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Circular economy and Plastics

Workshop on
Circular Economy - Promoting Sustainable Production and Consumption in Viet Nam

UNIDO in Viet Nam

15 October 2020

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1. Circular economy principles and practices
2. UNIDO's approach in the plastics value chain;
3. Plastic sector in Vietnam and initial findings in application of circular economy;
4. UNIDO's projects on circular economy in plastic sector

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Millions of products we consume

Nutrition





Housing and Infrastructure





Mobility







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Millions of products we consume

Consumer goods





Communications





Health, education, sports, services







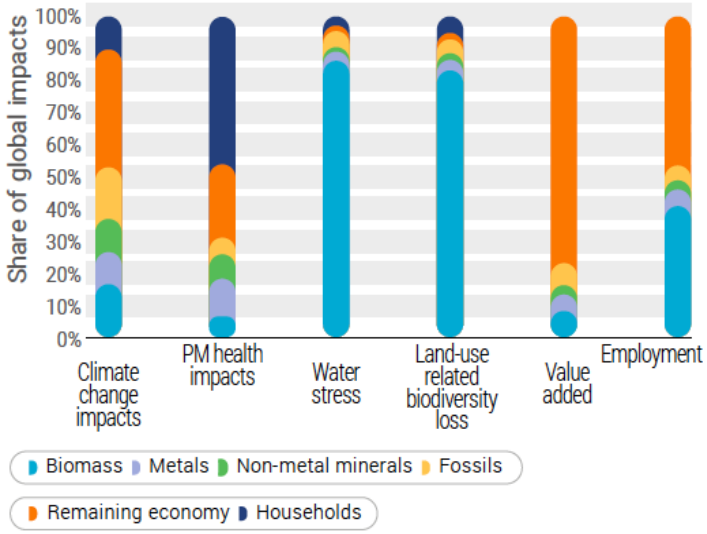




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Global environmental impacts of resource use



- ~50% of climate change impact due to resource extraction and processing
- ~90% of water stress and biodiversity loss due to land use
- ~50% of PM health impacts due to resource extraction, processing and use in products, with the next ~50% due to use of products, BUT
- ~80% of value added, and over ~90% of employment created

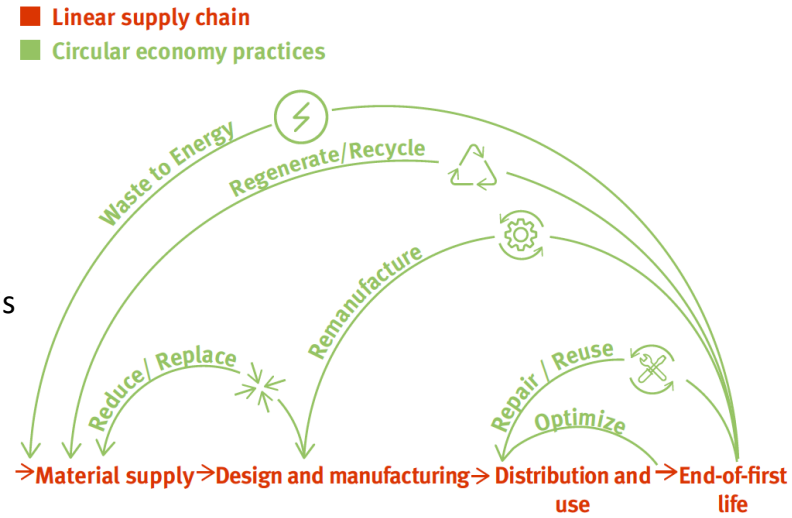
Global Resource Outlook 2019 (https://www.resourcepanel.org/reports/global-resources-outlook), International Resource Panel, 2019

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Circular economy: an “industrial economy”

- Returns products, parts and materials into use several times along value chains



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

Enablers: Innovation, Stewardship, Partnership and Collaboration between businesses, governments, and consumers

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Circular economy actors and benefits

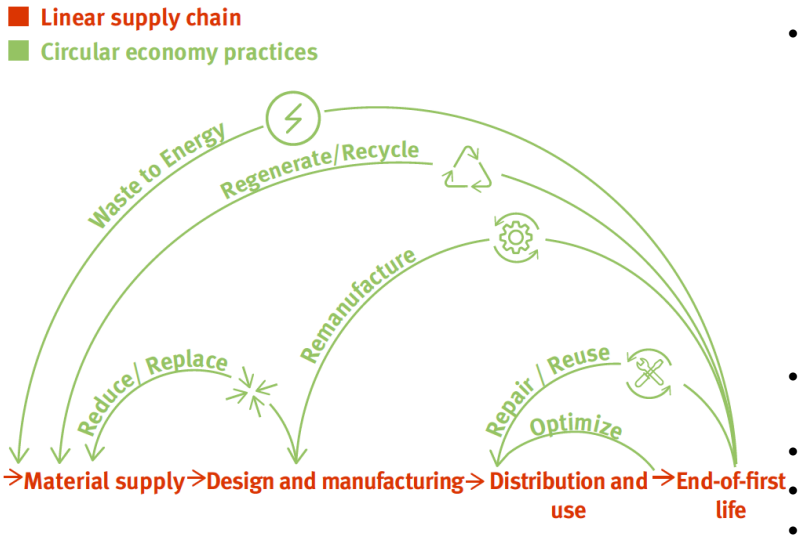
- Circular economy actors:
  - Consumers
  - Businesses
  - Governments
- Role of governments is to create favorable conditions
  - Enable consumers to buy more circular products, have them understand their benefits
  - Move businesses to increasingly design & produce more circular and safer products, which also increase profitability

Economic benefits	Environmental benefits	Social benefits
Increased productivity (with resource efficiency)	Reduced environmental impact	Improved well-being
Reduced production costs and improved competitiveness	Reduced emissions of greenhouse gases and pollutants	New jobs and incomes
New business activities and models	Reduced pollution and end-of-life waste	Improved health/working conditions of people
New markets and investment opportunities	Higher quality of ecosystem services	Improved health of animals and plants
Enhanced consumer loyalty	Preservation of natural resources (water, land, materials)	New partnerships and collaborations
Reduced resource scarcity	Safeguarding biodiversity	Innovations and technologies make life easier

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Circular economy practices are “business practices”



Along **global** and **domestic value chains**

- Eliminate/**replace** the product (-> single-use plastics)
- Design phase
  - **Reduce** amount of materials used
  - Eliminate/**replace** hazardous chemicals
  - Improve **Durability** / **Reusability** / **Upgradability** / **Reparability** / **Recyclability**
  - Increase **recycled** content in products
  - Products to use energy, other resources efficiently
- Maximize **resource efficiency** in manufacturing
- **Optimize**/intensify use of products
- Enable **remanufacturing**
- **Regenerate** biomass, **recycle** materials
- After maximizing circularity everywhere else, **recover energy** from remaining waste

Circular economy practices strengthen resilience!

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Plastics

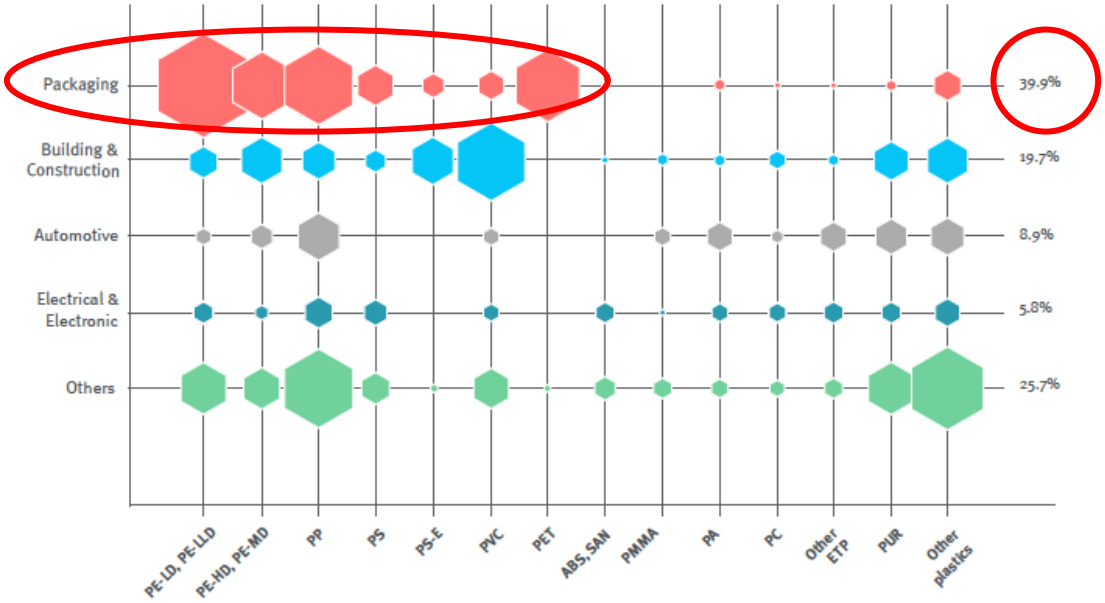
- Versatile, inexpensive, light, easily shaped, durable materials with many immeasurable benefits
- Used in numerous industrial sectors, including packaging, health care, construction, automotive, aviation, agriculture, logistics and storage, consumer goods, clothing and many more
- Primarily made from fossil-fuels, embody world's limited natural resources
- Should be reused through circular economy practices to create new economic value

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Plastics consumption

In Europe,

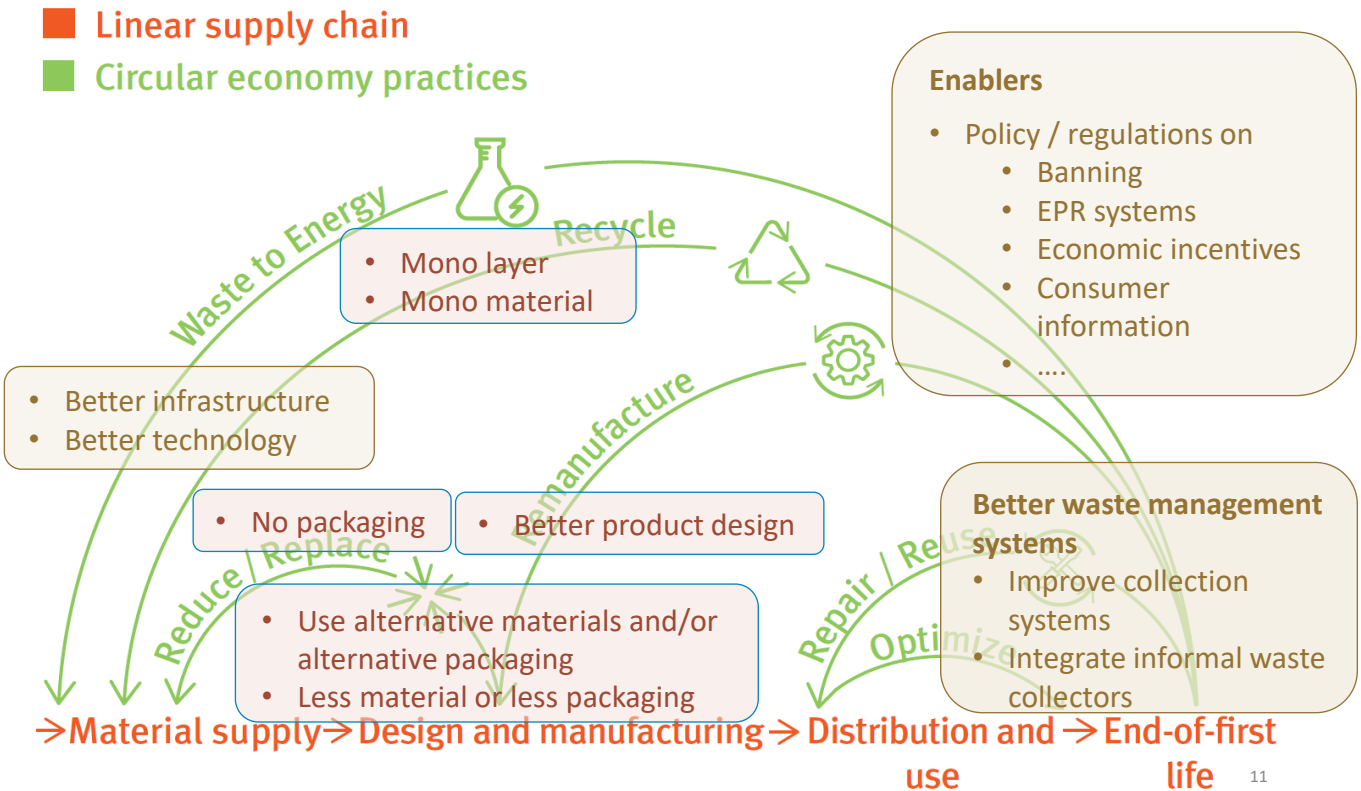


https://www.plasticseurope.org

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UNIDO's approach in the plastics value chain



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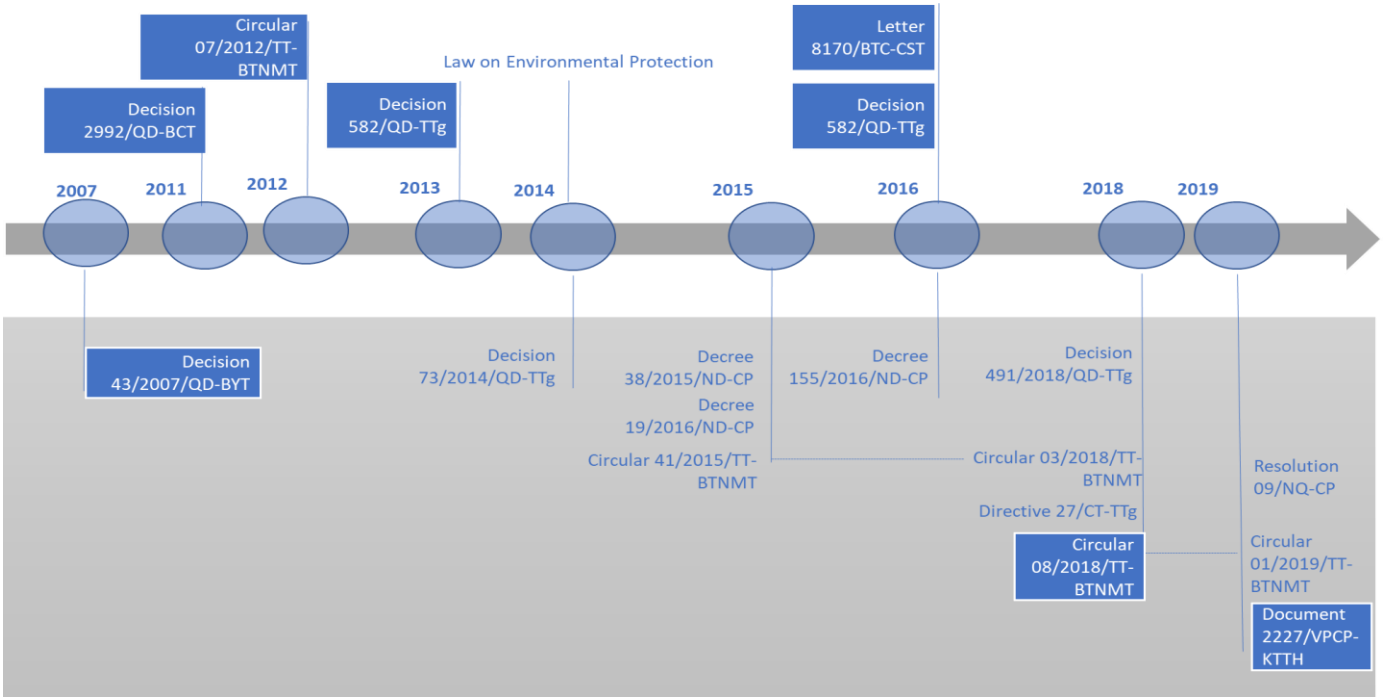
Economic context of the plastics sector in Vietnam

- The annual growth rate of plastics sector of Vietnam is 16-18%
- In 2018, the production of plastics was 8.3 million tons of (semi and) final product; while 6.5 million tons of plastic resin and scrap were imported
- Difficult to control the quality of imports; mixed plastics result in low quality recycled plastic material for production
- If Viet Nam as planned increases domestic production of plastic materials, it could possibly have higher quality plastic products

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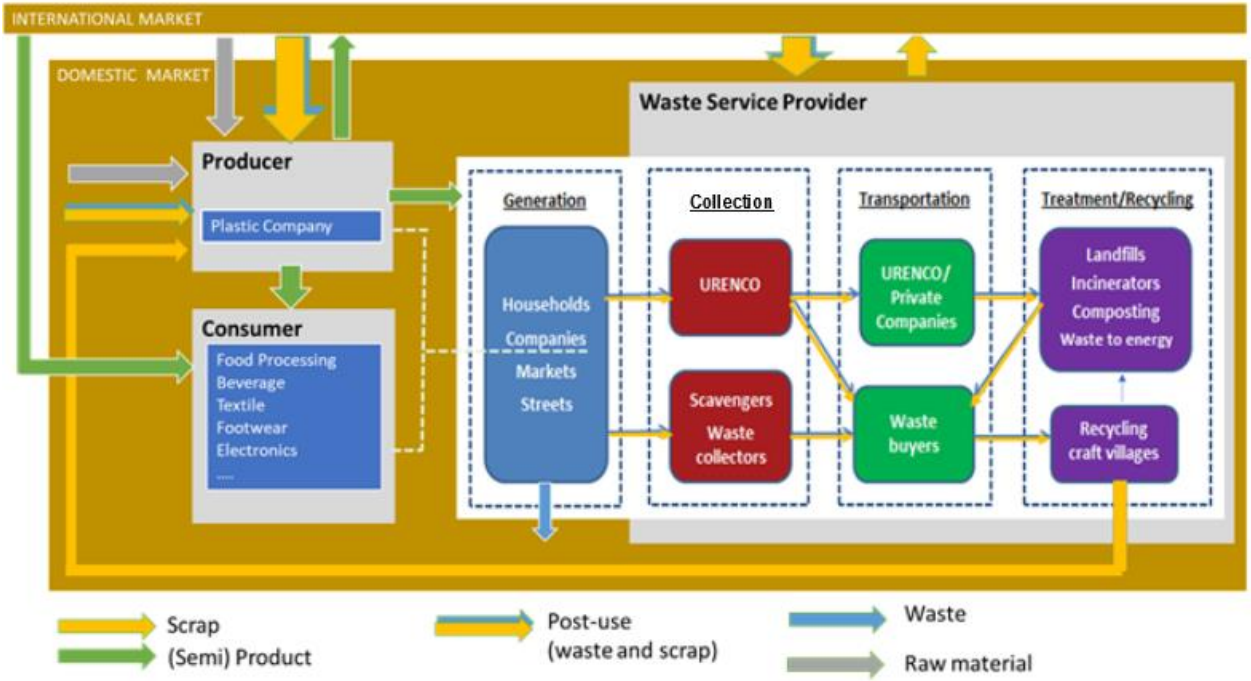
Legal framework for plastic waste recycling



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Overview of material flows in Vietnam's plastics sector



Source: VCCI, 2019

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Context for plastic waste circulation in Viet Nam

Generation *(Collection as much available, use less resources as possible)*

Enforcement needed
Waste separation**
Collection system*
Transportation system
Quality Standard**
Legal entity (import/export)**

Incentive needed
Waste separation

Source:
Waste from Household, Industry*** Public services***
*Import scrap for production*****
*Return of defects**

Treatment *(Maximum extract, minimum environmental pollution)*

Enforcement needed
Legal entity*
Output quality Standard**
Technology Standard
Environmental Standard***

Incentive needed
Land use***
Investment in Technology***
Capital for investment*
Product subsidize*
Access to materials

Consumption *(Circulation back to same or other production)*

Enforcement needed
Applied market**
Consumption tax**

Incentive needed
Access to consumers
Product recognition**

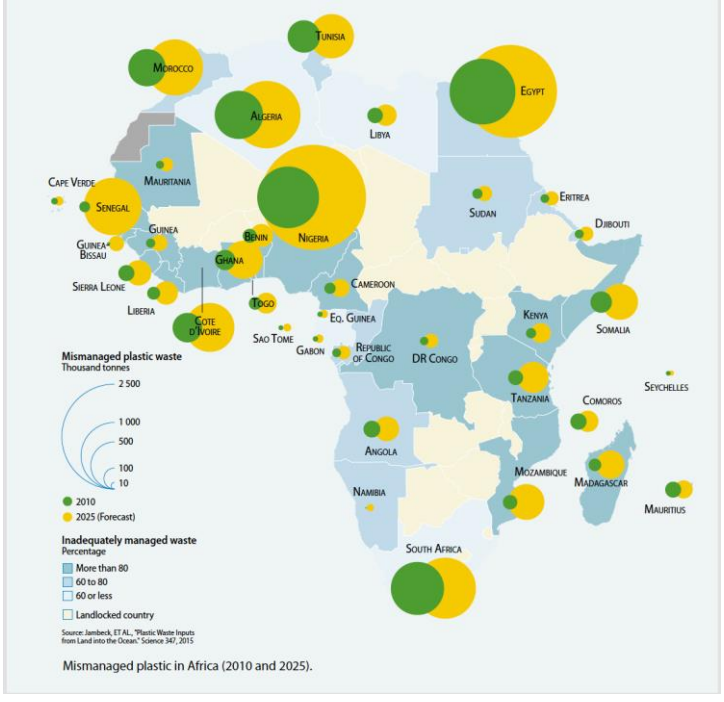
Level of coverage
* *Listed (but no guidance)*
** *Insufficient*
*** *Sufficient*
**** *Under discussion*
Not available

Source: VCCI, 2019

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UNIDO projects in Africa



Mismanaged plastic in Africa (2010 and 2025).



Egypt, Nigeria and Kenya

Plastic value chain studies under the project of "study on available sustainable alternative materials to plastics, and innovative packaging and recycling technologies that meet market needs in Africa to reduce plastics leakages to the environment"



Ghana

Establishing a circular economy framework for the plastics sector



South Africa

- Life Cycle Sustainability Assessment of alternative materials
- Strengthening recycling capacity through integration of waste reclaimers

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In South Africa



To support industry for transitioning from conventional plastics to more environmentally sustainable alternatives

Output 1

Development of action plan to support sustainable transition to alternative material

- **Assessments** to identify single-use plastic products with replacement opportunity, materials to substitute, and availability of technologies for final treatment of these alternatives
- **Demonstration** of identified technologies/ materials
- **Development of Action Plan**
- Outreach activities

Output 2

Strengthening plastic recycling capacity including **integration of informal collectors' sector**

- Assessments of needs and design of capacity building interventions
- Implementation of capacity building activities
- Outreach activities

In partnership with CSIR our future through science

Funded by



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In Ghana



Establishing a circular economy for the plastics sector in Ghana

Four Components

Component 1: Establishing an enabling framework for a circular economy in plastics management

Component 2: Capacity building and pilot projects, including public-private partnerships (PPP), technology transfer using BAT/BEP for a circular economy in plastics management

Component 3: Coordination, communication strategy and knowledge management among key partners and stakeholders for achieving Ghana's policy objectives (National Plastics Action Partnership-NPAP/Global Plastics Action Partnership-GPAP and National Plastics Management Policy-NPMP)

Component 4. Monitoring, evaluation, and replication

In partnership with Global Environment Facility

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UNIDO's approach to plastics management



Prepared for consideration for the **G20 Ministerial meeting on Energy Transitions and Global Environment for Sustainable Growth**

G20 2019 JAPAN

https://www.unido.org/sites/default/files/files/2019-06/UNIDO_Addressing_the_challenge_of_Marine_Plastic_Litter_Using_Circular_Economy_0.pdf

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Thank you

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