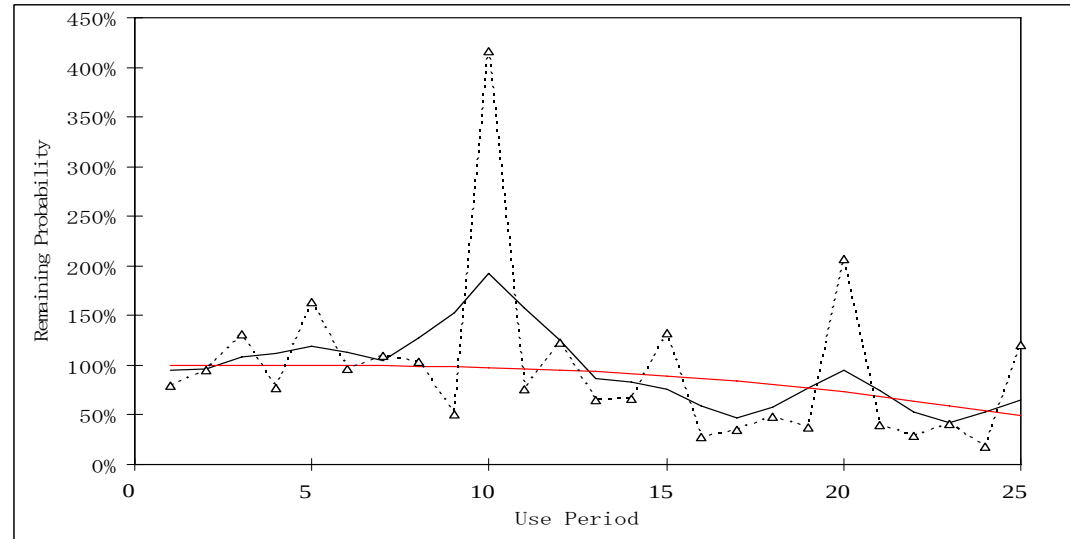
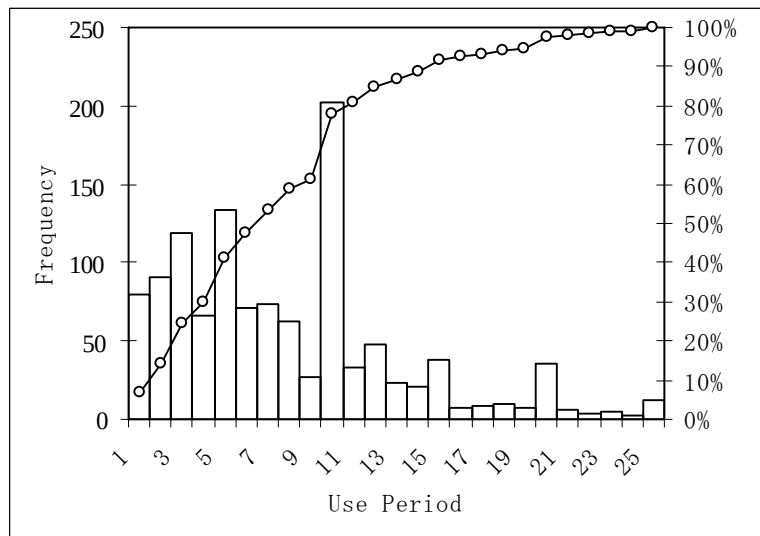
PC Household Parameter a 10.1
b 4.88

Calendar Year	Domes- tic Sales (1,000)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017			
1990	357										0	0	2	5	11	21	36	51	63	64	52	32	14	4	1	0	0	0	0	0	0	0	0	0	0	0	0			
1991	397											0	0	2	5	12	24	40	57	70	71	58	36	16	5	1	0	0	0	0	0	0	0	0	0	0	0	0		
1992	441												0	0	2	6	14	26	44	63	77	79	65	40	18	5	1	0	0	0	0	0	0	0	0	0	0	0		
1993	490													0	0	2	7	15	29	49	70	86	88	72	45	20	6	1	0	0	0	0	0	0	0	0	0	0		
1994	544														0	0	2	7	17	33	54	78	96	98	80	50	22	6	1	0	0	0	0	0	0	0	0	0		
1995	605															0	1	3	8	19	36	60	87	106	108	89	55	24	7	1	0	0	0	0	0	0	0	0		
1996	672																0	1	3	9	21	40	67	96	118	120	98	61	27	8	1	0	0	0	0	0	0	0		
1997	746																	0	1	3	10	23	45	74	107	131	134	109	68	30	9	2	0	0	0	0	0	0		
1998	829																		0	1	4	11	26	50	83	119	146	149	122	75	33	10	2	0	0	0	0	0		
1999	921																			0	1	4	12	29	55	92	132	162	165	135	84	37	11	2	0	0	0	0		
2000	1,024																				0	1	5	14	32	61	102	147	180	184	150	93	41	12	2	0	0	0		
2001	1,138																					0	1	5	15	35	68	113	163	200	204	167	104	46	13	2	0	0		
2002	1,285																						0	1	6	17	40	77	128	184	226	230	188	117	52	15	3	0		
2003	1,590																							0	1	7	21	49	95	159	228	279	285	233	145	64	19	0		
2004	2,023																								0	2	9	27	63	121	202	290	356	363	296	184	82	0		
2005	2,656																									0	2	12	35	82	159	265	381	467	476	389	242	0	0	
2006	3,319																										0	3	15	44	103	199	331	476	583	595	486	0	0	
2007	3,651																											0	3	16	49	113	219	364	523	642	655	0	0	
2008	4,016																												0	4	18	54	125	241	401	575	706	0	0	
2009	4,417																													0	4	19	59	137	265	441	633	0	0	
2010	4,859																														0	4	21	65	151	292	485	0	0	
2011	5,345																															0	5	24	71	166	321	0	0	
2012	5,879																																0	5	26	78	182	0	0	
2013	6,467																																	0	6	29	86	0	0	
2014	7,114																																		0	7	31	0	0	
2015	7,825																																			0	7	0	0	
2016	8,608																																				0	1	0	0
2017	9,468																																					0	0	0
2018	10,415																																						0	0
2019	11,457																																						0	0
ste Generation		0	0	0	0	0	0	0	0	0	0	0	2	7	19	42	83	143	222	310	397	474	541	605	673	749	837	942	1073	1244	1470	1764	2128	2552	3012	3480	3938			

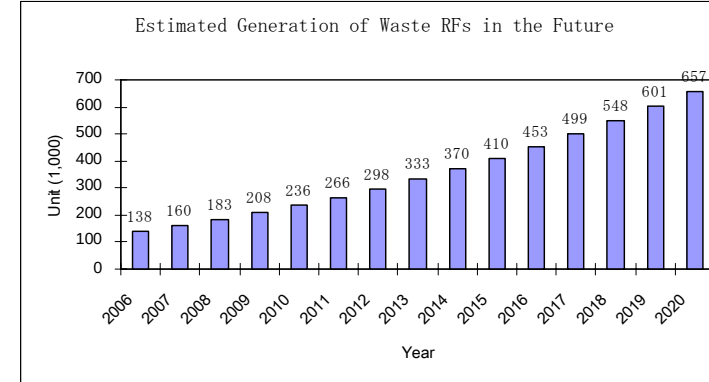
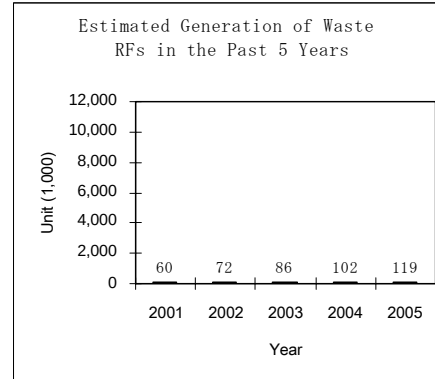
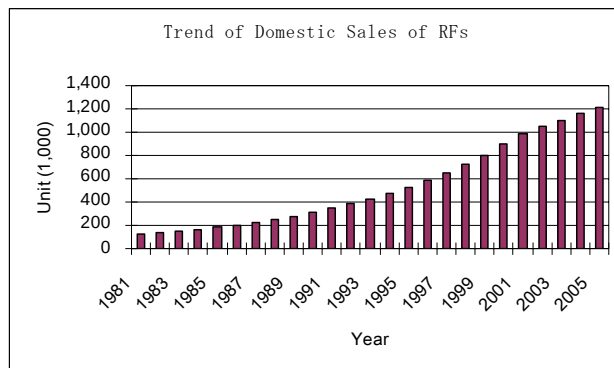


Refrigerator

RF	Households & Offices										
Use Period (Years)	Frequency (A)	Accumulative %	Calendar Year	Domestic Sales (1,000) (B)	Adjustment of Sales (C)= (A/B)	Use Period (Years)	Smoothing of (C) using values in previous and following years	Resmoothing of (C) using values in previous and following years (D)	Standardization of (D) (E)	1- Weibull Accumulation	Standardization of (C) (F)
1	80	6.76%	2005	1,218	6.57%	1	7.21%	7.81%	95%	100%	79.51%
2	91	14.44%	2004	1,160	7.85%	2	8.42%	7.99%	97%	100%	94.99%
3	119	24.49%	2003	1,099	10.83%	3	8.33%	8.99%	109%	100%	131.10%
4	66	30.07%	2002	1,044	6.32%	4	10.21%	9.27%	112%	100%	76.49%
5	134	41.39%	2001	993	13.49%	5	9.25%	9.88%	120%	100%	163.27%
6	71	47.38%	2000	894	7.94%	6	10.17%	9.31%	113%	100%	96.12%
7	73	53.55%	1999	805	9.07%	7	8.52%	8.65%	105%	99%	109.81%
8	62	58.78%	1998	724	8.56%	8	7.26%	10.50%	127%	99%	103.62%
9	27	61.06%	1997	652	4.14%	9	15.71%	12.64%	153%	98%	50.14%
10	202	78.13%	1996	587	34.44%	10	14.94%	15.86%	192%	97%	416.80%
11	33	80.91%	1995	528	6.25%	11	16.93%	13.04%	158%	96%	75.66%
12	48	84.97%	1994	475	10.10%	12	7.24%	10.38%	126%	95%	122.27%
13	23	86.91%	1993	428	5.38%	13	6.98%	7.16%	87%	94%	65.10%
14	21	88.68%	1992	385	5.46%	14	7.27%	6.82%	83%	92%	66.04%
15	38	91.89%	1991	346	10.97%	15	6.22%	6.28%	76%	89%	132.78%
16	7	92.48%	1990	312	2.25%	16	5.36%	4.87%	59%	87%	27.18%
17	8	93.16%	1989	281	2.85%	17	3.02%	3.89%	47%	84%	34.51%
18	10	94.00%	1988	253	3.96%	18	3.30%	4.79%	58%	81%	47.93%
19	7	94.59%	1987	227	3.08%	19	8.05%	6.39%	77%	77%	37.28%
20	35	97.55%	1986	205	17.11%	20	7.82%	7.82%	95%	73%	207.12%
21	6	98.06%	1985	184	3.26%	21	7.60%	6.14%	74%	68%	39.45%
22	4	98.40%	1984	166	2.41%	22	3.01%	4.34%	53%	64%	29.22%
23	5	98.82%	1983	149	3.35%	23	2.42%	3.45%	42%	59%	40.59%
24	2	98.99%	1982	134	1.49%	24	4.93%	4.35%	53%	54%	18.04%
25 +	12	100.00%	1981	121	9.94%	25	5.71%	5.32%	64%	49%	120.26%
Total	1184				197%	Total	172%	8.26%			
										r2	0.08102
										a	27.4
										b	3.6
										c	0
										Sum of Squares	
											15.0359



[illegible]

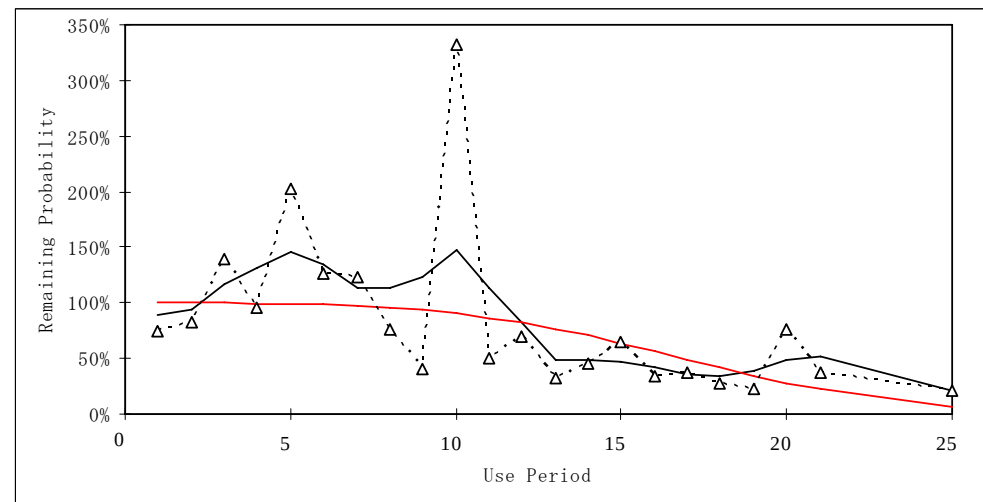
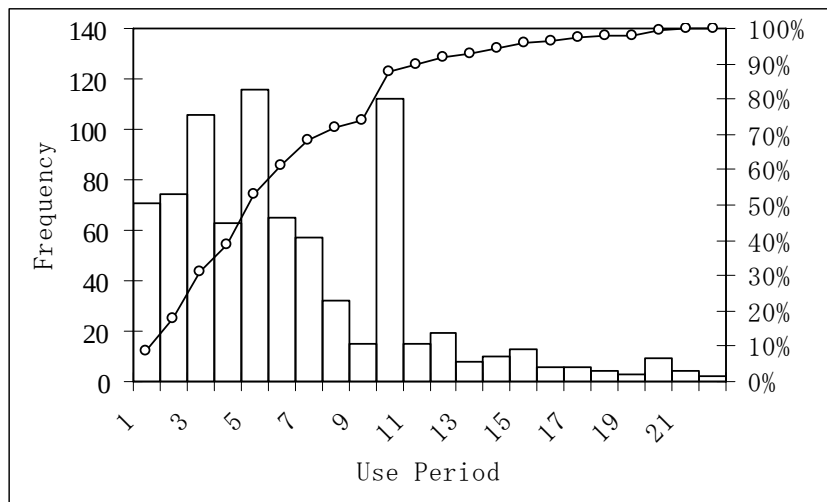


Washing Machine

WM	Households & Offices										
Use Period (Years)	Frequency (A)	Accumulative %	Calendar Year	Domestic Sales (1,000) (B)	Adjustment of Sales (C)= (A/B)	Use Period (Years)	Smoothing of (C) using values in previous and following years	Resmoothing of (C) using values in previous and following years (D)	Standardization of (D) (E)	1- Weibull Accumulation	Standardization of (C) (F)
1	71	8.77%	2005	1,074	6.61%	1	6.96%	7.87%	89%	100%	74.30%
2	74	17.90%	2004	1,013	7.30%	2	8.79%	8.39%	94%	100%	82.10%
3	106	30.99%	2003	851	12.46%	3	9.43%	10.42%	117%	100%	140.10%
4	63	38.77%	2002	738	8.54%	4	13.02%	11.69%	131%	100%	96.01%
5	116	53.09%	2001	642	18.07%	5	12.62%	13.02%	146%	99%	203.17%
6	65	61.11%	2000	578	11.25%	6	13.43%	11.91%	134%	98%	126.50%
7	57	68.15%	1999	520	10.96%	7	9.68%	10.08%	113%	97%	123.25%
8	32	72.10%	1998	468	6.84%	8	7.12%	10.04%	113%	96%	76.88%
9	15	73.95%	1997	421	3.56%	9	13.32%	10.98%	123%	93%	40.04%
10	112	87.78%	1996	379	29.55%	10	12.50%	13.07%	147%	90%	332.21%
11	15	89.63%	1995	341	4.40%	11	13.38%	10.12%	114%	86%	49.44%
12	19	91.98%	1994	307	6.19%	12	4.49%	7.41%	83%	82%	69.58%
13	8	92.96%	1993	276	2.90%	13	4.37%	4.37%	49%	77%	32.55%
14	10	94.20%	1992	249	4.02%	14	4.24%	4.29%	48%	71%	45.21%
15	13	95.80%	1991	224	5.81%	15	4.27%	4.18%	47%	64%	65.30%
16	6	96.54%	1990	201	2.98%	16	4.03%	3.74%	42%	57%	33.49%
17	6	97.28%	1989	181	3.31%	17	2.91%	3.18%	36%	49%	37.21%
18	4	97.78%	1988	163	2.45%	18	2.60%	3.09%	35%	42%	27.56%
19	3	98.15%	1987	147	2.04%	19	3.77%	3.48%	39%	35%	22.97%
20	9	99.26%	1986	132	6.81%	20	4.07%	4.31%	48%	28%	76.56%
21	4	99.75%	1985	119	3.36%	21	5.09%	4.58%	51%	22%	37.81%
25 +	2	100.00%	1984	107	1.87%	25	1.87%	1.87%	21%	6%	21.00%
Total	810				161%	Total	155%	8.89%			

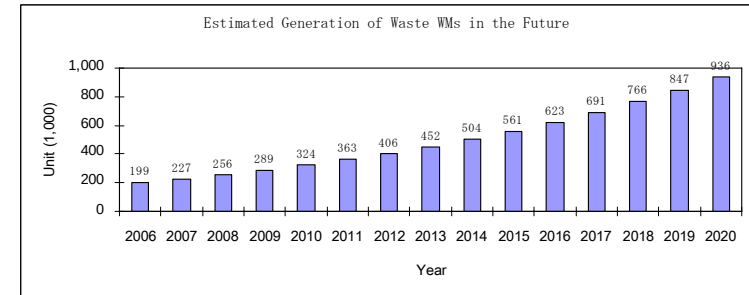
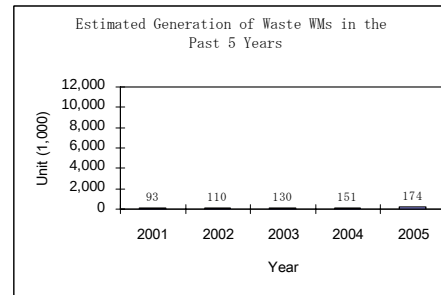
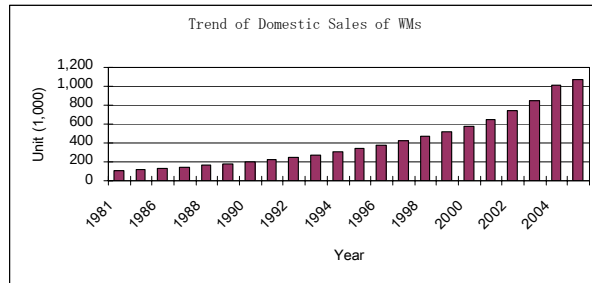
r2 0.24476 8.4620

a 18.7 Sum of Squares
b 3.6
c 0



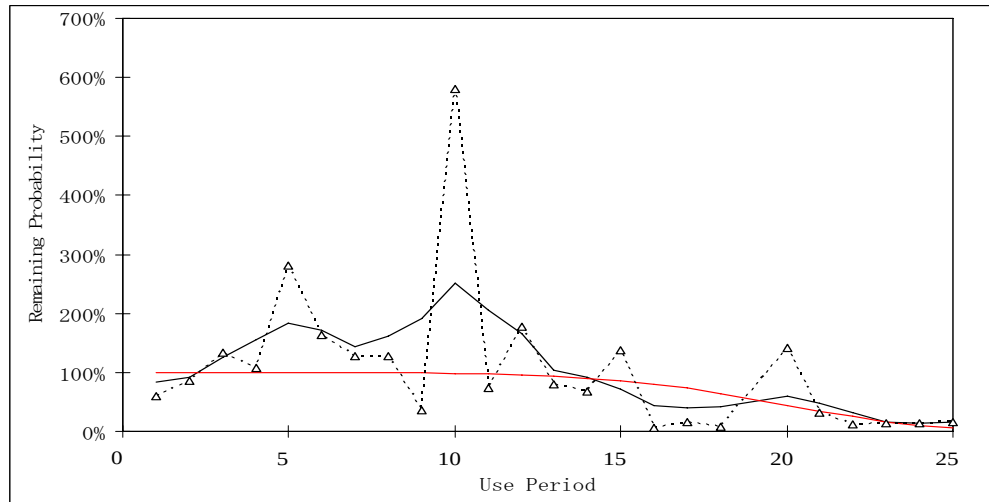
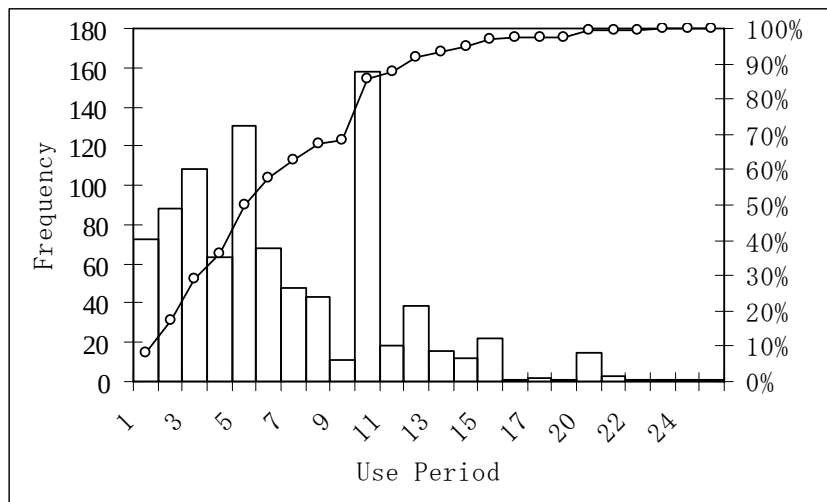
WM Households & Office Parameter a 18.71
b 3.625

Calendar Year	Domestic Sales (1,000)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
1981	107	0	0	0	0	1	1	2	2	3	4	4	5	6	7	7	8	8	8	8	7	6	5	4	3	3	2
1985	119					0	0	0	0	1	1	2	2	3	4	5	6	7	8	8	9	9	9	8	8	7	6
1986	132						0	0	0	0	1	1	2	3	3	4	5	7	8	8	9	10	10	10	9	9	8
1987	147							0	0	0	0	1	1	2	3	4	5	6	7	8	9	10	11	11	11	10	9
1988	163								0	0	0	1	1	2	2	3	4	6	7	8	9	10	11	12	12	12	11
1989	181									0	0	0	1	1	2	3	4	5	6	8	9	10	12	13	13	13	13
1990	201										0	0	0	1	1	2	3	4	5	7	8	10	11	13	14	15	15
1991	224										0	0	0	0	1	1	2	3	4	6	8	9	11	13	14	15	16
1992	249											0	0	0	0	1	1	2	4	5	7	8	10	12	14	16	17
1993	276												0	0	0	0	1	2	3	4	5	7	9	11	14	16	18
1994	307													0	0	0	0	1	2	3	4	6	8	10	13	15	18
1995	341														0	0	0	1	1	2	3	5	7	9	12	14	17
1996	379															0	0	0	1	1	2	4	5	8	10	13	16
1997	421																0	0	0	1	1	3	4	6	8	11	14
1998	468																	0	0	0	1	2	3	5	7	9	12
1999	520																		0	0	0	1	2	3	5	7	10
2000	578																			0	0	0	1	2	3	6	8
2001	642																				0	0	0	1	2	4	6
2002	738																					0	0	0	1	2	4
2003	851																						0	0	0	1	3
2004	1,013																							0	0	1	2
2005	1,074																								0	1	2
2006	1,088																									0	1
2007	1,196																										0
2008	1,316																										
2009	1,448																										
2010	1,593																										
2011	1,752																										
2012	1,927																										
2013	2,120																										
2014	2,332																										
2015	2,565																										
2016	2,821																										
2017	3,103																										
2018	3,414																										
2019	3,755																										
Waste Generation		0	0	0	0	1	1	2	3	4	6	9	13	18	24	31	40	51	63	77	93	110	130	151	174	199	227



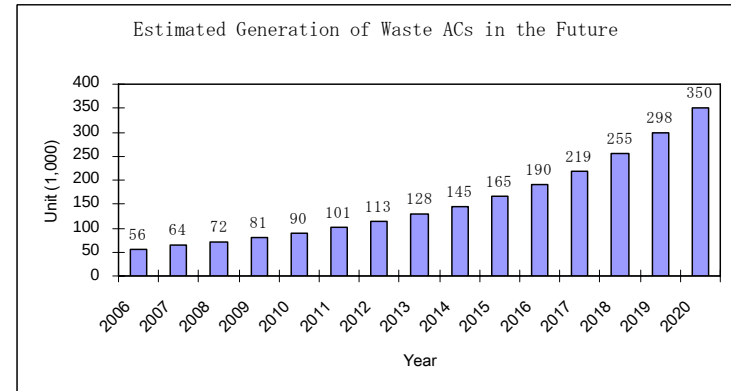
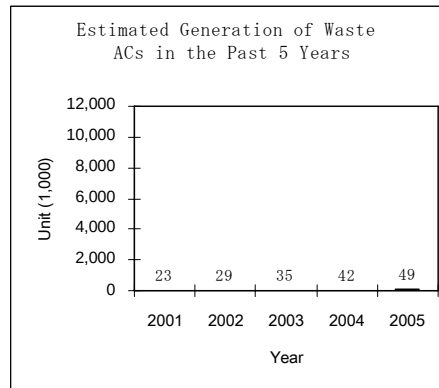
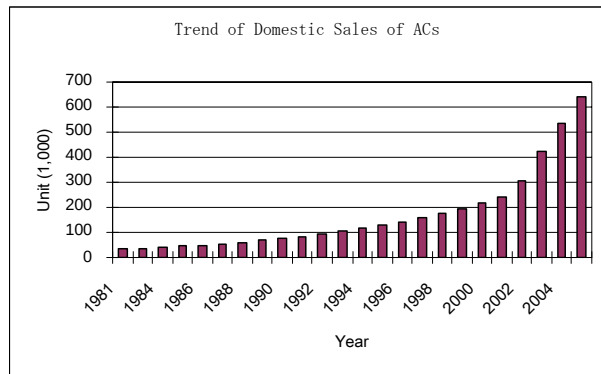
Air Condition

AC											
Households & Offices											
Use Period (Years)	Frequency (A)	Accumulative %	Calendar Year	Domestic Sales (1,000) (B)	Adjustment of Sales (C)= (A/B)	Use Period (Years)	Smoothing of (C) using values in previous and following years	Resmoothing of (C) using values in previous and following years (D)	Standardization of (D) (E)	1- Weibull Accumulation	Standardization of (C) (F)
1	73	7.91%	2005	642	11.37%	1	13.93%	15.84%	83%	100%	59.54%
2	88	17.44%	2004	534	16.49%	2	17.75%	17.50%	92%	100%	86.37%
3	108	29.14%	2003	425	25.39%	3	20.83%	23.94%	125%	100%	132.95%
4	63	35.97%	2002	306	20.60%	4	33.26%	29.77%	156%	100%	107.87%
5	130	50.05%	2001	242	53.78%	5	35.21%	35.00%	183%	100%	281.65%
6	68	57.42%	2000	218	31.26%	6	36.52%	32.82%	172%	100%	163.69%
7	48	62.62%	1999	196	24.52%	7	26.73%	27.29%	143%	100%	128.39%
8	43	67.28%	1998	176	24.40%	8	18.62%	30.90%	162%	100%	127.79%
9	11	68.47%	1997	159	6.94%	9	47.35%	36.62%	192%	99%	36.32%
10	158	85.59%	1996	143	110.70%	10	43.88%	48.02%	251%	99%	579.71%
11	18	87.54%	1995	128	14.01%	11	52.82%	39.25%	206%	97%	73.38%
12	39	91.77%	1994	116	33.74%	12	21.04%	31.50%	165%	96%	176.66%
13	16	93.50%	1993	104	15.38%	13	20.64%	19.93%	104%	93%	80.53%
14	12	94.80%	1992	94	12.81%	14	18.10%	17.38%	91%	90%	67.11%
15	22	97.18%	1991	84	26.10%	15	13.41%	13.88%	73%	86%	136.70%
16	1	97.29%	1990	76	1.32%	16	10.12%	8.50%	44%	80%	6.90%
17	2	97.51%	1989	68	2.93%	17	1.96%	7.55%	40%	73%	15.34%
18	1	97.62%	1988	61	1.63%	18	10.56%	8.04%	42%	64%	8.52%
20	15	99.24%	1987	55	27.13%	20	11.59%	11.32%	59%	45%	142.06%
21	3	99.57%	1986	50	6.03%	21	11.80%	8.99%	47%	35%	31.57%
22	1	99.67%	1985	45	2.23%	22	3.58%	5.96%	31%	25%	11.69%
23	1	99.78%	1984	40	2.48%	23	2.49%	2.90%	15%	17%	12.99%
24	1	99.89%	1983	36	2.76%	24	2.62%	2.55%	13%	10%	14.43%
25 +	1	100.00%	1982	33	3.06%	25	3.06%	3.06%	16%	6%	16.04%
Total	923				477%	Total	466%	19.10%			
									r2	0.18696	30.9149
									a	20.8	Sum of Squares
									b	5.7	
									c	0	



AC Parameter a 20.8
Frequency(A) b 5.74

Calendar Year	Domestic Sales (1,000)	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1981	33	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	3	3	3	3	3	3	2	2	1	1	0	0	0	0	0	0	0	0	
1983	36			0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	3	3	4	4	4	3	3	2	1	1	0	0	0	0	0	0	
1984	40				0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	3	3	4	4	4	4	4	3	2	1	1	0	0	0	0	0	
1985	45					0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	3	3	4	4	4	5	4	4	3	2	1	0	0	0	0	
1986	50						0	0	0	0	0	0	0	0	0	0	1	1	1	2	3	3	4	4	5	5	5	4	4	3	2	1	1	0	0	
1987	55							0	0	0	0	0	0	0	0	0	0	1	1	2	2	3	4	4	5	5	6	6	5	4	3	2	1	1	0	
1988	61								0	0	0	0	0	0	0	0	0	1	1	1	2	2	3	4	5	6	6	6	6	5	3	2	1	1	0	
1989	68									0	0	0	0	0	0	0	0	0	1	1	1	2	3	3	4	5	6	7	7	7	6	5	4	3	1	
1990	76										0	0	0	0	0	0	0	0	0	1	1	1	2	3	4	5	6	7	8	8	8	7	6	4	3	
1991	84											0	0	0	0	0	0	0	0	0	1	1	2	2	3	4	5	7	8	8	9	8	8	6	5	
1992	94												0	0	0	0	0	0	0	0	0	1	1	2	3	4	5	6	7	8	9	10	9	8	7	
1993	104													0	0	0	0	0	0	0	0	1	1	1	2	3	4	5	7	8	9	10	11	10	9	
1994	116														0	0	0	0	0	0	0	0	1	1	2	3	4	6	7	9	10	11	12	12	10	
1995	128															0	0	0	0	0	0	0	0	1	1	2	3	4	5	6	8	10	12	13	13	
1996	143																0	0	0	0	0	0	0	0	1	1	2	3	4	5	7	9	11	13	14	
1997	159																	0	0	0	0	0	0	0	0	1	1	2	3	4	6	8	10	12	14	
1998	176																		0	0	0	0	0	0	0	1	1	1	2	3	5	7	9	11	14	
1999	196																			0	0	0	0	0	0	0	1	1	2	3	4	5	8	10	13	
2000	218																				0	0	0	0	0	0	0	1	1	2	3	4	6	8	11	
2001	242																					0	0	0	0	0	0	1	1	2	3	5	7	9	12	
2002	306																						0	0	0	0	0	0	1	2	3	4	6	9	12	
2003	425																							0	0	0	0	0	0	1	1	2	4	6	8	12
2004	534																								0	0	0	0	0	0	1	2	3	5	7	10
2005	642																									0	0	0	0	0	0	1	2	3	5	8
2006	786																										0	0	0	0	0	1	1	2	4	7
2007	864																											0	0	0	0	0	1	1	3	4
2008	951																												0	0	0	0	0	1	2	3
2009	1,046																													0	0	0	0	0	1	2
2010	1,150																														0	0	0	0	0	1
2011	1,265																															0	0	0	0	0
2012	1,392																																0	0	0	0
2013	1,531																																	0	0	0
2014	1,684																																		0	0
2015	1,852																																			0
2016	2,038																																			0
2017	2,241																																			
2018	2,465																																			
2019	2,712																																			
Waste Generation		0	0	0	0	0	0	0	0	0	1	1	1	2	3	5	7	10	14	18	23	29	35	42	49	56	64	72	81	90	101	113	128	145	165	190



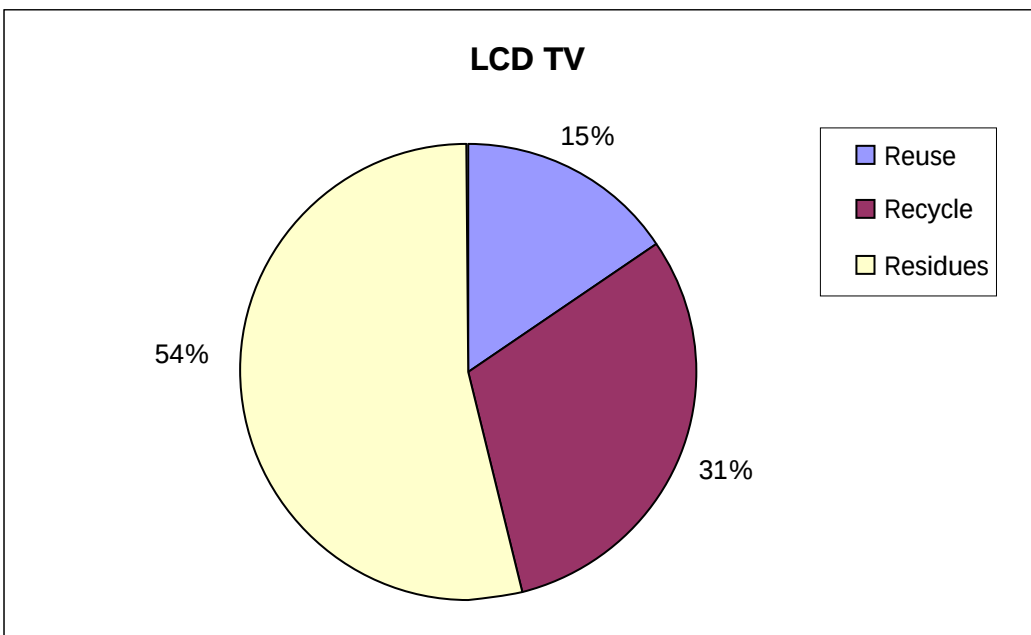
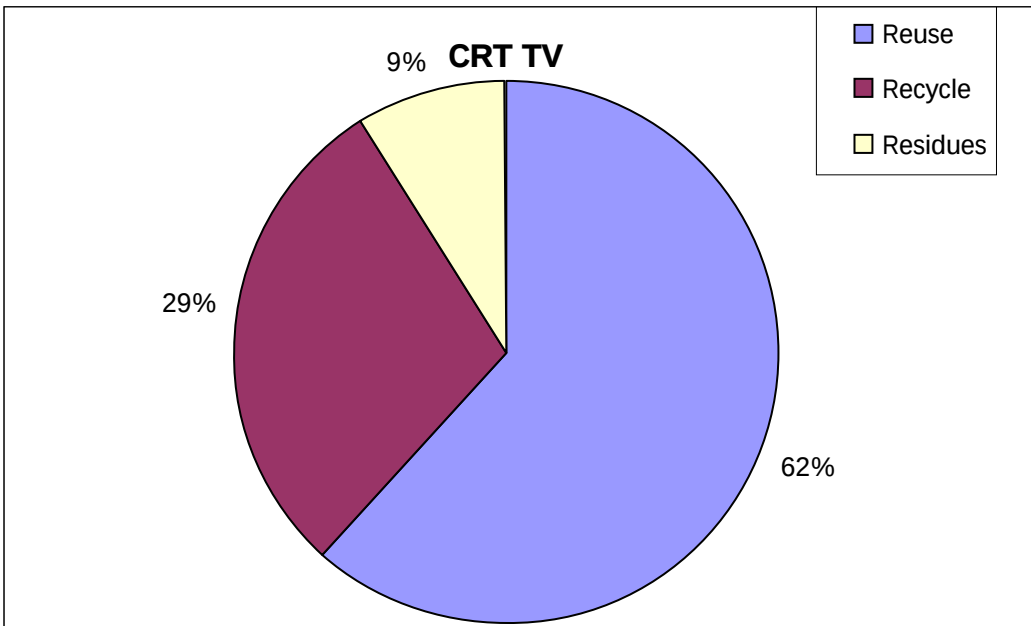
4.4 Amount of used EEE exported, repaired/reassembled and dismantled

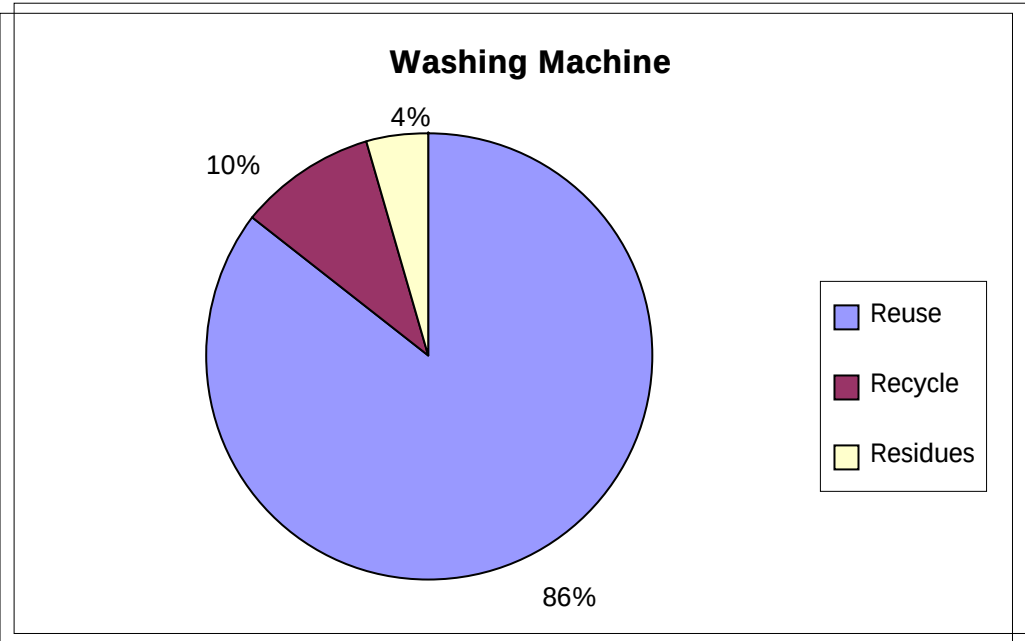
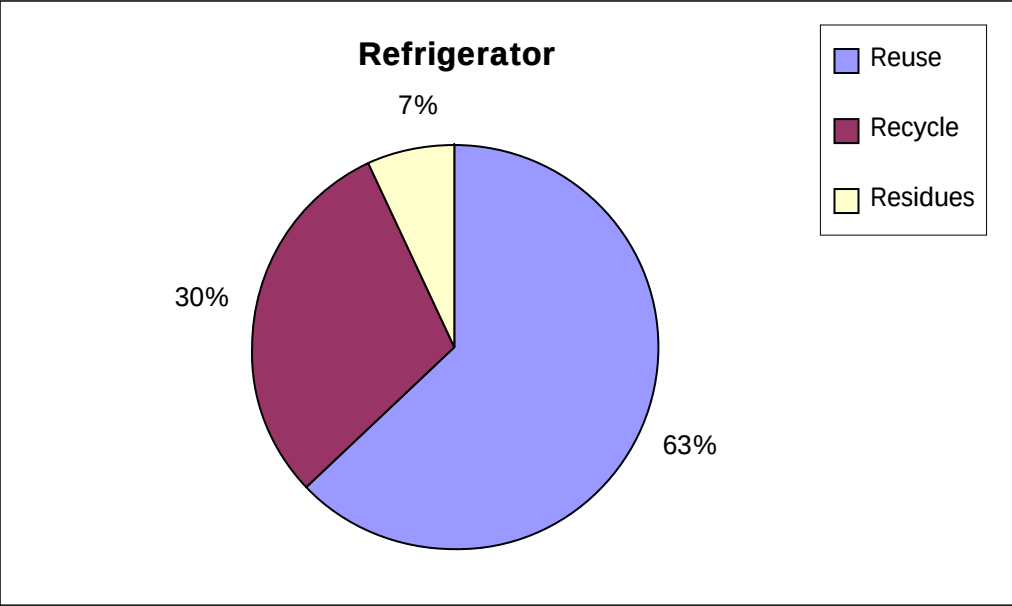
% Estimated Ratio of Imported Used Computer			
Year	Directly Sold at Second-hand Shops	Repaired/Reassembled	Dismantled
2005 (1 case)	47.22	50.00	2.78

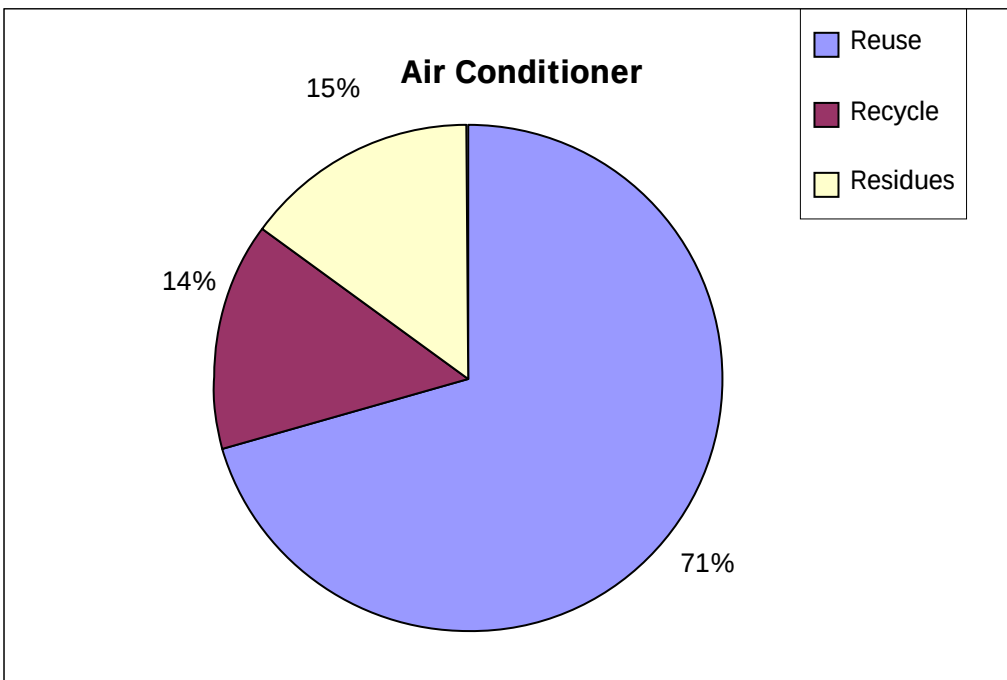
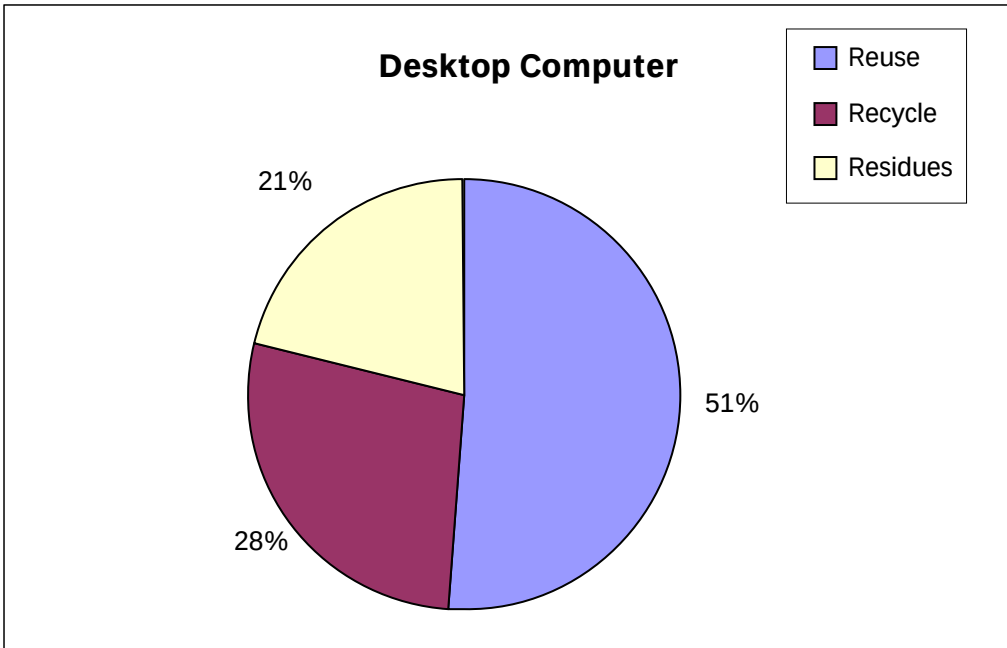
Products	Percent of Used Units			
	Exported	Directly Sold	Repaired/Reassembled	Dismantled
TV	53.38	18	28.58	-
Personal Computer	49.47	32.15	18.38	-
Mobile Phone	47.57	28.01	11.90	12.52
Refrigerator	46.45	18.06	35.48	-
Air Conditioner	50.70	19.37	29.93	-
Washing Machine	45.79	19.01	35.20	-

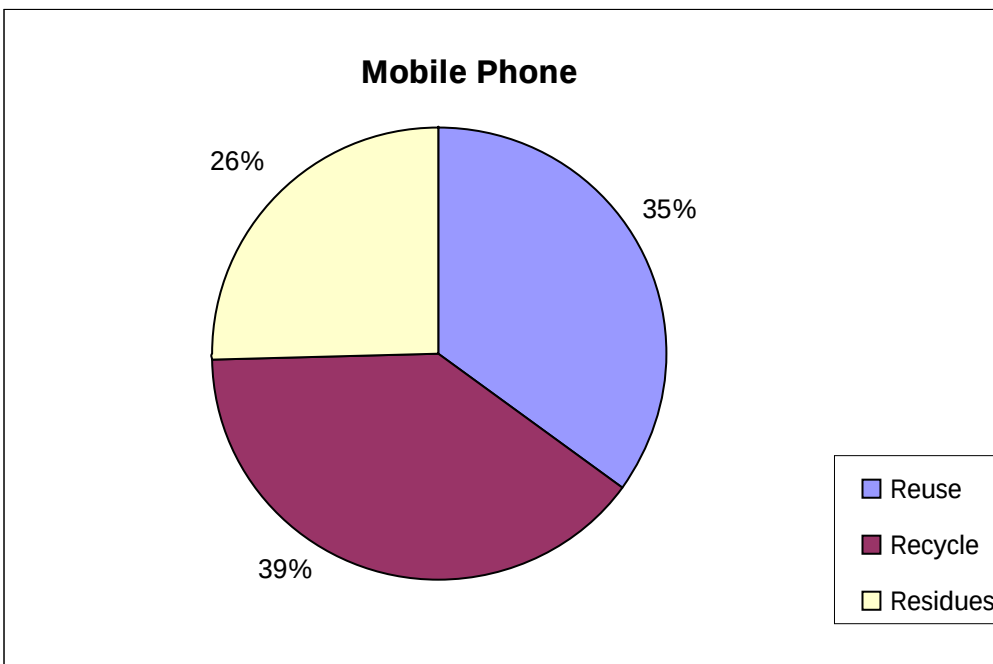
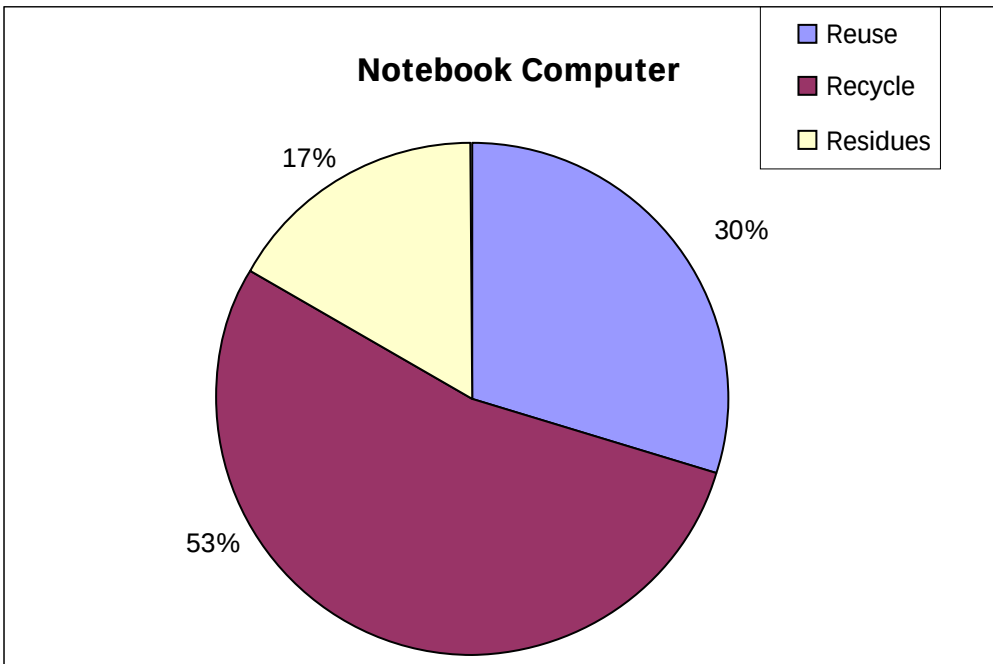
4.5 Generation and management of residues generated from repair

EEE Products	Avg.# of EEE in repair Shop/Month (Units)	Reuse Part(Kgs)/100 Units	Recycle Part(Kgs)/100 Units	Residues Part(Kgs)/100 Units
CRT TV	28.23	1,076.83	512.19	155.98
LCD TV	14.56	165.22	327.29	577.49
Desktop Computer	35.75	695.30	378.46	287.23
Notebook Computer	22.18	202.31	363.10	113.59
Mobile	47.72	10.16	11.44	7.40
Refrigerator	14.08	2,534.81	1,224.76	277.43
Air Conditioner	21.07	5,335.45	1,083.20	1,141.35
Washing Machine	17.62	3,893.87	456.54	197.60



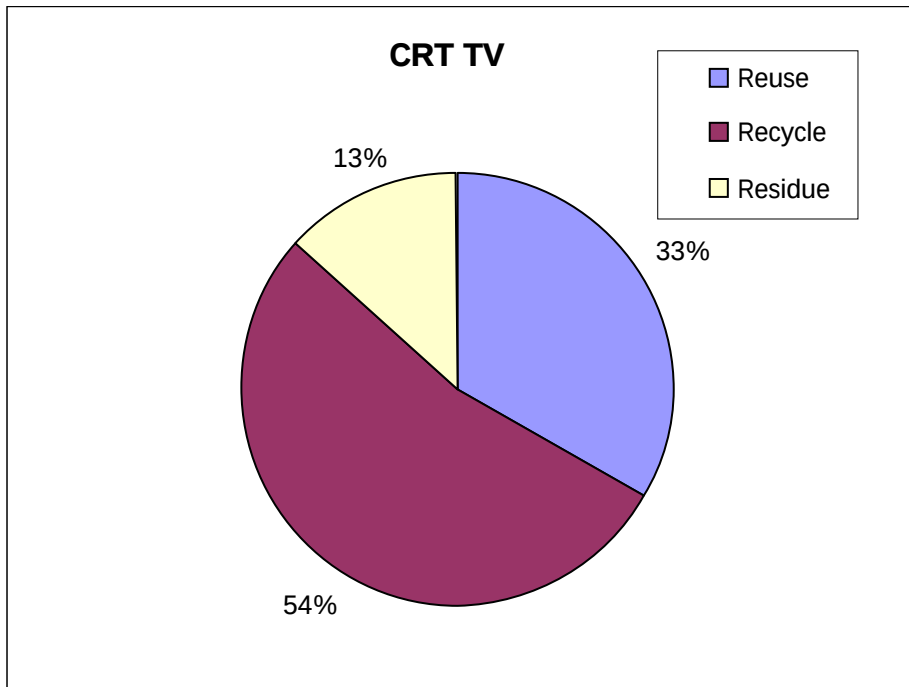


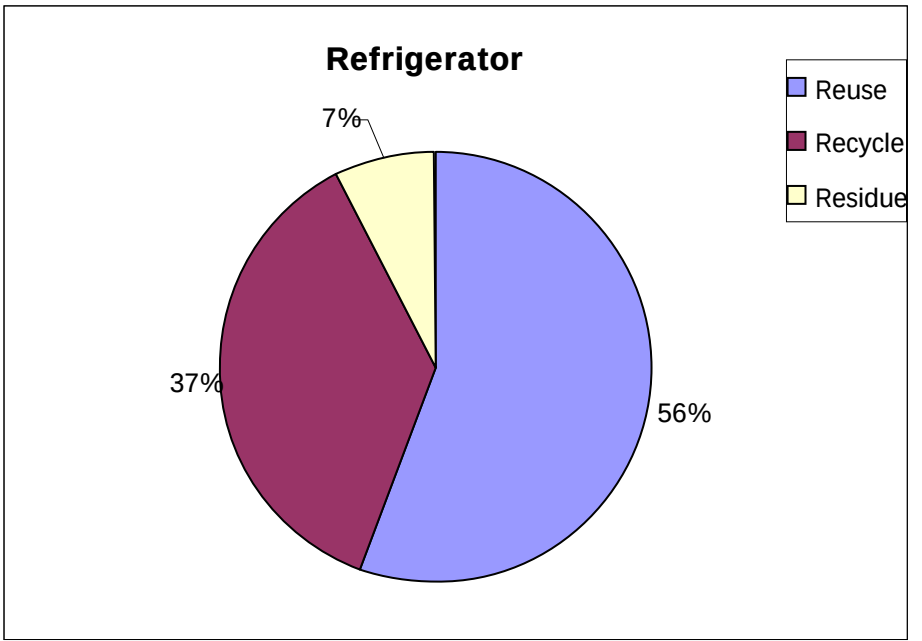
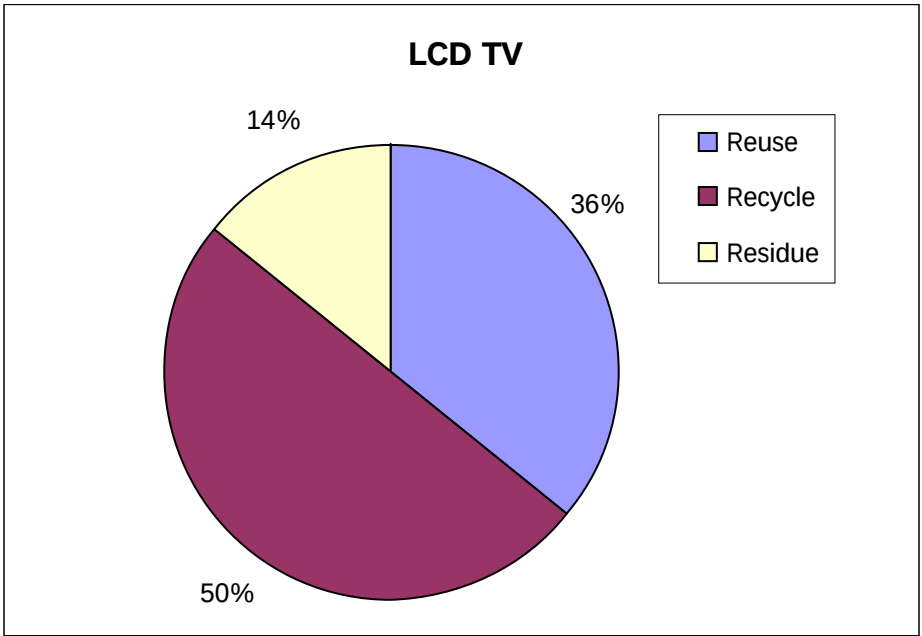


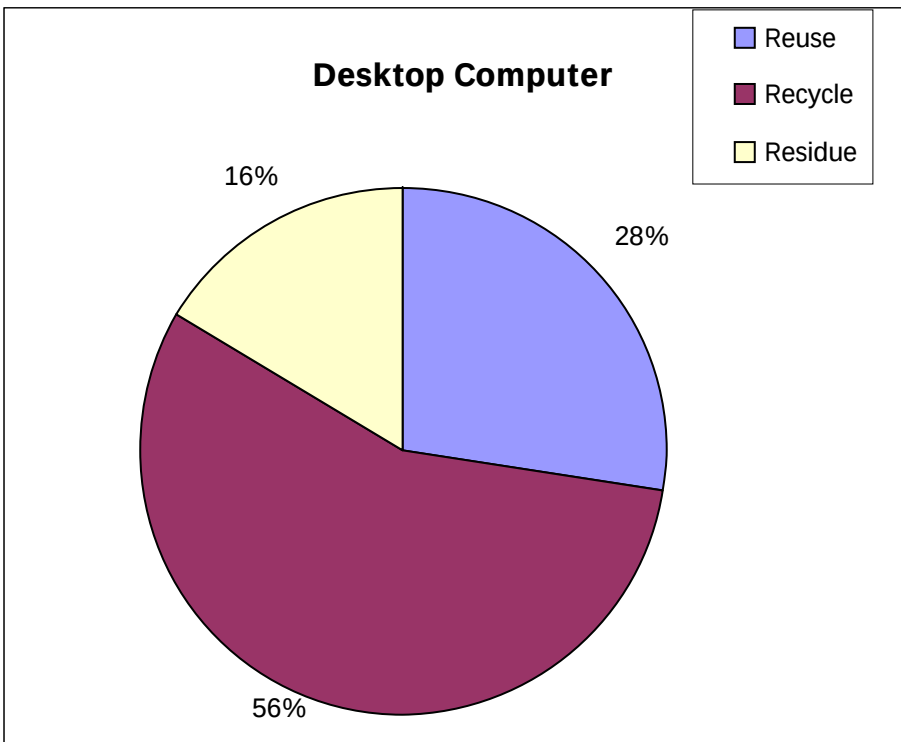
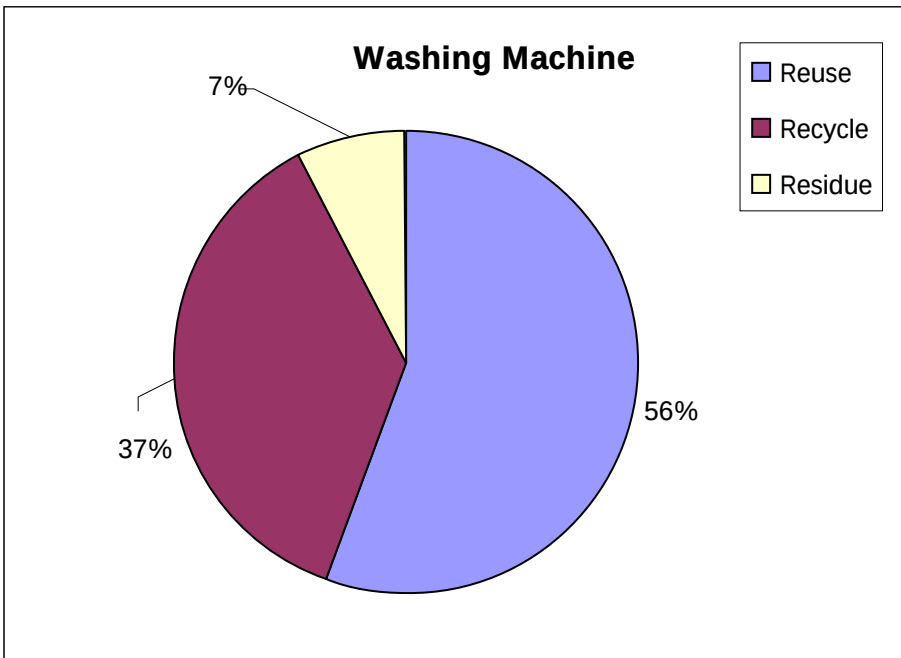


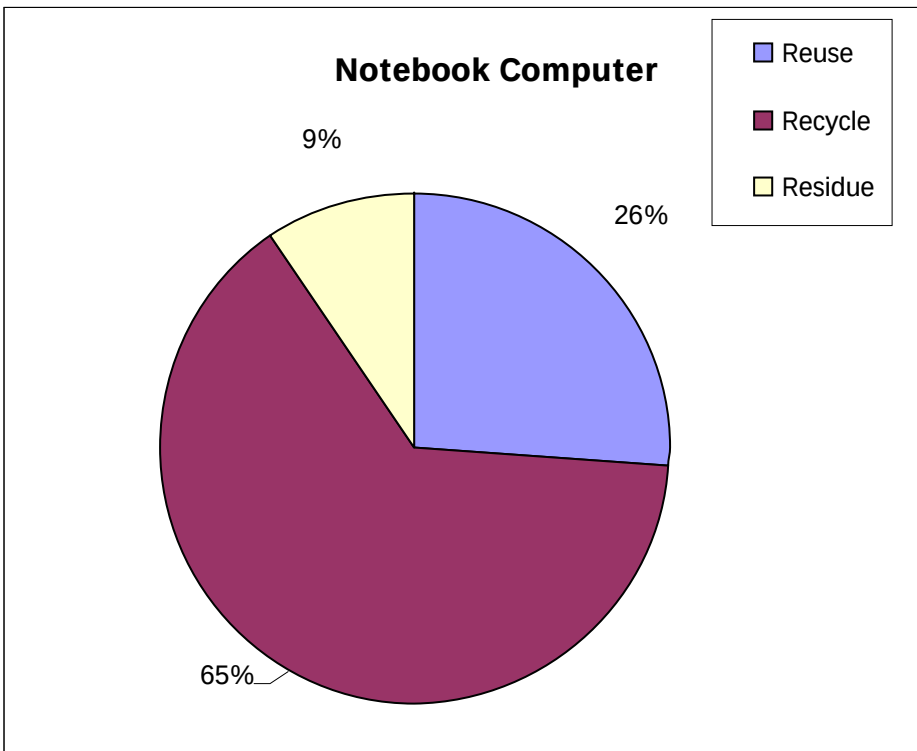
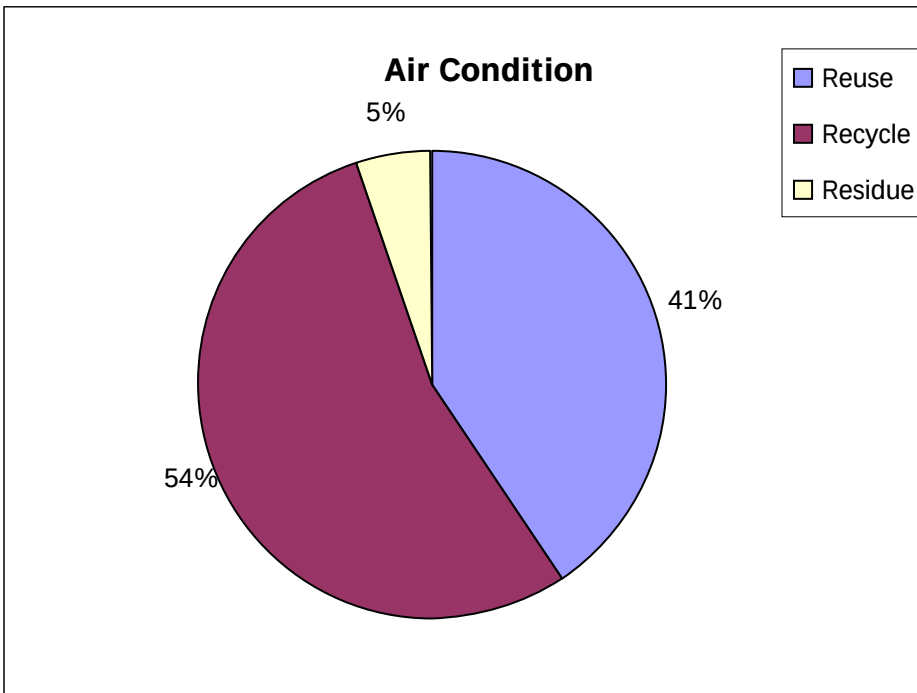
4.5 Generation and management of residues generated from dismantling (cont.)

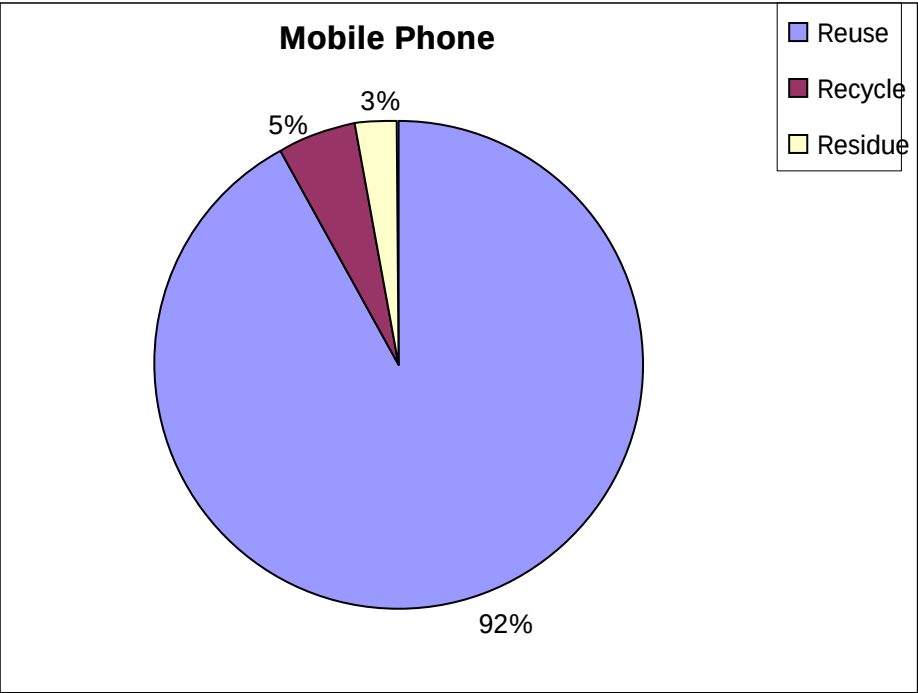
EEE Products	Avg.# of EEE in Dismantle/Month (Units)	Reuse Part(Kgs)/100 Units	Recycle Part(Kgs)/100 Units	Residue Part(Kgs)/100 Units
CRT TV	10	581.67	930.67	232.67
LCD TV	10	382.14	535.00	152.86
Desktop Computer	14.4	375.04	763.64	222.31
Notebook Computer	83.3	177.72	437.48	63.80
Mobile	46.6	26.65	1.57	0.78
Refrigerator	5	2,242.78	1,495.19	299.04
Air Conditioner	5	3,064.86	4,086.49	408.65
Washing Machine	5	2,526.67	1,684.44	336.89











Chapter 5

Conclusions and Recommendations

The national inventory of e-waste was initiated through a more scientific approach in Thailand marked the first ever under a foremost situation while e-waste management increasingly gains attention at local, regional, and international levels for both public and private sectors.

It was found in the study that large home appliances—refrigerators, washing machines, air conditioners, and television tended to be used longer other small ones before discarding, mostly 11 years. Ten percent of respondents discarded washing machines, air conditioners, and television sets within year and a half, only 5% of refrigerator respondents did in the same duration.

For smaller equipment—personal computers and mobile phones, they were mostly used by respondents for three years. After one year, 20% of mobile phone respondents discarded and after year and a half, 15% of PC users reported discarding.

Used home appliances were repaired as the first destination priority with exception of PCs that were given to individuals or charity as priority. It was also responded high proportion of reuse parts derived from washing machines, high proportion of recycled parts from refrigerators, and high proportion of residues from air conditioners.

In compiling information from the Customs Department, harmonized codes for used EEE has been available since the onset of 2007. Previous information was examined when it was evident that some finished goods were declared at very low prices. In this study distinguish was made for used EEE from new EEE, i.e., the value of used mobile phones <300 Baht/set, used air conditioners <2,000 Baht/set, used washing machines <1,500 Baht/set, used refrigerators <2,000 Baht/set, used PC <10,000 Baht/set, and used TV <500 Baht/set. Exported counter part was however very minimal due to minimal indirect export as stated.

In collecting data, company information on production and sales was hardly collected as one would expect, because it is confidential to company. Mis-recalling problem seemed to frequently appear among household respondents, because the respondents who stay at home during the day for interview tended to be elderly who could hardly recalled. Dates of receiving and discarding equipment might not be as accurate as they should be. An alternative is to record serial numbers at the back of equipment and subsequently track the production years of corresponding serial numbers. This may of course slightly delay dates in case equipment was produced at the end of year and was sold in the next year.

Another recalling problem was about type of equipment, number of respondents might not know in detail or differentiate types of TV screens (flat versus PDP) and brand names or specifications. In addition, mobile phone information collected from hotel/ apartment businesses may be deviated because the respondents might have perceived as their own mobile phones instead of the ones belong to the businesses. These data collection problems need to be taken into consideration in the next survey in order to build up a more reliable inventory.

E-waste issue has been brought to the government's attention. The Pollution Control Department led to formulation of strategic framework of electrical and electronic equipment take-backs in Thailand. The strategic

plan was approved by the National Environmental Board. At present, the plan was agreed by the screening sub-committee to come up with further details on legal and financial issues prior to submission to the cabinet.

In the meantime, information dissemination about e-waste to the public vastly plays important role at both domestic and regional levels. People who earn a living on e-waste need to work in environmentally sound manner. In so doing, they will make contribution economically and environmentally as well as to their good health.

Reference (in Thai)

Annex of the Basel Convention Agreement

Daily News Newspapers, 20 June 2005

Daily News Newspapers, 3 November 2005

DIW Notification on import of chemical wastes as hazardous substances into the Kingdom, B.E. 2538

Electrical and Electronics Institute, "Survey of the Import and the Environmentally Sound Management of Electronic Wastes in Thailand," Basel Convention Regional Centre in China (BCRC), 2005 (in English)

Electrical and Electronics Institute, "Monthly Report on Industrial Economics Situation: Electrical and Electronics," January 2007

Enhancement and Conservation of the National Environmental Quality Act 1992

Hazardous Substances Act, B.E. 2535

Industrial Product Standards Act, 1968

Khao Sod Newspapers, 4 September 2001

Matichon Newspapers, 13 April 2003

Notification of the Ministry of Industry on prohibition of household refrigerator producers using CFC in production, B.E.2535

Notification of the Ministry of Industry on List of Hazardous Substances (Version II), B.E. 2537

Notification of the Ministry of Industry on criteria for permission of factory types 105 and 106, B.E. 2545

Notification of the Department of Industrial Works on import control of used electrical and electronic products, B.E.2546

Renu Sukharm, Power point presentation at stakeholders meeting to comment a progress report of the project of electronic industry policy movement for reduction of environment and health impacts, 2006

Siam-rath Newspapers, 7 November 2005

<http://www2.diw.go.th/haz/vook7/login.asp>

http://www.e15d.com/faq_phoneno.html

www.nesdb.go.th/econSocial/macro/macroeconomic/dev3.html

www.nso.go.th

<http://phonebook.tot.co.th/>

http://service.nso.go.th/nso/g_knowledge/down.htm

www.sme.go.th

<http://www.thaieei.com/iu>

http://www.yellowpages.co.th/specific/specific_t.php

Annex

Annex

I Questionnaires

- Questionnaire for households (Annex A)
- Questionnaire for business entities and institution (Annex B)
- Questionnaire for importers and exporters (Annex C)
- Questionnaire for associations of importers and exporters (Annex C-2)
- Questionnaire for collectors (Annex D)
- Questionnaire for associations of collectors (Annex D-2)
- Questionnaire for associations of manufacturers (Annex E)

II Regulations

- Enhancement and Conservation of the National Environmental Quality Act, 1992
- Industrial Product Standards Act, 1968

III Literature

IV Meeting Activities