E-Waste Management in India: Issues & Options

Presentation at
National Conference on E-Waste Management
Indo-German-Swiss E-Waste Initiative

New Delhi
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E Waste

- What is electronic waste
- Is it hazardous waste
- Toxic constituents
- Health & environment hazards
- Pollution problems

International Scenario

FINDINGS STATED IN REPORT BY *BAN*

- 50 to 80% E-wastes collected are exported for recycling by U.S. Export is legal in U.S.
- Export is due to cheaper labour and laxed standard in poor countries.
- E-waste recycling and disposal in China, India and Pakistan are highly polluting.
- China has banned import of E-waste.
- Lack of responsibility on the part of Federal Government and Electronics Industry, Consumers, recyclers and local governments t owards viable and sustainable options for disposal of E-wastes.

Initiatives

- Participation in Basel
- Expert Group on HWM
- Indo-German-Swiss Collaboration

Delhi Study: Need assessment (2003-2006)

- Mumbai-Pune Study (2005-2007)
- Bangalore work
- Mumbai Municipal Corporation

Status 2003

Historical Perspective

- BAN/Toxics Link reports on e-waste generation and imports in India

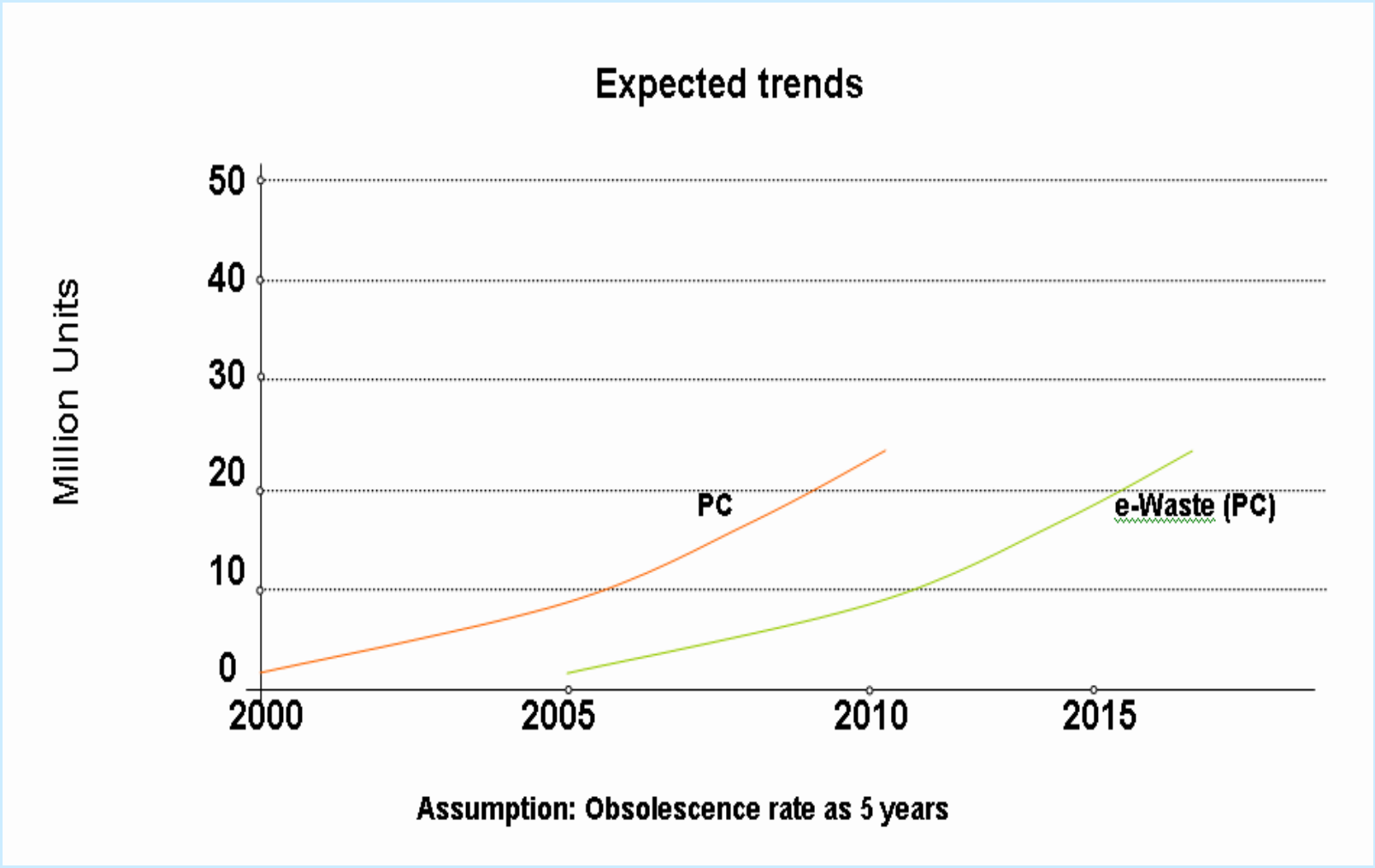
Outcome

- e-waste a new subject in India both for generators & regulators
- No estimates of actual amount of e-waste in India
- No methodology for baseline estimates
- No intervention

Objectives of pilot study in Delhi
(IRG/ Toxicslink/ GTZ/ SECO/ EMPA/CPCB/MoEF)

1. Appreciation of problem by documenting about e-waste trade in a pilot area.
2. Establish e-waste trade value chain to identify stakeholders
3. Establish methodology for estimation
4. Estimate e-waste quantity
5. Identify existing e-waste treatment & disposal practices
6. Establish e-waste trade economics
7. Identify macro level impacts
8. Future Initiatives & Action Plan

Pilot Study in Delhi



National Workshop on e-waste, held at New Delhi proposed Agenda 2004-05

Facilitation for creation of common infrastructure based on public-private-partnership with regulatory support is required for management of e waste in an environmentally sound manner.

Let this be considered as one of the recommendations from this National Conference, New Delhi , December 12, 2008

Status 2005

- TOR for city team
- Standardized/uniform approach & methodology
- National level assessment (MoEF/ CPCB/ IRG/ GTZ)
- Initiatives in Bangalore (EMPA/ SECO)
- Initiatives in Maharashtra (UNEP/ MPCB)

Items selected for national level study

Sr. No.	Broad Category	Item
1.	Information Technology	Computer and its Peripherals
2.	White Goods	Washing Machine And Refrigerators
3.	Brown Goods	Televisions

Obsolescence Rate & WEEE Generation

Sr. No.	EEE	Obsolescence Rate
1	Computer	7 Years
2	Television	15 Years
3	Refrigerator	15 Years
4	Washing Machine	15 Years

The total WEEE generation in India has been estimated to be 146180 tonnes per year based on selected EEE tracers' items. This figure does not include WEEE imports.

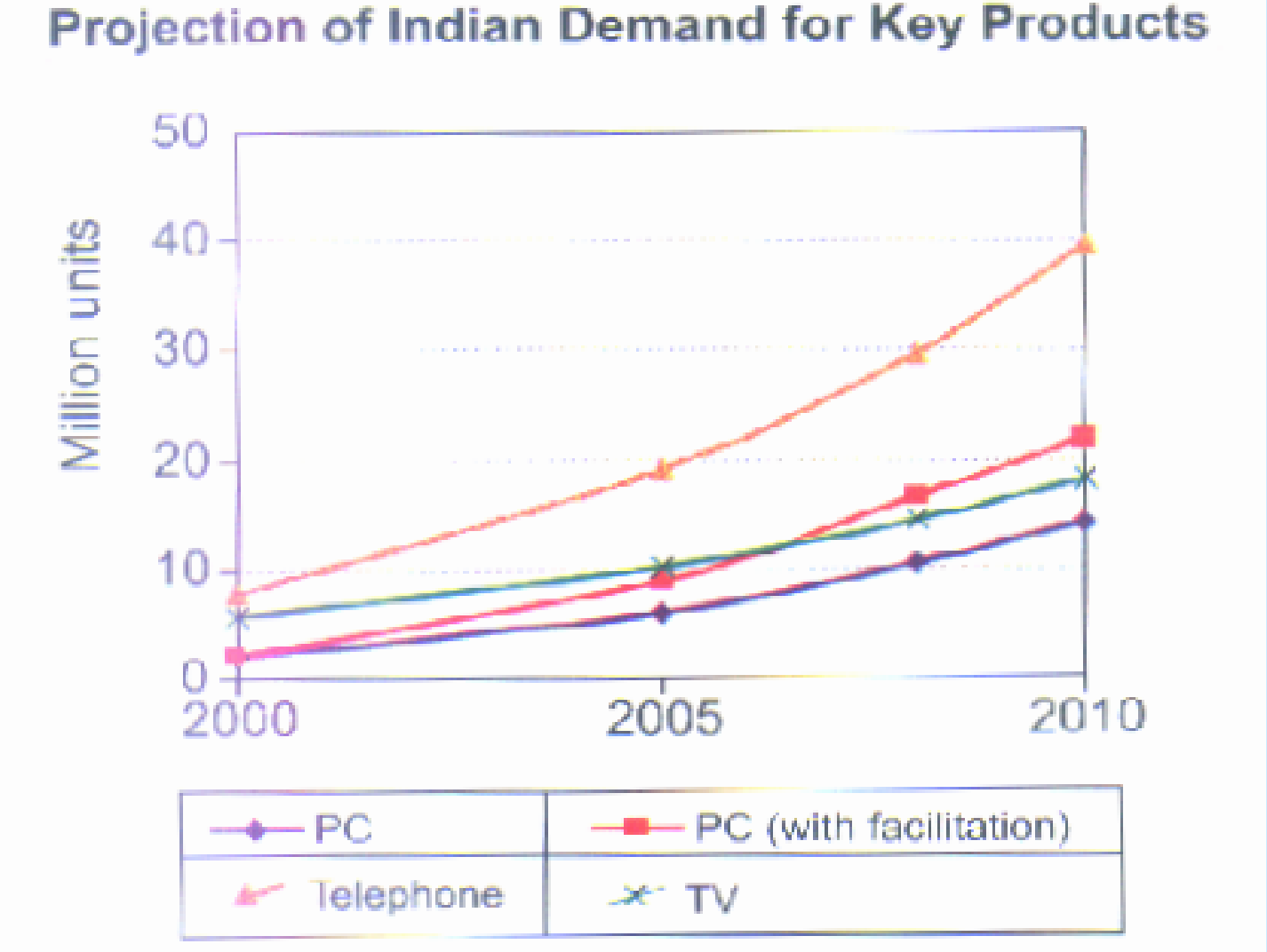
WEE Generation Top Ten States

Sr.No.	STATES	WEE (Tonnes)
1	MAHARASHTRA	20270.59
2	TAMIL NADU	13486.24
3	ANDHRA PRADESH	12780.33
4	UTTAR PRADESH	10381.11
5	WEST BENGAL	10059.36
6	DELHI	9729.15
7	KARNATAKA	9118.74
8	GUJARAT	8994.33
9	MADHYA PRADESH	7800.62
10	PUNJAB	6958.46

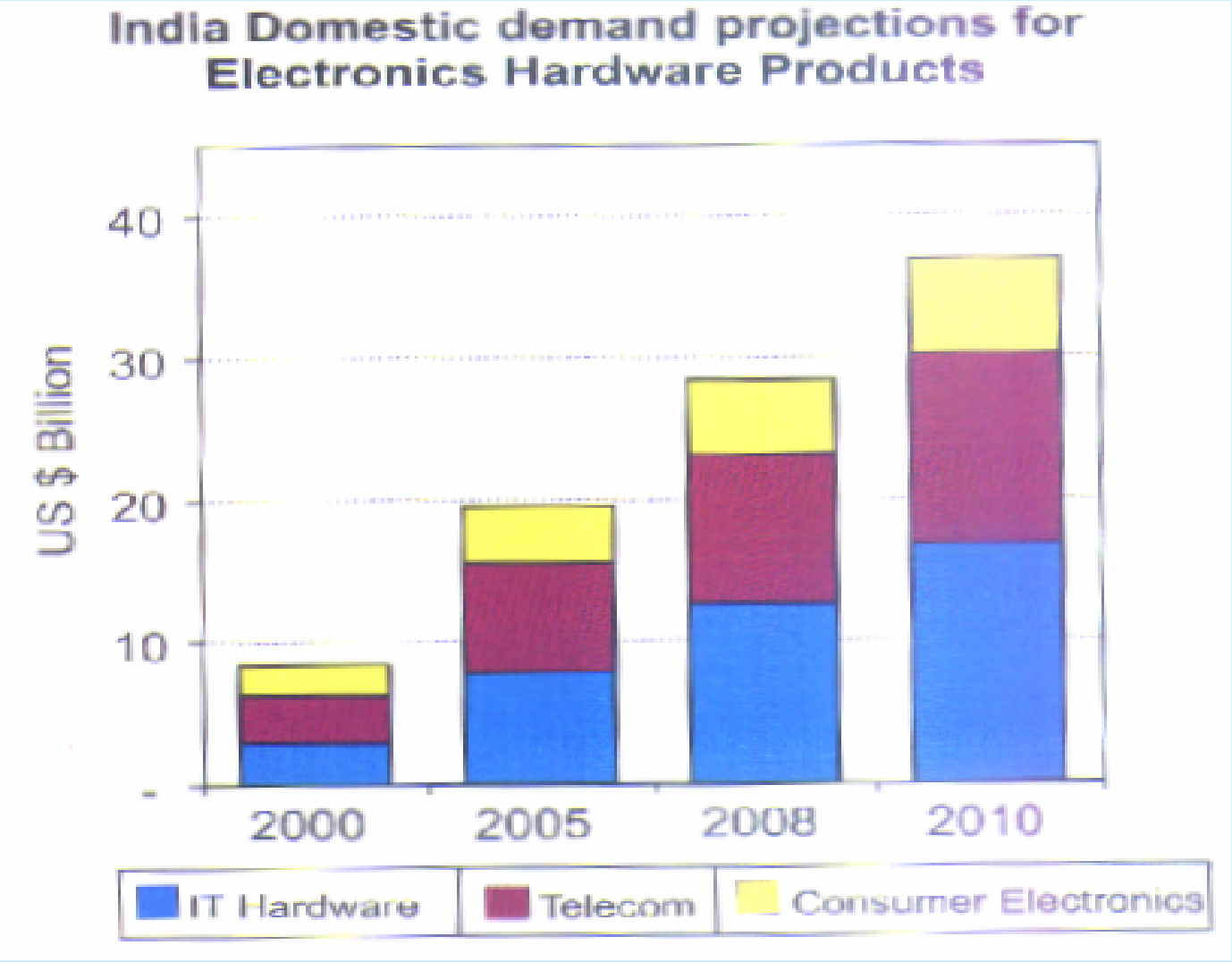
WEE Generation Top Ten Cities

CITY	WEEE (Tonnes)
AHMEDABAD	3287.5
BANGLORE	4648.4
CHENNAI	4132.2
DELHI	9730.3
HYDERABAD	2833.5
KOLKATA	4025.3
MUMBAI	11017.1
NAGPUR	1768.9
PUNE	2584.2
SURAT	1836.5

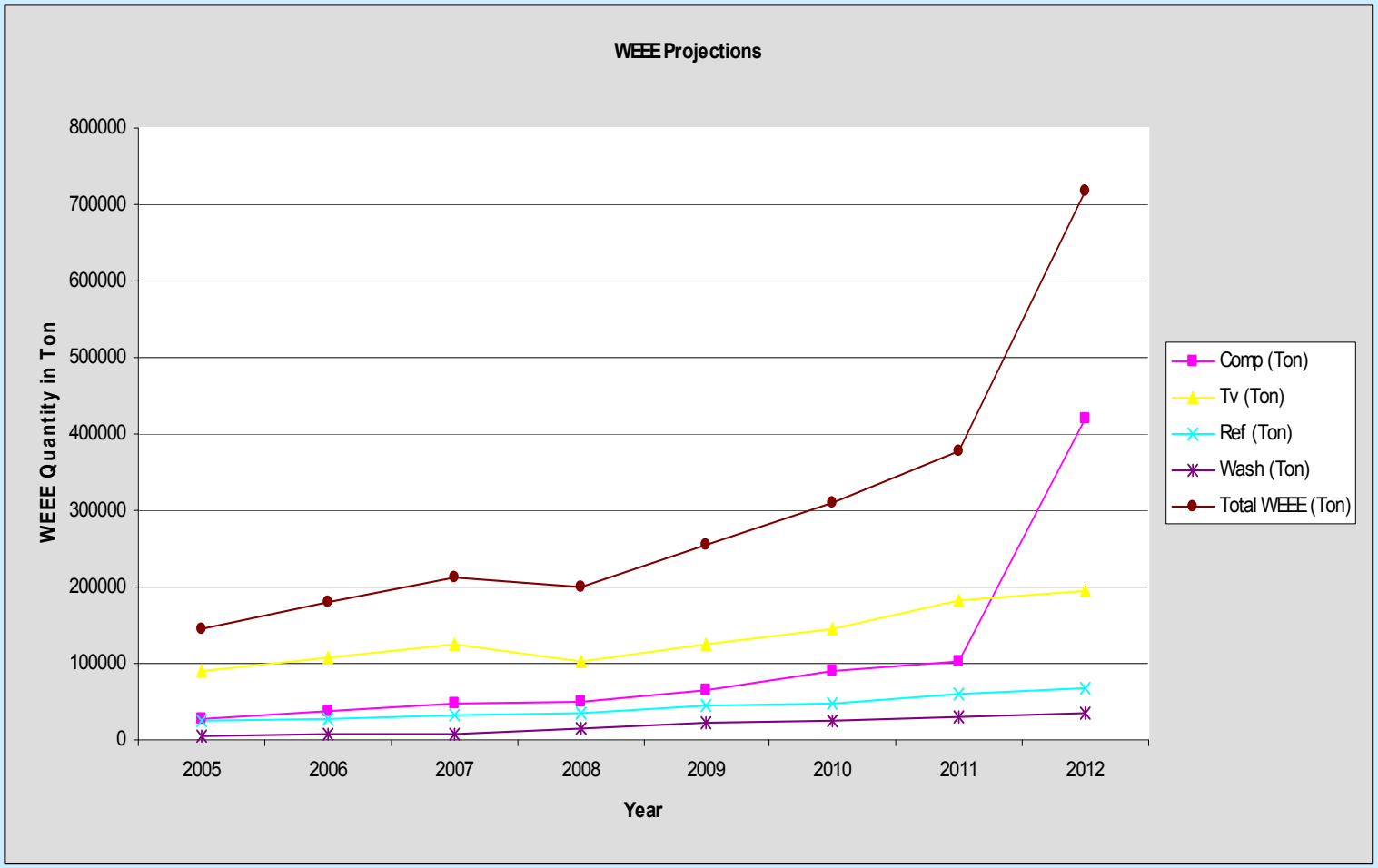
Indian Scenario



Indian Scenario



WEE Projections



Status 2006

- City level assessment – Mumbai/ MPCB/ UNEP/ IRGSSA
- City Level Assessment – Pune/ MPCB/ UNEP/ IRGSSA
- ESM Guidelines – CPCB/ IRGSSA
- Training & capacity building – HAWA/ GTZ
- Information dissemination through workshops – MPCB/ KPCB/ HAWA GTZ/ Toxicslink/ Other Agencies

Items of Mumbai/ Pune Study

Sr. No.	Electronic Item	Tracer
1.	Cellular Phone	LCD screen
2.	Personal Computer	CRT
3.	Television	CRT
4.	Refrigerator	Compressor

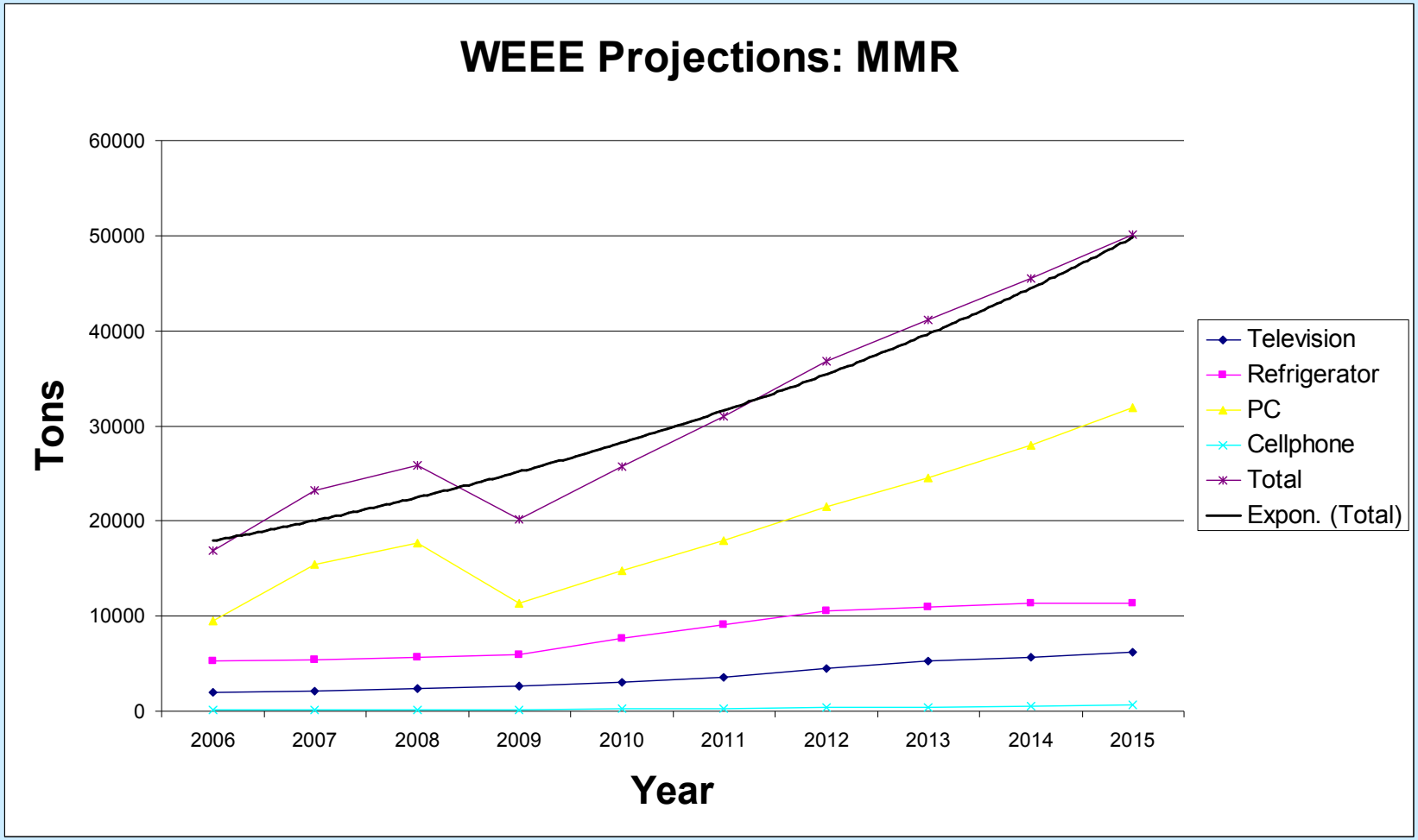
Obsolescence rate

Sr. No.	Electronic Item	Obsolescence Rate (years)	
1.	Cellular Phone	2	4
2.	Personal computer	5	7
3.	Refrigerator	15	17
4.	Television	15	17

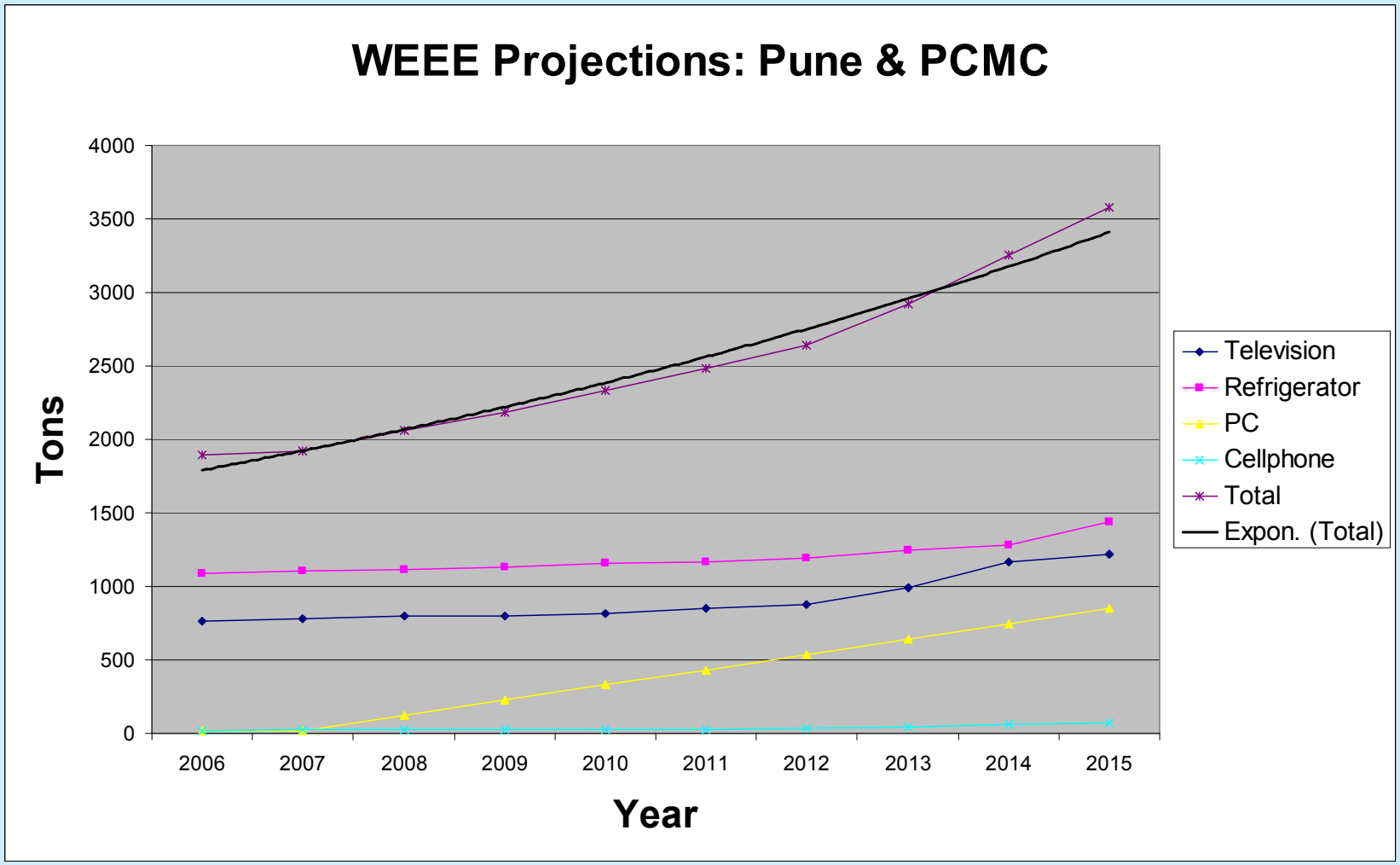
E-Waste Generation in 2007

Region	Items	Obsolescence Rate	Waste in Tonnes/yr
MMR			
1	Cell Phone	2	144.1264454
	Personnel Computer	5	15461.503
	Refrigerator	17	5457.49389
	Television	15	2155.457655
	Total		**23218.58074**
Pune			
2	Cell Phone	2	24.26201389
	Personnel Computer	5	17.05712
	Refrigerator	17	1102.165416
	Television	15	776.4968418
	Total		**1919.981**

Projections (MMR)



Projections (Pune / PCMC)



Major Findings

1. Current E-waste generation doubles by 2015 in MMR (25,000 t to >50,000 t)

2. Current E-waste generation triples by 2015 in Maharashtra (49,458 t to > 1,77, 217 t)

3. Increase in environment related E-waste issues both at MMR and State level

4. Lack of E-waste related environmental infrastructure in formal sector in the state

5. Loss of recoverable resources at MMR and state level

Options for Intervention (2007-08)

1. Policy
2. Technical
3. Financial
4. Implementation & capacity building

Policy Level Intervention (2007-08)

- Definition of e-waste and its inclusion in regulation (Part included in Schedule IV, Haz Waste 2008)
- Import and Export regulatory regime (governed by Haz Waste 2008)
- Access to EST & ESM - CPCB/ MoEF Guidelines
- Facilitation & development of infrastructure

Regulatory System

India:

- Hazardous waste management rules
- ESM Guidelines

International:

- Fee based Extended Producer Responsibility model
- Tax based/ Fee based Hazardous waste management rules

E-waste Management System

Major components:

- **E-waste collection, sorting and transportation system**
- **E-waste treatment system**
- **E-waste disposal system**

In India no E-waste collection and transportation system is in place and there are six registered E-waste recyclers. However 60% E-waste is generated from business/ commercial sector

Technical Intervention

- Restriction for use of toxic material
- Use of environmentally friendly material
- Development of criteria for recovery and disposal
- Design and engineering interventions
- Adoptability for up-gradation

Financial Intervention

- Incentives for collection, recycling, disposal
- Incentives as of Infrastructure projects
- Viability Bridge Finance
- Advance Recovery Tax
- MODVAT for sale of e-waste

Implementation & Capacity Building

1. Legislation for collection, recycling and disposal
2. Institutional capacity building
3. Bilateral & multilateral cooperation and technical assistance

Thank you !