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United Nations Industrial Development Organization





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UNIDO Experiences of Industrial Waste Management and Circular Economy Approaches

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UNIDO's Mandate

- **Advancing Economic Competitiveness**
 - Advancing economic and industrial growth
- **Creating Shared Prosperity**
 - Advancing poverty eradication and inclusiveness
- **Safeguarding the Environment**
 - Advancing environmentally sustainable growth
- **Strengthening knowledge and institutions**



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Safeguarding the Environment

- UNIDO supports countries in their environmental management efforts, including the implementation of multilateral environmental agreements and the provision of sustainable energy
- The long-term, post-COVID-19 ambition of the UNIDO's waste management strategy is working towards a sustainable industry and circular economy providing various technical cooperation services to enhance the contribution of the private sector to industrial development and waste management system
- Initiatives at this phase will contribute to green recovery at the country level through circular economy approaches while continuously improving waste management systems and recycling industries





Mitigating Industrial Pollution

- Reducing/eliminating the release of toxic chemicals, such as POPs, into the environment in industrial processes. Key industrial sectors include:
 - Electric transformers: PCBs;
 - Metallurgy/Cement: uPOPs;
 - Fashion / Textiles: PBDEs; PFOS
 - Construction: HBCD;
 - Recycling industry / waste management: BDEs, uPOPs, mercury
- Fostering circular economy approaches is key to all areas of focus
UNIDO currently has projects in these sectors in over 80 countries

UNIDO Approach

- **Green Industry** approach: promote the **greening of existing** industries while also **creating new green** industries through resource recovery, reuse and recycling.
- Promotion of the **Circular Economy** concept for POPs and hazardous chemicals/waste reduction and their environmentally sound management
- **Value chain approach and involvement of the private sector**
- Access to UNIDO's **networks**, platforms and financial development partnerships (RECPnet, PAGE, BAT/BEP Forum, etc.)
- Development of new business models for **POPs alternatives** and eco-effective chemicals.

Green Industry
for a Low-Carbon Future



CIRCULAR ECONOMY

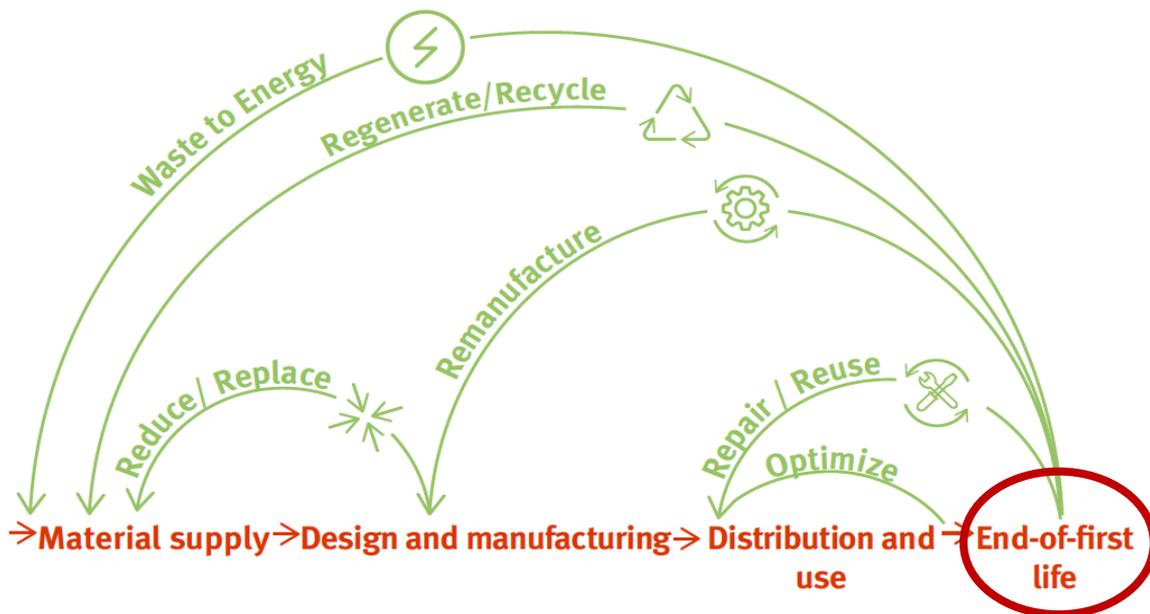


Circular Economy

- Returns products, parts and materials into use several times
- Based on principles that
 - Products are designed to last
 - Value is maintained for as long as possible
 - Generation of waste and pollution is minimized
 - Renewable energy is used along value chains, as much as possible

■ Linear supply chain

■ Circular economy practices



Circular Economy in the Textiles Sector

For a POPs-free fashion industry

- Second largest polluter in the world
- UNIDO's management and disposal services focus on creating the fundamental capacities within industries, governments and institutions for complying with regulations and environmental standards
- Circular economy techniques include establishing recycling chains and implementing waste management techniques to minimize the generation and release of POPs and hazardous substances throughout the industry



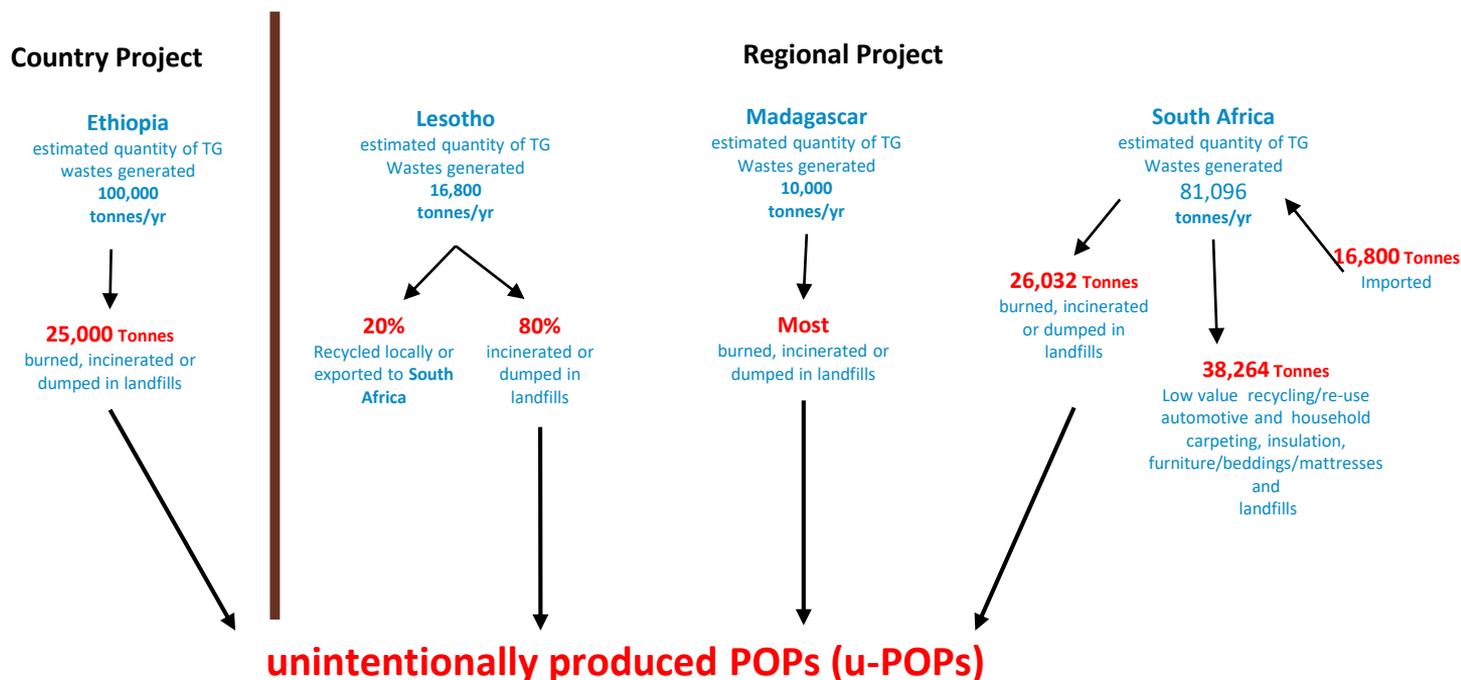


CE Best Practices - Textile Value Chain

Value chain stage	CE Strategy/Best practice	Key Target actors on VC
Material Supply / Manufacturing	Recycling /Regenerate textile waste (post-industrial and pre-consumer) into recycled yarns, fabrics and fibers for textile and non woven applications (cascading value to other sectors/VC)	Brands, garment producers, spinning and weaving companies, non-woven products manufacturers (automotive, furniture, construction, etc..), waste collectors
Design	Increase use of recycled content in textile products	Brands, garment producers
Manufacturing	Maximize Resource Efficiency (water, energy, materials) and minimize waste generation in production	Spinning, weaving, finishing, garment sectors
Manufacturing	Eliminate/replace Hazardous Chemicals and disclosure of safer chemicals use in textile manufacturing in line with international protocols (ZDHC)	Textile finishing sector
Manufacturing/ End of first Life	Better waste management and segregation of textile waste by fiber, improved collection system and integration of informal sector	Garment producers, waste collectors
Design and Manufacturing/ End of first Life	Remanufacture of used garments or unsold stocks (pre-consumers) into upcycled products	Brands, garment manufacturers, waste collectors



Promotion of CE in the Textile Sector





Medical Waste Management

For safe medical waste management during COVID-19 and beyond

- In response to the unprecedented growth of infectious medical waste being generated during the COVID-19 pandemic, UNIDO is building on its significant experience of supporting medical waste management efforts in countries across the world, including China, Senegal and beyond.
- For example, in India, UNIDO has been collaborating with the Ministry of Environment, Forests and Climate Change on a project focusing on medical waste management in five states: Gujarat, Karnataka, Maharashtra, Odisha and Punjab.





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E-Waste Management

For safer connectivity in a hyper-connected world

- As one of the fastest-growing waste streams in the world, UNIDO's IPM Division focuses on supporting countries across the world from Cote d'Ivoire to the Philippines to effectively manage, recycle and dispose of e-waste.
- The UNIDO LAC e-waste project is funded by the GEF and assists 13 Latin-American countries with effective e-waste management through capacity building, awareness-raising and policy assistance.
- The project is the first regional project of its kind in Latin America and engages a broad range of partners, including local and national governments, industry, producers and recyclers, private sector, NGOs and CSOs.





E-Waste Management

- Enhancing regional cooperation on e-waste management is a core component of the project and the Regional centres of the Stockholm and Basel Conventions (Argentina, Brazil, Panama and Uruguay) as well as WHO-PAHO, ILO, ITU, UNU, EMPA, ISWA, BOKU University Vienna, Dell, RELAC, US-EPA are engaged on the regional level.
- Under the project, two case studies for the implementation of recommendations of the ITU Group on E-waste and Circular Economy (take-back systems, EPR, reconditioning, recycling, etc) are being developed in Argentina and Costa Rica.
- UNIDO is a member of the E-waste Coalition, working alongside nine other UN agencies for enhanced e-waste management at the global level.



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PCB Decontamination

For safer power systems

- UNIDO addresses the risk of PCB contamination in countries across the world, including in North Macedonia, which became the first country in the region to establish a PCB treatment facility with the support of UNIDO
- The treatment facility supports the circular economy by enabling the decontamination and reuse of PCBs-laced transformer oils.
- The GEF-funded project provided PCB treatment technology and training and is now 100% run by the private sector.
- UNIDO also has experience of working on this issue in the Philippines, Indonesia, Serbia, Morocco, Cote d'Ivoire, Paraguay, Bolivia, and Turkey.



