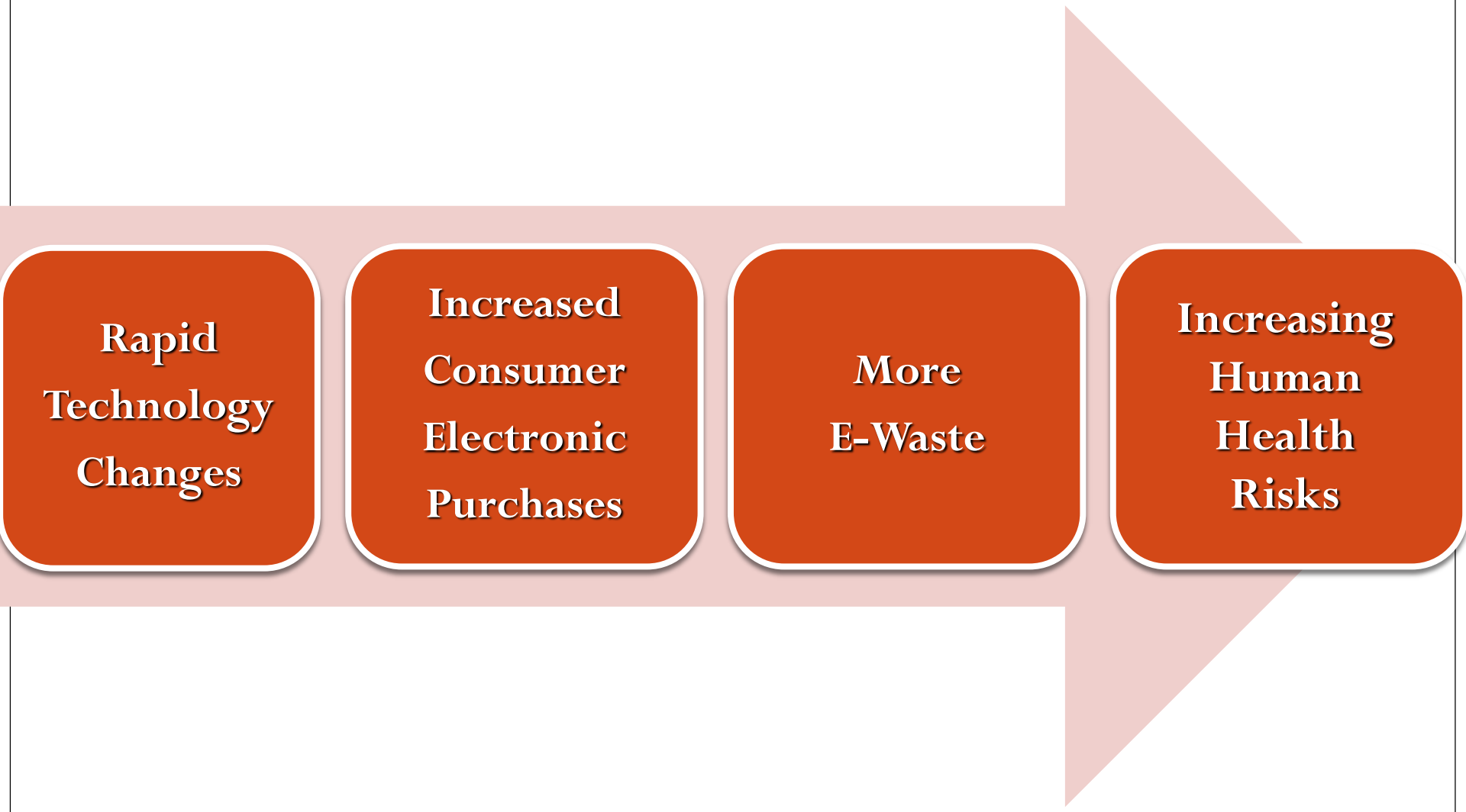
Electronic waste

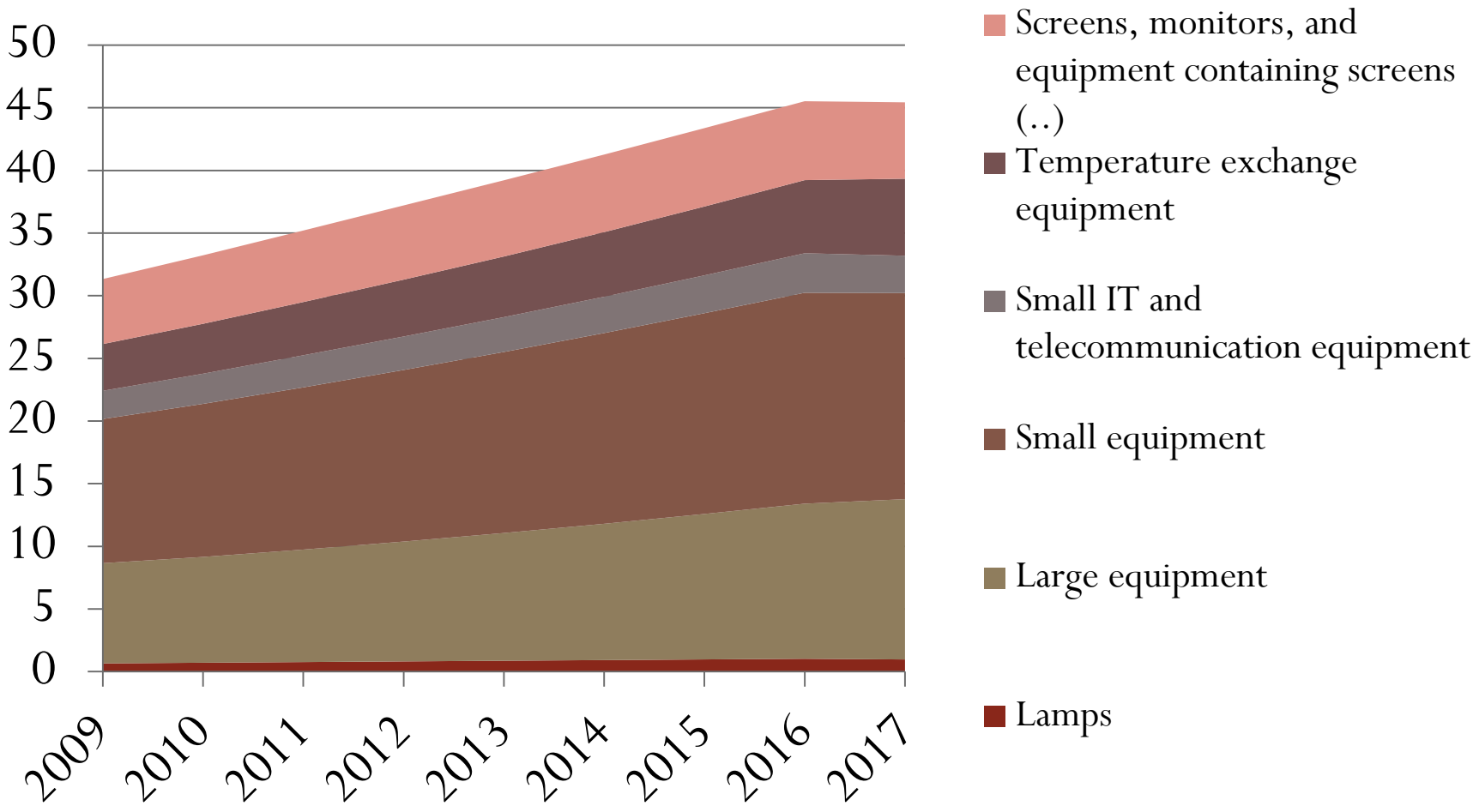
(E-waste)

E - WASTE

Electronic waste(e-waste) describes discarded electrical or electronic devices. The term "waste" refers to the residue or material which is dumped by the buyer rather than recycled, including residue from reuse and recycling operations.


Rapid Technology Changes
Increased Consumer Electronic Purchases
More E-Waste
Increasing Human Health Risks

E-waste amounts (Mt)



HAZARDS OF E-WASTE

- E-waste contains significant quantities of toxic metals and chemicals.
- Many elements of this waste contain poisonous substances such as Lead, Tin, Mercury, Cadmium and Barium, which cause severe diseases like cancer, birth defects, neurological and respiratory disorders .

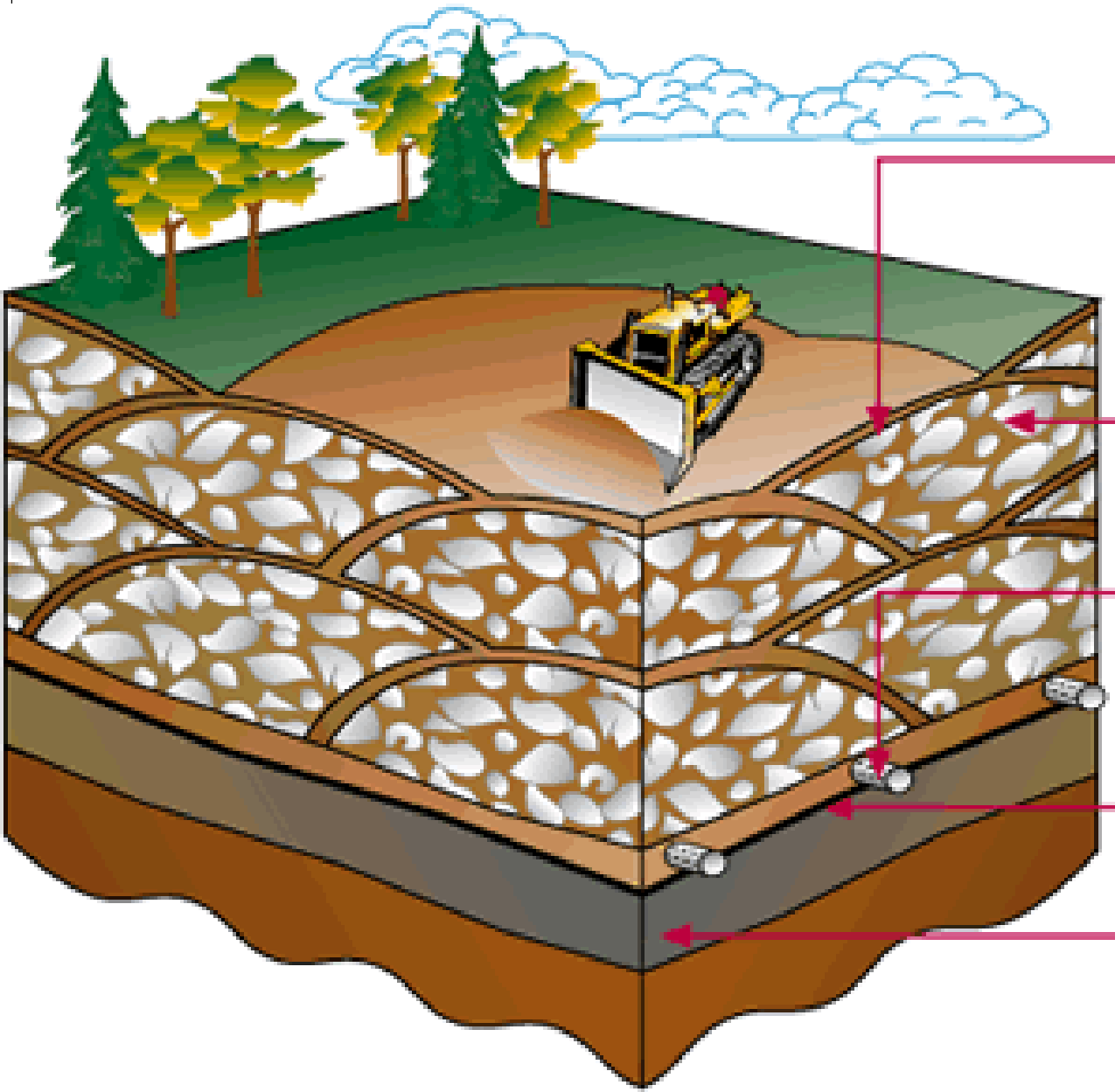
Hazardous Waste

1. **Lead** in cathode ray tubes and solder.
2. **Arsenic** in older cathode ray tubes.
3. **Selenium** in circuit boards as power supply.
4. **Polybrominated flame retardants** in plastic casings, cables, and circuit boards.
5. **Antimony trioxide** as flame retardant.
6. **Cadmium** in circuit boards and semi-conductors.
7. **Chromium** in steel as corrosion protection.
8. **Cobalt** in steel for structure and magnetivity.
9. **Mercury** in switches and housing.

E-waste Treatment & Disposal Methods

- Land filling
- Incineration
- Recycling
- Re-use

LANDFILLING



Cross-section of an active landfill:

Daily cover
No landfill refuse is left exposed overnight - at the end of each day, all refuse is covered with at least six inches of compacted soil

Refuse cell
Compacted garbage surrounded by soil from daily cover

Leachate collection
Perforated pipes in a layer of sand collect rainwater that has filtered through the landfill (leachate)

Plastic liner
Prevents soil and water contamination

Clay barrier
Prevents soil and water contamination

RECYCLING

Recycling of E-waste

Collection

Pre-processing

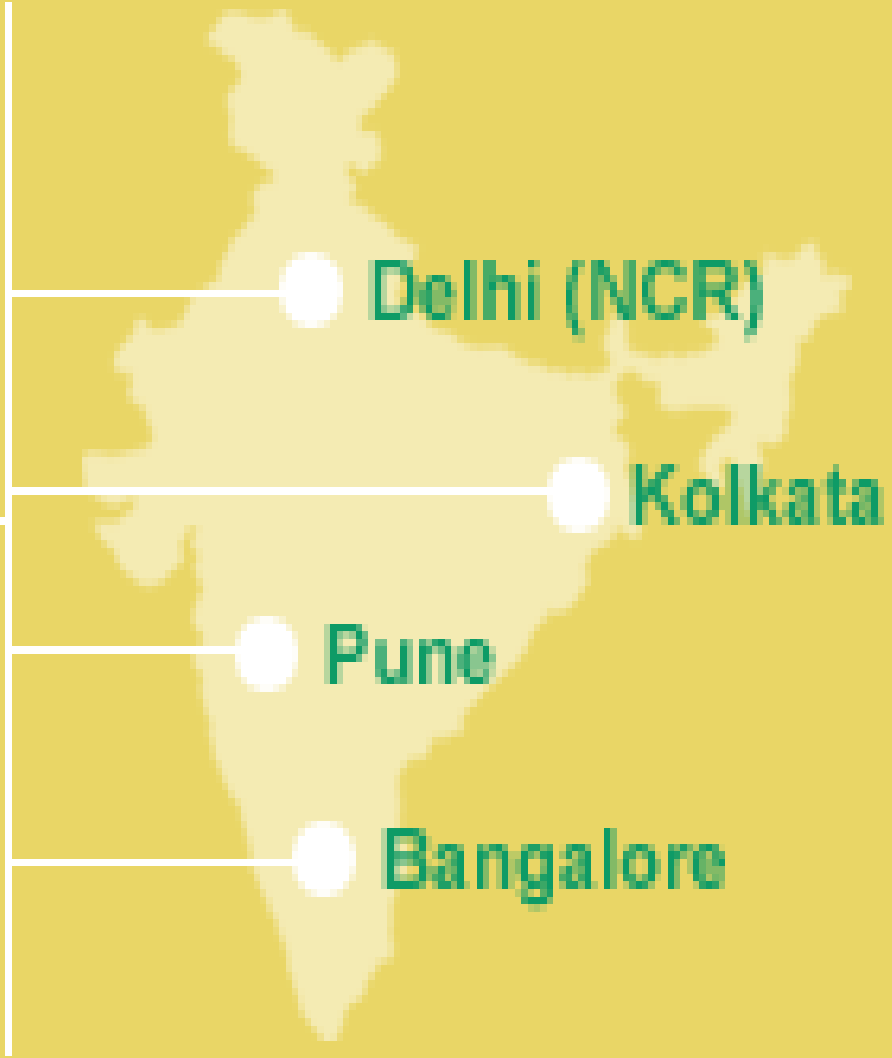
- Manual dismantling
- Mechanical separation
  Shredding, breaking, milling, and sequential sorting
- Combination of dismantling and mechanical separation

End-processing

- Base metal refinery
- Precious metal refinery
- Plastics recycling
- Battery recycling
- Other component treatment
- Disposal

Out of one ton computer waste, 99% is used for recovery of precious metals and another 1% for safe land filling. Formal recyclers have a permission to establish a recycling plant and consent to export metals to approved smelters globally.

E-Waste Collection Centres



* **Mumbai** tops the list in generating the highest amount of electronic waste in the country, is all set to have an exclusive site for dumping e-waste.

* Besides generation of 19,000 tonnes of electronic waste annually - inclusive of computers, televisions, refrigerators and washing machines- Mumbai receives a good amount of it through secret imports from developed world.

Bangalore **is generating around 12,000 tons of E-waste (from computers and peripherals) per year. Bharat Electronics Ltd., (BEL) has been the first public sector company to initiate E-waste management. The public sector companies have initiated programmes to manage E-waste.**

Challenges vs. opportunities in emerging economies for e-waste

Challenges

- Lack of investment and technology
- Lack of formal collection system
- Lack of financing schemes
- Lack of national e-waste legislations
- Presence of the informal sector
- Growing e-waste streams (domestic and import)

Opportunities

- (Relative) low labor cost
- Available technological know-how and management experience
- Create jobs + create revenue


Help keep electronic waste from growing.