

# The Workshop of the Asian Network 2013

Correlation between Transboundary Movements and  
Environmentally Sound Management of Hazardous  
Waste

Day 3: Thursday, 21<sup>st</sup> November 2013

Presented by:  
Amit Jain

**IRG Systems South Asia Pvt. Ltd.**  
Lower Ground Floor, AADI Building,  
2-Balbir Saxena Marg, Hauz Khas,  
New Delhi – 110 016, INDIA



# OUTLINE

1. Who we are / Our work on E-waste
2. Brief about E-waste in India, Current Status of E-waste Recycling Facilities, E-waste imports/ Exports
3. Necessary Measures to ensure predictable supply of E-waste stream to ESM Facility
4. Any waste stream that cannot be handled in an environmentally sound manner and its destinations
5. Views on the relationship between ESM and transboundary movements

# IRG Systems South Asia Pvt. Ltd.

- We are consultants
- Provide technical assistance in environment, energy, natural resources, water resources, and disaster relief & reconstruction in the region
- A Team of Professionals who have both national and international work experience supports IRG-SSA operations. IRG-SSA has executed projects in SAARC countries – Nepal, Bangladesh, Bhutan, Sri Lanka, India, Maldives, Other Countries - Egypt, Uzbekistan, Cambodia, Oman

# WORK on E-waste

1. E-waste inventory study for Delhi (CPCB/ MoEF/ GTZ/ASEM/ SECO), 2003
2. National level inventory study (CPCB/ MoEF/ GTZ/ASEM),2005-06
3. E-waste inventory study for Pune (MPCB/UNEP), 2006-07
4. E-waste inventory study for Mumbai/MMR (MPCB/UNEP), 2006-07
5. ESM guidelines on E-waste Management for MoEF (MoEF/CPCB), 2007-08
6. Feasibility studies for eight E-waste recycling facilities in India – till date
7. Design and Engineering of E-waste management system for GIFT City (Gujarat), IL& FS, 2007
8. EIA of E-waste treatment and disposal facility in India for a recycler, 2007-08
9. E-waste manuals for E-waste Management (Manual 1 & Manual 2) for UNEP/ IETC (vetted by SBC/ UNEP Chemicals/ Others), 2007 -08
10. E-waste master plan for Phnom Penh city, Cambodia (UNEP), 2008 - 09
11. E-waste Treatment/ Disposal feasibility study and viable business model for Maharashtra (MPCB), 2009-2010

# WORK on E-waste (contd.)

12. Technical assistance as part of transaction advisory for E-waste Treatment/ Disposal facility under PPP for MUMBAI Metropolitan Regional Development Agency (MMRDA) 2011-12
13. UNEP's E-waste Manual 3 on "Take Back Mechanism" 2011 – 12.
14. E-waste Inventorization, E-waste Management and Development of Business Model for Sultanate of Oman, Royal Government of Oman, 2011
15. Country Assessment, E-waste Management for major international recycler, 2011
16. E-waste export agreement and strategic investment for a major Indian E-waste recycler with an international recycler, 2011-12
17. "E-waste and allied product Recycling Industry Analysis" for a major international investor, 2012
18. Indian E-waste Recyclers Assessment for a major international investor, 2012
19. E-waste study in Mumbai Metropolitan Region (MMR) including "Take Back" mechanism NMD/ NEDO/ Ex Corp., Japan (2012-14),
20. E-waste inventorization studies for four cities in the state of Bihar, Bihar State Pollution Control Board (2013)
21. E-waste inventorization studies for four divisions in the state of Madhya Pradesh, Madhya Pradesh Pollution Control Board, India (2013)
22. **Ten publications on E-waste in international journals and books**

# Current Status of E-waste Recycling Facilities, E-waste imports/ Exports

1. E-waste is one of the major waste streams in India which was expected to exceed 800,000 tons by 2012. Top ten cities generating E-waste included: Mumbai, Delhi, Bangalore, Chennai, Kolkata, Ahmedabad, Hyderabad, Pune, Surat & Nagpur ( 2006 estimates)
2. Indian E-waste recycling industry material flow analysis indicates that E-waste recycling infrastructure consists of E-waste collectors, transporters, dismantlers and recyclers who are linked to each other as part of trade chain.

# Current Status of E-waste Recycling Facilities, E-waste imports/ Exports

(Contd.)

3. The informal sector collects, manually dismantles and practices leaching to recover/ concentrate metals as part of E-waste recycling chain. Other operations performed are de-soldering of printed circuit boards and open dumping as part of recycling chain.
4. E-waste included as part of Hazardous Waste (Management, Handling & Transboundary Movement) Rules 2008 allowing registration of Recyclers; export & restricted import of E-waste.
5. E-Waste (Management & Handling) Rules 2011 based on EPR but without targets & Economic Instrument.

# Current Status of E-waste Recycling Facilities, E-waste imports/ Exports (Contd.)

6. Since 2008 – till date 116 Recyclers/ Dismantlers with installed capacity > 300,000 tons/ annum)

Zone	Total Recycling Capacity in MTA	No. of Recyclers/ Dismantlers
Southern Region (Andhra Pradesh, Karnataka, Tamil Nadu)	108997	61
Northern Region ( Haryana, Rajasthan, Uttar Pradesh, Uttarakhand)	175580	31
Eastern Region (Chhattisgarh)	900	1
Western Region (Gujarat, Maharashtra)	45480	23
<b>Total</b>	<b>330,957</b>	<b>116</b>

Source: MAIT/ CPCB/ SPCBs



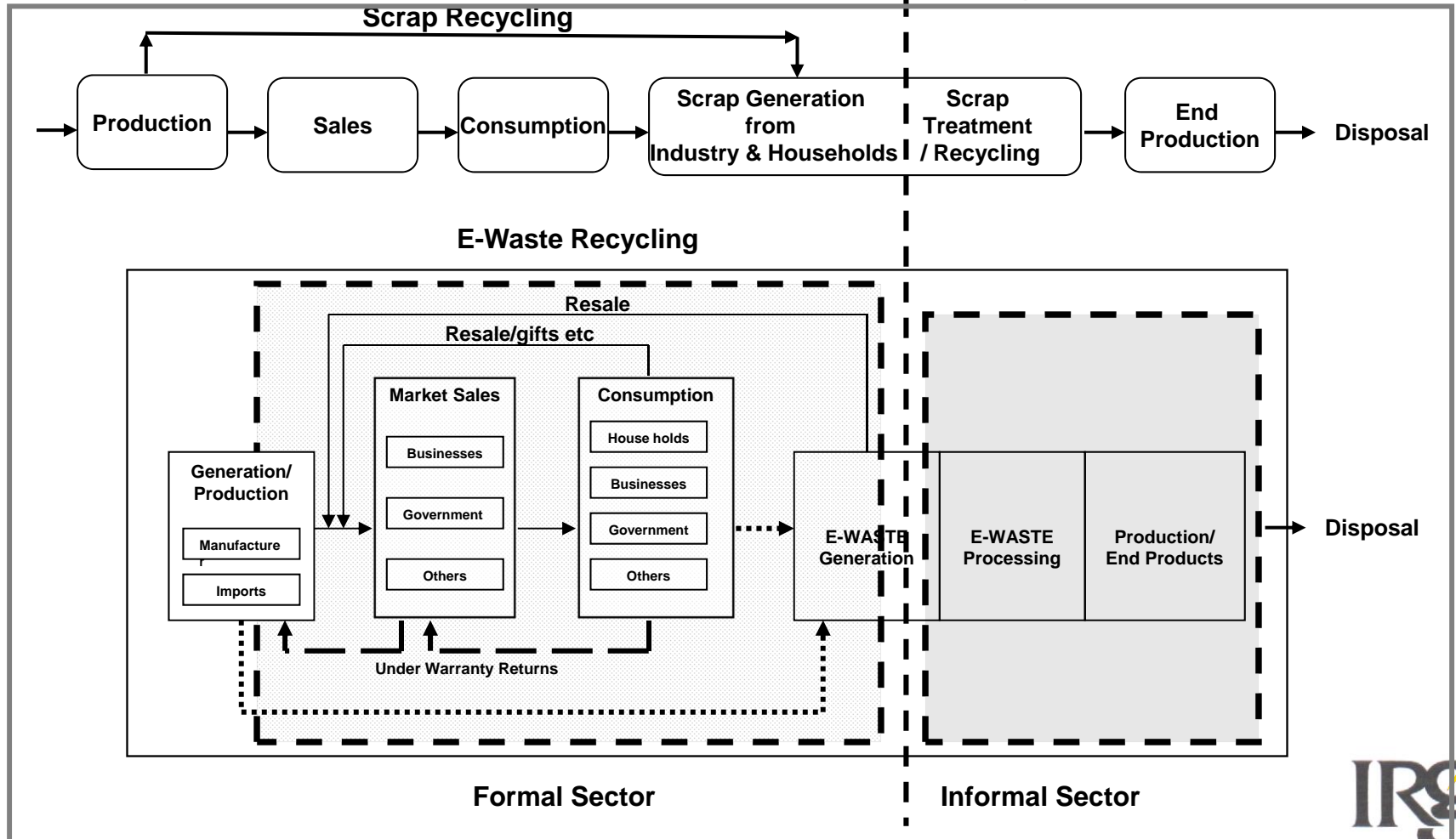
# Current Status of E-waste Recycling Facilities, E-waste imports/ Exports (Contd.)

7. 85 % are dismantlers having an installed capacity < 7500 MTA, while 15% are recyclers having very limited capacity of recycling (shredding, pyrometallurgical/ hydrometallurgical processing and disposal in general/ hazardous landfills and incinerators).
8. Dismantlers/ Recyclers are also involved in collection of E-waste, both business to business (B2B) and consumer to business (C2B).
9. As per industry estimates only 2% – 5 % of the E-waste generation is going into formal sector.
10. Major item of interest for export & import - PCBs

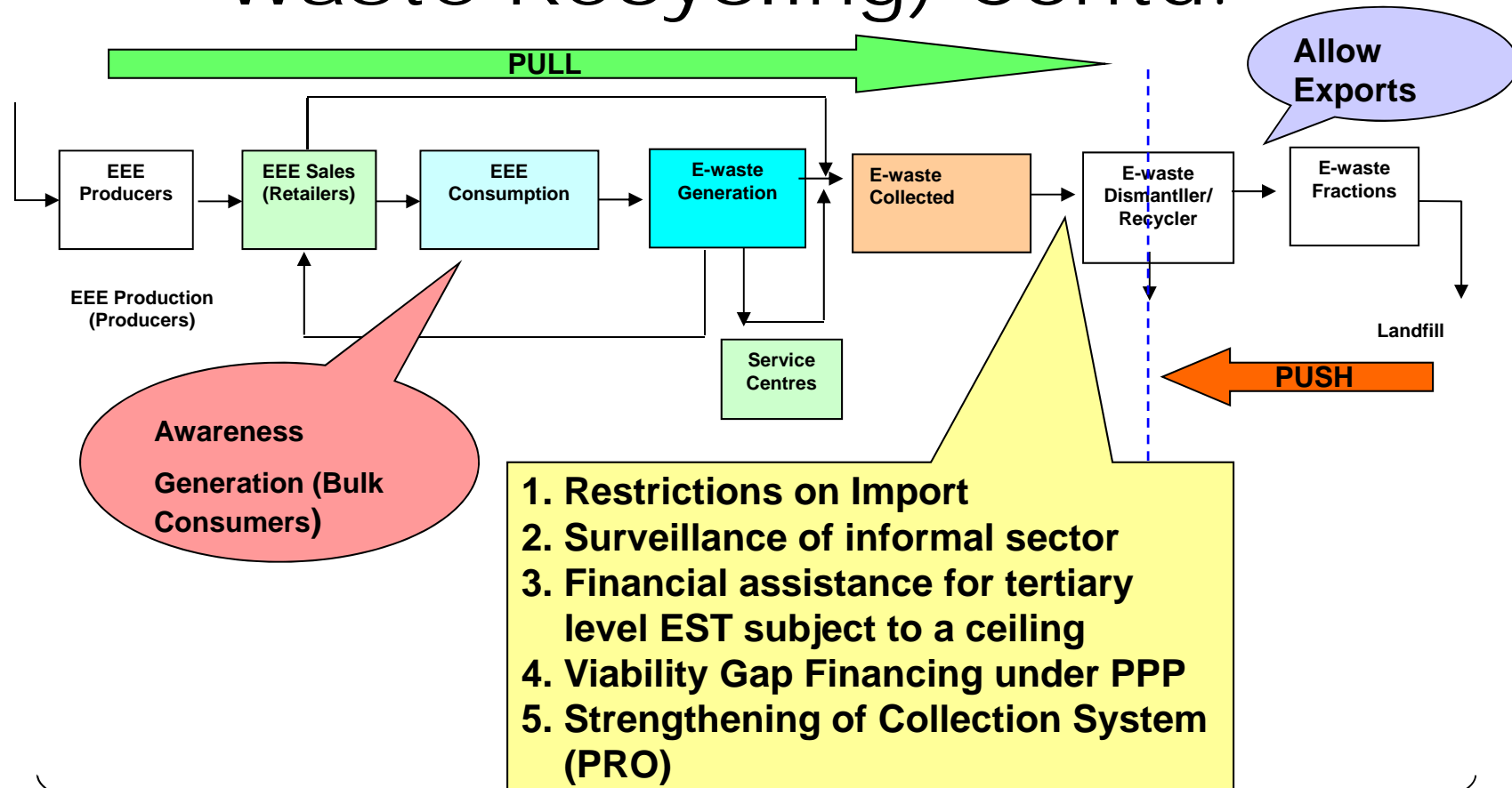
# Current Status of E-waste Recycling Facilities, E-waste imports/ Exports (Contd.)

10. Major item of interest for export – PCBs both low and high quality
11. Rough Industry estimates of exports of PCB – 3000 to 4000 tons per annum.
12. Major countries for export – Europe ( Germany & Belgium)
13. New Markets for Export – Japan and South East Asia

# Strategies/ Future Plans for Promoting ESM: Recycling Industry Mapping (Scrap Recycling vs E-Waste Recycling)



# Strategies/ Future Plans for Promoting ESM: Recycling Industry Mapping (Scrap Recycling vs E-Waste Recycling) Contd.



Producers Made Responsible under EPR Regulations

# Difficulties/ Barriers in Export / Import

1. Selection of the exporting country is very important i.e. generation potential, availability of material, regulatory regime
2. Selection of the right partner for Ex / Im. Credentials of the partners i.e. Business/ Regulatory Compliance records & Financial Health of the exporter
3. Non complementary of domestic regulations (Haz. Waste dealing with Ex / Im Vs. Individual Waste Stream Regulations) e.g. Definitions / Items Covered / Procedures leading to fundamental difference in approach to Ex / Im

# Difficulties/ Barriers in Export / Import ( contd.)

4. Requirements of Ex / Im countries differ –  
Procedural requirement differ from country to country even after following Basel Procedures e.g. issues related to prior communication/ language of prior communication/ “WHO” to “WHOM” & “WHAT”
5. Requirements of transit countries e.g. how many countries, formats/ language used for each country and time taken by each country to permit waste in transit
6. Lack of “information sharing” of one successful Ex / Im case with others

# Difficulties/ Barriers in Export / Import ( contd.)

## 7. High Cost of Ex / Im transactions

- Ownership Issues
- Liability Issues
- Insurance Issues
- Transporter's Issues ( ownership during transit & who pays for "take back" transportation if at all)

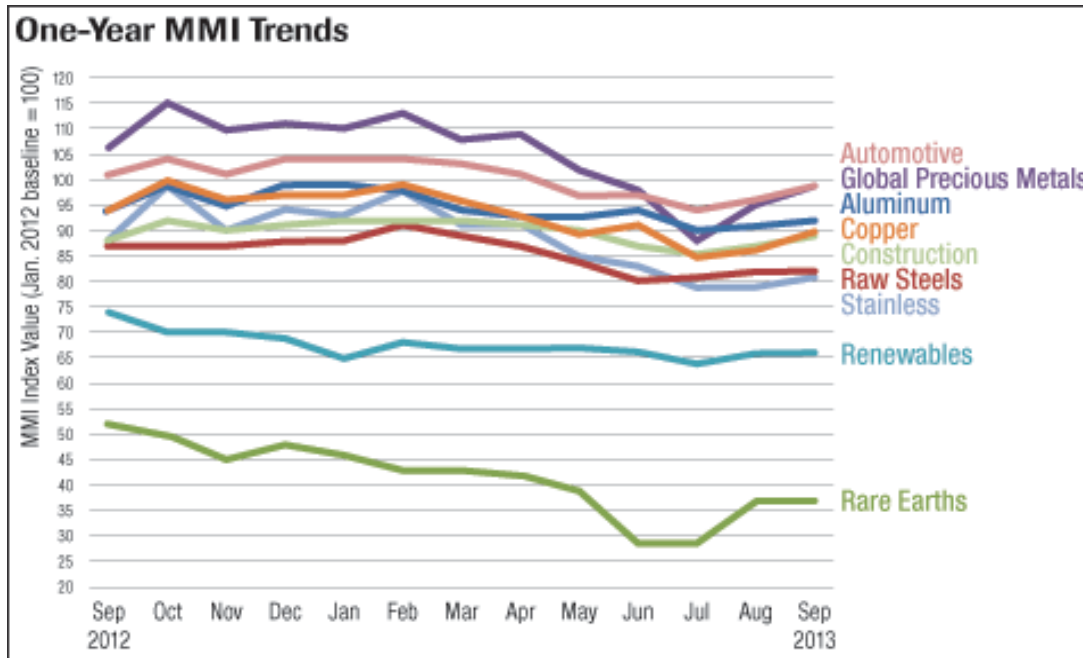
## 8. At Ports / Customs:

- Interpretation of "Waste" Vs. "Scrap" differ from country to country & therefore application of codes may differ
- If "Confiscated / Abandoned", How, Where and Who should be assigned responsibility for disposal.

# Difficulties/ Barriers in Export / Import ( contd.)



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TIME LAG



# Views - To ensure stable & predicable supplies of E-waste stream into ESM facility

1. Harmonization of domestic regulations to remove “non complementarities”
2. Start up and gradual strengthening of collection mechanism
3. Harmonized codes/ formats/ indicators at international level for new waste streams and their mainstreaming into domestic regulations
4. Greater outreach and information sharing both at domestic and international level
5. Awareness raising
6. Capacity building of regulators and other stakeholders

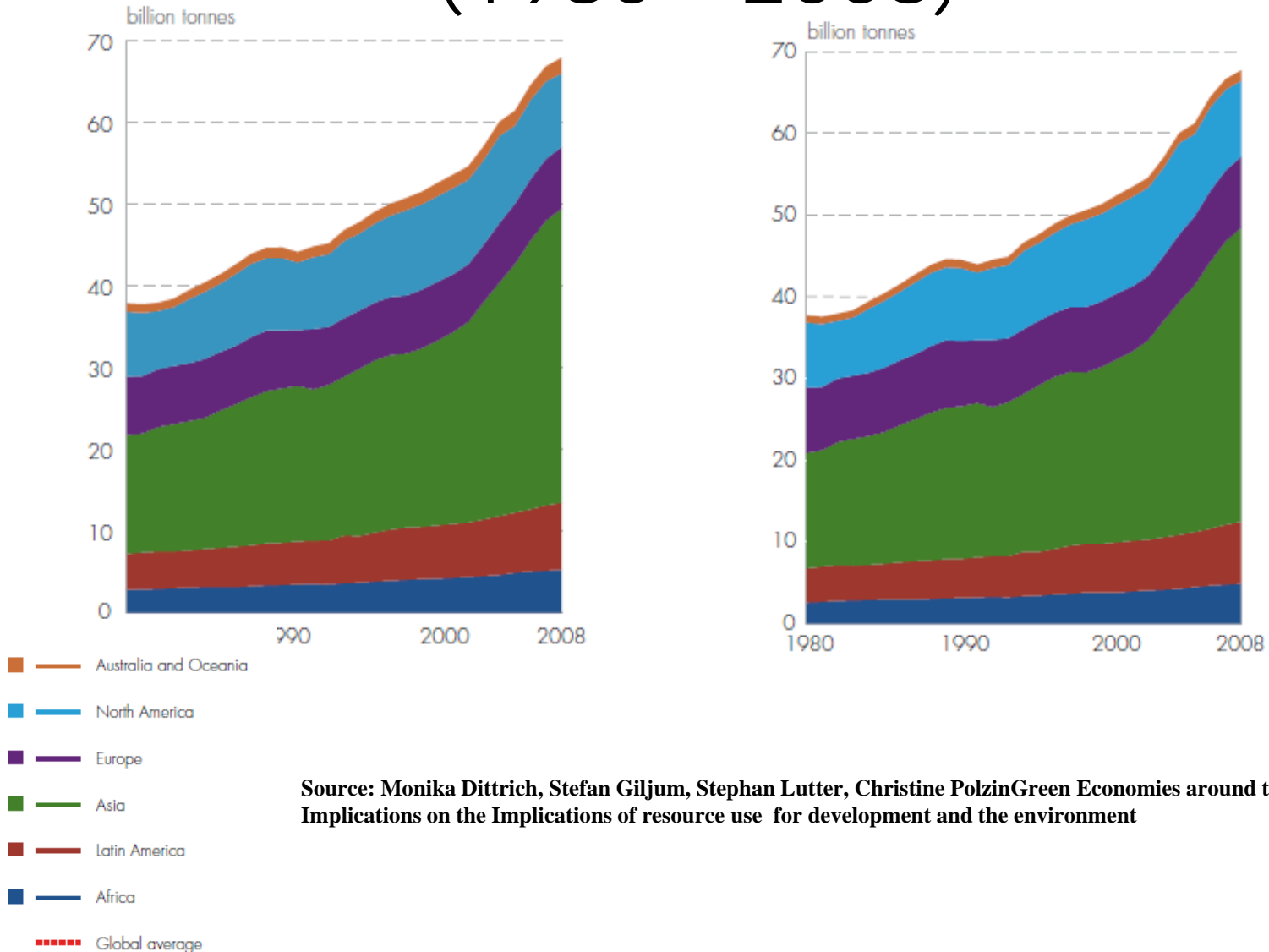
# New Waste Streams Requiring ESM and its Destinations

E-waste containing mercury e.g. CFLs & Automobile waste especially catalytic converter



Dust  
Exported

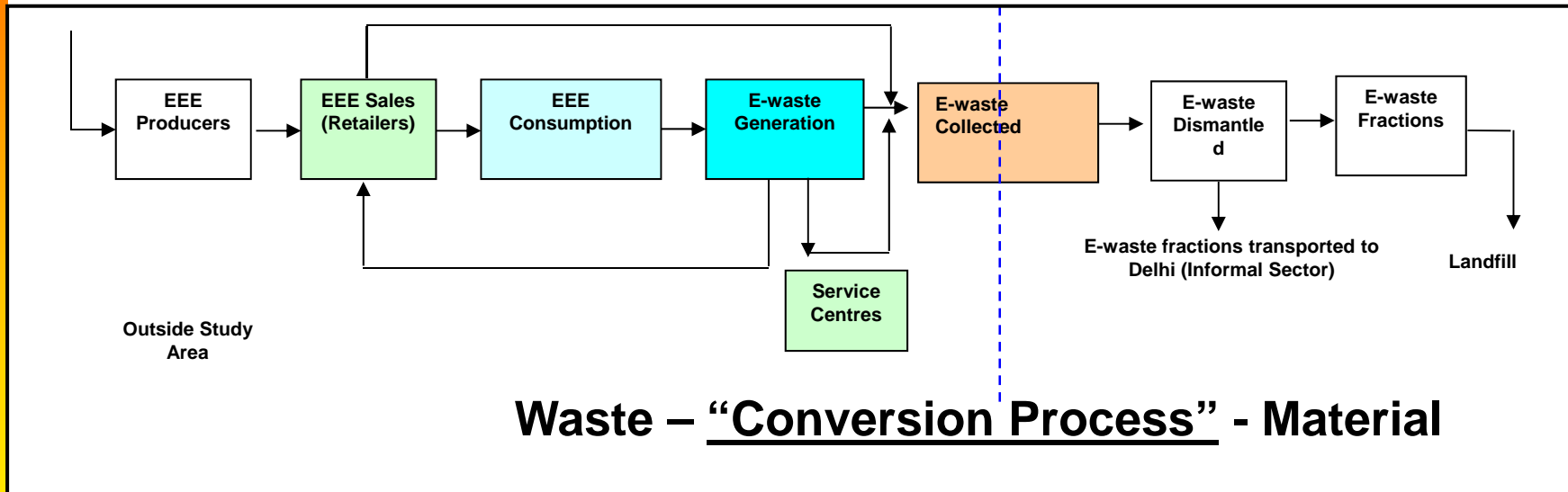
# GLOBAL PERSPECTIVE - MATERIAL EXTRACTION VS. CONSUMPTION (1980 - 2008)



Source: Monika Dittrich, Stefan Giljum, Stephan Lutter, Christine Polzin Green Economies around the World, Implications on the Implications of resource use for development and the environment

# Views – Relationship between ESM and Transboundary Movements

1. Need for materials
2. Source of material – Natural Resource Vs. Waste



3. All the “Steps/ Unit Operations” in “ Conversion Process” need to be carried out in ESM
4. What is ESM & Who defines ESM ??????

# Views – Relationship between ESM and Transboundary Movements (contd.)

5. ESM standards for “ Conversion Process” across Asia – What standards & for whom e.g. R1/ R2 / e-Stewardship/ WEEE standards / ISO series of standards.....and unending list – confusion?????
6. Developing countries have limited capacity to adopt, mainstream and implement these “standards” & “certifications” – Need for uniform ESM standards in Asia
7. Leading to “ Distributed Environmentally Sound Conversion Process” in Asia depending on country’s capacity & capability.
8. Eventually this will lead to transboundary movements across Asia

# THANK YOU

**[amit@irgindia.com](mailto:amit@irgindia.com) / [amit@irgssa.com](mailto:amit@irgssa.com)**

**IRG Systems South Asia Pvt. Ltd.**

**LGF, Aadi Building,**

**2 Balbir Saxena Marg,**

**Hauz Khas, New Delhi 110016**

**Tel:+91 11 45974597**