

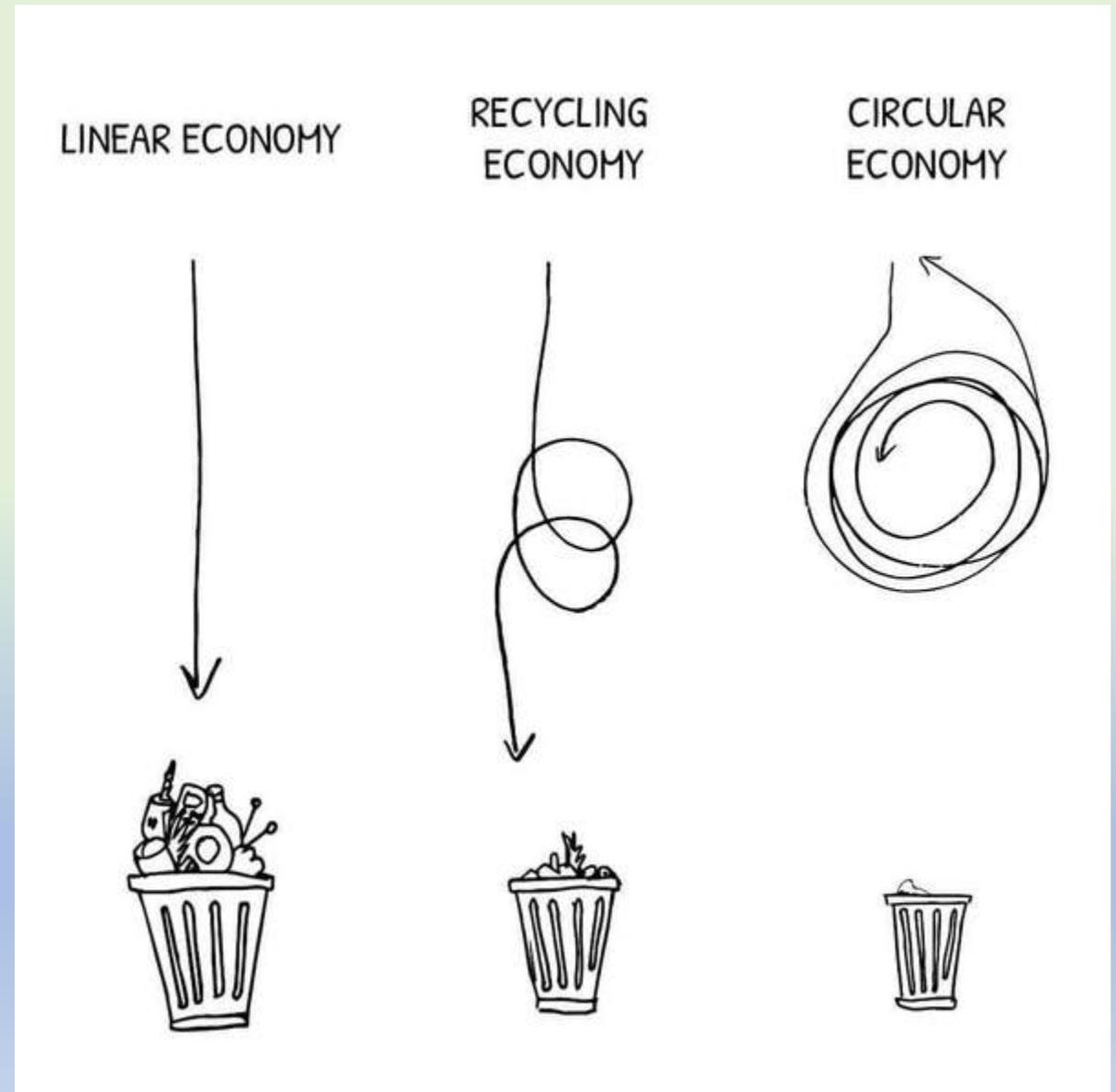
# Towards a Circular Economy

**A Workshop for Parliamentarians and Parliamentary Staff  
of Trinidad and Tobago**

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# Circular Economy in T&T

- Core aspects
  - Use of regenerative resources
    - Ensure renewable, reusable, non-toxic resources are utilised as materials and energy in an efficient way. **T&T is exploring the use of renewable energy**
  - Maximize the life time use of resources
    - While resources are in-use, maintain, repair and upgrade them to maximise their lifetime and give them a second life through take back strategies when applicable. **Recycling is minimal some collection primarily by SWMCOL, there are private sector interest – paper, glass, iron and electronics**
  - Waste as a resource
    - Utilise waste streams as a source of secondary resources and recover waste for reuse and recycling. **‘Kernels’ of activity Cove Eco-Industrial park, Flying Tree use of plastic waste**



# The Circular Economy in Trinidad and Tobago

- The country is moving towards a recycling economy
- While still in its infancy, Trinidad and Tobago has been exploring the use of both solar and wind energy
- Kernels of activity
  - Cove Eco Park in Tobago
  - Flying Tree – sequestering plastic into cement products

# What is an MFA?

- A material flow analysis (MFA) is an ***analytical method that allows for a snapshot quantification of movements of materials or substances in a system or environment at a point in time.***
- My MFA examines the flow of various plastics into and out of Trinidad and Tobago quantifying plastic deposits or accumulation in the environment



# MFA role in identifying potential for CE

- A key aspect of circular economy is the identification of industrial symbiotic relationships
- The MFA provides quantification of deposits of materials in the system
- This approach can be the first step in building symbiotic relationships across companies/industries providing information is shared
- ***“The existing culture of industrial symbiosis is based on the commercial interests of the local industrial community, rather than being fuelled by government subvention.”*** - Lee Chan, T. G., Bhagwat, V.K.K and Janes, D.A. - The University of the West Indies

# Plastic Flows in Trinidad & Tobago 2016 in metric tons (MT)

$\Sigma$  imports = 129,669 metric tons

$\Sigma$  exports = 6,372 metric tons

RAW MATERIALS in metric tons	
Polyacetals, other polyethers and epoxide resins etc.	15,397
Polymers of vinyl acetate etc.	10,293
Polymers of ethylene	4,654
Petroleum resins etc.	4,481
Polymers of styrene	2,182
Acrylic polymers	2,018
Polymers of propylene	1,228
Other	1,883

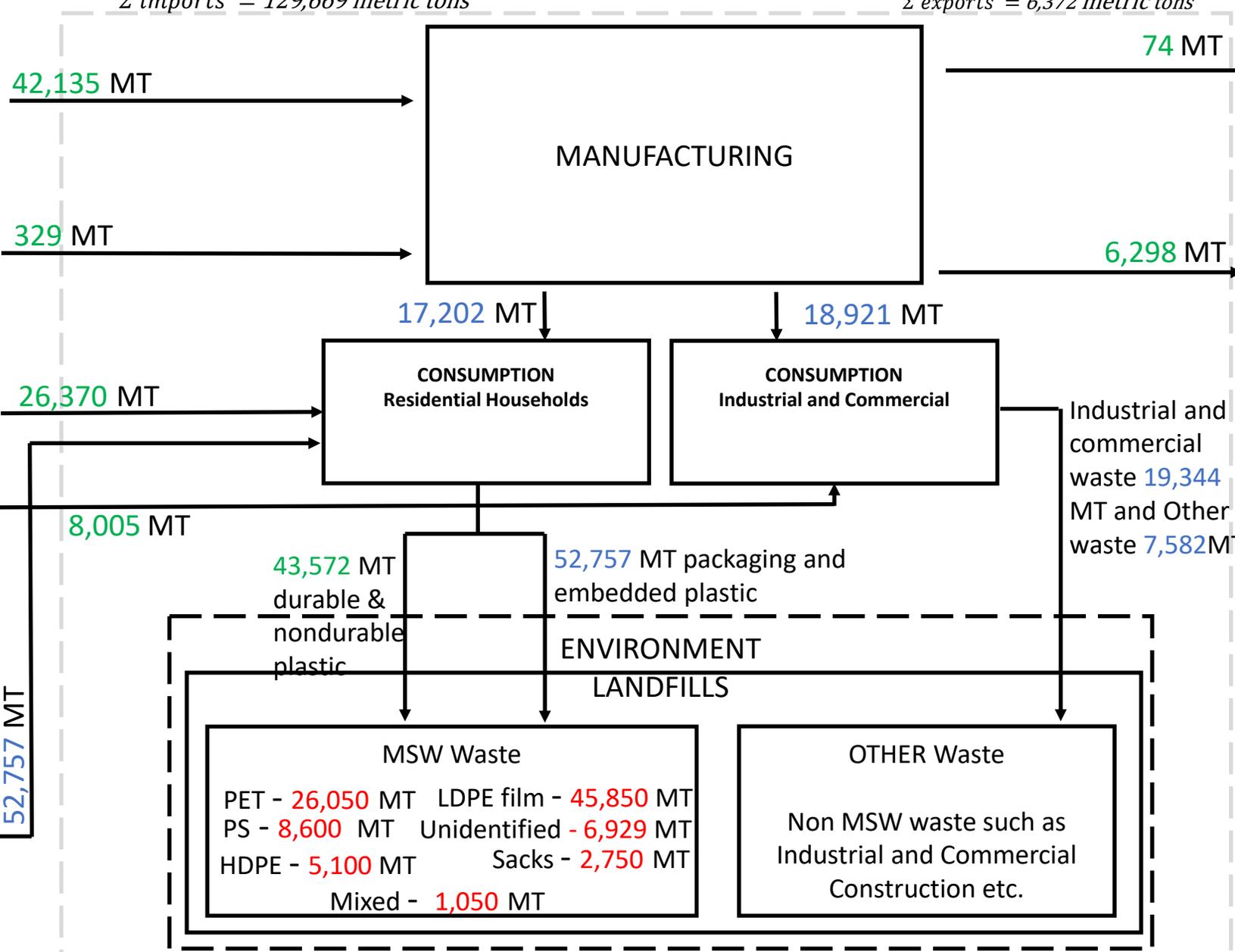
INTERMEDIATE PRODUCTS in metric tons	
Monofilaments etc. (plastic thread etc.)	205
Waste, paring, and scraps	124

FINISHED PRODUCTS in metric tons	
Containers etc.	17,533
Other Plates, sheets etc.	8,405
Tableware etc.	3,930
Other Articles of plastic	2,675
Builder's wares etc.	2,559
Floor, ceiling, or wall coverings etc.	2,200
Tube, pipes, hoses and fittings	2,085
Self adhesive plates etc.	803
Baths and sanitary ware etc.	431

PACKAGING AND EMBEDDED PLASTICS	
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RAW MATERIALS in metric tons	
Petroleum resins etc.	4
Polymers of propylene	3
Polymers of styrene	2
Natural Polymers etc.	2
Polyacetals, other polyethers and epoxide resins etc.	2
All other products	2
<b>Waste, parings and scrap, of plastics.</b>	
Of polymers of styrene	28
Of other plastics	30

FINISHED PRODUCTS in metric tons	
Articles of conveyance	6,129
Self adhesive plates etc.	61
Other Plates, sheets etc.	29
All other products	79



**Legend:**  
 Trade data (Input/Output) - Green  
 Waste Characterization calculation - Red  
 Mass Balance Calculation - Blue

# Major Findings – *You can't manage what you can't measure.*

- Trinidad and Tobago imports roughly 129,000 metric tonnes of plastic
- Plastic film embedded in imports are large (52,757 metric tons) - Difficult to recycle
- Large accumulation of PET material (26,000 metric tons)
- Mass balance calculation reveals previously uncharacterized industrial and commercial plastic waste (19,000 metric tons)
- In 96,000 metric tonnes (74%) of plastics end up in the land fill
  - Low grade plastic film seems to dominate the waste stream (45,000 metric Tonnes in landfill)
- Potential as input into other activities? Fuel source? Recycling and reuse?



# How can we (Parliament) promote CE? – *build the eco-system*

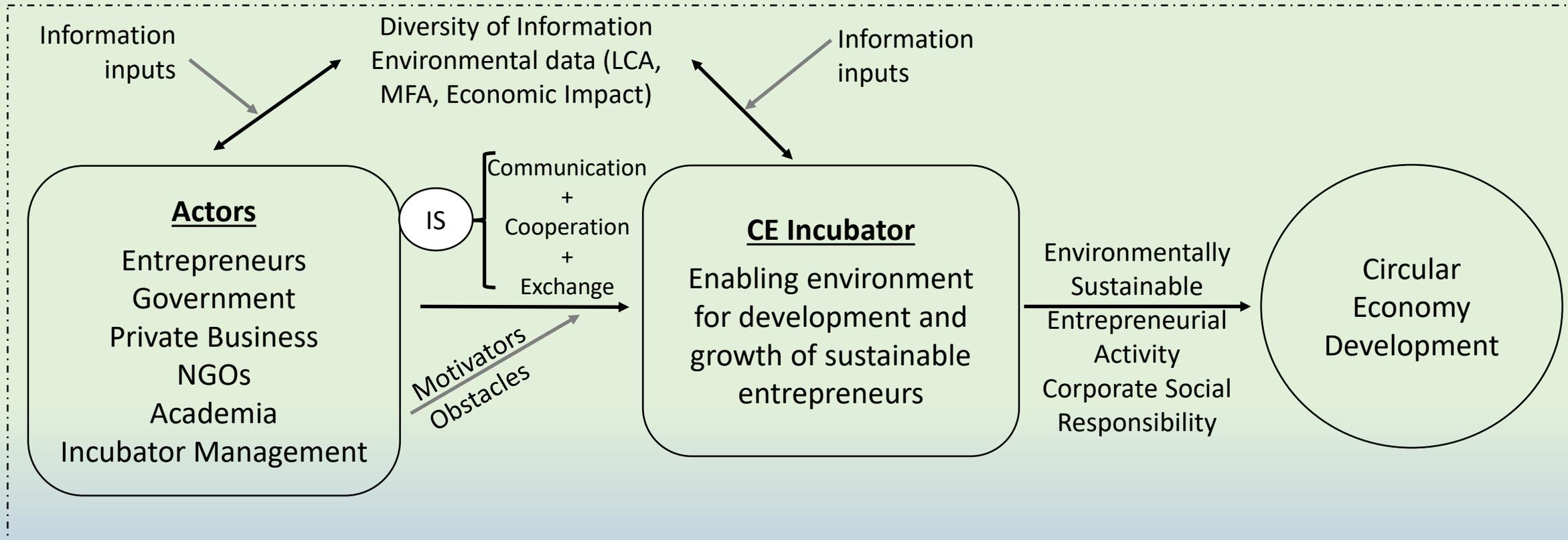
- Absolutely essential to have a supportive and motivating eco-system:
  - Availability of data for research, entrepreneurship, management and support of industrial symbiosis
  - Financing the eco-system
  - Public/Private partnership
  - Supportive Legislation
    - Environmental protection
    - Beverage Containers Bill
    - Include a CE perspective in legislative agendas where relevant/possible

- Independent entities such as EMA and SWMCOL to support and oversee system
- Standing committee to plan and guide the process
  - Include consideration of CE in national committees
- Participation in international associations that support CE – Ellen Mac Arthur Foundation

# In closing

- The government does not have sole responsibility for the development of CE.
- They are part of a supportive eco-system that includes actors from Government, finance, academia, business, NGOs and industry
- Assist in creating environment that identifies opportunities, supports the development of nascent entrepreneurs, incentivizes and rewards activity and effort, allows for the movement and use of waste (possibly across national borders), creates value added activity from waste streams,

# Context for Circular Economy Incubator



IS = Industrial Symbiosis  
MFA = Material Flow Analysis  
LCA = Life Cycle Assessment

