

E-WASTE MANAGEMENT IN THE ARAB REGION: STATUS AND OPPORTUNITIES

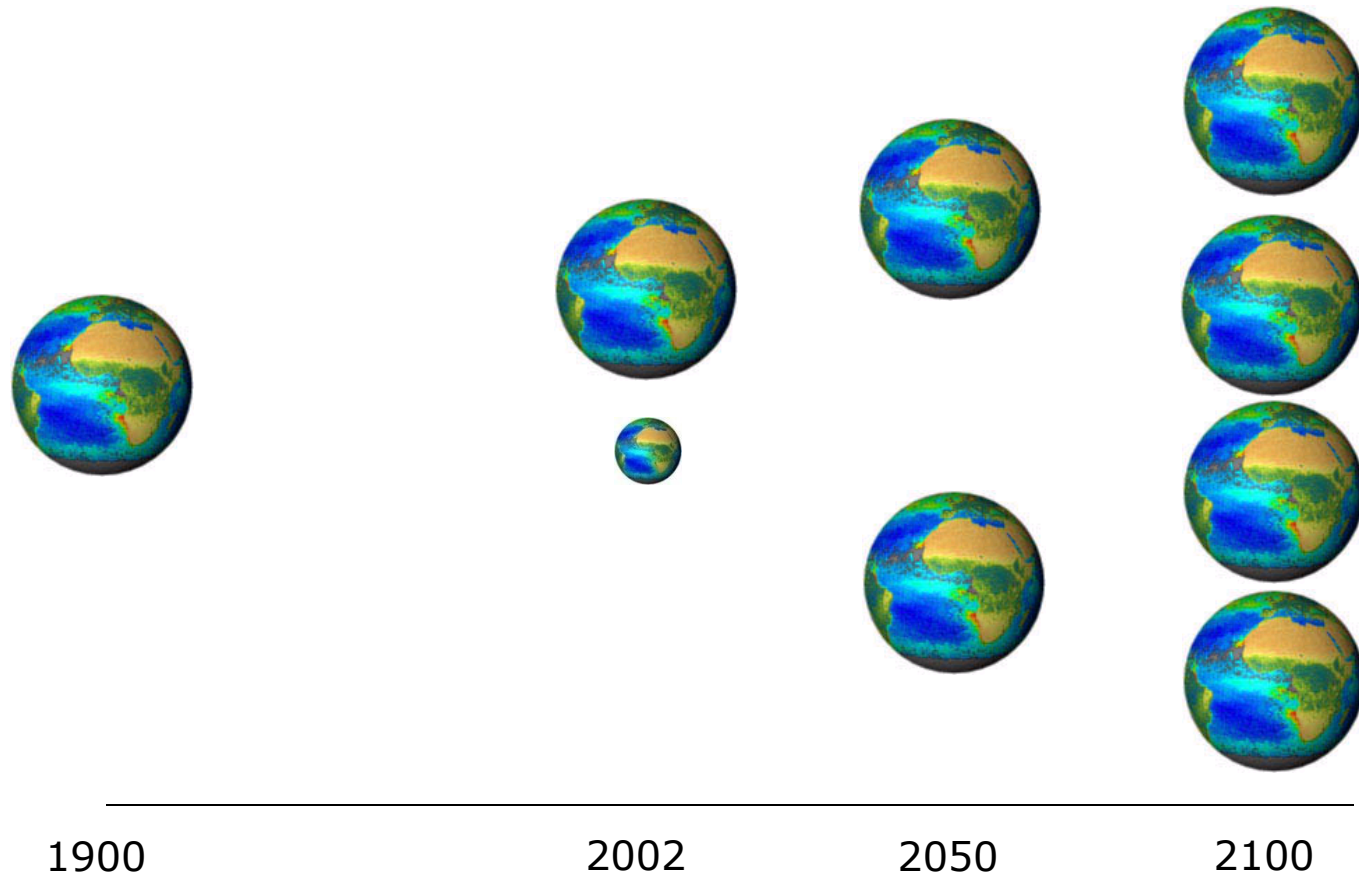
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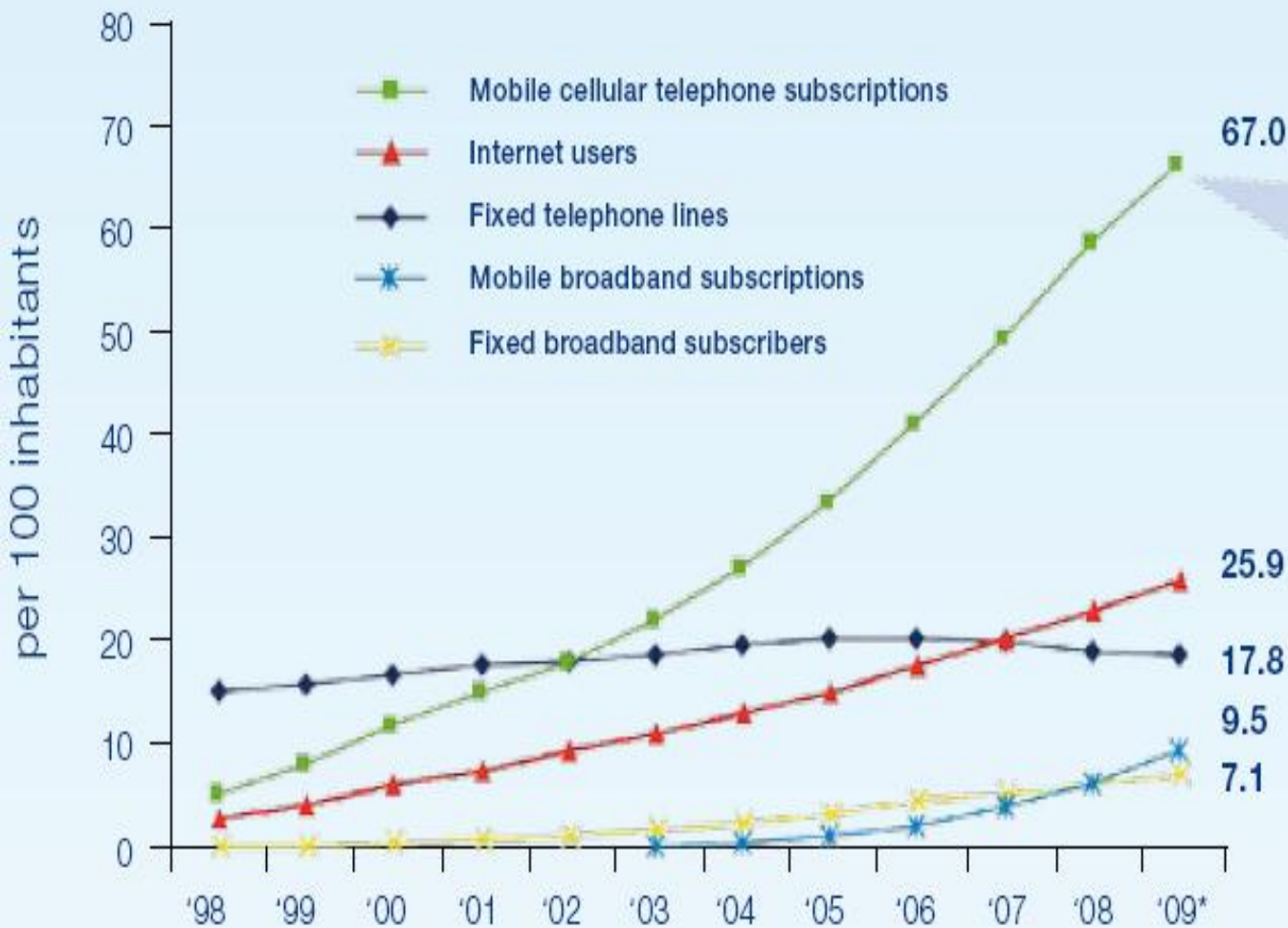
CURRENT CONSUMPTION RATES PATTERNS

Two planets are needed by 2050



THE WORLD IN 2009:
ICT FACTS AND FIGURES

A decade of ICT growth driven by mobile technologies



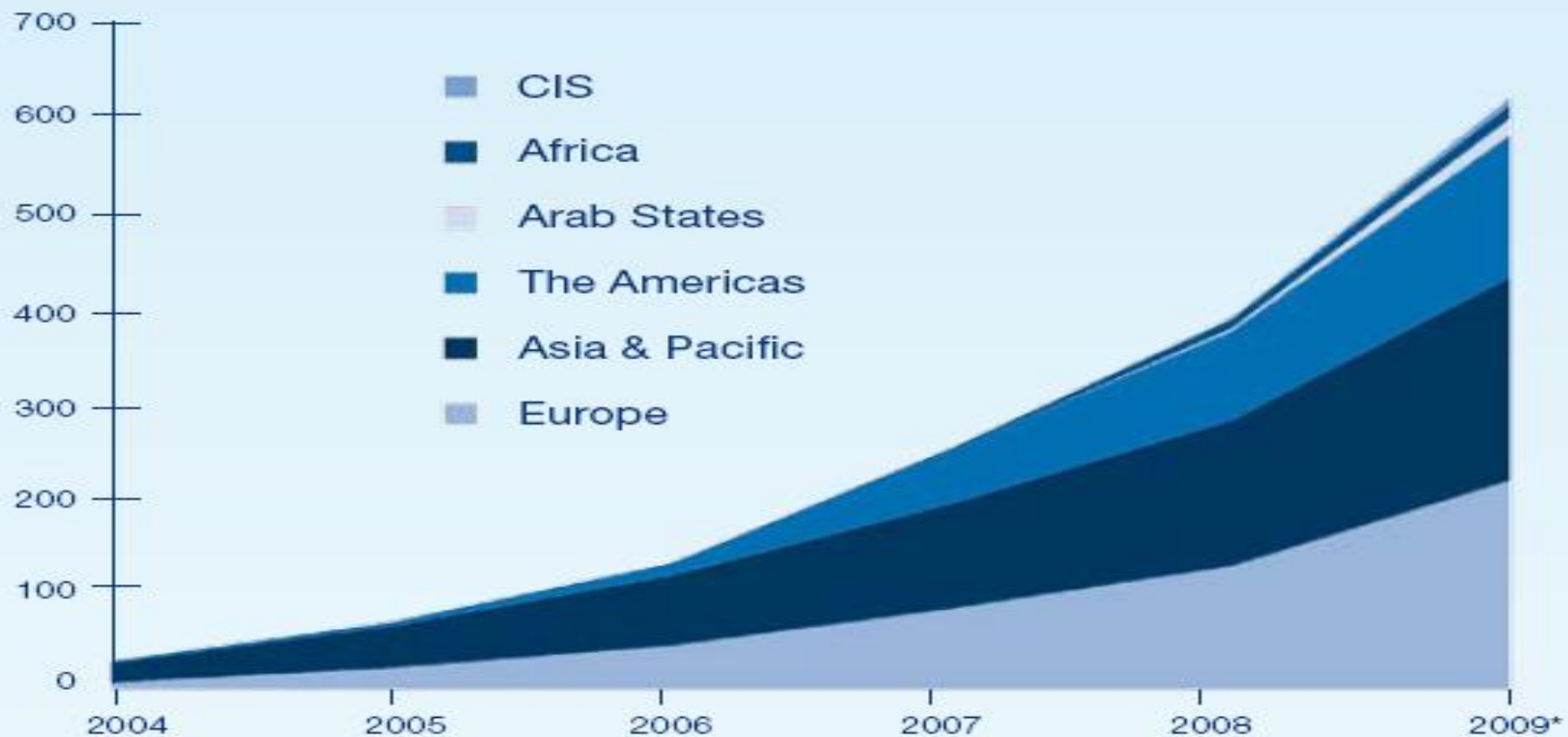
An estimated 4.6 bn subscriptions globally by the end of 2009

Source: ITU World Telecommunication/ICT Indicators Database.

* Estimates.

The rise of mobile broadband... ...but not everywhere

Millions

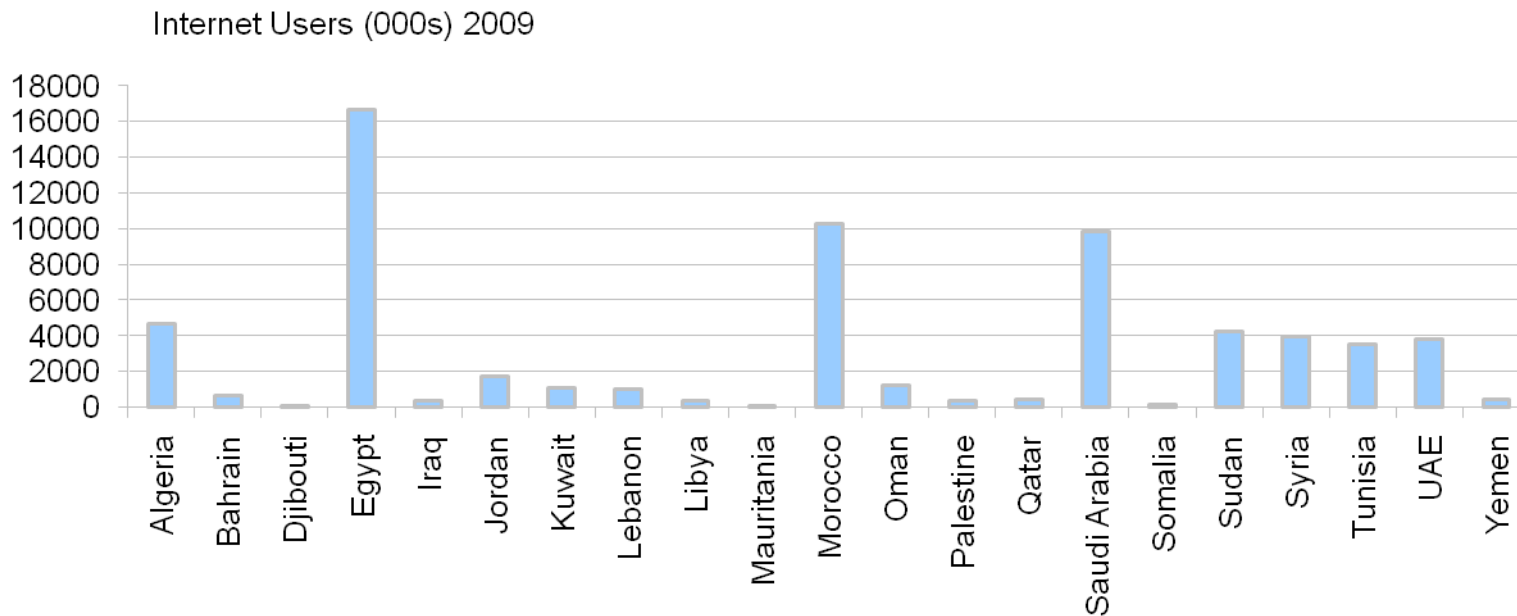
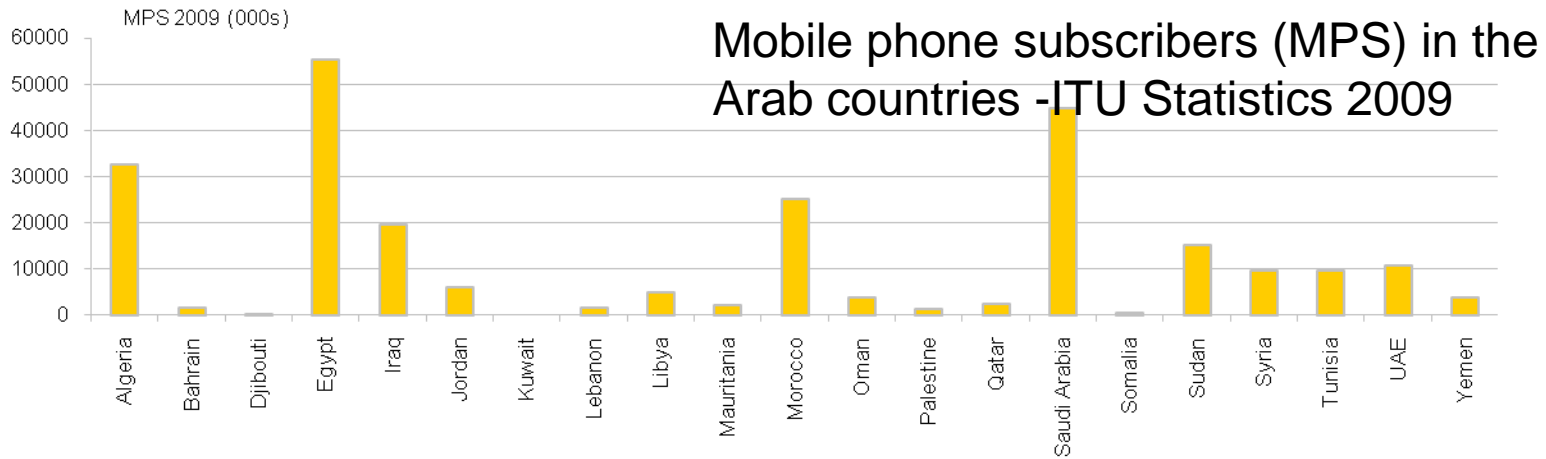


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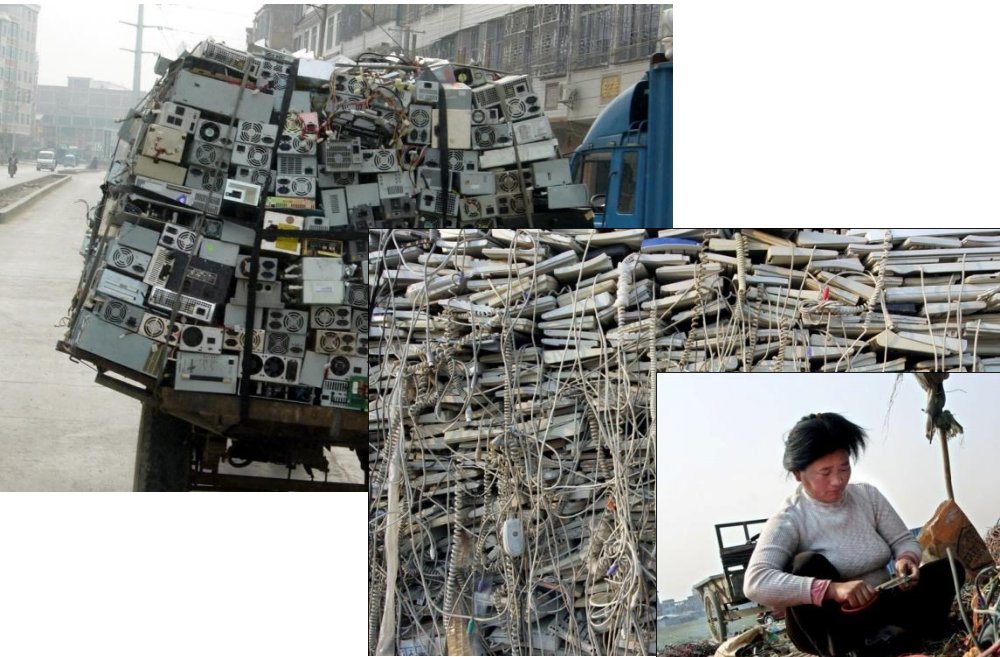
Note: The regions refer to the 191 ITU Member States.

* Estimates.

ICT INDUSTRY IN THE ARAB REGION



Internet users in the Arab countries - ITU Statistics 2009



CHALLENGES

⊙ Volumes

- Increasing sales of EEE, decreasing lifetimes
- ~40M tons e-waste generated worldwide
- EU in 2007: ~2.5M tones recycled, 8.3 - 9.1M tons generated (EMPA)

⊙ Material Content

- Valuable and energy-intensive precious metals
- Toxic materials

ENVIRONMENTAL & OCCUPATIONAL SAFETY PROBLEMS

Ramifications:

- ◉ Toxic emissions from burning
- ◉ Soil & water contamination from chemical disposal
- ◉ Inefficient recovery of precious metals

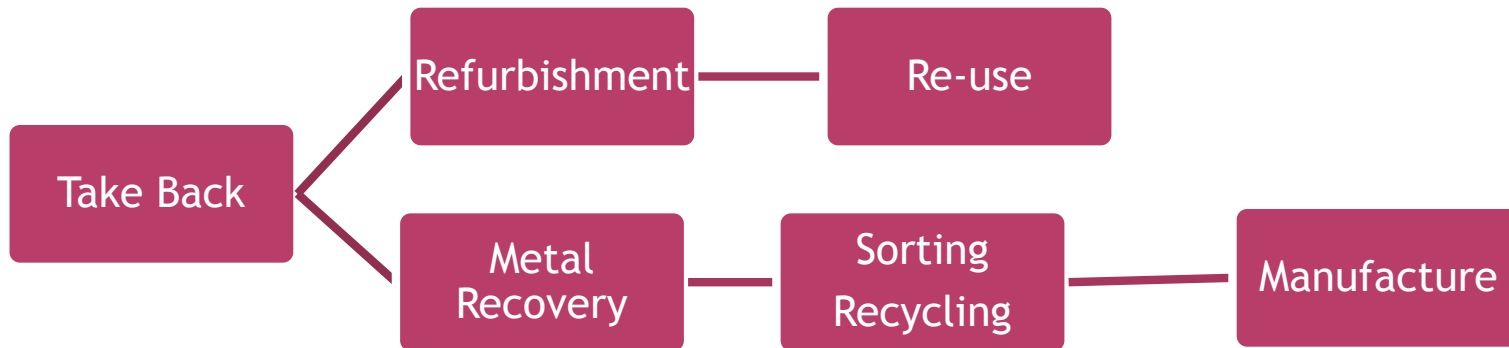


Material	Occurrence in E-waste	Health and Environmental Impact
Beryllium (OECD 2003, Taylor et al. 2003)	copper-beryllium alloys, springs, relays and connections;	<ul style="list-style-type: none"> beryllium sensitization/chronic beryllium disease human carcinogens released as beryllium oxide dust or fume during high temperature metal processing
Cadmium	Contacts, switches, nickel-cadmium (Ni-Cd) batteries, printer inks and toners	<ul style="list-style-type: none"> persistent and mobile in aquatic environments (ATSDR 2000) damage to the kidneys and bone toxicity, released if plastic is burned or during high temperature metal processing
Lead	Circuit boards/ cathode ray tubes CTR (1 – 3 kg per CRT);	<ul style="list-style-type: none"> Risk for small children and fetuses Damage to the nervous system, red blood cells, kidneys and potential increases in high blood pressure; Incineration can result in release to the air
Mercury	Lighting devices that illuminate flat screen displays, switches and relays	<ul style="list-style-type: none"> Impacts the central nervous system Land filling and incineration of flat panel displays results in the release to the environment
PCBs (polychlorinated biphenyls)	Insulating fluids for transformers and capacitors, flame-retardant plasticizers	<ul style="list-style-type: none"> Suppression of the immune system, liver damage, cancer promotion, damage to the nervous system Damage to reproductive systems

SOME FACTS

- One ton of recycled cell phones can generate up to 230 grams of gold
- More than 70% of a mobile phone can be recycled.
- Current mass of phones being recycled is only about 0.001-0.003% of the total weight of waste electronic equipment each year.

ELECTRONIC WASTE LIFE CYCLE



E-WASTE MANAGEMENT ACTIVITIES SURVEY IN THE ARAB STATES

- ◉ National Authorities
- ◉ Private Sector Enterprises
- ◉ NGOs
- ◉ Non-Arab Enterprises



E-WASTE MANAGEMENT ACTIVITIES

○ Algeria

- Assessment of E-Waste and E-Waste Recycling Facilities 2006 - 07, BCRC

○ Egypt:

- MCIT and MoE: launching “Green ICT” Initiative
- Egyptian Electronic Recycling Co. (EERC) is the first electronic equipment recycling facility in Egypt
- Spear Ink is a pioneer in inkjet and toner environmental friendly refilling and remanufacturing

E-WASTE MANAGEMENT ACTIVITIES

◎ **Jordan**

- UNEP/Basel-PACE: Recycling of used computers
- Assessment of E-Waste and E-Waste Recycling Facilities, 2006 - 2007, BCRC
- Project of re-using computers, Jordan Environment Society (JES)

◎ **Morocco**

- Managem : E-waste treatment plant
- Managem and Al-Jizr: “GREEN CHIP” Project for collection of used digital equipment and E-waste recycling
- CMPP: Assessment of the current situation in Morocco, 2007

E-WASTE MANAGEMENT ACTIVITIES

○ Syria

- Temporary E-waste disposal facility (2007)

○ Tunisia

- Recycling facility is operating, Anged
- Collection and transfer of E-waste with a capacity of 1000 tons/year

○ Yemen

- Proposed project for compiling an E-waste/Inventory(2011)

	Legal Framework	Inventory	Collection	Recycling & Reusing Technology
Level 1 – LOW	No legal framework, strategy, or norms	There is no inventory	There is no collection	There is no recycling/reusing mechanism
	Iraq, Kuwait, Lebanon*, Syria, Yemen	Egypt, Iraq, Jordan, Lebanon*, Kuwait	Egypt, Iraq, Jordan, Lebanon*, Yemen	Iraq, Kuwait, Syria, UAE*, Yemen
Level 2	There is only plan to develop legal framework	There is the inventory for municipal solid waste, but no designated inventory for E-waste.	E-waste is locally collected by local recyclers, scavengers, etc. without any legal framework. Only recyclable E-waste is well collected	Only recyclable and reusable E-waste is recycled and reused by local stakeholders
	Bahrain, Egypt, Syria	Bahrain, Syria, UAE*, Yemen	Kuwait, Syria, UAE*	Jordan
Level 3	A legal framework is being prepared and will be issued/enforced in very near future	E-waste inventory is being prepared	E-waste is well collected by local collection mechanism. Pilot separation and collection systems have been setup	There is a plan to set up E-waste facility
	Jordan, Tunisia*, UAE*		Tunisia*	Bahrain, Egypt
Level 4	Enforcement, but the legal framework is not well conducted	E-waste inventory is conducted, but lack of information and data	Collection system for E-waste is operational and includes environmentally sound disposal	There is E-waste Recycling facility, but not achieve to full operation for all E-waste in the country
		Morocco*, Tunisia	Bahrain	
Level 5 – HIGH	Full enforcement and model legal framework for other countries	E-waste inventory is fully conducted and available on website	Collection systems are fully operational. Our collection is recognized as a model system by other countries	E-waste recycling facility is fully operated for all E-waste in the country and the model as the stat oft the-art recycling facility
				Tunisia*

POTENTIAL AREAS OF COOPERATION

- ◉ **Enhance Awareness**
- ◉ **E-waste Status: Quantity and Type**
- ◉ **Establishing Legal Framework**
- ◉ **Pilot Projects**
- ◉ **Sustainable Business Solutions and Infrastructure**

POTENTIAL PARTNERS: NATIONAL AUTHORITIES

- ❑ Bahrain: Public Commission for the Protection of Marine Resources, Environment and Wildlife
- ❑ Egypt: Ministry of State for Environmental Affairs, Ministry of ICT
- ❑ Iraq: Ministry of Communication
- ❑ Jordan: Ministry of Environment
- ❑ Kuwait: Environment Public Authority
- ❑ Syria: Ministry of State for Environmental Affairs
- ❑ Yemen: Ministry of Water and Environment, Environment Protection Authority
- ❑ National Cleaner Production Centers: Egypt and Lebanon

POTENTIAL PARTNERS: PRIVATE SECTOR

- Egyptian Electronic Recycling Co. (EERC) - Egypt
- Spear Ink – Egypt
- CID Consulting - Egypt
- Mobinil - Egypt
- Managem - Morocco
- IBM - Germany
- Nokia - International
- QTEL - Qatar
- Umicore - Belgium
- AER Worldwide
- Masdar - UAE

POTENTIAL PARTNERS: ARAB NGOS

- The Royal Marine Conservation Society (JREDS) – Jordan
- Jordan Environment Society (JES), Jordan
- Al-Urdun Al-Jadid Research Center - Jordan
- Environment Society of Oman
- Al-Jisr Association – Morocco
- CMPP - Morocco
- RECYCLE IT – Bahrain
- Spirit of Youth – Egypt
- Egyptian Association for Scientific and Technical Experts
- Jawwal

POTENTIAL PARTNERS: NON-ARAB ORGANIZATIONS

- EMPA
- GTZ
- Austrian Society for Systems Engineering and Automation
- World Bank
- UNEP

E-WASTE MANAGEMENT PROGRAMME

- ◉ ***Work Package 1: Rapid Assessment of E-waste in the Arab Region***
- ◉ ***Work Package 2: Establish Multi-stakeholder Partnership for E-waste Management***
- ◉ ***Work Package 3: Implement Awareness Campaign about E-waste Threats and Opportunities***
- ◉ ***Work Package 4: Develop and Enhance capacities for Environmental Friendly E-waste management System***
- ◉ ***Work Package 5: Establish E-waste Recycle Trading System***

CEDARE'S E-WASTE ACTIVITIES

- Knowledge Sharing and transfer
 - StEP Initiative: Regional Focal Point for Middle East and North Africa
 - E-waste Management Forum
 - E-waste 2009: 9-10 February 2009, Cairo, Egypt
 - E-waste 2010: 23-24 November 2010, Marrakech, Morocco
 - E-waste 2011: 22-23 May 2011, Alexandria, Egypt (TBC)
- E-waste Assessment
 - E-waste Management Practices in the Arab Region (CEDARE and UNEP) 2008 - 2010
 - CEDARE and EMPA Team for E-waste Assessment

CEDARE'S E-WASTE ACTIVITIES

◉ Capacity Building

- E-Learning Course: Introduction on E-waste Management (elearningserver.cedare.int)
- E-Learning Course: How to create collection and dismantling centre (2011)

◉ Technical Assistance

- Provide expertise to governmental organizations and ICT private sector enterprises.

THANK YOU
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