

The Basel Convention, Partnerships for Sound Management of E-waste, and the Conflict of Mineral Extraction vs. Secondary Extraction from E-Waste

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Group for Africa (SG5RG-AFR)**

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- Objective: to protect human health and the environment from the negative impacts of hazardous wastes and other wastes

BASEL CONVENTION

Control of Transboundary Movement of Hazardous Wastes

Environmentally Sound Management of Hazardous & Other Wastes

Minimization of Sources of Generation of Hazardous Wastes



- The 14 Regional Centres of the Basel Convention

- To Support Parties to the convention in meeting their obligations to the convention, by Capacity building:
- ✓ training
 - ✓ technology transfer
 - ✓ information sharing
 - ✓ projects
 - ✓ research

E-Waste: Classification in Basel Convention



Annex VIII (hazardous waste):

- A1180- WEE assemblies
- A1190- Cables
- A1150- Ashes from printed circuit boards incineration
- A 2010-Cathode ray tubes
- A1010, A1020, A1030, A1090 (waste containing heavy metals e.g. lead, mercury, copper, cadmium, etc)

Annex IX (non-hazardous waste):

- B1110 (electrical and electronic assemblies)



Some Hazardous Contents of E-Wastes



Toxic Metals

Lead

Mercury

Cadmium

etc



Brominated Flame Retardants (Organics)

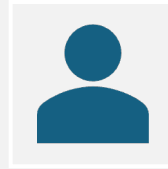
How Basel Convention Promotes Sound Management of E-Waste



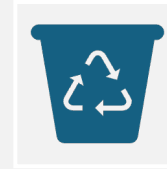
**Publications
(technical
guidelines,
guidance
manuals,
training
manuals, etc)**



**Partnership
programmes
on special
waste stream
and issues**



**Technical
assistance to
Parties**



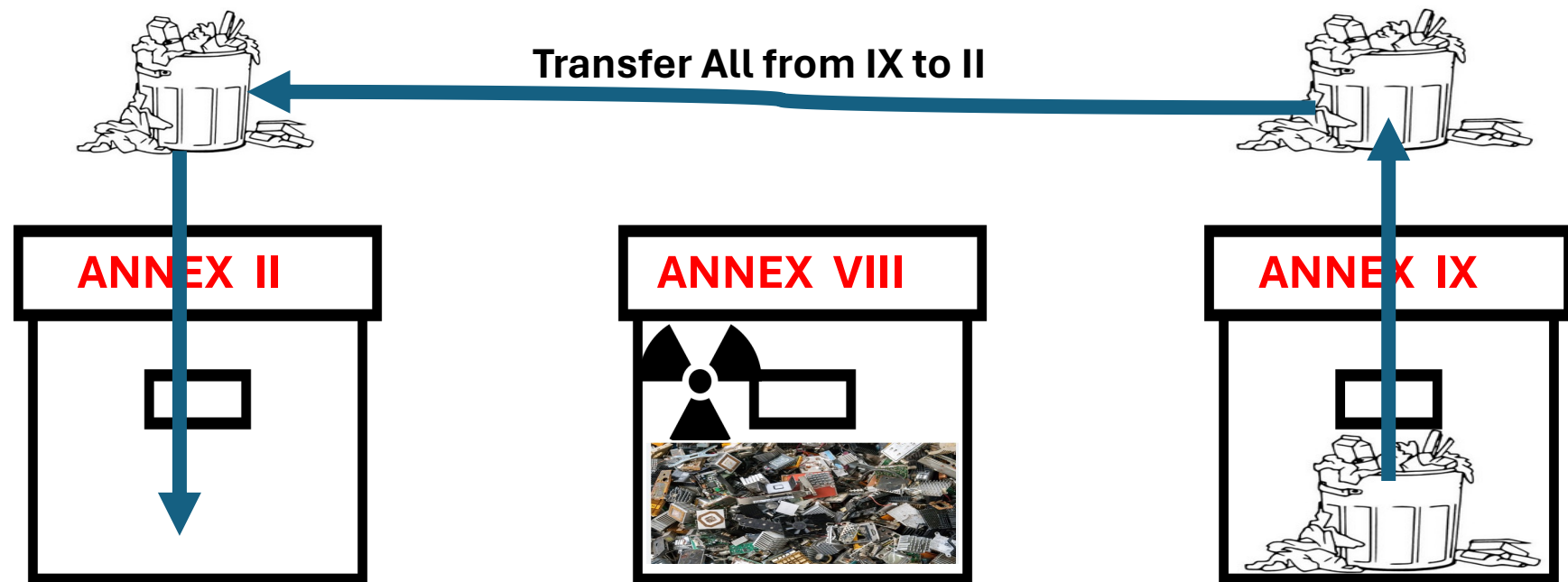
**Fostering global
regulations that
advance e-waste
management**



**Collaboration
with other
international
/global actors**

Basel Convention E-waste Amendment (effective 01 January 2025)

COP-15 , 6-17 June 2022) adopted amendments to Annexes II, VIII and IX to the Convention with the objectives of enlarging the control of transboundary movements of e-waste and **making all electronic and electrical waste subject to the prior informed consent (PIC) procedure.**

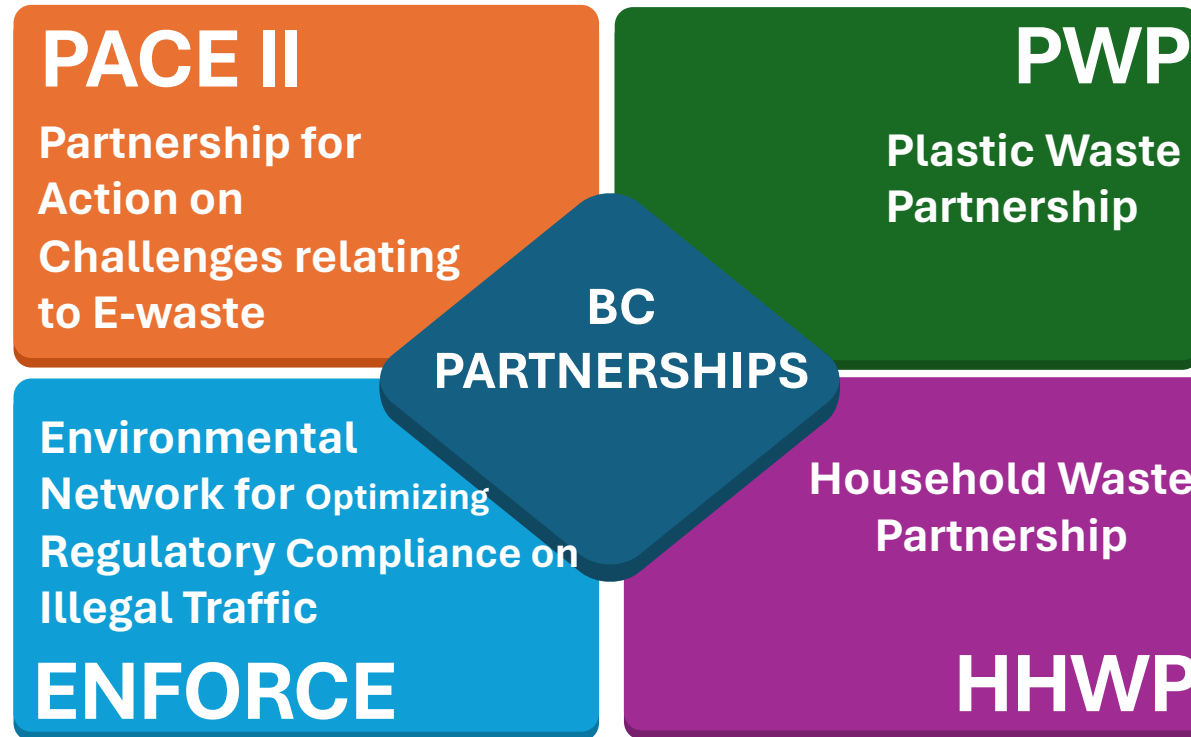


- Wastes requiring special consideration
- But subject to PIC procedure
- New E-waste items now listed as "Y49"

- E-waste classified as hazardous;
- Subject to PIC
- Originally listed as "A1180" (now deleted)
- List revised
- New listing as "A1181"

- Wastes presumed not hazardous
- Not subject to PIC procedure
- No more E-waste items in this Annex
- Entry B1110 now deleted

Basel Convention Partnership Programmes that have Bearing on E-waste



PACE II: Partnership for Action on Challenges relating to E-waste

Membership

- **Parties and signatories to the Basel Convention,**
- **Regional Centres of the Basel Convention**
- **Municipalities,**
- **Intergovernmental and non-governmental organizations,**
- **Private sector, and**
- **Academia**

- **Open to organisations and individuals dealing with the different aspects of e-waste management, e.g.**
- **collection,**
- **transport,**
- **separation,**
- **recycling,**
- **other recovery, including energy recovery**
- **final disposal of e-wastes**
- **sound handling of hazardous objects and substances contained in computing equipment**

PACE II: Terms of Reference

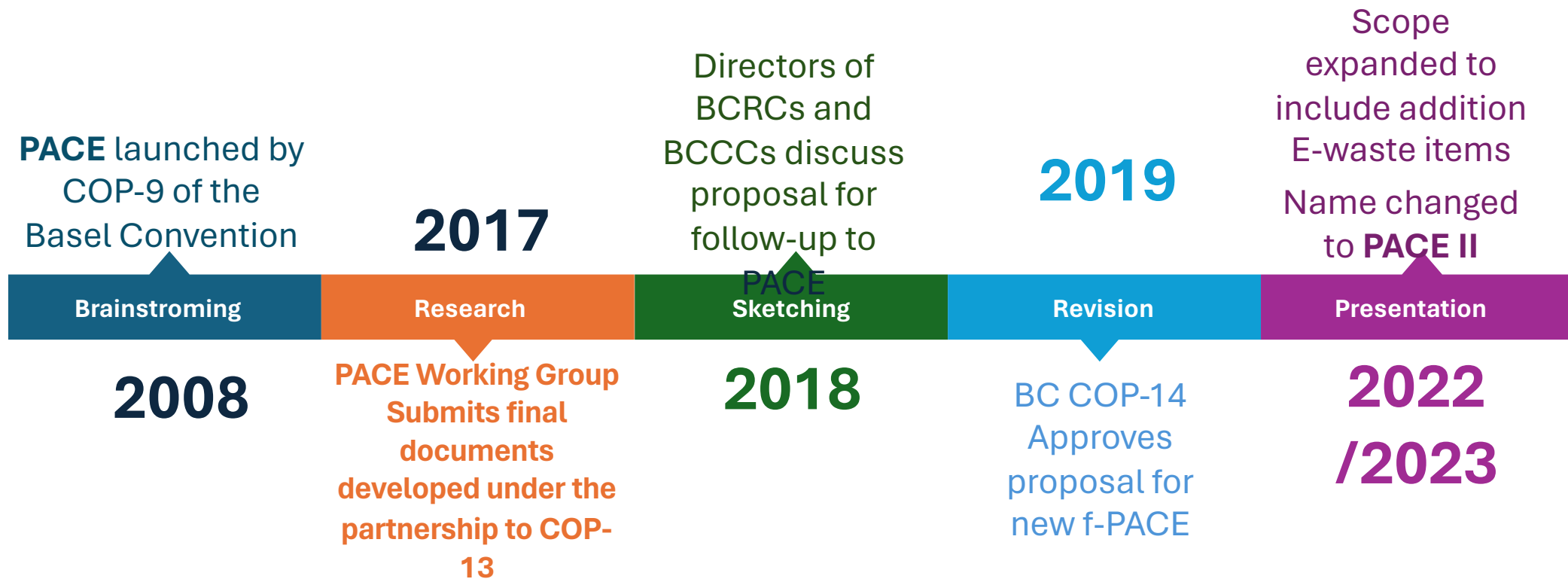
GOAL	SCOPE
<p>To strengthen at the regional, national and local levels,</p> <ul style="list-style-type: none">• the environmentally sound management (ESM) of E-waste (WEEE)• the environmentally sound refurbishment and repair of used electrical electronic equipment (UEEE)	<ul style="list-style-type: none">■ computing equipment (personal computers (PCs), laptops, notebooks and tablets, and associated displays, printers and peripherals)¹ ,■ mobile phones,■ television screens, including CRT, LCD and LED screens,■ video and audio equipment, refrigerators,■ cooling and heating equipment

The Tasks include:

- **Undertake and/or contribute to outreach, dissemination, education and awareness raising activities on the ESM of used and waste equipment in its scope,**
- **Pilot projects involving partners;**
- **Capacity building and technology transfer;**
- **Encourage innovation and**
- **Encourage exchanges and cooperation among public and private partners as well the youth and NGOs.**

Evolution of: **PACE II** – Partnership for Action on Challenges relating to E-waste

From: **PACE** - Partnership for Action on Computing Equipment



**New phase.
Partnership for Action on
Challenges relating to
E-waste.**



PACE II: Some Recent Activities

- **Several Dissemination Activities: E.g.**
 - **Translated PACE and MPPI guidance document into the six UN languages**
 - **Developed model workshop toolkits for Customs, Regulatory/Enforcement agencies, Recyclers**
 - **Celebration of International E-waste Day, and International Zero-Waste Day**
 - **Regional Centre participated in ITU activities – Green Standards Week, Digital Transformation Dialogues**
- **Currently developing guidance documents for ESM, repair and refurbishing of TVs, cooling equipment and temperature exchange equipment**
- **Carried out several pilot projects on e-waste**

Recent Pilot Projects of PACE II

PACE II Projects

- ❑ Africa: BCRC Senegal, (Repair and recycling)
- ❑ Africa BCCC Nigeria (Training of national authorities)
- ❑ Asia: BCRC Indonesia in Cambodia, Indonesia, Pakistan – (ESM assessment and preliminary actions to enhance ESM)
- ❑ Asia: BCRC China in China and Asian region- (testing of PACE guidance and recycling)
- ❑ EE BCRC Slovakia in Moldova and Belarus (EPRs)
- ❑ GRULAC: BCRC Trinidad and Tobago in T&T (Collection and ESM policies formobile phones)
- ❑ GRULAC: BCRC Argentina (training package)

**CEE: BCRC Slovakia:
Strengthening EPRs in
Moldova, Belarus**

**Asia: BCRC China: Enhancing
recycling of mobile phones
and computing equipment in
Asian countries, separation of
e-waste form household
waste in China and Cambodia**

**GRULAC: BCRC
Trinidad and
Tobago:
enhancing
collection of
mobile phones
in T&T**

**Africa: BCRC Senegal and
BCCC Nigeria: In Senegal
supporting women to
become entrepreneurs in E-
waste recycling and in
Nigeria training of national
authorities**

**Asia: BCRC Indonesia:
Enhancing ESM of
computing equipment in
Cambodia, Indonesia,
and Pakistan**



Some Other Partnerships, Organisations, Activities Promoting Sound Management of WEEE and UEEE

- UN E-waste Coalition
- SteP – Solving the E-waste Problem
- Prevent Waste Alliance
- SAICM
- WEEE FORUM
- International E-Waste Management Forum
- UNITAR/UNU Scycle
- ITU
- ISWA
- The Global E-waste Statistics Partnership (GESP)
- ✓ **Electronic Recycling Association (ERA)**
- ✓ **International Associations for Electronics Recycling**
- ✓ **Electronics Goes green Conferences**
- ✓ **Association of Original Equipment Manufacturers (OEMs)**
- ✓ **+ several more**

Electronics Goes Green 2024+

General Info

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The Electronics Goes Green conference is a significant event for scientists, product developers, and business managers working to improve the environmental properties of electronics and ICT products. The seventh edition of the conference (June 2024), will focus on circularity, digitalization, and carbon neutrality.



ELECTRONICS GOES GREEN 2024+

FROM SILICON TO SUSTAINABILITY

June 18 - 20, 2024 | Berlin, Germany

On the Conflict of Mineral Extraction and Secondary Extraction from E-Waste



Main Components of E-waste Equipment

- ✓ many non-ferrous and precious metals/element,
- ✓ ferrous metals
- ✓ alloys,
- ✓ glass,
- ✓ ceramics,
- ✓ organic polymers with toxic content,
- ✓ other substances like stabilizers, fillers and pigments.

The periodic table is color-coded and bordered to show the prevalence of elements in E-waste equipment (EEE):

- Elements found in EEE:** Indicated by a cross-hatch pattern.
- Elements quantified in the report:** Indicated by a red border.
- Precious:** Indicated by a green background.
- Critical:** Indicated by a teal background.
- Non-critical:** Indicated by a light blue background.

Lanthanide Series:

57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
Lanthanum	Cerium	Praseodymium	Niodymium	Promethium	Samarium	Europium	Gadolinium	Terbium	Dysprosium	Holmium	Erbium	Thulium	Ytterbium	Lutetium

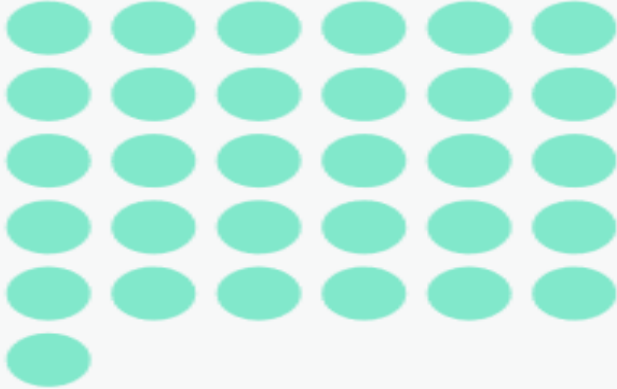
Actinide Series:

89	90	91	92	93	94	95	96	97	98	99	100	101	102	103
Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr
Actinium	Thorium	Protactinium	Uranium	Neptunium	Plutonium	Americium	Curium	Berkelium	Californium	Einsteinium	Fermium	Mendelevium	Nobelium	Lawrencium

Source: Deubzer et al. 2019

Composition of Global E-waste in 2022

31 billion kg of metals



17 billion kg of plastics



14 billion kg of other materials

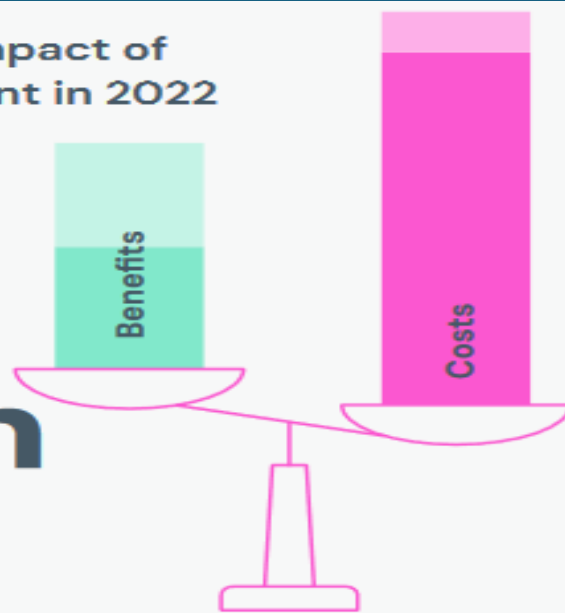


Source: The Global E-waste Monitor 2024

- - Very large quantities of metals in waste currently obtained through primary mining operations that
 - damage human health and
 - Damage the environment.
- Natural mineral resources are finite, therefore primary mining is not sustainable
- Continuous mining of mineral resources does not promote circularity

Overall Economic Impact of E-waste Management in 2022

**-37
billion
USD**



Annual economic monetary impact of e-waste management globally.

Benefits

23 billion USD
of monetized value of avoided greenhouse gas emissions.

28 billion USD
worth of recovered metals brought back into the circular economy.

Costs

10 billion USD
associated to the cost for treatment of e-waste.

78 billion USD
in externalized costs to the population and the environment.

Source: The Global E-waste Monitor 2024

Examine the 2024 Global E-waste Monitor (GEM) data on E-waste management on the left:

- From a purely economic perspective, **CURRENT OVERALL ECONOMIC IMPACT OF E-WASTE MGT IS NEGATIVE (-\$37 bn in 2022)**
- Poor outcome mostly derived from informal disposal methods (e.g. burning, burial etc) that damage human health and the environment. (\$78 bn).
- Secondary extraction (urban mining) of minerals only contributes \$28 bn benefit.
- If we do more urban mining, we can
 - (i) increase this \$28 bn benefit
 - (ii) increase value of GHG avoided from \$23bn
 - (iii) reduce externalized cost down from \$78 bn
 - (iv) direct cost of treatment may go up slightly higher from \$10bn

WE CAN SWITCH THE BALANCE TO AN OVERALL POSITIVE ECONOMIC BENEFIT

Merits of Urban Mining	Challenges for African Countries
<ul style="list-style-type: none">✓ Can provide overall economic benefit✓ Preserves finite natural resources✓ Lower pollution effects. Greener environment✓ Promotes sustainability and Circularity✓ Creates new, safer and greener jobs✓ Promotes innovation in design and manufacturing	<ul style="list-style-type: none">✓ Very low collection and recycling rates✓ Low collection volume offers poor business model✓ Poor access to finance and technology for secondary extraction of rare and critical minerals.✓ African countries need to establish sub-regional, hubs by cooperation, for large scale mineral extraction processing plants.

THANK YOU FOR YOUR ATTENTION

