



Chemical processing

- Uses hazardous chemicals
- Sensitive to feedstock quality and composition
- Requires additional purification steps

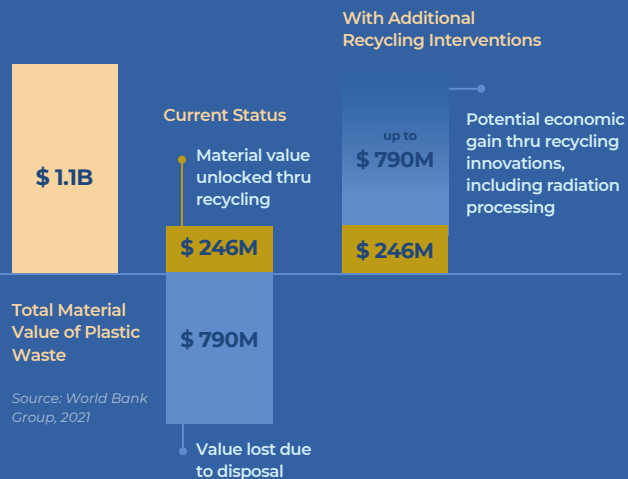
Radiation Processing



- Uses little or no chemical
- Can process in the “as received” condition
- Optimized for various types of plastics
- More efficient modification of natural fibers for reinforcement of materials

Economic Impact

*Currency in USD



PHILIPPINE
NUCLEAR
RESEARCH
INSTITUTE



For more information on irradiation technology for plastic recycling, contact
information@pnri.dost.gov.ph



/PNRIDOST



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IAEA



This project is supported by the IAEA through NUTEC Plastics.

For more information:



Ang plastik mo,
may halaga!

A nuclear
solution
to plastic
pollution

Plastics are one of the most versatile materials for most of the commodity and industry products. But too much use of plastic has resulted in some problems that need to be addressed immediately.

Plastic use in the Philippines



- Average Filipino uses 591 pieces of sachets, 174 shopping bags, and 163 sando bags yearly.



- The Philippines ranks as the world's third biggest polluter, with 2.7 million metric tons of plastic waste generated each year.



- Though the Philippines has a high garbage collection rate among Southeast Asian countries, rubbish is not properly disposed of.



- 386,000 tons of plastic are leaked into the ocean every year.

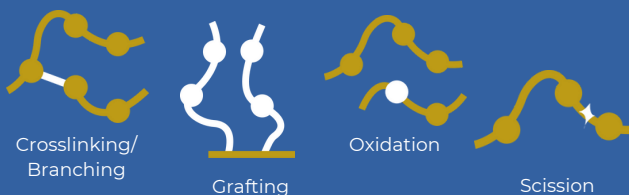


- The Philippines has very limited facilities for recycling single-use and low-value plastics.

- Out of 1.1MT plastic waste generated in the Philippines, only 28% are recycled.

- Plastic waste is hurting the environment, polluting our waters, may release toxic gases, and hinders sustainable development.

- P790M annual loss because of no demand for recycling.



Recycling plastic through irradiation

Ionizing radiation can change the structure and properties of bulk materials in various forms and states without adding or very minimal addition of chemical reactants in moderate conditions.

Through irradiation, certain types of plastic wastes can be modified for recycle. One of the potential applications of irradiation is the altering of structures in the waste plastic material, enabling its different components to blend better. The result: A new product that is stronger, more dense, and with enhanced properties

Irradiation technology can complement existing recycling efforts and support green initiatives and policies to:

DOWNCYCLE

or

UPCYCLE



- Low-value products
- Limited use



- High-value products
- Variety of uses

Irradiation technology is available at the DOST-Philippine Nuclear Research Institute.



Our current study on recycling plastic through irradiation:



Enables the production of pellets with superior properties at a competitive cost



Is a viable technology to complement existing recycling and reuse capacities



Helps to manage plastic wastes in support of extended producer responsibility (EPR)



Offers opportunities for collaborations on innovative, environment-friendly, and trendy modes of plastic recycling