



**Ministry of Natural Resources and Environmental Conservation**  
**Environmental Conservation Department**  
**Myanmar**



**Ninth Regional 3R Forum in Asia and the Pacific**

**Overview on the 3R Practices at Waste Management in Myanmar**

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**Environmental Conservation Department**

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- ❑ **Implementation priorities and mechanisms**

# Economic Reform: Environmental Challenges

Population growth

Highly rely on  
Natural  
resources

Infrastructure  
Development

Increasing Investment in  
industry based economy

Heavy Industrial, SEZ

Environmental  
Challenges

Agriculture, Fishery,  
Water, Forest, Extractive  
Industries,  
Renewable energy

Manufacturing,  
Transport,  
Human settlement  
Urbanization  
Industrial Estates,  
SEZ

Resources degradation and increasing waste  
generation and Environmental pollution

Sustainable economic  
development ?

Climate Change

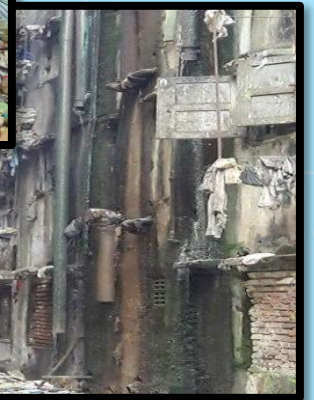
# Environmental Challenges in Waste Sector



Opening and risks of fire in dumping site in Ygn



Uncontrolled dumping at the house hold Area Yangon)



Industrial waste water and water pollution in Mandalay



Management of lead dust and acid fumes in a battery manufacturing unit in Yangon



Lead slag stored on site battery recycling unit producing Antimony-Lead billets



Feedstock used for recycling of metals



Mercury used in gold amalgamation process



E-wastes being traded in Yangon downtown



Pickling sludge stored inside Total's pipeline centre



Plastic waste at a metal foundry recycling metals



Residue from an alcohol distillery used as Poultry feed



Ink residue stored on site at a laminate



Used batteries stored inside Total's pipeline centre



Flammable solvents stored in waste yard inside one of the largest paint factories



Syringes and sharps collected by MDC for disposal

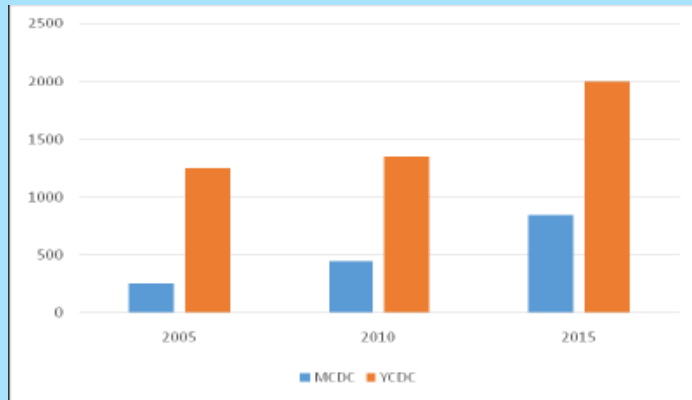
Hazardous waste

# Solid Waste in Myanmar

According to 2012 estimations by the World Bank,

MSW generation in Myanmar comprised  
At 2025, projected to reach about

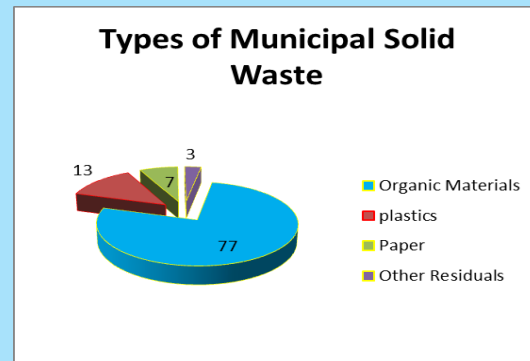
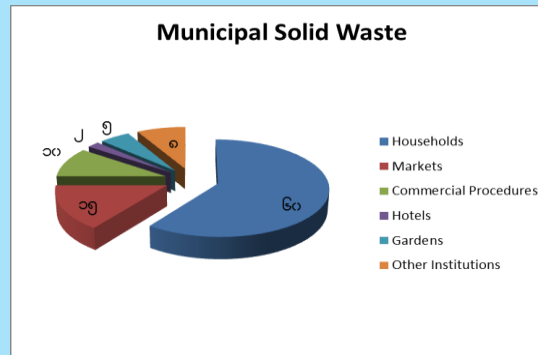
5,616 tons /day ( 0.44 kg/capita/day)  
21,012 tons /day (0.85 kg/capita/day)



Waste generation in 2 largest cities in Myanmar.  
Source: MCDC and YCDC, 2016

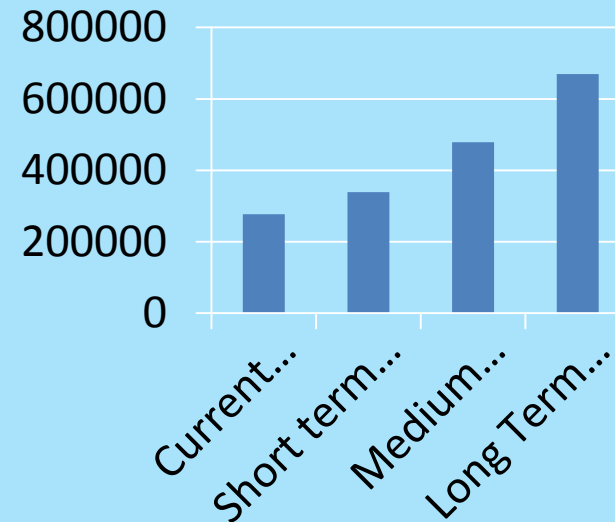
Approximately 55% of the country's total waste is generated by three major cities ;

- Yangon (1,981 tons/day)
- Mandalay (955 tons/day)
- Nay Pyi Taw (160 tons/day)



Generation and Composition of Municipal Solid Waste

## Projection HW Generation in Tonnes/years



■ Projection HW Generation in Tonnes/years

Sources: Draft report of First generation Hazardous waste Inventory for Myanmar



# Current Activities

(training, Inventory, Inspection) for Environmental pollution and waste management



Water quality survey with JICA expert Team



Inspection to the mining Area with inspection team



Hazardous waste Inventory with NEA & SINTEF



Inspection Training with ADB Expert



Waste to Energy Plant

# Legislations

Environmental Conservation Law (2012)

Environmental Conservation Rules (2014)

EIA procedures (2015)

EQEG (2015)

Order of requirement - EMP and - Installation of Waste Water Treatment

- Establishing EIA system
- Prescribing EQS,
- Prescribing facilities, terms and conditions for pollution control
- Laying down monitoring programme
- Establishing environmental permit

## Industrial-Specific Guidelines

- Energy Sector Development
- Agriculture, Livestock and Forestry Development
- Manufacturing
- Water Supply
- Waste Management
- Infrastructure and Service Development
- Mining

1. Alcohol, Wine & Beer Production Factories
2. Food & Beverage Processing Facilities
3. Pesticide Manufacturing, Formulation and Packaging Plants
4. Cement and Lime Manufacturing
5. Textile and Dying Facilities
6. Foundry Industry)
7. Tanning and Leather Finishing
8. Pulp and Paper Mill
9. Sugar Manufacturing Plant

Sectoral and City Development Committee' rules and regulations

# Review of Major Gaps



Waste Generation and Composition

Proper treatment Facilities, Landfill space, Cost, 3Rs, Basic data and Information



Policies, Regulations and Institutional Arrangements

National and local levels Policy, Enforcement, Planning, know-how and capacity, coordination



Public Participation (Education, awareness campaign & awareness raising)

Awareness to promote 3Rs, Awareness on health risks of the informal sector, Participation and Coordination among stakeholders



Economic Aspects

Revenue in the collection of waste, the total waste management expenditures, not strictly penalties, Public and Private Partnership



Technological Aspects

suitable technologies, resources including finance and expertise to invest for new technologies research and practical application



Monitoring

Compliance, Technology, Standard, Coordination ,

Institution of coordination mechanism at different levels



# Institutions for Waste Management

## National Environment Conservation and Climate Change Committee led by Vice President

Policy, Law , Regulation, procedure and Standards Working Committee

**Industrial plans, Urban, Rural waste management Working Committee**

Natural Resources, Biodiversity, Culture Heritage Conservation Working Committee

Climate Change Mitigation and Adaptation Working Committee

Environmental Capacity Building Development, Education and Awareness Working Committee

Green Economy Development working Committee

Regions/  
States  
Environ  
ment and  
Climate  
Change  
Super-  
vision  
Com-  
mittee

Other  
relevant  
Organizations

**Industrial Plans,  
Urban, Rural  
waste  
management  
Working  
Committee**

CSOs/ NGOs

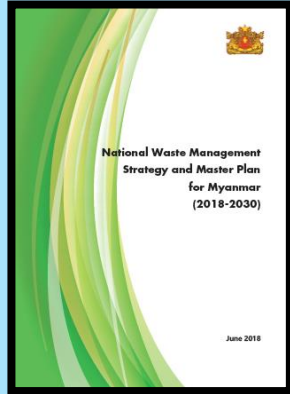
Industrial  
Zones  
Committee

Region and  
State CDCs

Relevant  
Ministries/  
Department

# National Waste Management Strategy and Master Plan

Final Draft

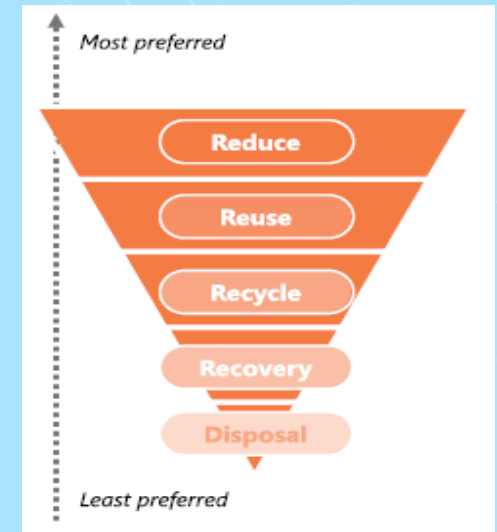


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3. WASTE MANAGEMENT- WHERE ARE WE NOW
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5. SETTING NATIONAL GOALS, OBJECTIVES AND TARGETS
6. IMPLEMENTATION PRIORITIES AND MECHANISMS



Guiding Principles



Waste Management Hierarchy

# National Waste Management Strategy and Master Plan (2018-2030)

Final Draft

**Vision** : Sustainable, Green, Clean and Healthy Environment towards a Brighter Future for Myanmar

**Mission** : To develop and implement the holistic/ integrated waste management strategy based on **principles of inclusiveness, zero waste and circular economy** to achieve a greener, cleaner and healthier environment.

## Objectives

**Goal A:** Extending sound waste collection service to all citizens and eliminate uncontrolled disposal and open burning as a first step towards environmentally sound waste management

**Goal B:** Extending sustainable and environmentally sound management of industrial and other hazardous wastes

**Goal C:** Substantively prevent waste through 3Rs (reduce, reuse, recycling) and thereby establish a resource circular society

**Goal D:** Ensure sustainable financing mechanisms

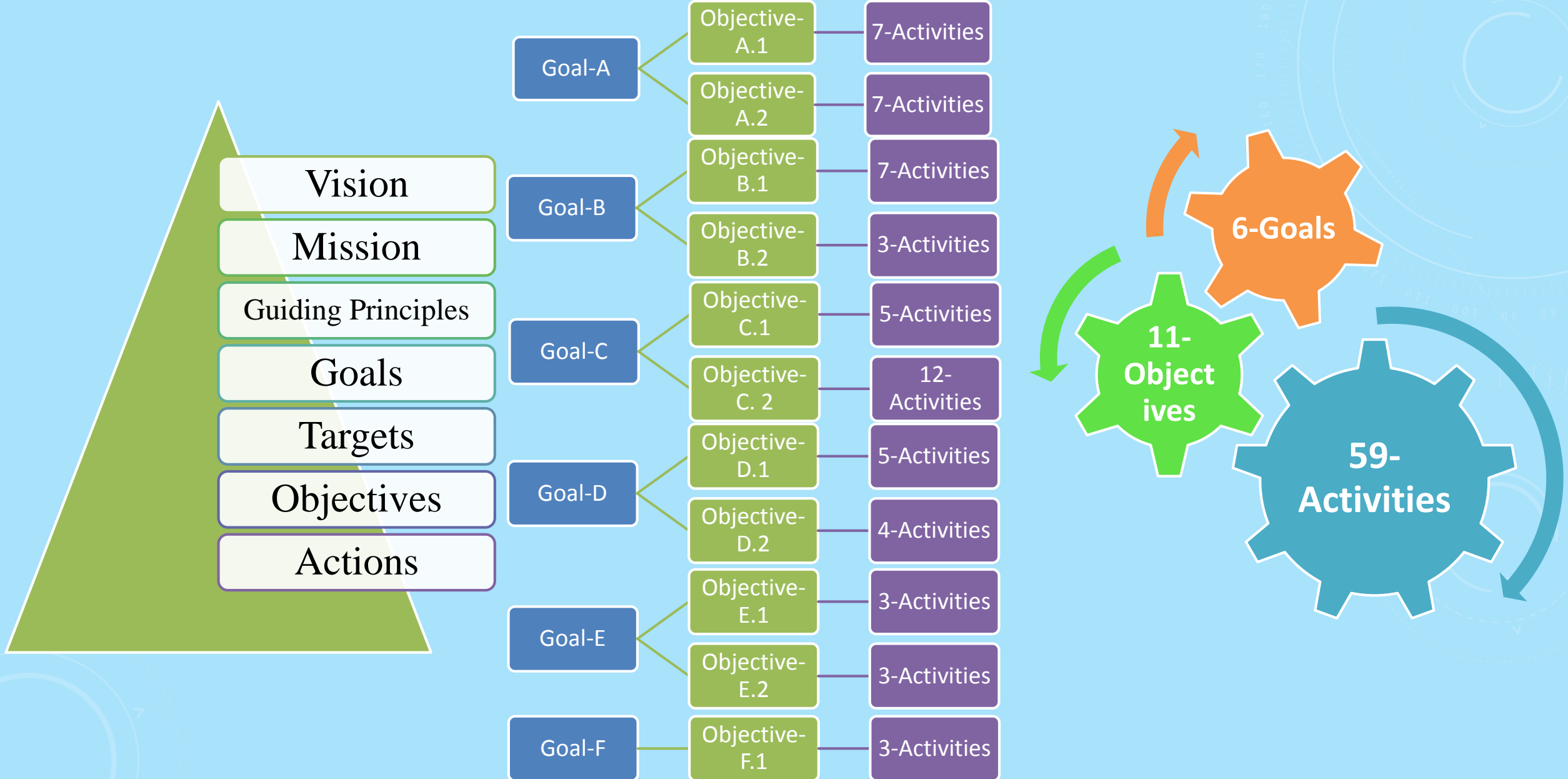
**Goal E:** Awareness Raising, Advocacy and Capacity Building

**Goal F:** Compliance, Monitoring, Enforcement and Recognition

**2030 Targets: Short term (2018-2020)/ Mid term (2020-2025) / Long term (2025-2030)**

# Structure of the National Waste Management Strategy and Master Plan

Final Draft



# National Waste Management Strategy and Master Plan (2018-2030)

Final Draft

## *GOAL A - EXTENDING SOUND WASTE COLLECTION SERVICE TO ALL CITIZENS AND ELIMINATE UNCONTROLLED DISPOSAL AND OPEN BURNING AS A FIRST STEP TOWARDS ENVIRONMENTALLY SOUND WASTE MANAGEMENT*

<b>Targets</b>	<b>Short-term (2018-2020)</b>	<b>Mid-term (2021-2025)</b>	<b>Long-term (2026-2030)</b>
(i) Achieve sound waste collection service for all citizens	70 %	85 %	100 %
(ii) Eliminate the uncontrolled dumping and burning in the cities and mandate the operation of environmentally sound disposal facilities	Major City Development Committees (Yangon, Mandalay and Nay Pyi Taw)	50 % of all other Township Development Committees in the country	100 % of all other Township Development Committees in the country

# National Waste Management Strategy and Master Plan (2018-2030)

Final Draft

## **GOAL B - EXTENDING SUSTAINABLE AND ENVIRONMENTALLY SOUND MANAGEMENT OF INDUSTRIAL AND OTHER HAZARDOUS WASTES**

<b>Targets</b>	<b>Short-term (2018-2020)</b>	<b>Mid-term (2021-2025)</b>	<b>Long-term (2026-2030)</b>
(i) Mandate separate collection and sound treatment of hazardous waste including infection medical waste from non-hazardous waste	Major City Development Committees (Yangon, Mandalay and Nay Pyi Taw)	50 % of all other Township Development Committees in the country	100 % of all other Township Development Committees in the country
(ii) Mandate sound collection and environmentally friendly treatment of all industrial waste	Major City Development Committees (Yangon, Mandalay and Nay Pyi Taw)	50 % of all other Township Development Committees in the country	100 % of all other Township Development Committees in the country

# National Waste Management Strategy and Master Plan (2018-2030) Final Draft

## ***GOAL C - SUBSTANTIVELY REDUCE WASTE THROUGH 3RS (REDUCE, REUSE, RECYCLING) AND THERE BY ESTABLISH A RESOURCE CIRCULAR SOCIETY***

<b>Targets</b>	<b>Short-term (2018-2020)</b>	<b>Mid-term (2021-2025)</b>	<b>Long-term (2026-2030)</b>
(i) Mandate the development of city waste management strategies and action plans with actual waste reduction targets by all City Development Committee (CDCs) and Township Development Committees (TDCs)	25 %	50 %	80 %
(ii) Mandate the introduction of targets for diverting the food waste from landfills	15 %	35 %	60 %
(iii) Mandate the separate collection and set waste recycling targets for industrial, medical and other wastes	15 %	35 %	60 %

# National Waste Management Strategy and Master Plan (2018-2030)

Final Draft

## *GOAL D - ENSURE SUSTAINABLE FINANCING MECHANISMS*

<b>Targets</b>	<b>Short-term (2018-2020)</b>	<b>Mid-term (2021-2025)</b>	<b>Long-term (2026-2030)</b>
(i) All City and Township Development Committees conduct full cost accounting for waste service	50 %	75 %	100 %
(ii) All City and Township Development Committees establish cost reflective tariffs for waste management services	50 %	75 %	100 %



## *GOAL E - AWARENESS RAISING, ADVOCACY AND CAPACITY BUILDING*

<b>Targets</b>	<b>Short-term (2018-2020)</b>	<b>Mid-term (2021-2025)</b>	<b>Long-term (2026-2030)</b>
(i) Increase in the number of townships that have implemented standard awareness-raising programmes for their residents	25 %	50 %	100 %
(ii) Increase in the number of schools in the townships that have established environmental education programmes for their students	25 %	50 %	100 %

## *GOAL F - COMPLIANCE, MONITORING, ENFORCEMENT AND RECOGNITION*

<b>Targets</b>	<b>Short-term (2018-2020)</b>	<b>Mid-term (2021-2025)</b>	<b>Long-term (2026-2030)</b>
(i) City and Township Development Committees establish benchmark performance indicators	50 %	75 %	100 %
(ii) Increase in the number of successful enforcement actions filed against non-compliant entities by City and Township Development Committees	50 %	75 %	100 %

# Overview on the Waste Management

## National Waste Management Strategy and Master Plan

Goal A

Goal B

**Goal C : Substantively prevent waste through 3Rs and thereby establish a resource circular society**

Goal D

Goal E

Goal F

*Promote waste reduction upstream through introduction of sustainable production (in the design, fabrication and manufacturing of products) and consumption*

*Promote reduce, reuse, recycle and recovery of waste materials before final disposal*

### 5-Activities

- ❖ Introduce **design principles** that incorporate the **reuse of goods** or their dismantling into components for reuse
- ❖ Mandate **Extended Producer Responsibility (EPR)**
- ❖ Implement a **Cleaner Production Strategy**
- ❖ Allocate **investment for research and development**
- ❖ promote **green businesses, sustainable consumption and production, and eco- labelling, etc**

# Overview on the Waste Management

## National Waste Management Strategy and Master Plan

Goal A

Goal B

**Goal C : Substantively prevent waste through 3Rs and thereby establish a resource circular society**

Goal D

Goal E

Goal F

*Promote waste reduction upstream through introduction of sustainable production (in the design, fabrication and manufacturing of products) and consumption*

*Promote reduce, reuse, recycle and recovery of waste materials before final disposal*

12-Activities

- ❖ measurable **targets** for waste reduction, reuse separation and recycling
- ❖ **Direct** industries in industrial zones to develop **waste management plans**
- ❖ national **standards** for cities with a view **to promote 3Rs**
- ❖ Develop **strategies and guidelines** on waste separation, collection and sorting of general recyclable waste materials
- ❖ Develop standards and incentives for the establishment of **MRF and buy-back centres**
- ❖ Combine **recyclable waste collection systems**
- ❖ **awareness** campaigns
- ❖ integrating the **informal recycling within the mainstream waste management sector**
- ❖: Develop **strategies, standards and incentives** for diversion of specific waste streams
- ❖ Study and develop strategies/ standards for **various waste treatment/ recovery options**, introducing financial incentives
- ❖ Establish a proper mechanism for **data gathering, monitoring, enforcement and incentives**
- ❖ Include **sustainable lifestyle practices** into formal and non-formal education.

# Overview on the Waste Management

## National Waste Management Strategy and Master Plan

Goal A

Goal B

Goal C

**Goal D: Ensure sustainable financing mechanisms**

Goal E

Goal F

*Enhanced financing options for waste management*

*Sustainably financed waste management at the CDCs and TDCs*

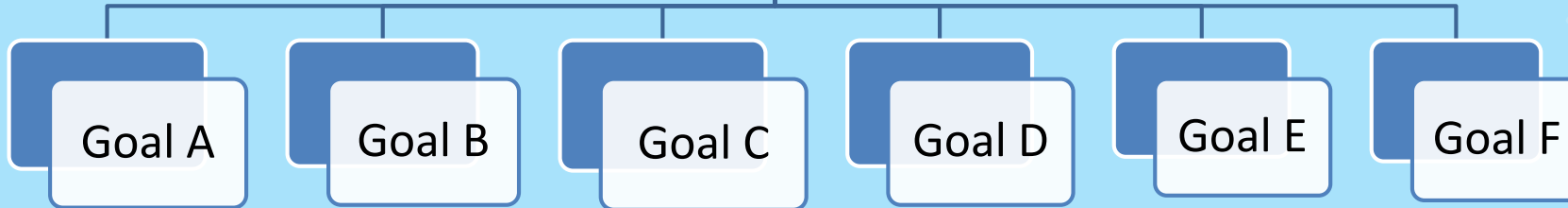
Environmental Management Fund (EMF), public-private partnerships (PPP), cost-benefit analysis

### **Support Public-Private Partnership (PPP) schemes for waste management**

- ❖ compiling a directory of private enterprises involved in the market of waste management services;
- ❖ reviewing and proposing enabling policies or systems for the promotion of public-private partnerships;
- ❖ clarifying legal and institutional support mechanisms for undertaking such partnerships, e.g., BOT, DBO;
- ❖ compiling a compendium of all possible PPP modalities, including advantages, trade-offs and examples of good practices for assisting CDCs and TDCs in implementing waste management projects and programmes;
- ❖ disseminating relevant fact sheets to CDCs and TDCs via various channels;
- ❖ collaborating with international donor/development agencies and relevant government in situations in capacitating CDCs and TDCs on entering public-private partnerships, such as conducting feasibility studies and tender processes
- ❖ facilitating business matching with private enterprises involved in marketing waste management services.

# Overview on the Waste Management

National Waste Management Strategy and Master Plan



Procedure on transboundary movement of HW and Other Wastes (final draft)

Hazardous Waste Lists (final draft)

Hazardous Waste Management Rule (8<sup>th</sup> draft)

Waste Management Law (0 Draft)

# OVER VIEW ON WASTE MANAGEMENT & ENVIRONMENTAL EFFORT

National Environmental Conservation and Climate Change Central Committee

Myanmar Sustainable Development Plan

National Environmental Policy & Strategy

Green Economy Policy Framework

National Waste Management Strategy and Master Plan & HW Master Plan

Myanmar Climate Change Policy & Strategy

Industrial plans, Urban, Rural waste management Working Committee

Approach

(Environmental Sound Management)

Reduce

Reuse

Recycle

Sustainable Waste Management

Waste Stream

Municipal waste

Industrial waste

Electronic waste

Plastics Waste

Hazardous waste

Households

Industry

Special Economic zone

Urban development

Mining

Health

Transport

Agriculture

Tourism

Energy

SDGS



# Implementation priorities and mechanisms for NWMS&MP, HW MP

## Adoption & Mainstreaming

- High level political endorsement and commitment, Public consultation

## Mobilizing Resources

- Adequate funding, Human resources, Technology, Private sector investment, incentive for reducing waste generation, 3 Rs encourage

## Legislation and regulation

- Standard and tools, EPR practices legal basis, Guidelines for separation, treatment, disposal, issue licence, charge, inspection

## Monitoring and performance assessment

- Inter-ministerial coordination and cooperation mechanism

## Responsibilities and partnership

- coordinating committee, National Govt, R and S Govt, Private sector, informal sector, public, NGOs, Academics, Educators, Intl Partners, CSO

## Choice of technology

- R & D, Transfer technologies

## Awareness raising and public education

- Producers, shop owner, workers, consumers, eco-labeling, responsible waste behavior thru school,





**THANKS FOR YOUR KIND ATTENTIONS**