



Waste Sector (Solid Waste)

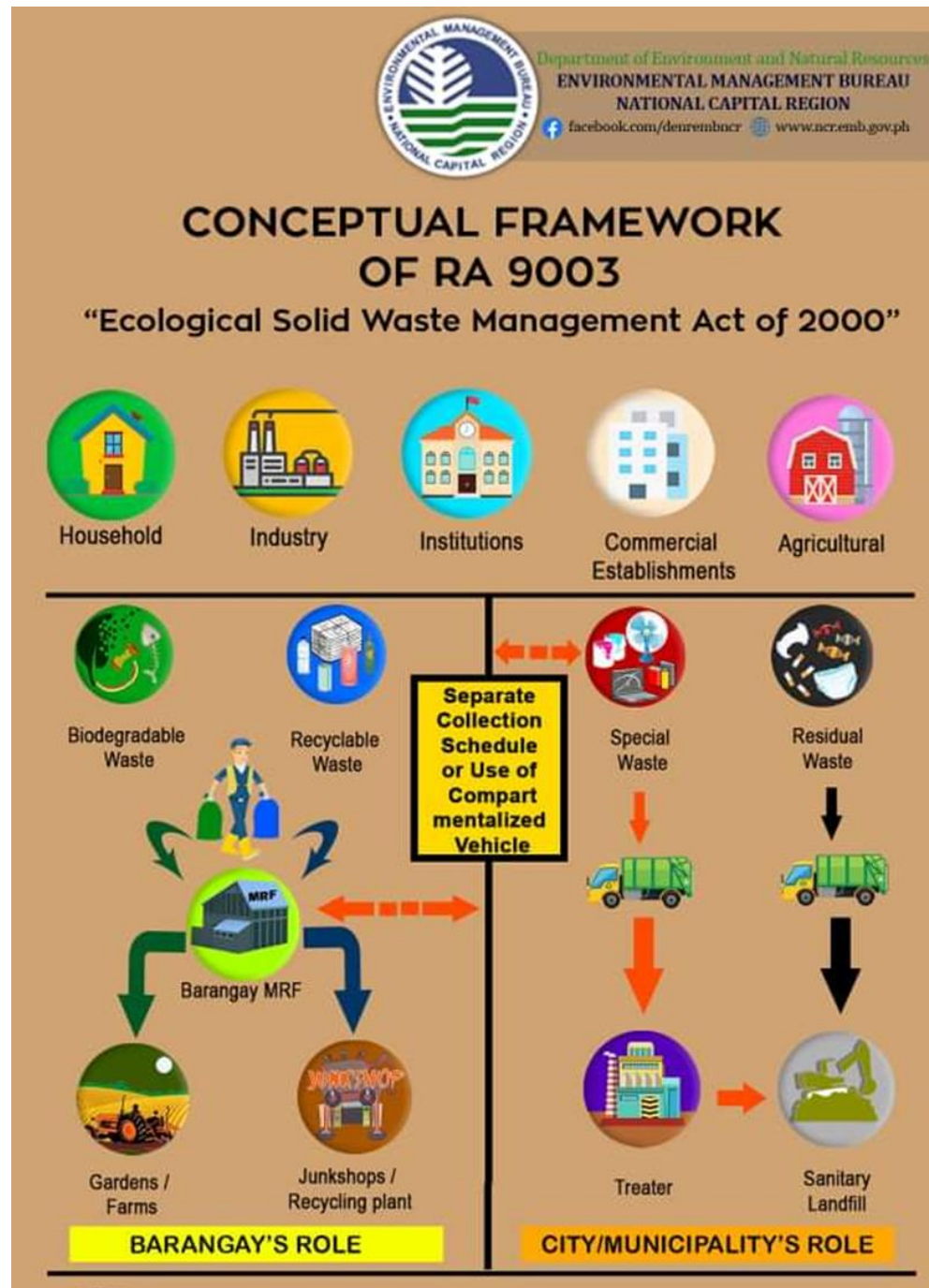
Outline

- **Situation in the Philippines, 2023**
- **Sources of Data**
- **Waste Sector GHG Inventory Results**
 - **2015 and 2020 GHG Inventory Results**
- **Data Collection and Analysis Workflow**

Solid Waste Situation in the Philippines, 2023

11,823 MRFs servicing 18,450 barangays

Source: EMB-SWMD



10-year SWM Plan
1592 plans:
1355 approved
236 under evaluation
1 no submission

299 Operational SLFs
Servicing 675



BIO
BIODEGRADABLES

RECYCLABLES

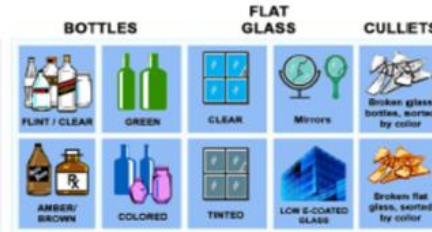
PAPER



PLASTICS



GLASS



METALS



This chart gives representative examples and is not meant to be an exhaustive list. For more details, refer to the NSWMC website for the updated approved list of recyclables.

RESIDUALS

Recyclables not salable in local junk shops or recycling markets should be classified under "residuals with potential for recycling."

The volume of residual waste that ends up in our landfills can be greatly reduced by treatment technologies.

RESIDUALS with POTENTIAL FOR RECYCLING



RESIDUALS for DISPOSAL



WACS (Waste Analysis and Characterization Study) SOLID WASTE CATEGORIES

SPECIAL WASTE

HAZARDOUS WASTE



Hazardous wastes are covered under Republic Act 6969 (Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990) and its related policies, such as Department Administrative Order 2013-22. Industrial, commercial and institutional establishments that generate hazardous waste must be registered with DENR-EMB and obtain the necessary permits.

HEALTHCARE WASTE from HOSPITALS



Healthcare waste must be properly disposed of by hospitals, clinics and other health institutions. Guidelines for their proper disposal are covered by the Healthcare Waste Management Manual published by the Department of Health.

BULKY WASTE



Bulky wastes require separate hauling arrangements with the Local Government Units (for Households) or Contracted Parties (for Commercial, Industrial, and Institutional Sources.) Proper treatment or disposal of waste must be ensured.

A standardized and mandatory guide for Philippine Local Government Units and Solid Waste Management Practitioners based on the WACS Guidelines approved by the National Solid Waste Management Commission, Office of the President, Republic of the Philippines.



Waste Sector GHG Inventory Results

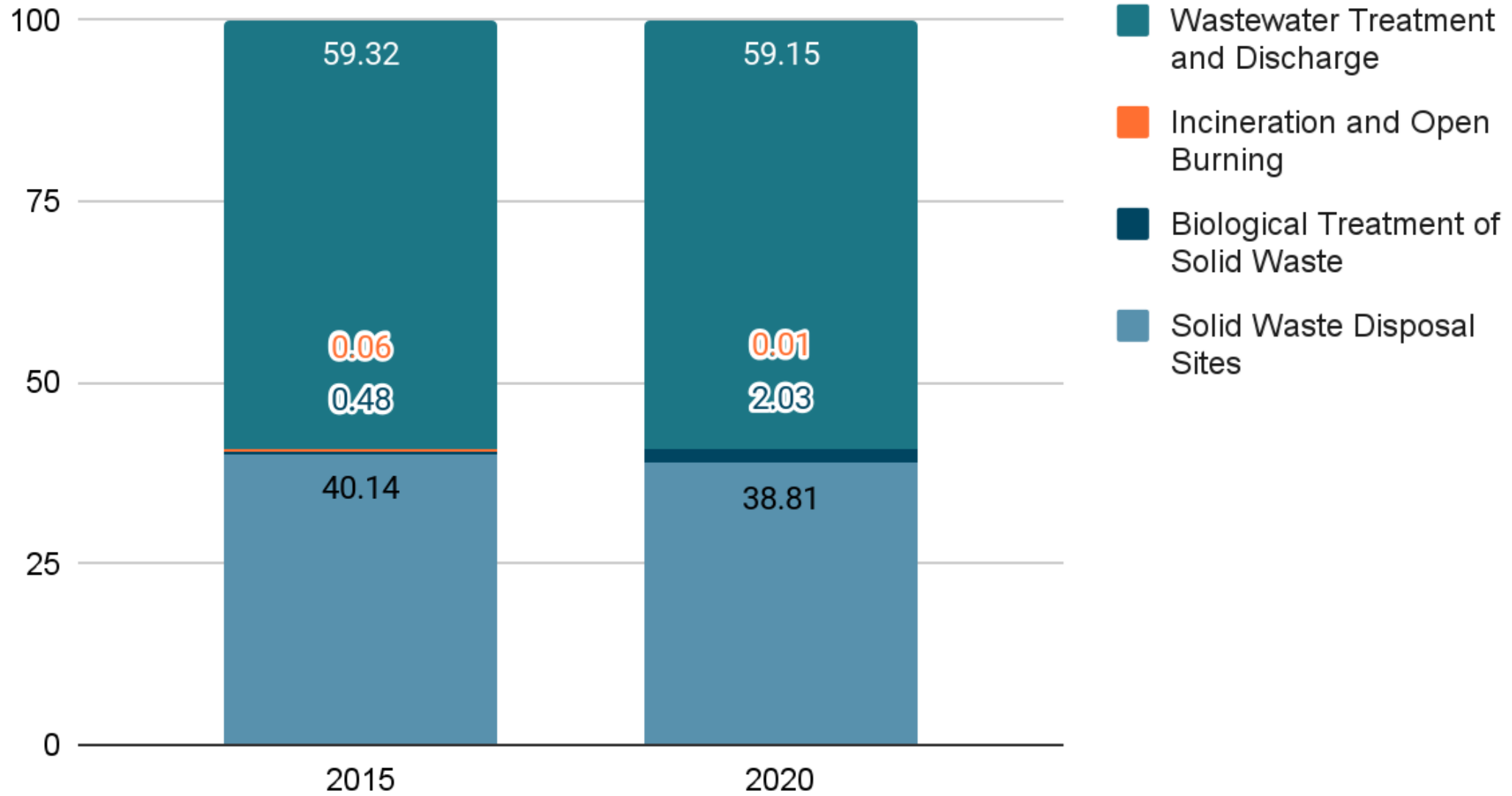
Year	1994	2000	2010	2015	2020
Waste (Gg CO ₂ e)	7,094	11,599	15,559	23,176	30,122

GHGs	CO ₂		CH ₄		N ₂ O		TOTAL (GgCO ₂ e)	
	2015	2020	2015	2020	2015	2020	2015	2020
Waste	2	0	22,106	28,646	1,068	1,476	23,176	30,122

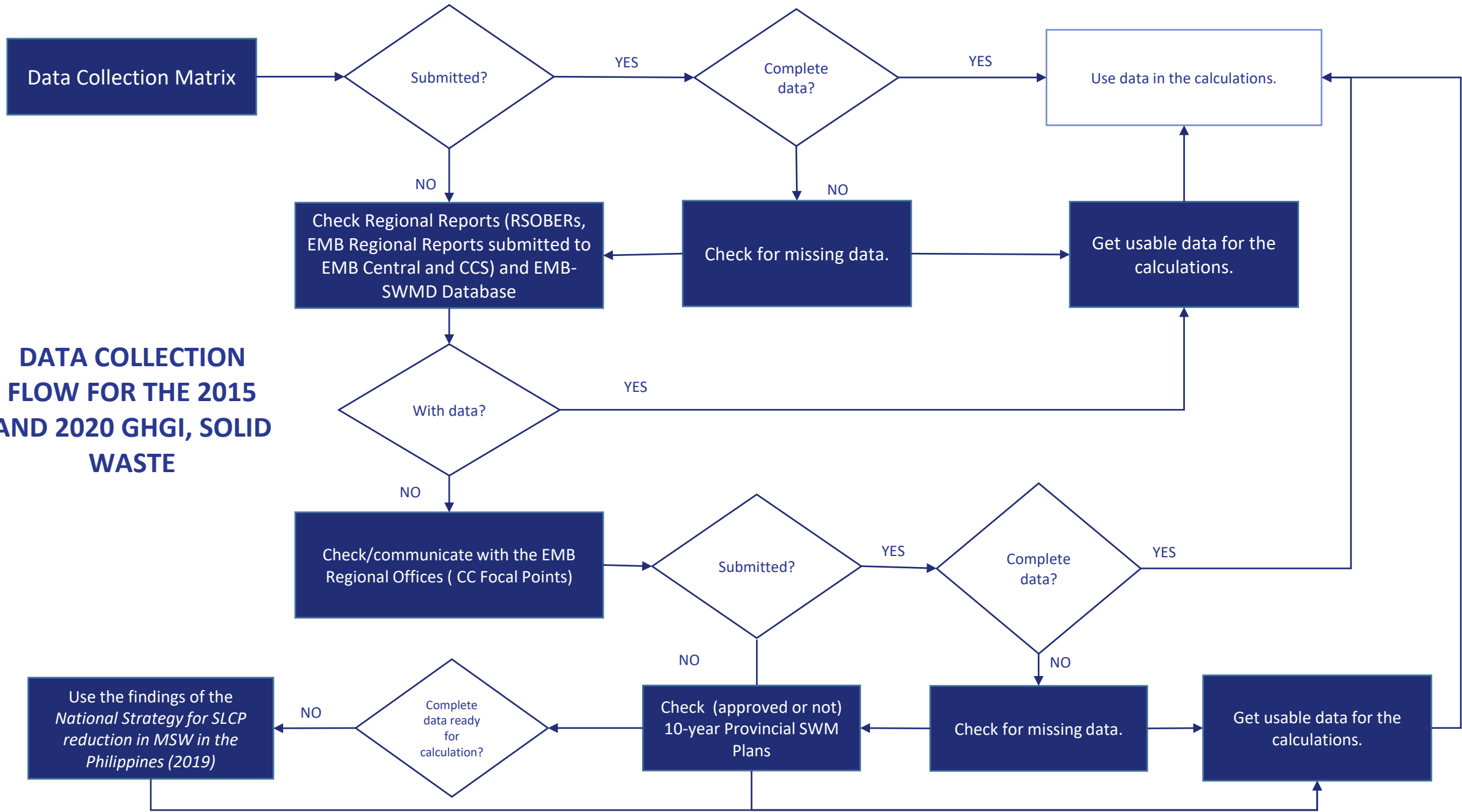
2015 and 2020 GHG Inventory Results

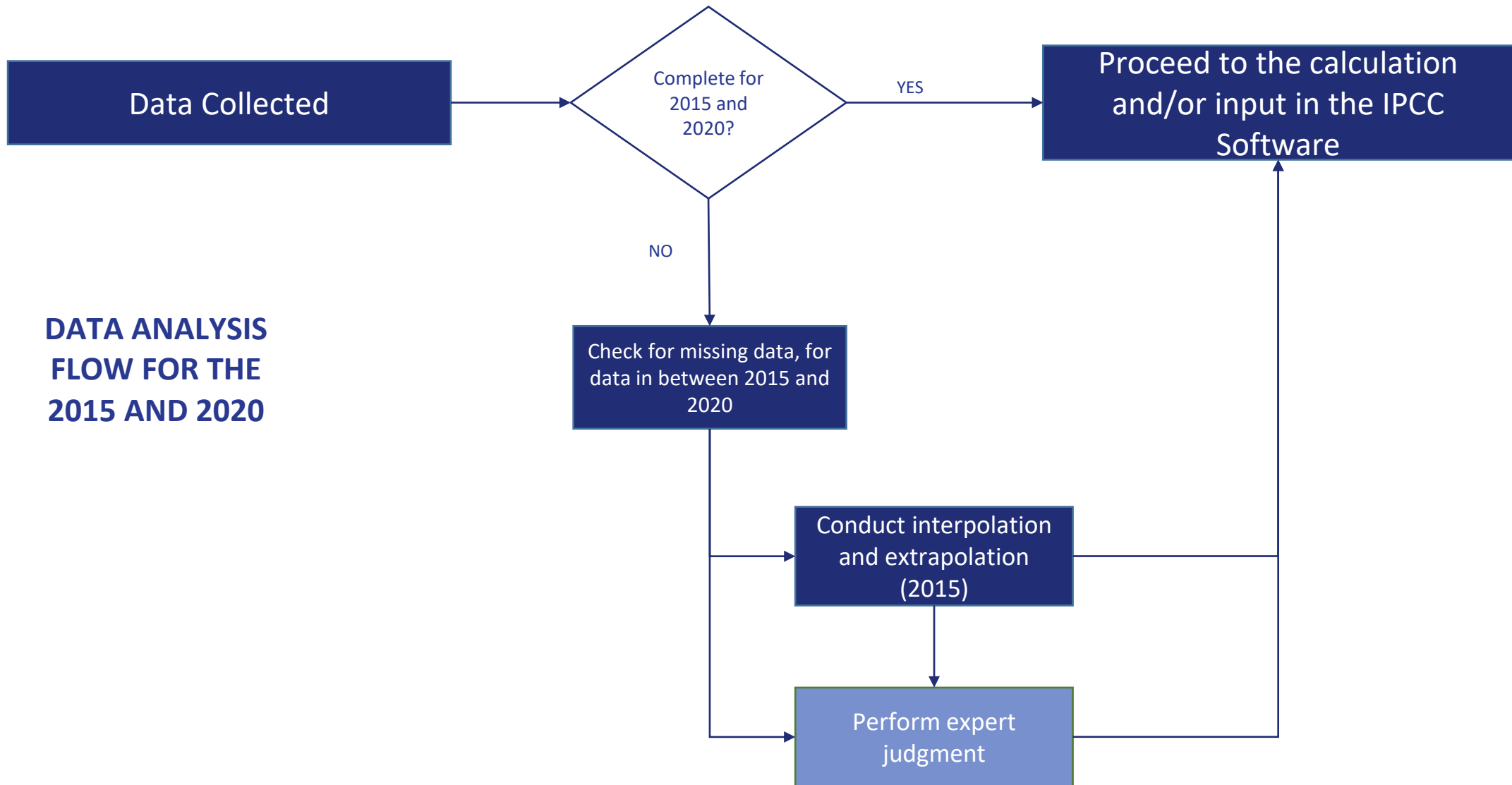
Waste Subsector	CO ₂		CH ₄		N ₂ O		TOTAL (GgCO ₂ e)	
	2015	2020	2015	2020	2015	2020	2015	2020
Solid Waste Disposal			9,304	11,690	-	-	9,304	11,690
Biological Treatment of Solid Waste	-	-	71	392	40	222	111	614
Incineration and Open Burning	2	0	9	1	2	0	13	2
Wastewater Treatment and Discharge	-	-	12,722	16,564	1,026	1,253	13,748	17,817
TOTAL	2	0	22,106	28,646	1,068	1,476	23,176	30,122

% Share of Waste Subsectors



DATA COLLECTION FLOW FOR THE 2015 AND 2020 GHGI, SOLID WASTE





**DATA ANALYSIS
FLOW FOR THE
2015 AND 2020**

Regional Database of submitted Data, Solid Waste

							Solid Waste Disposal Sites (tons/year @365 days/year)							Total	Composting (tons/year)
Region	Population	PCG (kg/day)	Total Waste Generation (kg/day)	Total Waste Generation (tons/year)	%Share based on Total Pop	%Share of PCG	Category 1	Category 2	Category 3	Category 4	TOTAL	Open Dumpsite	Controlled Dump Facility		
NCR															
CAR															
1															
Total															
SWDS															
Composting															
Open Burning															

RA 9003	IPCC 2006 / WORKSHEET
Controlled disposal/dump facilities (CDF)	Unmanaged, deep type Managed, semi-aerobic
Sanitary Landfill (SLF)	Managed, anaerobic
Open Dumpsites	Unmanaged, shallow/deep type <i>Managed, active-aeration</i>

2015

Region	Population	PCG (kg/day)	Total Waste Generation (kg/day)	Total Waste Generation (tons/year)	%Share based on Total Pop	%Share of PCG
NCR	12,877,253.00	0.70	9,060,090.00	3,306,932.85	0.13	0.09
CAR	1,722,006.00	0.38	653,720.00	238,607.80	0.02	0.01
1	5,026,128.00	0.36	1,800,270.00	657,098.55	0.05	0.02
2	3,451,410.00	0.34	1,159,310.00	423,148.15	0.03	0.01
3	11,218,177.00	0.34	3,825,580.00	1,396,336.70	0.11	0.04
4A	14,414,774.00	0.30	4,366,490.00	1,593,768.85	0.14	0.04
4B	2,963,360.00	0.32	957,900.00	349,633.50	0.03	0.01
5	5,796,989.00	0.34	1,978,880.00	722,291.20	0.06	0.02
6	7,536,383.00	0.38	2,844,060.00	1,038,081.90	0.07	0.03
7	7,396,898.00	0.37	2,744,570.00	1,001,768.05	0.07	0.03
8	4,440,150.00	0.35	1,558,330.00	568,790.45	0.04	0.02
9	3,629,783.00	0.40	1,466,150.00	535,144.75	0.04	0.01
10	4,689,302.00	0.38	1,784,230.00	651,243.95	0.05	0.02
11	4,893,318.00	0.39	1,914,950.00	698,956.75	0.05	0.02
12	4,545,276.00	0.31	1,420,060.00	518,321.90	0.05	0.01
13	2,596,709.00	0.36	931,850.00	340,125.25	0.03	0.01
BARMM	3,781,387.00	0.25	956,020.00	348,947.30	0.04	0.01
				-		
Total	100,979,303.00		39,422,460.00	14,389,197.90	1.00	0.39040

2020

Region	Population	PCG (kg/day)	Total Waste Generation (kg/day)	Total Waste Generation (tons/year)	%Share based on Total Pop	%Share of PCG
NCR	13,484,462.00	0.76	10,291,450.02	3,756,379.26	0.12	0.09
CAR	1,797,660.00	0.45	811,372.46	296,150.95	0.02	0.01
1	5,301,139.00	0.31	1,660,027.80	605,910.15	0.05	0.02
2	3,685,744.00	0.27	1,000,616.97	365,225.19	0.03	0.01
3	12,422,172.00	0.44	5,404,071.97	1,972,486.27	0.11	0.05
4A	16,195,042.00	0.29	4,641,000.00	1,693,965.00	0.15	0.04
4B	3,228,558.00	0.30	968,567.40	353,527.10	0.03	0.01
5	6,082,165.00	0.30	1,824,649.50	665,997.07	0.06	0.02
6	7,954,723.00	0.38	3,022,794.74	1,103,320.08	0.07	0.03
7	8,081,988.00	0.42	3,394,434.96	1,238,968.76	0.07	0.03
8	4,547,150.00	0.37	1,661,963.61	606,616.72	0.04	0.02
9	3,875,576.00	0.32	1,243,754.54	453,970.41	0.04	0.01
10	5,022,768.00	0.39	1,953,350.38	712,972.89	0.05	0.02
11	5,243,536.00	0.43	2,299,751.48	839,409.29	0.05	0.02
12	4,360,974.00	0.33	1,439,861.08	525,549.29	0.04	0.01
13	2,804,788.00	0.38	1,059,681.61	386,783.79	0.03	0.01
BARMM	4,944,800.00			-	0.05	-
				-		
Total	109,033,245.00		42,677,348.51	15,577,232.21	1	0.39100

1. Population from PSA 2015 and 2020 Census
2. PCG and/or Total Waste Generation: from EMB Data, EMB Regional State of the Brown Report, Data Collection Matrix, report from the EMB Regional Offices
3. Weighted PCG as per Solid Waste GHG Expert

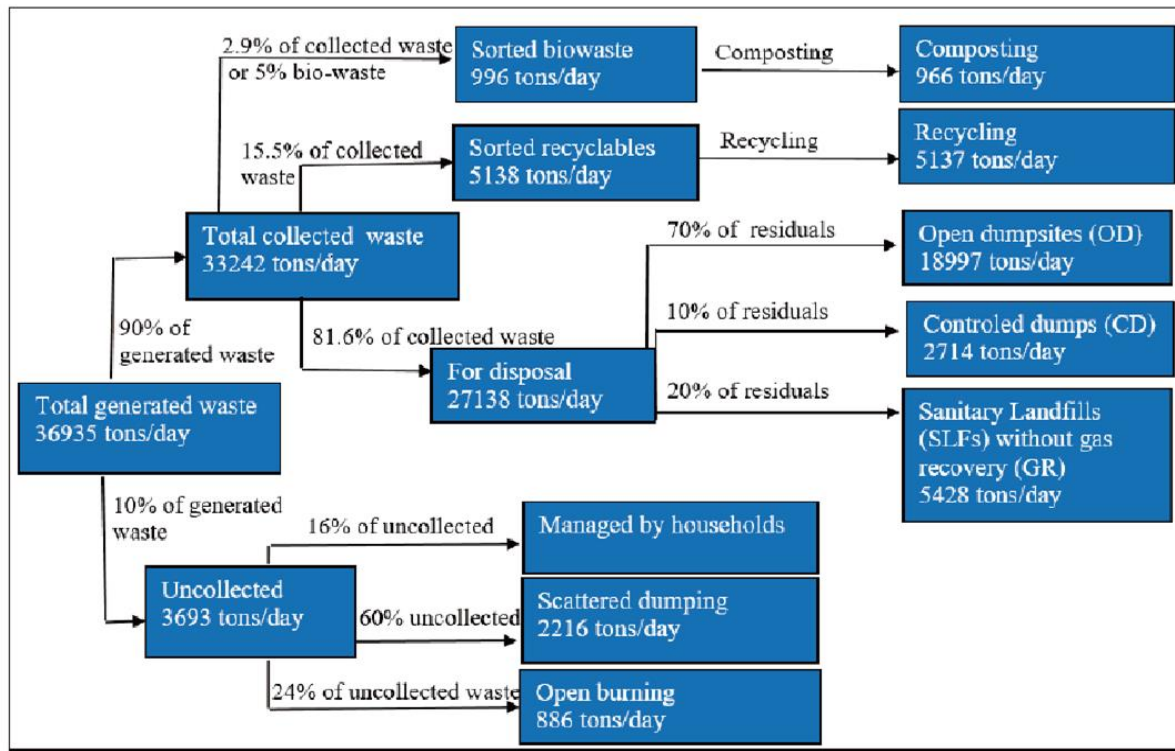
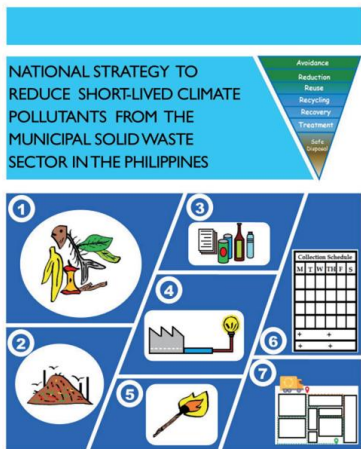


Figure 10. Waste flow and mass balance from 2010 BAU scenario



Sources of Solid Waste

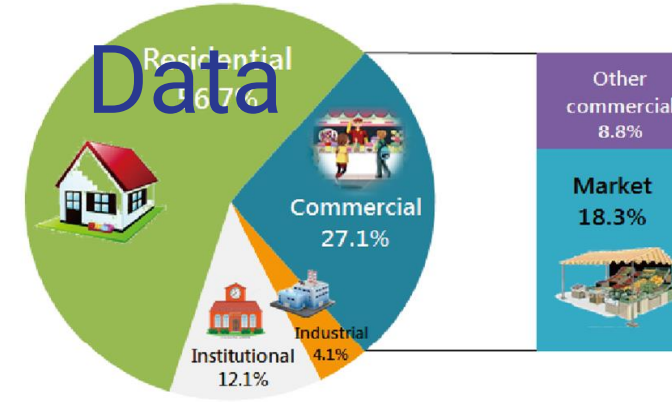


Figure 3. Sources and percentage contribution in tons of MSW [DENR-EMB, 2014]

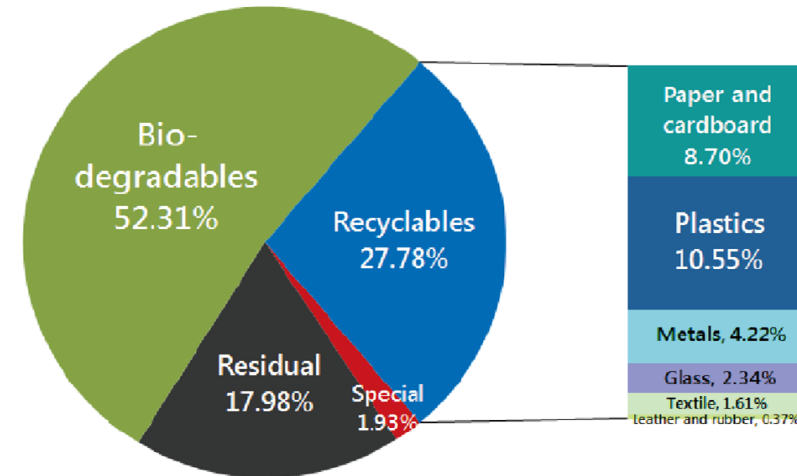


Figure 4. Composition of MSW in the Philippines by weight [DENR-EMB, 2014]

NSWMC, DENR and IGES (eds.) 2019, National Strategy to Reduce Short-Lived Climate Pollutants from Municipal Solid Waste Sector in the Philippines, Department of Environment and Natural Resources, Quezon City, Philippines.