



# Electrical and Electronic wastes

Learning centre on **Overcoming new  
challenges in chemicals and hazardous  
wastes management**

CSD-19

NLB Conference Room B

6 May, 3-6 pm



# Contents

- **Global e-waste problem**
- **E-waste programmes in Africa and Asia-Pacific**
- **PACE**

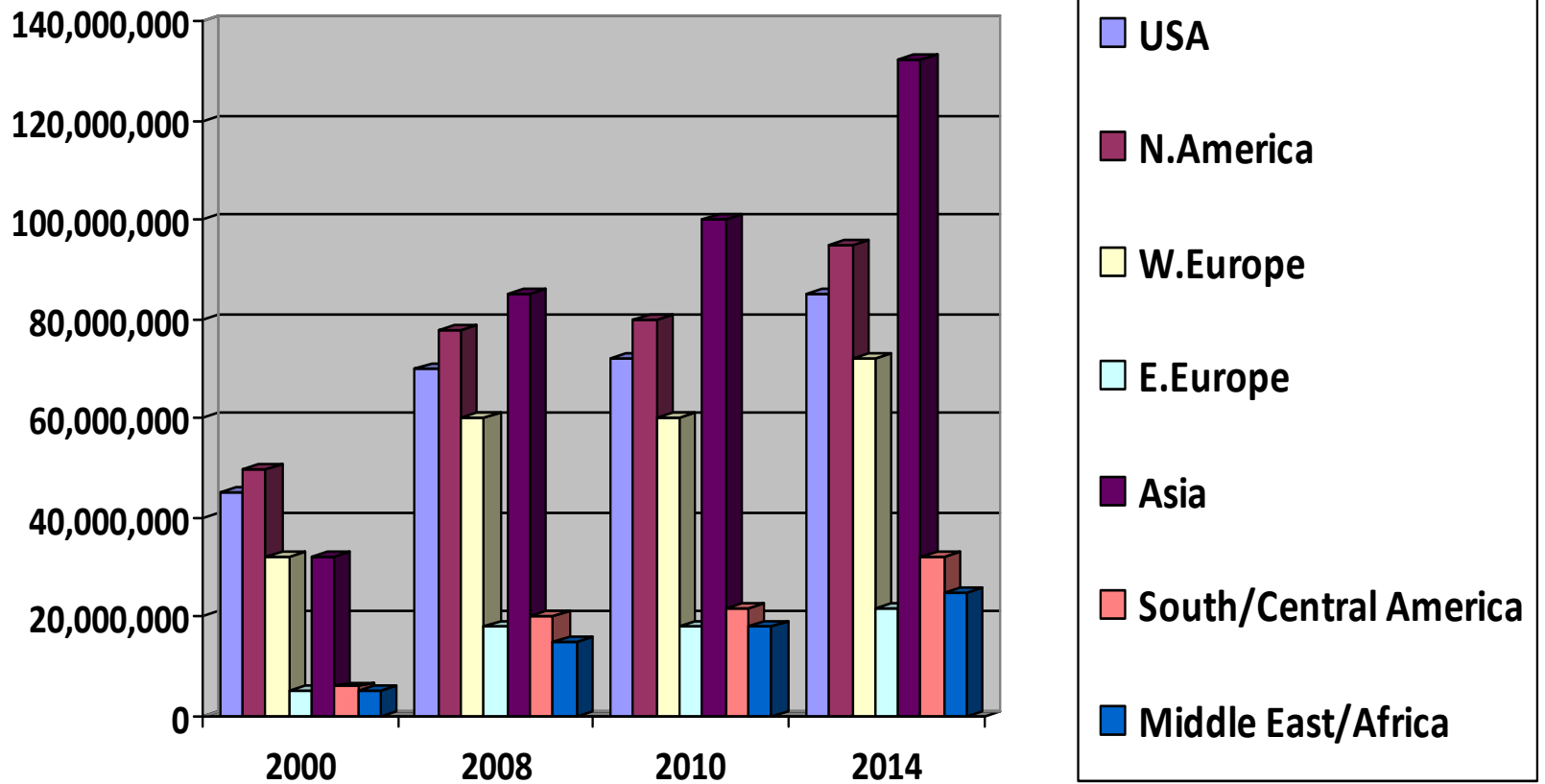
# Consumed Electrical and Electronic Products Will Generate

40-50 Million Metric Tonnes of  
e-Waste Globally Each Year





# Personal Computer (PC) Sales by Regions





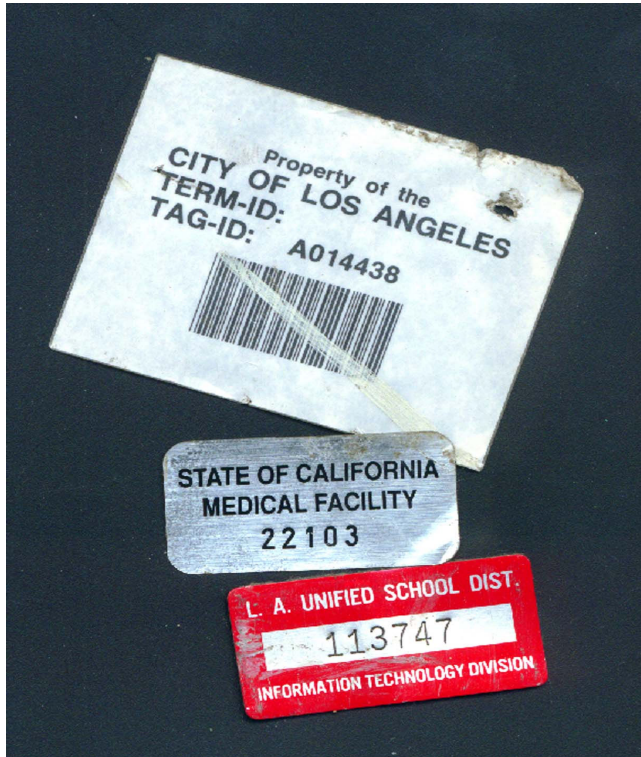
# Worldwide WEEE Problem?



**.... SECONDHAND – REFURBISHMENT“ – REPAIR - ....**



# Worldwide WEEE Problem?



.... DONATION - DIGITAL DIVIDE - ...



# Worldwide WEEE Problem?

---



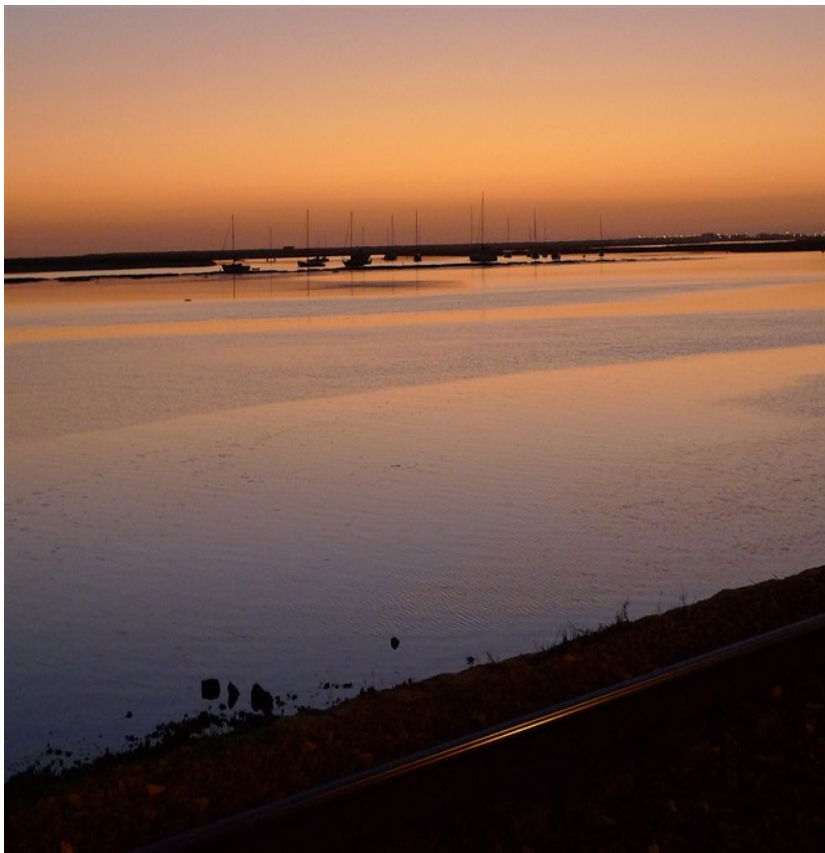
***.... RECYCLING – DISPOSAL– DUMPING ...***

## E-waste Africa programme

- **Timeframe:** November 2008 to March 2012
- **Countries involved:** Benin, Nigeria, Ghana, Cote d'Ivoire, Liberia, Tunisia and Egypt
- **Partners:** BCRC-Senegal, BCCC-Nigeria and BCRC-Egypt, IMPEL, EMPA and the Oko-Institute



# Project objectives



- Enhance environmental governance for e-waste in selected African countries
- Build capacity to monitor and control e-waste imports coming from the developed world, including Europe
- Protect the health of citizens
- Provide economic opportunities

## Component 1



### Objectives

- Gather information on flows of e-wastes from land and sea into West African countries
- Improve decision making and increase communication between exporting and importing countries

### Activities

- Five national studies in Africa: Liberia, Côte d'Ivoire, Benin, Ghana and Nigeria and two in Europe

### Preliminary results

- ✓ Nigeria is the most dominant importing country for electric and electronic equipment and vehicles, followed by Ghana and Benin
- ✓ The UK is the dominant exporting country for electric and electronic equipment, followed by France and Germany



## Component 2



### Objectives

- Improve management of e-wastes and end of life electric and electronic products in four African countries (Benin, Ghana, Côte d'Ivoire and Nigeria)

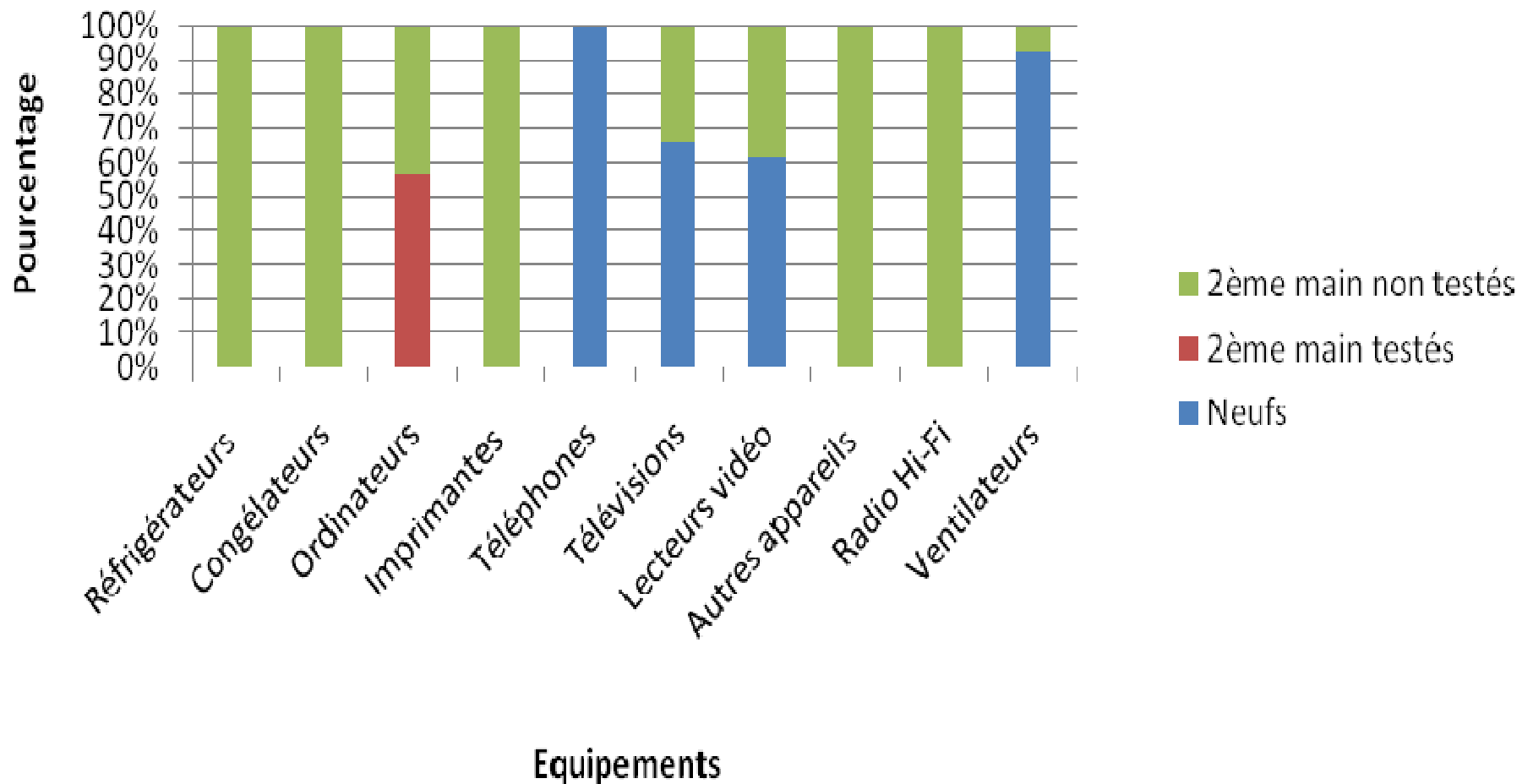
### Activities

- Develop country assessments of used and end of life e-equipment
  - Develop four management plans and draft strategies and policies for e-wastes management

### Preliminary results

- Among the various stages of the mass flow: import, consumption, repair, collection, recycling and disposal, the main challenges lie within *the*
  - *import, recycling and disposal stage*

# Categories of imported goods, Adjamé, Côte d'Ivoire





## Component 3



### Objectives:

- To study the feasibility of establishing environmentally sound materials recovery operations and promoting ESM in the context of the Basel Convention in a major informal e-waste recycling area in Africa (Nigeria)

-Other similar study in Ghana

# Component 3

*Example results Ghana*



## Currently Applied Recycling Technologies

Analysing environmental, social and economic strengths & weaknesses



## Best Available Recycling Technologies

Analysing environmental, social and economic strengths & weaknesses



## Best Applicable Recycling Technologies



## Component 4

Enforcement program on the monitoring and control of transboundary movements of used and end-of-life e-equipment and the prevention of illegal traffic in five African countries

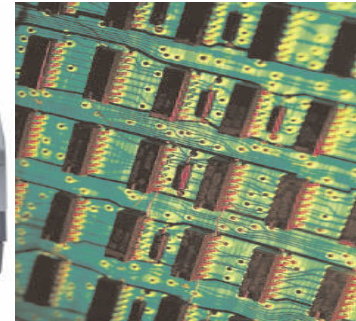
### Objectives

- Prevent illegal traffic
- Improve monitoring and control of exports from Europe to Africa of used and end-of-life e-products
- Establish a network of enforcement authorities in Europe and Africa



# What is Computing Equipment?

---



# POPs ?

---



## Brominated diphenyl ethers (BDEs)

Use: flame retardant

**C-pentaBDE:** most commonly used in flexible polyurethane foam (PUF)

**C-octaBDE:** most commonly used in acrylonitrilebutadiene styrene (ABS) plastic. Other use: high impact polystyrene (HIPS), polybutylene terephthalate (PBT) and polyamide polymers.

### **In electronic and electrical appliances:**

computers, home electronics, office equipment (plastic outer casings, printed circuit boards, internal plastic parts, components with rigid PUR)





# POPs ?



## Brominated diphenyl ethers (BDEs)

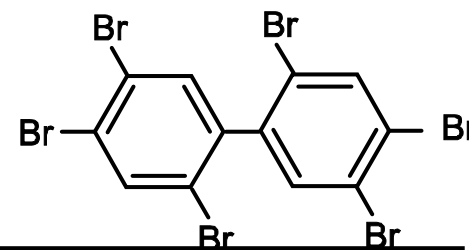
Specific exemption for recycling of listed BDEs:  
Implications?

→ Listed in **Annex A (Elimination)**

→ Exemption for production: **none**

→ Exemption for use: **may allow recycling of articles that may contain the chemicals, and the use and final disposal of articles manufactured from recycled materials that may contain the chemicals**

# POPs ?



## Hexabromobiphenyl

**Past use:** Flame retardants. Added to plastics used in products such as home electrical appliances, textiles, plastic foams, laptop cabinets, etc. to make them difficult to burn.

**Currently:** No production and use reported. Other polybrominated biphenyls are also controlled by RoHS Directive by EU.

**Alternatives:** Available

→ Listed in: **Annex A (Elimination)**

→ Production: **No exemption**

→ Use: **No exemption**





# Partnership for Action on Computing Equipment (PACE) under the Basel Convention

## *“PACE and its Activities”*

---

Basel Convention has adopted Partnership with industry, NGOs and other stakeholders as an effective strategy towards providing solutions to the global e-waste problem.





# PACE

---

## Mission Statement

*To increase environmentally sound management of used and end-of-life computing equipment, , taking into account social responsibility, the concept of sustainable development and promoting information sharing on life cycle thinking.*

## Scope

*The scope of the partnership will cover: Personal Computers (PCs) and associated displays, printers and peripherals\**

\* Computer monitor, including the following types of computer monitor:(a) cathode ray tube;(b) liquid crystal display;(c) plasma. Computer keyboard, mouse, and cables. Computer printer:(a) including the following types of computer printer:(i) dot matrix;(ii) ink jet; (iii) laser;(iv) thermal; and (b) including any computer printer with scanning or facsimile capabilities, or both.



# PACE Membership

---

- **28** Parties and Signatories to the Basel Convention.
- **10** Basel Convention Regional Centres for Training and Technology Transfer (BCRCs).
- **9** Research and Academic Institutions, and other UN Bodies.
- **15** NGOs, Industry, and Industry Associations.

# Current Status

---

PACE products that have been finalized and adopted:

- Report on ESM criteria recommendations.
- Two Guidelines (repair and refurbishment; and material recovery and recycling).
- Procedures on Transboundary Movement of Computing Equipment.
- Glossary of Terms for PACE.







# Future Plans

---

## Guidelines

- Guideline will be evaluated in the facility type environment and revised.
- Overall Guidance Document to be adopted by COP 10.

## Pilot Projects

- Continue with pilot projects on collection and management of used and end-of-life computing equipment from informal sectors.
- Recommendations and strategy on resource mobilization to ensure sustainability of pilot projects

## Awareness Raising

## Resource Mobilization and Financial Sustainability



**Help keep electronic waste from growing.**



**THANK YOU!**