Sustainable S&T Solid Waste Management Roadmap Possible Solutions

Overall Strategies:

Human Resource:

Upgrading of capacities/capabilities of institutions for sustainable solid waste management

R&D Technologies:

- Development of alternative materials plastic-based to packaging and products under Non-Environmentally Accepted Products (NEAP) & Packaging (e.g., plastic stirrers/coffee cups)
- Development of Technologies for Upcycling/ Recycling of plastics/Co-processing
- Development of appropriate technologies for the detection, measurement and treatment of microplastics and other marine R&D Technologies: litter
- Conduct of Life Cycle Analysis (LCA) of single-use plastics

Facilities/Services: interventions

Establishment of a facility for biodegradability testing of plastics

S&T Policies:

- Establishment of comprehensive resource recovery plan for plastic wastes & guidelines on final disposal
- Enhancement of industry compliance on solid waste management

17M

- Development of alternative materials to plasticbased packaging and products
- Resource recovery plan for the plastic generated (infectious wastes/healthcare materials)
- Baseline data gathering and assessment of plastic Wastes
- Development of Application and Database (IWASTO)
- Policy recommendation for Taal Ash
- Volume reduction and pretreatment of COVID mixed wastes
- **Product EOL Plan Imposition**
- Implementation of Segregation
- Identification and valuation of recyclable waste
- Identification and valuation of

2022-2023

55M

- Development of Technologies for Upcycling/Recycling of plastics/Co-processing
- Development for alternatives for POP's
- Development of Microplastic capturing & treatment Technology
- **Establishment of** Biodegradability Testing **Facility**
- Social and economic studies for the development & upgrading of recycling industry
- **Environment Psychology** approach to address the social aspect of Solid Wastes Management
- Commercialization/tech transfer of developed technology

60M

- Value-addition innovation on Wastes from Electrical & Electronic products (WEE)
- Deployment of Clean Technologies for solid waste prevention and control for ship recycling
- Establishment of Recyclability Testing **Facility**
- Development of standards for microplastic
- Capacity Building of researchers
- Study on recycling 2025 industry in the Philipine setting
- Funding and promotion for compliance to establish a sanitary landfill for lower class

Technologies

WEE

Policy

Value-adding

technology /recovery of

high vale metals from

RA 9003 IRR Review

available solid waste

Upgraded capacities of

sustainable management

management

technologies

Capacity Building

institutions for

of solid wastes

Review & assessment on

70M

- Formulation of Guidelines /policies/ standards from results of R&D
- Development of Clean Technologies for solid waste management
- Development of green alternatives to plastic products
- Development of tech, expertise for the recovery of high-value materials
- Development of treatment technologies for POPs
- WEE (Electronic Waste recovery and reuse)

2026

Treatment tech for

Development of technology on giving

guidelines/policies and standards on prevention and control of solid waste

Milestones

70M

waste management

green alternatives to

Grow pool of 3rd party

Hazardous/Special Waste

commercialization/tech

commercialization/tech

Identification / Development

transfer of developed

Environment friendly

Designing of packaging

transfer of developed

Clean Technologies for solid

Development of tech, expertise

for the recovery of high-value

Development of

nanoplastics

materials

Treater.

technology

technology

alternatives.

Development of

plastic products

A circular economy with solid Development of standards for

Vision

waste pollutionfree

> 2027-2028

environment

Technologies:

- POPs, Mercury, Arsenic and other Heavy Metals
- added value on e-waste

Policy Review

Input in the formulation of

Technology

Develop on-site treatment technology.

Policy Review

Enhanced industry compliance to solid waste mgt policies/regulations

Capacity Building

Reduction and minimization of solid waste

Overall Outcomes

Human Resource

- PhD, MS and BS students graduated
- Established pool of experts
- Trained personnel/stakeholders

R&D Technologies

- Innovative solutions to solid waste
- Commercialized technologies

Facilities / Services

Established centers / biodegradability testing facility

S&T Policies

- Inputs to policies and updating of the Ecological Solid Waste Management Act (RA 9003)
- Inputs to the House Bill drafted on Single-use Plastics/

- Economic and LCA (SUPs) Alternative materials (SUPs)
- Polymeric carbon nanodots for sensing devices
- High throughput monitoring technologies for nano, micro- and macroplastics
- Database that will collate, integrate, visualize and communicate plastics pollution in the Philippines

Policy Review/Recommendations/Development:

- Comprehensive Resource recovery plan for plastic wastes
- Policy Recommendation for Single-use Plastic
- Policy recommendation in detecting microplastics

Capacity Building/

- Trainings
- SWM Information and Education Campaign
- Technology Pre-treatment of Mixed Solid Waste
- Product EOL Database Product testing and characterization

Facilities

Center for Environmental Technologies and Compliance

2024

Technologies

- Technologies for Upcycling/ Recycling of plastics/Coprocessing
- Technologies for the detection, measurement and treatment of microplastics and other marine litter
- Tech transfer of developed technologies

Facilities

Establishment of a facility for biodegradability testing of plastics

Policy

Socio economic impact for recycling Industry

Legend Done (Text Font):

Ongoing

Not Yet Available