



INTRODUCTION

1.1 Purpose

The economic progress and population growth in the Province of Davao del Norte has brought about a significant increase in waste generation, especially in the urban areas, which has a total disposal of 1,006,272.95 kg of wastes per day or 367, 289 tons of wastes per year. The household sector, being one of the major waste generator in the urban, with a disposal of 286, 296.22 kg of wastes per day or 104, 498 tons of wastes per year, has the most factor affecting large volume of waste generated. Such factors include habit, frugality, socio-economic status, space in the household, convenience of disposing of separated materials, gender and environmental education. It has to be addressed now or the waste problem will continue to pile up and would surely pose detrimental impact on human health and the environment. The coastal areas of the province which are converted into commercial resorts poses threat to the province's rich and diverse coastal and marine resources due to the bulk of waste they generate.

Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) assigns to Local Government Units (LGUs) the responsibility of Solid Waste Management (SWM). It declares that it is the policy of the state to adopt a systematic, comprehensive and ecologically sound solid waste management program to ensure the protection of public health and environment. It stipulates that provincial governments, through the Provincial Solid Waste Management Board, shall provide the necessary logistical and operational support to its component cities and municipalities. The Provincial SWM Plan will reflect the province's general program of support to the implementation initiatives of the various LGUs. More importantly, the provincial plan outlined the objective in environmental education that provides participation of all waste source sectors in a variety of forms of social action to help improve and maintain environmental quality through sustainable and efficient solid waste management.

Aiming towards sustainable economic development, this Ten-Year Solid Waste Management (SWM) Plan has the following goals:

- To ensure public awareness and participation in waste management activities.
- To implement the SWM plan in all component cities and municipalities.
- To establish efficient and sustainable SWM system in the entire province.
- To monitor the implementation of the city/municipal SWM plan.
- To establish one final disposal facility (SLF) for the residual and special wastes of the eight (8) benefiting local government units.
- To establish a systematic management system for the operation of the sanitary landfill situated at Sitio Tibi-tibi, Barangay Sto. Niño, Talaingod.

The pace of the component LGUs at various stages of implementation, the pace of which depends on their capacity and budget resources, and the readiness of their constituents to comply with LGU regulations and ordinances. The provincial government believes that LGU implementation needs to be pushed and supported so that neither the environment nor the



socio-economic development of the province is compromised. Thus, this Provincial Ecological Solid Waste Management (ESWM) Plan of Davao del Norte was formulated.

1.2 Approach

The Provincial Government of Davao del Norte has provided technical assistance to its component municipalities in order to meet the requirements of R.A. 9003. After several meetings, the Provincial Environment and Natural Resources Office (PENRO-LGU), thru the SWM Coordinator, scheduled a series of conferences with the Mayors, Municipal Environment and Natural Resources Officers (MENROs) and the Municipal Solid Waste Management (MSWM) Coordinators to be informed of the importance of the training that the personnel in charge of the program can avail on the proper management and handling/governance of waste in the municipality.

The MENROs, MSWM Coordinators and members of the Provincial Technical Working Group (PTWG) underwent SWM training boosted with practicum, cross visits, coaching and mentoring.

1.2.1 Solid Waste Management Assessment

The solid waste management assessment generated data on: (1) current waste management practices of the different waste sources in the LGUs, and (2) baseline information on generated, collected and disposed waste, which will be used for the determination of generation and diversion rate projections. This activity is essential for the enhancement of solid waste management strategies and implementation options. The SWM assessment process has two sequential activities, namely: (a) pre-sampling and orientation on the waste assessment process, and, (b) data synthesis and analysis.

a) Pre-sampling and Orientation on the Waste Assessment Process

The different MSWM Coordinators, MENROs and members of the PTWG attended an orientation on waste assessment process which included a hands-on training on waste segregation and measurement using wastes collected from predetermined samples of waste generator. The orientation provided the participants knowledge on Waste Assessment and Characterization Study (WACS), its significance to SWM plan formulation, its basic features and actual waste characterization study and stages. Besides, the orientation made the participants realized that WACS is a very important decision-making tool in developing an effective SWM plan.

The PENRO coordinated with the MSWMB/TWG in preparation for the actual waste characterization study which include (a) identification and orientation of the waste characterization participants (SWMB/TWG members, barangay officials, schools, garbage collection crews, waste sorters and the sample cooperators consisting of households, establishments and institutions) on their roles and responsibilities during the conduct of WACS, (b) familiarization of the team with the questionnaires for the survey of practices and the reproduction of the said questionnaires, (c) procurement of plastic bags which were distributed to the cooperators, (d) preparation of the sorting area and the



materials/equipment that will be needed, and (e) agreement on the schedule and route for the daily collection of waste from the cooperators.

The LGUs conducted the WACS activity, some for two (2) days and others for one (1) day which included Saturday and Sunday with the assumption that waste generation is higher during these days. Other LGUs opted to conduct WACS using the Typology approach, where the LGU borrows the data from another LGU having similar socio-economic characteristics and population density.

The characterization of waste generated at source was supplemented by the characterization of waste that were actually collected by the municipal and/or barangay LGU from the public market and sources within the collection route of LGU garbage trucks and brought to the disposal site. The latter is referred to as the end-of-pipe waste and the sample (unit of measure: number of trucks) was chosen from among the garbage trucks deployed during the conduct of the said activity. With this inclusion, the study provided a more complete waste stream profile of the municipality.

Waste generators within the poblacion which were identified and covered by the waste characterization activity are public markets, households, institutions, food establishments, general stores, industries, recreation centers and service centers.

b. data synthesis and analysis

The analysis of the data generated from the WACS activity was intended to generate the baseline data which will be the basis for projecting waste generation and disposal within the LGU and within the collection area during the 10 year plan period. The data is very useful in the formulation of the projection on waste diversion and to determine the required capacity of material recovery facilities and sanitary landfills.

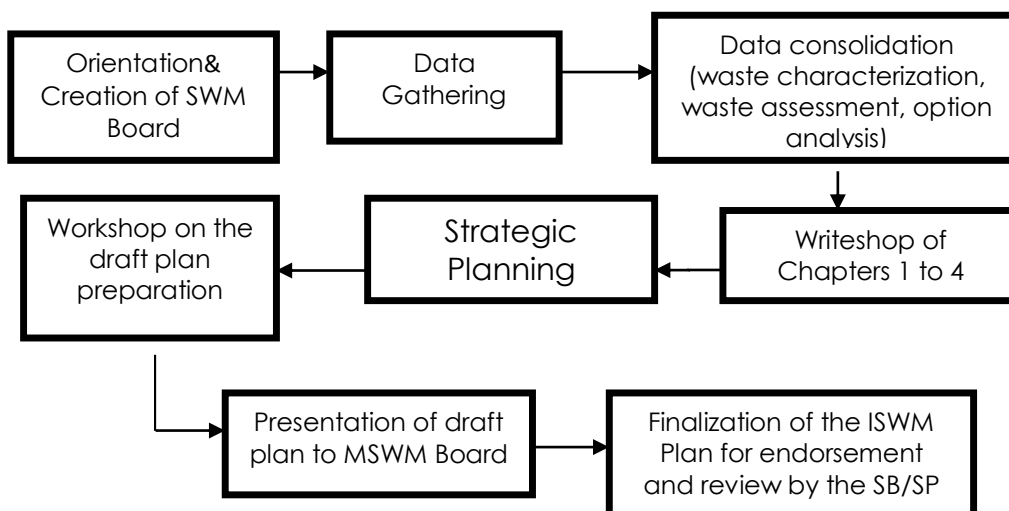
The MENROs, MSWM Coordinators and members of the PTWG took the lead in compiling, encoding and cleaning the data gathered from the waste characterization exercises.

1.2.2 Municipal Plan Preparation

The flowchart below summarizes the activities undertaken to complete the Municipal SWM Plan. The actual writing of Chapters 1 – 4 of the plan was done in a writeshop seminar. This was followed by SWM strategic planning workshop where the LGUs finalized the various components of the SWM plan: engineering, policy and IEC components.



Figure 1. Municipal Plan Preparation Process Flowchart



Guided by the result of WACS, specific engineering interventions were identified for each functional elements of the SWM (waste reduction and minimization at source, storage, collection and transport/transfer, material recovery and processing and disposal management). This resulted in the identification of specific activities and cost items relevant to the engineering component.

On the policy component, the participants examined the policy and ordinance requirements of the plan, based mainly on R.A. 9003 and its IRR. With an analysis of existing policies and ordinances and the recommended engineering interventions as basis, the LGUs developed their priority support agenda and worked out on effective enforcement strategy for SWM.

On the IEC component, the LGUs identified the IEC activities required to increase SWM awareness and support on waste reduction and segregation at source. The LGU was guided in developing on IEC program that can be initiated immediately, even prior to plan approval.

Upon completion of their respective draft SWM plans, the MSWMBs/TWGs then prepared for the approval of the plans. The draft plan was first reviewed by the ESWM Board. Public hearings were conducted before the plan was submitted for review by the Municipal Development Council. Final review and approval were done by the Sangguniang Bayan and Sangguniang Panlungsod. As needed, refinements and revisions were made on the draft based on the comments and suggestions raised during its review.

1.2.3 Provincial Plan Preparation

With the approval of the SWM Plans of the different municipalities and cities of the Province of Davao del Norte, members of the PTWG started to consolidate the plan of the municipalities and cities, formulate the framework for the Provincial SWM Plan and identify sustainable solutions to solid waste problems of the province. The PTWG considered that participatory approach is essential in the entire process in reviewing the provincial plan. The approach encouraged their participation by



ensuring ownership of the plan. By capacitating the Provincial SWM Board on the process and methodology involved and through actual participation in plan preparation, future revisions/updates could be undertaken locally without the need for external advisers/consultants.

1.2.4 Process to undergo for the Plan to be Approved

The flowchart on the next page illustrates the steps undertaken by the provincial and municipal LGUs for the approval of their respective SWM Plan.

Figure 2. Municipal Flowchart for the Approval of the SWM Plan

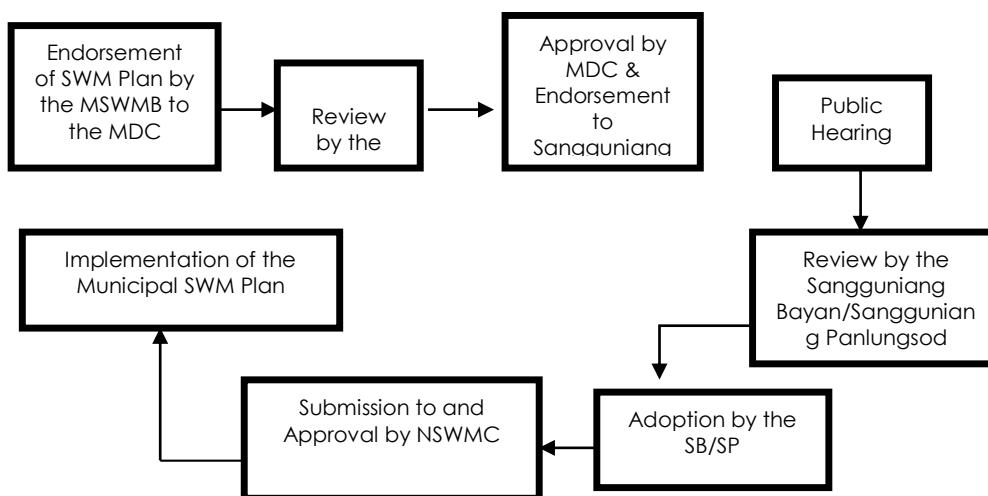
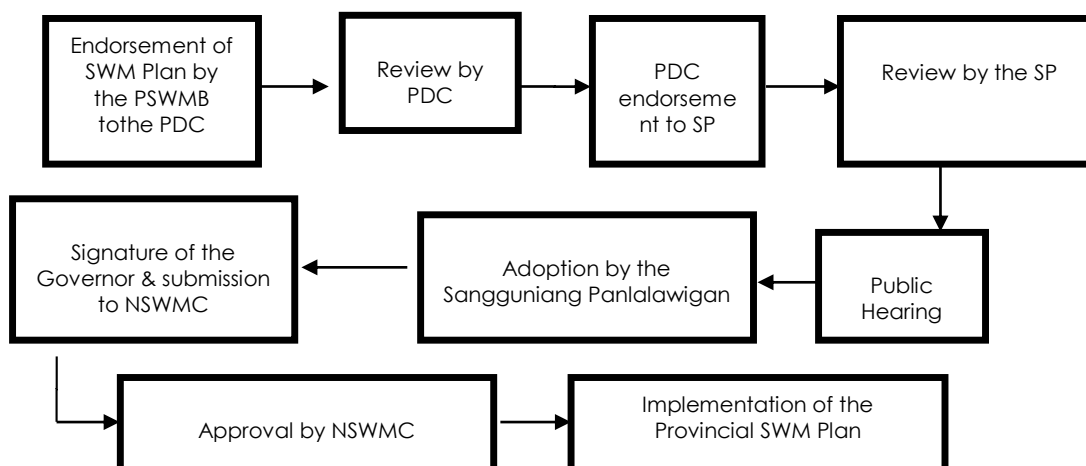


Figure 3. Provincial Flowchart for the Approval of the SWM Plan





Any revision of the plan proposed at any stage of the approval process shall be addressed to the SWM Municipal/City/Provincial TWG for appropriate action before the specific plan is endorsed to the next level.

1.3 Acknowledgment

The formulation and completion of this 10-year Provincial ESWM Plan is made possible through the valuable support and assistance of the following public officials, offices and other involved key players who in one way or another provided precious time, talent, skills, knowledge, expertise and guidance to come up with this SWM plan.

The Officials and Department Heads of the Provincial Government of Davao del Norte;

- Governor Rodolfo P. del Rosario
- Vice Governor Victorio R. Suaybaguio, Jr.
- Senior Board Member Shirley Belern R. Aala
- Board Member Raymond Joey D. Millan
- Board Member Vicente C. Eliot, Sr.
- Board Member Alfredo D. de Veyra
- Board Member Robert L. So
- Board Member Janet G. Gavina
- Board Member Allan R. Dujali
- Board Member Hernanie L. Duco
- Board Member Ely C. Dacalus
- Board Member Ernesto T. Evangelista, Sr.
- Board Member Edgar T. Castillo – FABC President
- Board Member Tristan Royce R. Aala – PCL President
- Board Member Victor M. Pandian – IP Representative
- Atty. Jennifer B. Namoc-Yasol, PADO
- Ms. Norma A. Lumain, CPA, MPA, PBO
- Engr. Raul G. Mabanglo, PEO
- Engr. Josie Jean R. Rabanoz, PPDO
- Ms. Arlene M. Semblante, PSWDO
- Engr. Joyce T. Gualbero, PASSO
- Dr. Anastacia G. Notarte, PAGRO
- Dr. Renato R. Embate, PVO
- Mr. Romulo D. Tagalo, MM, MPP, OIC-PENRO
- Mr. Samson J. Sanchez, PGSO
- Mr. Sofonias P. Gabonada, Jr., PIO
- Atty. Edd Mark O. Wakan, PLO
- Mr. Dennis Dean T. Castillo, OSS
- Ms. Monica L. Salido, PHRMO
- Ms. Ma. Eliza L. Andin, PEEDO
- Ms. Regina C. Ricafort, CPA, PACCO
- Ms. Serlinda C. Atake, CPA, PTO



The members of the PSWM Board;

- Governor Rodolfo P. del Rosario
- Congressman Rafael G. del Rosario of District 1
- Congressman Antonio F. Lagdameo of District 2
- Board Member Hernanie L. Duco
- Board Member Raymond Joey D. Millan
- Hon. Allan L. Rellon of Tagum City
- Hon. Joseph Nilo F. Parrenas of Municipality of Asuncion
- Hon. Edgardo L. Timbol of Municipality of Kapalong
- Hon. Basilio A. Libayao of Municipality of Talaingod
- Hon. Nestor L. Alcoran of Municipality of New Corella
- Hon. Marcelino A. Perandos of Municipality of Carmen
- Hon. James G. Gamao of Panabo City
- Hon. Lolita A. Moral of Municipality of B.E. Dujali
- Hon. Benigno R. Andamon of Municipality of Sto. Tomas
- Hon. Arnel H. Sitoy of Municipality of San Isidro
- Hon. Aniano P. Antalan of Island Garden City of Samal
- For. Orly T. Cariaso of Provincial ENR, RXI-2
- Director Alex C. Roldan of DILG-Davao del Norte
- Engr. Judy Donna dANueva Ecija-SSRS of DOST-Davao del Norte
- OIC Romeo L. Castañaga of DTI-Davao del Norte
- Engr. Josie Jean Rabanoz, PPDO
- Dr. Agapito B. Hornido, PHO
- Engr. Raul G. Mabanglo, PEO
- Romulo D. Tagalo, MM, MPP, OIC PENRO
- Anastacia G. Notarte, PAGRO
- Judeza Pingoy, GAD Coordinator
- Providencia P. Nuñez, Davao del Norte Council of Women
- Harold Villanueva, HPIC Manufacturing Industries
- Joemil S. Montebom, KASILAK Dev't. Foundation Inc.

The PENRO-LGU personnel;

Mr. Eduardo L. Malicay, MPA - SEMS

Ms. Merriam D. Bolipata, EMS II

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Ms. Analia G. Playda, CDA-I

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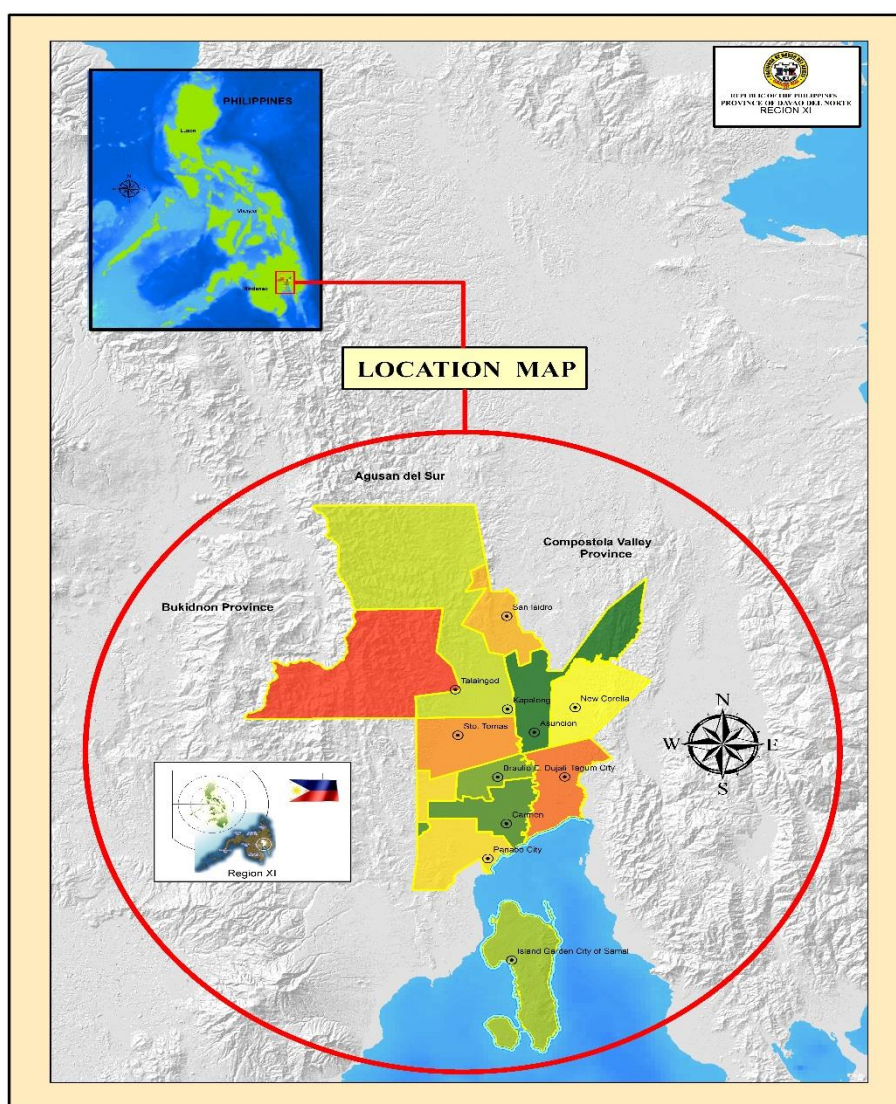
PROVINCIAL PROFILE

2.1 Location

Davao del Norte is strategically located at the southeastern part of Region XI, bounded by Agusan del Sur on the North, Bukidnon on the Northwest, Davao City on the Southwest, Davao Gulf on the South and the Province of Compostela Valley on the East. It has a total land area of 346,280 hectares.

The province is composed of eight (8) municipalities and three (3) cities with 223 barangays, sub-divided into two congressional districts.

Figure 4
Location Map of Davao del Norte





2.2 History

The original Province of Davao was divided into three (3) provinces, namely: Davao del Norte, Davao del Sur and Davao Oriental by virtue of a bill authored by the late Congressman Hon. Lorenzo S. Sarmiento, Sr. On May 8, 1967, the bill was passed into law and became known as Republic Act 4867. With R.A. 4867, the three provinces simultaneously celebrate their anniversary every July 1st.

When it was created, Davao del Norte was composed of only thirteen (13) municipalities, namely: Asuncion, Babak, Compostela, Kapalong, Mabini, Mawab, Monkayo, Nabunturan, Panabo, Pantukan, Samal, Sto. Tomas and Tagum. Six (6) additional municipalities were created on May 6, 1970. These were Carmen, Kaputian, Maco, Montevista, New Bataan and New Corella. Later on, additional municipalities were created: San Vicente (now Laak) in 1979, Maragusan in 1988 and Talaingod in 1990, which brought the number of municipalities to twenty-three (22).

On June 17, 1972, Davao Province was renamed to Davao del Norte by virtue of Republic Act No. 6430.

On January 30, 1998, President Fidel V. Ramos signed *Republic Act No. 8470* creating the Province of Compostela Valley out of Davao del Norte. Other historical events that transpired in Davao del Norte together with the creation of Compostela Valley are: the enactment of *Republic Act No. 8471*, creating the Island Garden City of Samal, composed of the municipalities of Babak, Samal and Kaputian; *Republic Act No. 8472* converted the Municipality of Tagum into Tagum City, the seat of the provincial government of Davao del Norte; and *Republic Act 8473* creating the municipality of Braulio E. Dujali from the municipalities of Carmen and Panabo with this turn of events, the province had a political composition of eight municipalities and two cities with 223 barangays.

Hon. Rodolfo P. del Rosario was elected and sworn into office as the first Governor of the new Davao del Norte Province on July 1, 1998.

Gov. del Rosario institutionalized the “Cluster Development” approach that grouped municipalities and cities for better developmental complementation.

Subsequently, on March 31, 2001 the Municipality of Panabo was converted into a city by virtue of Republic Act 1015. This changed the administrative composition of Davao del Norte to seven municipalities and three cities. Honorable Congressman Antonio R. Florendo, Jr. sponsored the bill creating the City of Panabo.

On March 15, 2004, a new municipality was born. Republic Act No. 9265 created the Municipality of San Isidro, the eighth municipality of Davao del Norte. This municipality is composed of six (6) barangays culled out from the Municipality of Kapalong and 7 barangays culled out from the Municipality of Asuncion. The bill was sponsored by Cong. Arrel R. Olaño of District I. The seat of this new local government unit is in Barangay Sawata.



2.3 Population

Figure 5. Provincial Total Population
NSO, 2010 Census of Population and Housing

Table 1. Total Population, Household Population, and Number of Households by City/Municipality: Davao del Norte, 2010

City/Municipality	Total Population	Household Population	Number of Households	City/Municipality	Total Population	Household Population	Number of Households
Total	945,764	937,785	211,099				
Asuncion (Saug)	55,844	55,837	12,282	Santo Tomas	109,269	108,984	24,406
Carmen	69,199	69,197	15,578	City of Tagum (Capital)	242,801	241,418	53,899
Kapalong	68,261	68,239	15,150	Talaingod	25,566	25,539	5,540
New Corella	50,699	50,658	11,333	Braulio E. Dujali	28,339	22,634	5,160
City of Panabo	174,364	173,946	39,125	San Isidro	25,548	25,525	5,824
Island Garden City of Samal	95,874	95,808	22,802				

Source : National Statistics Office, *2010 Census of Population and Housing*

The 2010 census reported a total population of 945,764 and a density of 273 persons/sq km. land area. Annual Population Growth Rate (APGR) from year 2000 to 2010 is recorded at 2.43%.

Tagum City, the seat of the provincial government, accounted for the largest population at 242,801, while San Isidro is the least populated with 25,548 (Figure 4). By year 2020, the projected population of Davao del Norte would have reached to 1,195,598. Still Tagum City would be the most populated followed by Panabo City and the municipality of Sto. Tomas. The three LGUs are the major growth centers of the province. The pattern of settlements in the province falls under three (3) categories. The cities of Tagum and Panabo both have high density population with fast-growing settlements. The Island Garden City of Samal and the municipalities of Sto. Tomas and B.E Dujali, though with low density population, have fast-growing settlements. The rest of the municipalities have low density population and slow growing settlements.



Table 1. Provincial Projected Population
Davao del Norte, 2015-2024

City/ Municipality	Total Population (2010- based NSO Census)	Year									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Asuncion	55,844	61,347	62,513	63,700	64,911	66,144	67,401	68,681	69,986	71,316	72,671
Carmen	69,199	74,878	76,069	77,278	78,507	79,755	81,023	82,311	83,620	84,950	86,300
Kapalong	68,261	77,285	78,784	80,313	81,871	83,459	85,078	86,729	88,411	90,126	91,875
New Corella	50,699	54,055	54,752	55,458	56,174	56,898	57,632	58,376	59,128	59,882	60,653
City of Panabo	174,364	181,588	185,318	189,125	193,009	196,974	200,939	204,904	208,869	212,834	216,799
IGACOS	95,874	103,284	104,833	106,405	108,001	109,621	111,266	112,935	114,629	116,348	118,093
Santo Tomas	109,269	132,751	138,021	143,500	149,197	155,120	161,279	167,681	174,338	181,259	188,455
City of Tagum	242,801	282,294	290,932	299,834	309,009	318,465	328,210	338,255	348,606	359,273	370,267
Talaingod	25,566	28,672	29,306	29,986	30,682	31,394	32,122	32,867	33,630	34,410	35,209
Braulio E. Dujali	28,339	35,197	36,757	38,385	40,085	41,861	43,716	45,652	47,675	49,787	51,992
San Isidro	25,548	26,231	26,370	26,509	26,649	26,790	26,932	27,075	27,218	27,362	27,507
Total	945,764	1,034,100	1,083,655	1,110,493	1,138,095	1,166,481	1,195,598	1,225,466	1,256,110	1,287,547	1,319,821



2.4 Economic Profile/Land Use

The economy of the province is primarily agricultural that includes forestry and fishing. Davao del Norte is also engaged in sand and gravel extraction, tourism and trade and services as its important industries.

Table 2. Provincial Income from Major Sources in Php (Million),
By City/Municipality: CY 2012 Province of Davao del Norte

LGU	Agriculture	Industries *	Services *	Wood	Quarrying	Tourism	Total
Tagum	2,345.89	207.80	1,275.09	26.23	11.48	8.24	3,060.39
New Corella	1,200.67	0.56	4.20	-	0.005	2.75	748.18
Asuncion	1,202.63	0.45	6.12	0.98	0.175	2.75	785.40
San Isidro	368.65	3.00	1.66	0.41	-	2.75	207.97
Sto. Tomas	3,243.43	1.59	32.47	0.18	0.36	2.75	3,107.24
Kapalong	1,690.50	15.60	20.79	0.08	2.19	5.49	1,754.84
Talaingod	183.32	-	0.90	6.50	0.13	2.75	387.75
Panabo	3,855.08	33.37	307.94	27.90	1.18	8.24	3,426.76
Carmen	2,227.08	2.70	11.61	-	2.39	2.75	1,446.28
BE Dujali	870.30	2.46	2.73	-	-	2.75	763.24
IGCSamal	2,994.34	1.76	10.46	-	0.23	233.65	735.97
Total	20,181.89	269.29	1,673.97	62.28	18.17	274.88	16,424.01

Source : Agriculture – Provincial Agriculturist's Office & Bureau of Agricultural Statistics
 Trade and Services - Department of Trade and Industry
 Wood and Quarrying - Dept. of Environment and Natural Resources & PENRO-LGU
 Tourism – Provincial Governor's Office – Tourism Office

It can be gleaned that agriculture is contributing most of the provincial income accounting for a total of P 20.1 billion in 2012.

Davao del Norte is a leading producer of bananas in the Philippines with plantations such as Dole and Del Monte and local producers such as Lapanday, TADECO, and Marsman. To the south of the province, Davao Gulf provides a living for many fishermen. Some of the fish products include brackish water milkfish, *tilapia*, shrimp, and crab; and freshwater catfish and *tilapia*.



Table 3. Statistics on Crop and Livestock Production in Davao del Norte

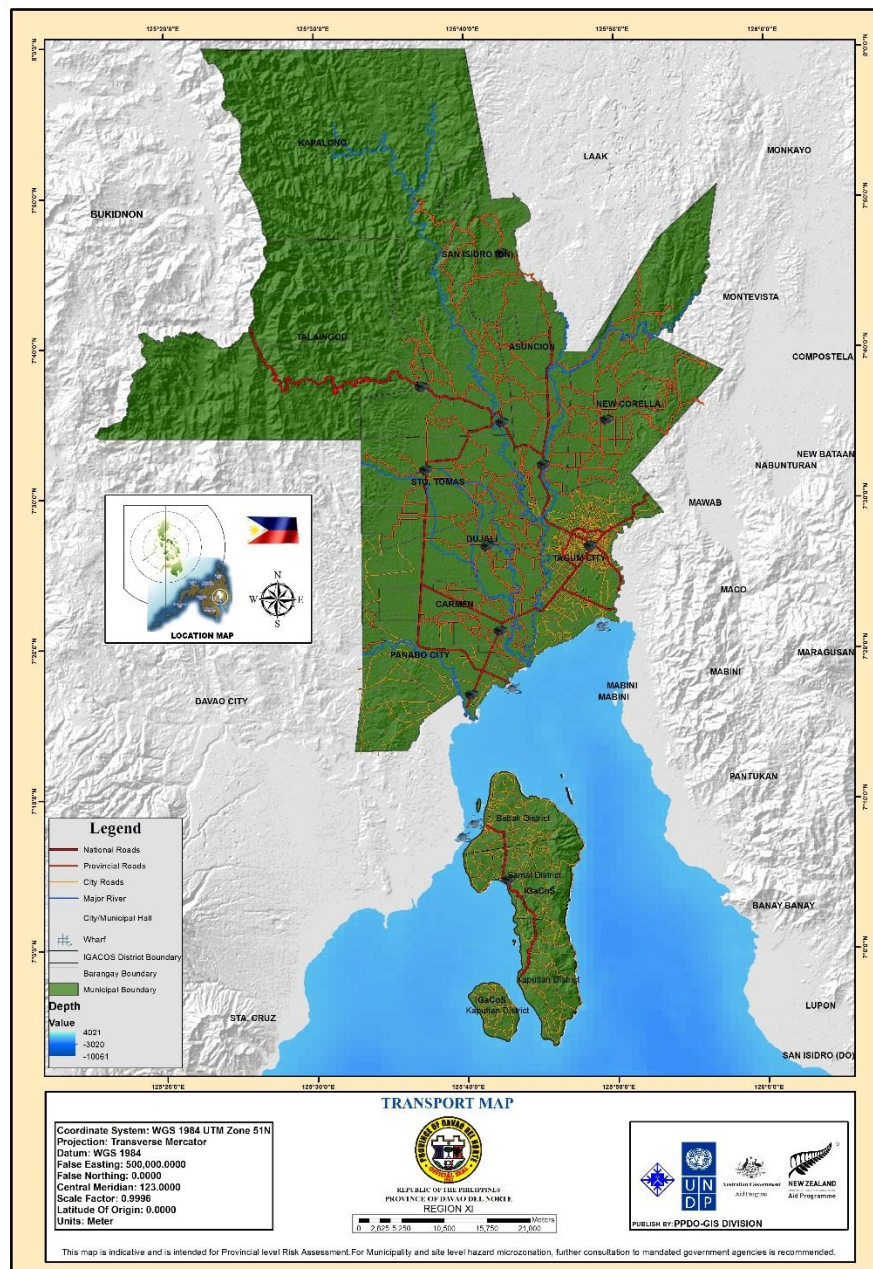
Commodities	Production			
	2010	2011	2012	2013
Crop Commodity (metric tons)				
Palay	110,995	115,888	133,471	
Corn	23,531	22,595	21,648	
Coconut	240,764	239,304	239,635	
Mango	2,651	2,666	2,733.63	
Banana	1,540,536	1,575,009	1,537,831	
Livestock Commodity				
Carabao	27,432	27,531	25,267	24,740
Cattle	10,886	11,819	14,336	14,402
Chicken	1,215,255	1,533,533	1,479,443	1,200,083
Duck	189,209	205,140	224,577	220,988
Goat	45,943	48,014	47,495	48,023

(Source: PAGRO & PVO of DDN, 2013)



The capital city of Tagum is only an hour drive from Davao International Airport and Sasa Wharf in Davao City. The province is accessible by land transportation.

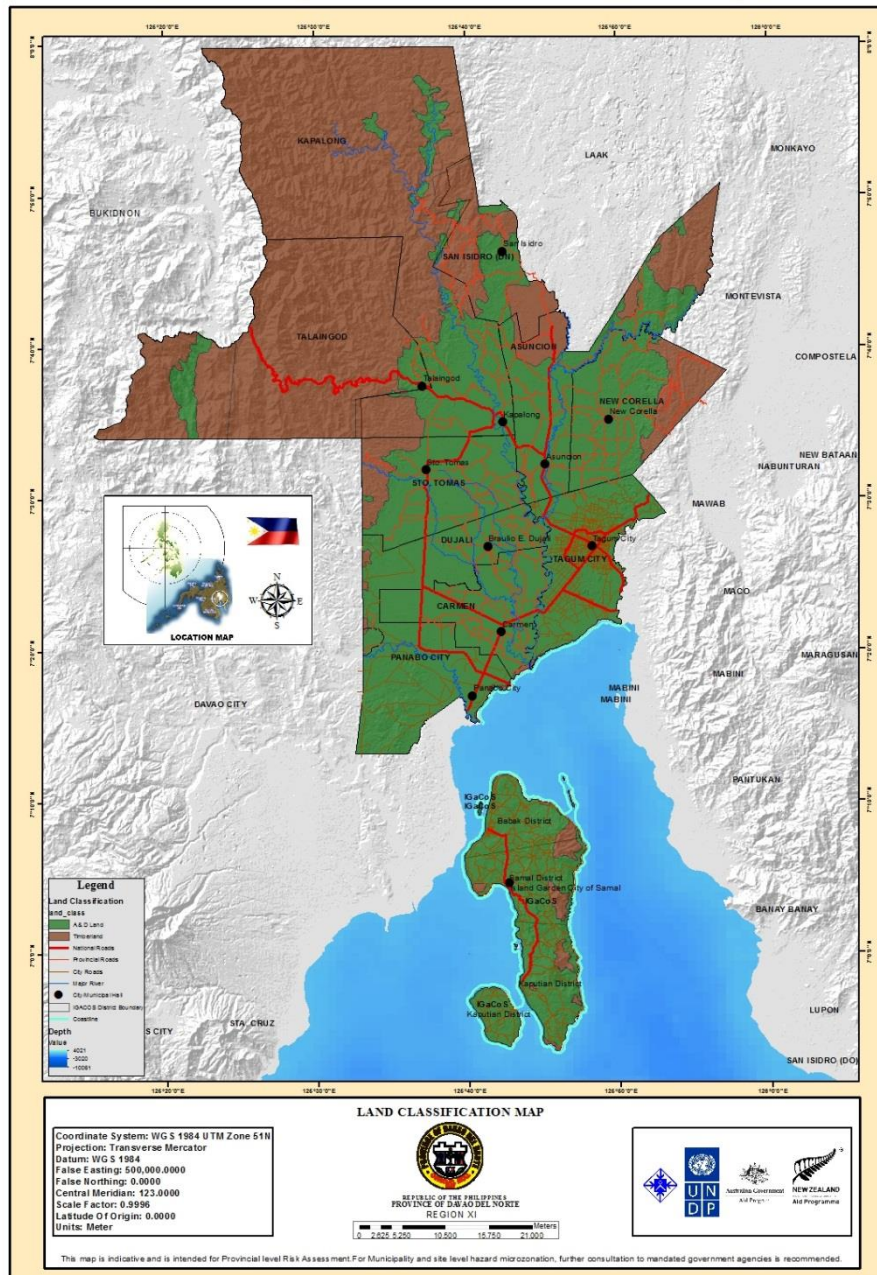
Figure 6. Transport Map of Davao del Norte





Davao del Norte has a total land area of 364,488 hectares, of which 171, 285. 09 hectares or 47% percent are classified as Alienable and Disposable (A&D);

Figure 7. Land Classification Map of Davao del Norte





and 193, 177.17 hectares or 53% percent as forestland. (Source: PPDO, 2011)

Figure 8. Land Cover Map of Davao del Norte

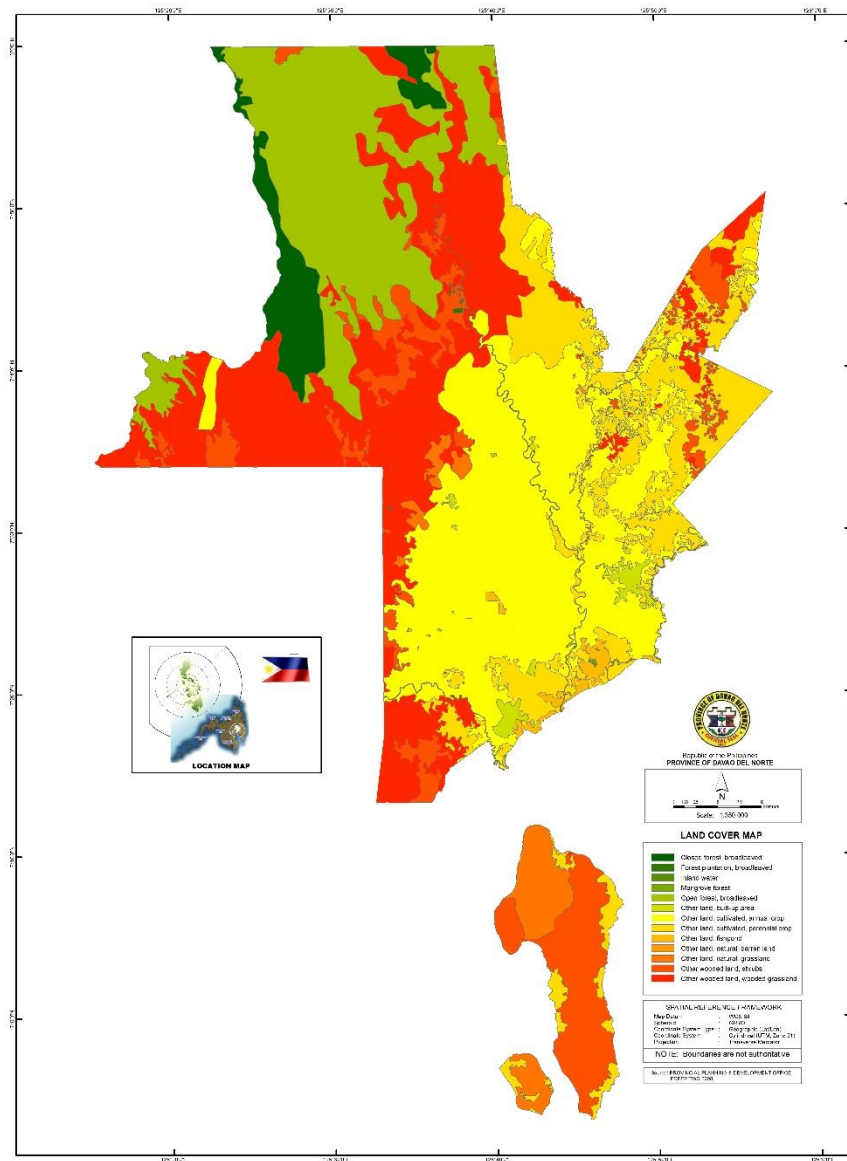
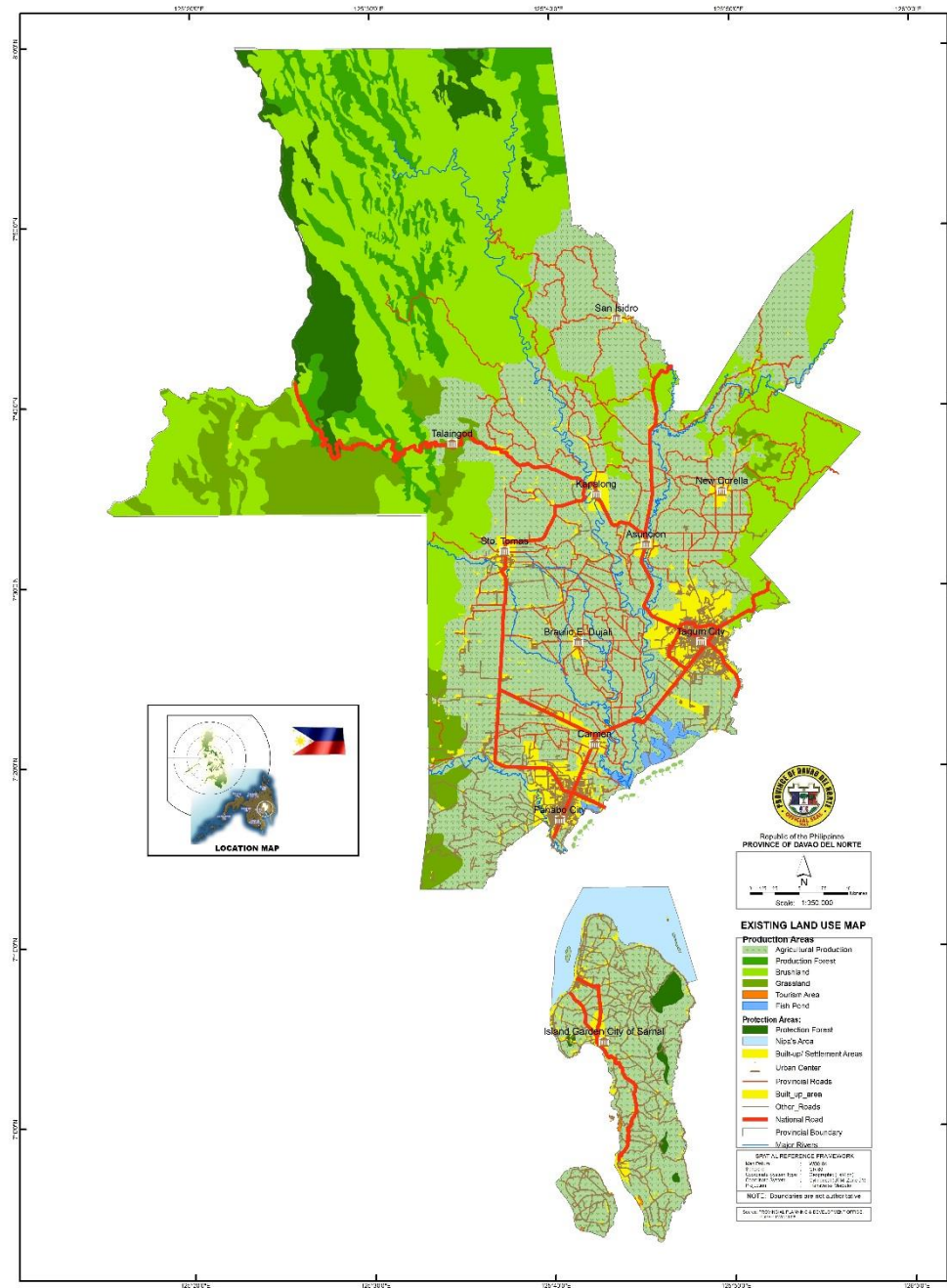




Figure 9. Existing Land Use Map of Davao del Norte



Existing land use as of 2011 is categorized to Forest land of 30,160.70 hectares or 8.98%, Mixed Grassland of 140,879.84 hectares or 41.96% and Agricultural Land of 115,744 hectares or 39% of the total land area.



2.5 Physical Characteristics

2.5.1 Topography and slope

Rugged, mountainous and moderately to steeply sloping areas on the western part and a wide alluvial plain on the central lowland area generally characterize the topography of the province. Comprising the major portion of the alluvial plain is a flat tract of land. However, some places are gently undulating and exhibit a rolling topography.

Davao del Norte has generally a low land terrain comprising 37 percent of the total land area with less than 100 meters elevation. The highest elevation ranging from 1000-2000 meters comprising 3 percent of the total land area is found in the municipalities of Kapalong and Talaingod.

Table 4. Elevation Characteristics, Province of Davao del Norte, 2010

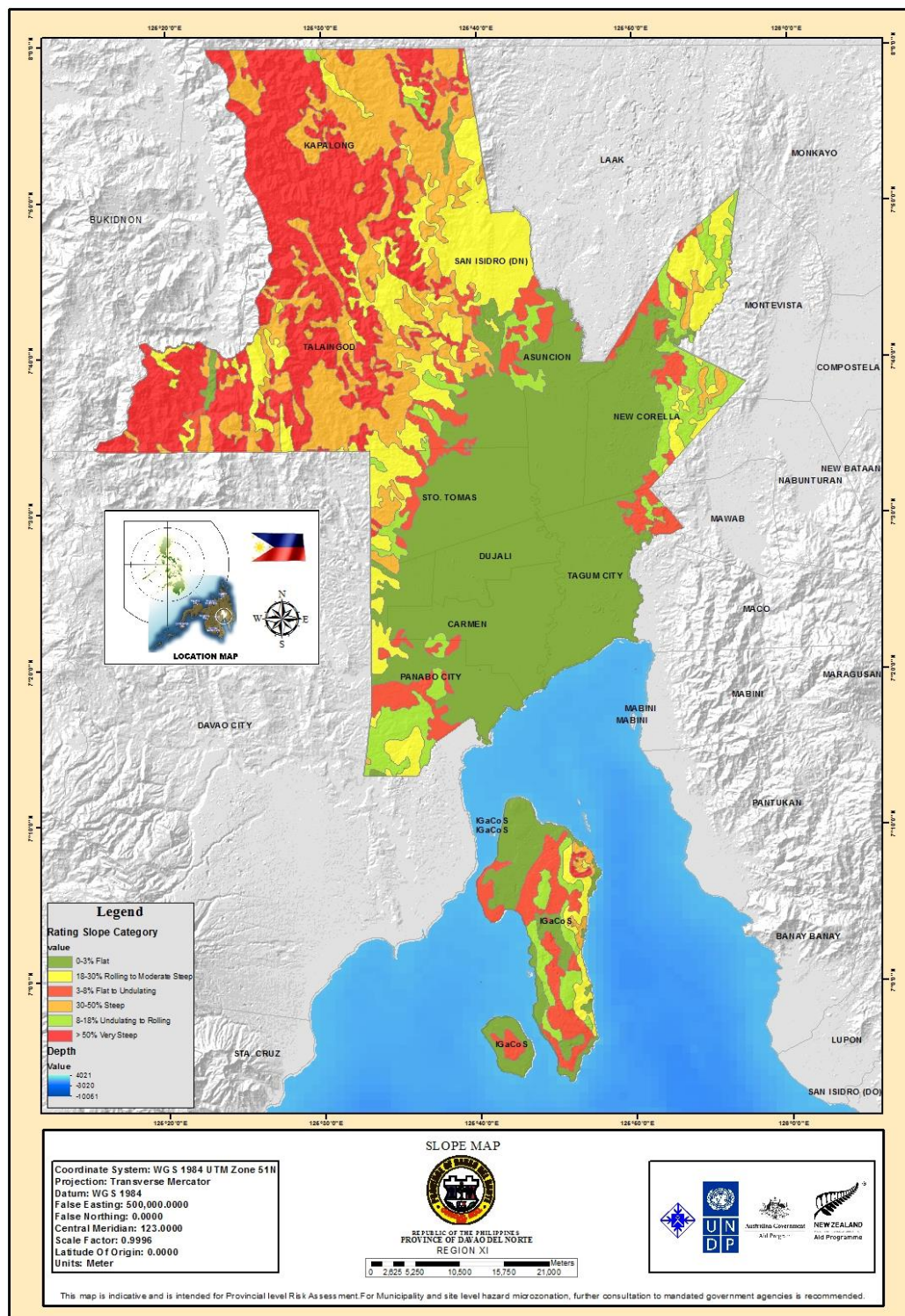
LGU	Area of Elevation in Hectares						Total
	<100 m	100-300 m	301-500 m	501-1000 m	1001-2000 m	>2001 m	
Davao del Norte	128,343	84,651	29,501	94,174	9,613	-	346,280
% Distribution	37 %	24 %	9 %	27 %	3 %	0.00%	100%

Source: BSWM XI

About 53.6 percent of the total land area of the province or 185,687.11 hectares has slope range of 0-18 percent. The remaining 46.4 percent or 160,592.89 hectares of the province are areas with slope ranging from 18 percent to more than 50 percent.



Figure 10. Slope Map of Davao del Norte





2.5.2 Hydrology

The province has abundant water supply, both from surface and groundwater resources. 15 rivers and 12 creeks traverse the province. The bigger rivers such as the Lasang, Tagum/Libuganon, Saug and Tuganay drain the broad plain west and north into Davao Gulf. These major rivers are part of the watersheds at the same name.

Tagum/Libuganon River with a total length of 95 kilometers is the longest among the major rivers in the province and has a total watershed area of 247,500 hectares. It originates from the eastern hillside of the Mindanao Central Cordillera and flows to the central alluvial plain, and then extends to Davao Gulf.

On the other hand, the shortest river in the province is found in the Island Garden City of Samal, which is the Benoling River traversing an estimated distance of one (1) kilometer from Barangay Cawag to Sitio Benoling. At the midstream of this river is the Hagimit Falls, which is approximately 15 feet in height.

Table 5. Drainage Areas and Flow Rates of Major Rivers, Province of Davao del Norte

Major Rivers	Drainage Area (km ²)	Flow Rate (m ³ /sec)		
		Peak	Maximum	Minimum
Hijo	617	150.9	102.5	8.3
Tagum	2,326	654.7	601.9	24.1
Lasang	808	No gauging station present		

Groundwater availability in the province is classified as deepwell and difficult area. Deep well area covers approximately 80% of the province, widely distributed in the river basins of Tagum and Davao rivers. Groundwater is the main source of drinking water in the urban centers of Tagum, Panabo, Sto. Tomas, Island Garden City of Samal, New Corella and Carmen. About 20% of the provincial area is classified as a difficult area to exploit groundwater. Such areas are characterized by mountains in the northwestern side of the province. Springs are the common source of water in these areas. There are 157 developed springs currently serving the populace mostly in the rural areas of the province.

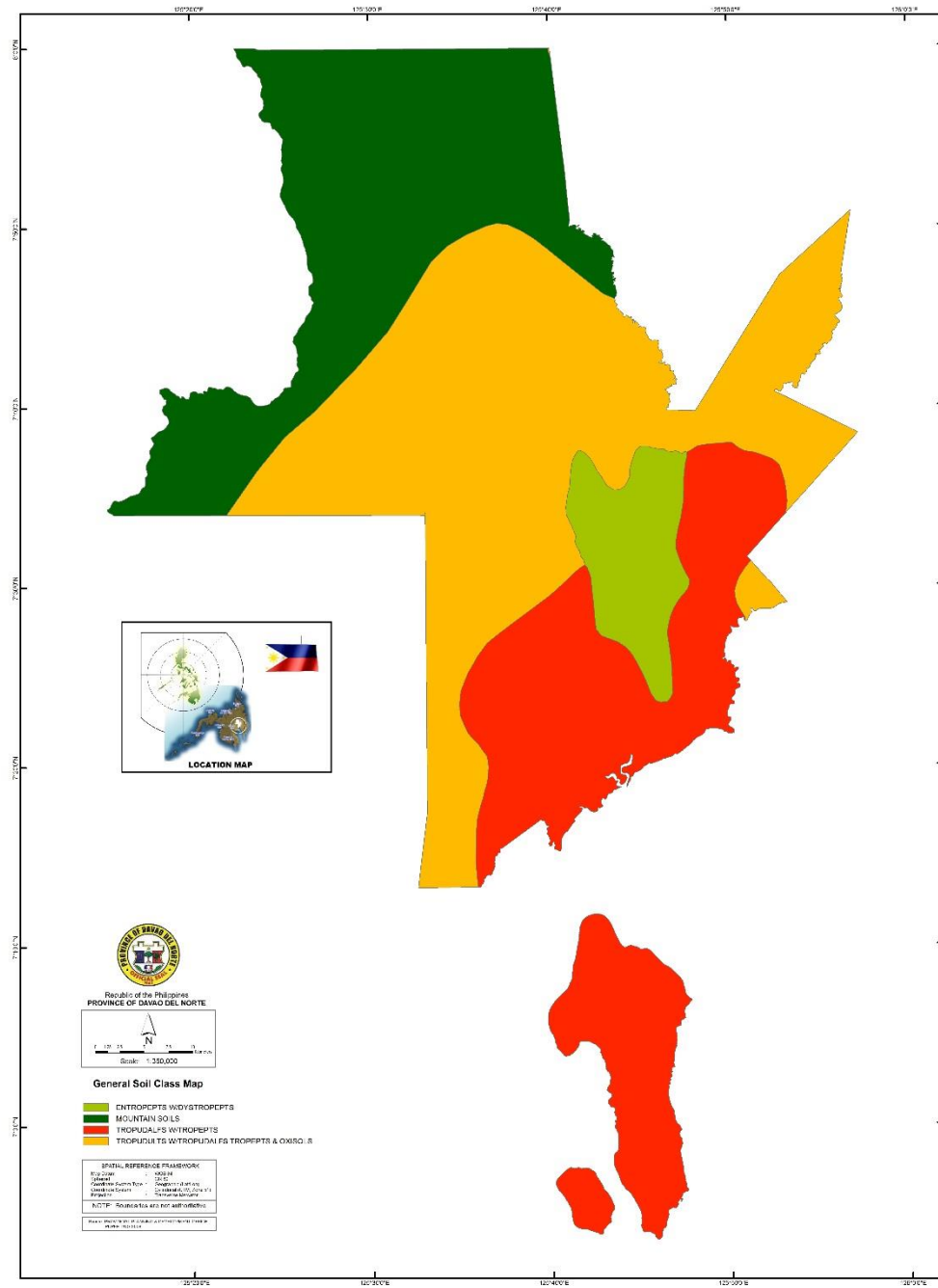
2.5.3 Soil characteristics and fertility

The soils of the Province of Davao del Norte have developed from either alluvium washed from the uplands or from materials originating from igneous or sedimentary rocks. Each type of soil has a different fertility, structure and character.

There are seven (7) types of soil in the province. These are: Bolinao Clay, Cabangan Clay, Camansa Sandy Clay Loam, Matina Clay, Matina Clay Loam, Mountain Soil (undifferentiated) and San Manuel Silty Clay Loam.



Figure 11. Soil Map of Davao del Norte





2.5.4 Climate and rainfall

The province has Type IV climate under the coronas classification and is characterized by unpronounced dry and wet seasons. Rainfall is more or less evenly distributed throughout the year with no pronounced rainy season and dry season.

The fairly pronounced rainy months in the province are from November through February. A climatological data from PAG-ASA Agromet Station in Tagum City is presented below.

Republic of the Philippines
DEPARTMENT OF SCIENCE AND TECHNOLOGY
PAG-ASA Weather Bureau, PAG-ASA AGROMET STATION
USEP, Tagum Mabini Campus, Apokon, Tagum City 8100

Table 6. Monthly and Annual Mean Rainfalls-Davao del Norte

Monthly/Yearly	2007	2008	2009	2010	2011	2012
January	320.2	153.0	262.1	206.1	194.8	190.0
February	153.6	168.9	139.6	15.3	347.7	260.2
March	168.4	272.8	121.1	67.5	210.8	308.2
April	80.2	71.9	267.1	132.3	110.4	191.9
May	314.4	222.9	266.2	259.2	388.7	143.8
June	209.7	213.4	190.4	208.2	173.0	94.2
July	209.9	75.5	93.1	161.4	315.2	153.9
August	342.1	46.7	171.3	249.9	326.7	181.6
September	67.5	211.7	147.4	70.6	257.3	184.8
October	240.4	205.1	104.6	167.5	254.4	249.6
November	200.4	252.6	255.8	226.8	224.7	173.6
December	192.5	175.6	232.9	185.1	233.7	239.3
Total	2499.3	2070.9	198.0	1950.9	3037.4	2370.6
Average	208.3	17.6	187.6	162.5	253.1	197.5

Checked by: OSCAR B. ZABATE
Chief Meteorological Officer



CURRENT SOLID WASTE MANAGEMENT CONDITIONS

It is an accepted fact that as population grows, waste generation increases. Cities and urbanized municipalities generate more wastes than those that are not urbanized. This is simply because people from the neighboring barangays and/or municipalities migrate to the urbanized cities and municipalities for employment purposes and some think that life is easier in the city than in the barangay or in the farm. The influx of people in the cities or highly urbanized municipalities contribute so much in the generation of waste. Ergo, population is one of the determining factors in the volume of waste generation in a particular locality.

The LGUs of Davao del Norte is currently concentrating on IEC activities in every barangay and this is manifested by the just finished and distributed uniform IEC to the different LGUs.

3.1 Institutional Arrangement

The Ecological Solid Waste Management (ESWM) Program is lodged to Provincial Environment and Natural Resources Office (PENRO). The provincial program that targets practice of proper solid waste management that is linked to all of its component cities and municipalities.

Table No. 7 Responsible Local Offices for R.A. 9003 Implementation
Davao del Norte

City/Municipality	Offices Responsible in the Implementation of R.A. 9003
Asuncion	Designated MENRO under the Municipal Mayor's Office
BE Dujali	Designated MENRO under the Municipal Mayor's Office
Carmen	Designated MENRO under the MEEDO
IgaCoS	Urban Pollution Control Management Section under City ENRO
Kapalong	SWM Program under Municipal ENRO
New Corella	Designated MENRO under the MAGRO
Panabo City	SWM Section under the City ENRO
San Isidro	SWM Coordinator under the Municipal Mayor's Office
Sto. Tomas	SWM Coordinator of the Municipal Ecological Solid Waste Management Office
Tagum City	Sanitation Section of the City ENRO
Talaingod	SWM Coordinator of the SWM Section under Mayor's Office



In the provincial government center, through the Memorandum Circular No. 010, dated April 6, 2010, the table below presents the offices that observe the provisions of R.A. 9003 and the implementation of the program within.

Table 8 List of Offices within Government Center in Observance to Provision and Implementation of R.A. 9003, Davao del Norte

	Offices	Role	Responsibilities
Provincial Government	Provincial Budget Office	Implementer of correct SWM practices within respective office	Segregation at source
	Prov'l. Eco. Enterprise & Dev't. Office	Implementer of correct SWM practices within respective office	Segregation at source
	Secretary to the Sanggunian	Implementer of correct SWM practices within respective office	Segregation at source
	Prov'l. Planning & Dev't. Office	Implementer of correct SWM practices within respective office	Segregation at source
	Prov'l. Accounting Office	Implementer of correct SWM practices within respective office	Segregation at source
	Prov'l. Assessor's Office	Implementer of correct SWM practices within respective office	Segregation at source
	Prov'l. Treasurer's Office	Implementer of correct SWM practices within respective office	Segregation at source
	Provincial Information Office	Implementer of correct SWM practices within respective office	Segregation at source
	Provl. Legal Office	Implementer of correct SWM practices within respective office	Segregation at source
	Provincial Health Office	Implementer of correct SWM practices within respective office	Segregation at source
	Prov'l. Human Resource & Mgt. Office	Implementer of correct SWM practices within respective office	Segregation at source
	Prov'l. Social Welfare & Dev't. Office	Implementer of correct SWM practices within respective office	Segregation at source
	Prov'l. Engineer's Office	Implementer of correct SWM practices within respective office	Segregation at source
	Provincial Veterinary Office	Implementer of correct SWM practices within respective office	Segregation at source
Prov'l. Agriculture Office	Implementer of correct SWM practices within respective office	Segregation at source	



	Prov'l. Environmental & Natural Resources Office	Implementer of correct SWM practices within respective office; handles SWM program linked to LGUs; manages composting facility	Segregation at source & composting, IEC, capacity building and LGUs' disposal facility monitoring
	Prov'l. General Services Office	Implementer of correct SWM practices within respective office, manages Material Recovery Facility	Collection of waste from all offices, final segregation, recycling
Other Agencies	National Agencies	Implementer of correct SWM practices within respective office	Segregation at source
Private Entities	Canteen Operators	Implementer of correct SWM practices within respective office	Segregation at source

3.2 Inventory of SWM Equipment and Staff

Table below is the presentation of the existing equipment of the province used for SWM, its capacity and present conditions.

Table No. 9 List of Personnel & Existing Equipment under SWM Program, Davao del Norte

City/Municipality	No. Of Personnel	Permanent	Contractual/ Casual	JO/ Honorarium	Collection Equipment		Serviceable Condition
					Type/Quantity	# of Units	
Asuncion	15	2	13	0	Mini Dump Truck; MC Vehicle w/ side car	2	Operational
BE Dujali	7	1	6	0	Dump Truck; Motor Vehicle	2	Operational
Carmen	34	3	0	31	Mini Dump Truck ; Mini Back Hoe	2	Operational
Kapalong	22	8	2	12	Garbage Compactor	1	Operational
IGACOS	74	7	0	67	Compactor, Dumptrucks, Back Hoe & MC vehicle	9	Operational
New Corella	10	1	3	6	Mini Dumptruck	1	Operational
Panabo City	87	27	0	60	Mini-Dumptrucks; Dump trucks; Compactors	24	Operational
San Isidro	5	1	0	5	6 Wheeler Dump Truck	1	Operational
Sto. Tomas	40	2	2	36	6 Wheeler Dump Truck; Backhoe & Grader	6	Operational
Talaingod	15	5	0	10	Garbage Compactor; MC Vehicle	2	Operational
Tagum	137	4	32	101	Compactors; 6 wheeler truck; 10 wheeler truck; Mini Dumptruck; Forward Truck	9	Operational
Provincial Government	6	5	1	0			



Table No. 10 Training Available on SWM, Davao del Norte

	Type	Activity
Staff training available made available in the province in joint effort with the LGUs	Technical Enhancement	3 R's (Waste Recycling) Waste Analysis and Characterization Study Vermi- Composting
	Institutional/Enforcement Enhancement	RA 9003 Orientation Local SWM Plan Formulation e.g. schools & barangays Brgy. Ordinances in SWM Enforcement
Other national learning interventions made available to the province and the LGUs	Capability Building	Philippine League of Local Environment and Natural Resources Officers' National Convention E-course on Solid Waste Mangement for LGUs

3.3 Source Reduction

Existing source reduction practices within the province varies from LGU to LGU. This is attributed to the SWM related ordinances and issuances mandating segregation at source and imposing penalties to violators, and conduct of IEC activities that the SWM Team of component cities and municipalities, and of the province have been doing.

Table No. 11 Summary of Source Reduction Practices at Different Sectors of Davao del Norte

Source Reduction Practices, by sector		
Households	Institution	Public Markets, Establishments, Service Centers
Segregation at source	Environmental organizations at schools	Junkshops were organized and counted as extension MRFs
Oriented to use "bayongs"	Recycling projects are incorporated in the Science & Home Economics Subject	Recyclable waste of bussiness establishment were sold & used as fund source for thier employees' incentives
Cellophane wrappers into decorative items as curtains	Backyard composting at the back yard of school campuses	Segregation at source
Mandatory Composting	Clean & green initiatives at schools using recyclable materials for planting containers (Mall Garden)	Status Compliance of bussiness owner shall affect renewal of bussiness license

The Provincial Government in joint effort with the local have constructed Material Recovery Facilities in some barangays and spearheaded the implementation of RA 9003 to schools thru organization of "WOW" (War on Wastes) program and "Yes O" program.



3.4 Collection

Coverage on collection service varies from LGU to LGU. However, a "no segregation, no collection policy" is consistently adopted by all component municipalities and cities.

Table No.12 Existing Collection System of Davao del Norte

City/Municipality	Total No. Of Barangays	Barangays Covered by Collection Service	Type of Collection	Type of Waste Collected	Frequency of Collection
Asuncion	20	16	segregated	Residual & special	2/month
BE Dujali	5	3	segregated	All types	1/month
Carmen	20	1	segregated	All types	daily
Kapalong	14	6	segregated	Residual, Bio & Special	1/week
IGACOS	46	42	Segregated	Bio & Residual	Daily & 1/mo. For far brgys.
New Corella	19	4	Segregated	Residual & Special	
Panabo City	40	11	segregated	Bio, residual & medical	1/month
San Isidro	13	1	segregated	Residual & Special	1/month
Sto. Tomas	19	19	Segregated	Residual & Special	1/month
Talaingod	3	1	segregated	residual	2/week
Tagum	23	17	segregated	Reisudal & Special	22 trips/day

Due to the distance of some barangays, lenient enforcement of ordinances, lack of workers and absence of hauling vehicles, collection service frequency is irregular and provided only upon request on common collection points.



3.5 Transfer

Common to all component LGUs is the existence of Material Recovery Facilities that serve as temporary transfer station and collection point.

3.6 Processing Facilities

Table 13. Inventory of Materials Recovery Facilities (MRF) Constructed per City/Municipality, Davao del Norte

Municipality	Number of Barangays	Number of MRF
Asuncion	20	16
B.E. Dujali	5	3
Carmen	20	1
Island Garden City of Samal	46	9
Kapalong	14	8
New Corella	20	1
Panabo City	40	3
San Isidro	13	2
Sto. Tomas	19	220
Tagum City	23	23
Talaingod	3	15
TOTAL	223	301



3.7 Final Disposal

Table 14. Final Disposal Facility per LGU of Davao del Norte

Province	City/ Municipality	Disposal Type (OD, CDF, SLF, SLF Undergoing Construction with ECC)
Davao del Norte	Tagum City	Controlled Disposal Facility (CDF) with alternative technology approaches to include waste segregation and waste diversion initiative
	Panabo City	Controlled Disposal Facility (CDF) with alternative technology approaches to include waste segregation and waste diversion initiative
	Island Garden City of Samal	Sanitary Landfill undergoing construction with ECC
	Asuncion	Controlled Disposal Facility (CDF) with alternative technology approaches to include waste segregation and waste diversion initiative
	B.E. Dujali	Residual Containment Area (RCA) with alternative technology approaches to include waste segregation and waste diversion initiative
	Carmen	Residual Containment Area (RCA) with alternative technology approaches to include waste segregation and waste diversion initiative
	Kapalong	Controlled Disposal Facility (CDF) with alternative technology approaches to include waste segregation and waste diversion initiative
	New Corella	Controlled Disposal Facility (CDF) with alternative technology approaches to include waste segregation and waste diversion initiative
	San Isidro	Residual Containment Area (RCA) with alternative technology approaches to include waste segregation and waste diversion initiative
	Sto. Tomas	Controlled Disposal Facility (CDF) with alternative technology approaches to include waste segregation and waste diversion initiative
	Talaingod	Controlled Disposal Facility (CDF) with alternative technology approaches to include waste segregation and waste diversion initiative



3.8 Special and Healthcare Wastes

Table No. 15. Existing Treatment & Disposal Practices of Health Care Wastes
Davao del Norte

City / Municipality	Volume kg	Health Care Wastes Management	
		Treatment	Disposal
Asuncion	3.18	No treatment	Septic vaults at the back of Health Centers
BE Dujali	4.5	No treatment	THW Vaults
Carmen		No treatment	Septic vaults situated within hospital premises
IgaCoS	4.77	No treatment	Septic vaults situated within hospital premises
Kapalong	24.06	Needle destroyer	Septic vaults situated within hospital premises
New Corella	3.18	No treatment	Septic vaults of Barangay Health Clinics
Panabo City	45.22	w/treatment at hospitals	Disposal at Panabo Dumpsite Area
San Isidro	0	No treatment	Septic vaults of Barangay Health Clinics
Sto. Tomas	173	No treatment	Septic vaults of per hospitals & clinics, Funeral Parlors
Tagum City	220	Autoclave, microwave & hydroclave facilities	Septic vault disposal facility of hospitals & clinics
Talaingod	1.18	No treatment	Septic vault at controlled dump site

Table No. 16. Existing Treatment & Disposal Practices of Toxic & Hazardous Wastes
Davao del Norte

City / Municipality	Volume kg	Toxic & Hazardous Wastes Management	
		Treatment	Disposal
Asuncion	234	No specific treatment mentioned in the plan	THW vault at the Mun. Controlled Dump Facility
BE Dujali	249		THW vaults
Carmen			vault for the THWs
IgaCoS	138		City controlled dumpsite at the ecopark
Kapalong	1,154		THW vault at the Mun. Controlled Dump Facility
New Corella	234		



City / Municipality	Volume Kg	Toxic & Hazardous Wastes Mangement	
		Treatment	Disposal
Panabo City	6,101		Special pit/vault located within the dumpsite area
San Isidro	54		
Sto. Tomas	173		Septic vault at Mun. Ecological Park & Ecology Center
Tagum City	5,631		
Talaingod	1,065		Septic vault at controlled dump site

3.9 Market for Recyclables

The following table represents the operational market and industry for recyclables of per LGU in the province.

Table No. 17. Inventory of Operating Markets for Recyclables, Davao del Norte

City/Municipality	No. Of Operating Junkshops	No.of Identified Industry	Operators
Asuncion	1		Operating buy & sell scrap materials
B.E. Dujali	No junkshop		Ambulant junkbuyers only
Carmen	2		Small Scale Junkshops
Kapalong	4		FMK Junkshop; Grace Junkshop
Island Garden City of Samal	6		Licensed and unlicensed scrap buyers
New Corella	6		Ambulant junkbuyers only
Panabo City	17	1	Junkshops (aside from big time traders)
San Isidro	No junkshop		Ambulant junkbuyers only
Sto. Tomas	13	2	Small scale and industrial scale
Talaingod	No junkshop		Ambulant junkbuyers only
Tagum City	25	1	Processing: Recyclable Waste to Plastic Chairs



3.10 Information, Education and Communication (IEC)

Table No. 18. Description of SWM IEC Program of Davao del Norte
In Joint Effort with Component LGUs

Activity	Message	Targeted Audience	Effectiveness
Orientation on Republic Act 9003 and Municipal Ordinance No. 767 series 2011	Information on Laws and Penalties	All schools (private and public) 4P's beneficiaries Barangay Functionaries All Puroks Business Establishments	Enforcement Plan/ Scheduled work plan
Giving of information materials & Installation of Signages in public Areas	Information on Laws and Penalties	Public Information	Production of flyers and installation of billboards to designated areas
SWM Campaign/ Lectures	Climate Change Adaptation Global Warming	All schools (private and public) 4P's beneficiaries Barangay Functionaries All Puroks Business Establishments	Enforcement Plan/ Scheduled work plan
Monitoring, Assessment, Documentation and Evaluation	Effectiveness of the policy implementation, promotion	All schools (private and public) 4P's beneficiaries Barangay Functionaries All Puroks Business Establishments	Enforcement Plan/ Scheduled work plan

The Provincial Government is currently supporting SWM program of the different component LGUs in different ways. The following are the support of the Provincial Government extended to the LGUs in so far as SWM is concerned:

3.10.1 Technical assistance in the gathering of data for the preparation of the plan

Series of meetings and conferences were conducted in the different cities/municipalities to discuss procedures and materials needed to gather data in preparation for the formulation of the 10 year SWM plan for every city/municipality. Tasking was also discussed during the meeting in order to make the activity easier for everybody.



3.10.2 Technical assistance in the plan formulation

Series of write shop seminars and conferences were conducted for the focal persons and persons responsible in the writing of the 10 year SWM plan of each city/municipality. In this seminar/conference, every LGU has to do the writing of their plan chapter by chapter.



Some Documentation on WACS Study



Documentation 1 and 2 WACS Study at Panabo City



Documentation 3 and 4 WACS Study at Talaingod

**Documentation on STRATEGIC WRITESHOP ON ESWMP
At Raj Hotel, Tagum City on April 3-4, 2014**





3.11 Cost and Revenues

Practically, all the eleven (11) LGUs have enacted comprehensive SWM ordinance and have prepared enforcement plans to support the implementation of their respective SWM plans. Corresponding budget allocation is allotted for the implementation of the same.

Table 19. Cost and Revenues under Davao del Norte

Total Revenues (City/Municipality)	Total Expenditures (City/Municipality & Province)	Total Annual Budget (City/Municipality & Province)
1,389,677.50	43,967,109.90	47,919,081.00

3.12 Key Issues

Table 20. Summary of Common SWM Issues Identified by the City/Municipality of Davao del Norte

Cities/Urban Areas of the Province	
	<ul style="list-style-type: none"> • No sustainability in the enforcement of local ordinances • Garbage thrown by some commuters while traveling by land or sea • Limited financial support and poor system of facilities • Lack of collection equipment, personnel, funds and other logistics • Lack of Technology on waste treatment • Uncontrolled generation of waste from nearby LGUs • Response and commitment of barangay officials in the implementation of SWM Program on their respective area of jurisdiction is quite poor • Occurrence of open-dumping and burning in the barangays happens only when the collection of garbage services becomes irregular or unavailable for quite sometimes due to sudden breakdown of equipment • Displaying of strong resistance of the complained person when reprimand • Non-submission of some barangay waste diversion reports
Municipal/ Rural Areas of the Province	
	<ul style="list-style-type: none"> • Insufficient allocated funds for Ecological Solid Waste Management program • ESWM Coordinating Office has no permanent crew and staff • Absence of full-time focal person for SWM who will oversee program sustainability and proper resource use • Inadequate SWM facilities, including RA 9003 complaint disposal facility • Absence of garbage truck/facilities • Need for behavior change among waste generators on improper waste disposal and non-compliance with waste segregation; • Low participation of barangay LGUs in SWM program;



	<ul style="list-style-type: none"> • Lack of RA 9003 compliant disposal facility with the controlled disposal facility being 90% full;
	<ul style="list-style-type: none"> • Absence of sustainable market for pulverized plastic materials and other plastic waste discarded by junkshops; and
	<ul style="list-style-type: none"> • Relatively weak enforcement and incentive system

Table 21. Key Issues on Solid Waste Management of the Province, Davao del Norte

STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> ➤ Strong support of the majority of the LCEs and the Sanggunian members ➤ Functional PENRO (PGDDN) and MENRO/CENRO of the component LGUs though some LGUs have only designated SWM in - charge ➤ Good rapport has been established with partner agencies (national) & NGOs ➤ SWM budget is allotted annually ➤ Approved Provincial Environment Code 	<ul style="list-style-type: none"> ➤ ENR Office not created in most of the municipalities ➤ SWM in-charge in most municipalities are only designated ➤ SWM program not a priority of few LCEs ➤ PLGU SWM Team lacks mobility support ➤ Not all barangays have BSWM Committee 	<ul style="list-style-type: none"> ➤ Existence of junk shops in almost all municipalities ➤ Higher environmental awareness of the province ➤ Increase coastal development activities (conversion of coastal areas into beaches) ➤ Available site for SLF development 	<ul style="list-style-type: none"> ➤ Non-cooperation of the general public ➤ Weak participation of the private sector ➤ Increase tourism activities (leads to the increase of waste generation) ➤ Continues expansion of banana plantations up to the river banks ➤ Increase migration to urban centers



WASTE CHARACTERISTICS

4.1 Wastes Generation

Table 22. Quantity of Waste Generated by Source of per LGU, Davao del Norte

City/ Municipality	Quantity of Waste Generated (kgs/day)	Waste Sources									
		Residential		Commercial		Institutional		Industrial		Agro-Industrial	
		Kgs/day	%	Kgs/day	%	Kgs/day	%	Kgs/day	%	Kgs/day	%
Asuncion	28,816.90	24,244.16	84.13%	3,683.90	12.78%	888.84	3.08%	-	0.00%	-	0.00%
BE Dujali	14,318.38	7,461.85	52.11%	98.28	0.69%	117.75	0.82%	6,640.50	46.38%	-	0.00%
Carmen	28,387.00	22,999.15	81.02%	3,698.83	13.03%	1,689.03	5.95%	-	0.00%	-	0.00%
IGACOS	45,092.48	36,083.60	80.02%	4,119.54	9.14%	4,879.67	10.82%	9.77	0.02%	-	0.00%
Kapalong	25,812.94	22,650.13	87.75%	1,512.83	5.86%	1,439.76	5.58%	210.22	0.81%	-	0.00%
New Corella	13,181.74	11,600.00	88.00%	962.00	7.30%	620.00	4.70%	-	0.00%	-	0.00%
Panabo	275,869.20	233,203.40	84.53%	32,908.79	11.93%	2,717.21	0.98%	7,039.80	2.55%	-	0.00%
San Isidro	8,061.69	7,108.01	88.17%	700.55	8.69%	228.93	2.84%	24.20	0.30%	-	0.00%
Sto. Tomas	37,131.53	293.69	0.79%	5,629.07	15.16%	1,300.41	3.50%	29,908.36	80.55%	-	0.00%
Tagum	256,369.86	96,362.47	37.59%	153,984.65	60.06%	1,975.86	0.77%	1,585.13	0.62%	2,461.15	0.96%
Talaingod	9,682.44	9,532.21	98.45%	111.77	1.15%	38.46	0.40%	-	0.00%	-	0.00%
TOTAL	742,724.16	471,538.67	63.49%	207,410.21	27.92%	15,895.92	2.14%	45,417.98	6.12%	2,461.15	0.33%

The table on the quantity of waste generated by source provincewide showed that highest contribution of wastes comes from the residential sector with 63.49 % or 471,538.67 kilogram per day and the least is the agro-industrial sector with only 0.33% or 2,461.15 kilogram per day.



Table 23. Quantity of Waste Generated by Composition of per LGU, Davao del Norte

City/Municipality	Quantity of Waste Generated (kgs/day)	Waste Composition							
		Biodegradable		Recyclable		Residual		Special Waste	
		Kgs/day	%	Kgs/day	%	Kgs/day	%	Kgs/day	%
Asuncion	28,816.90	20,707.82	71.86%	1,622.39	5.63%	6,238.86	21.65%	247.83	0.86%
BE Dujali	14,318.38	11,712.43	81.80%	1,474.79	10.30%	873.42	6.10%	257.73	1.80%
Carmen	28,387.00	18,707.03	65.90%	4,198.44	14.79%	4,899.60	17.26%	581.93	2.05%
IGACOS	45,092.48	22,960.11	50.92%	9,477.73	21.02%	12,504.23	27.73%	150.41	0.33%
Kapalong	25,812.94	16,716.25	64.76%	3,040.53	11.78%	4,877.21	18.89%	1,178.95	4.57%
New Corella	13,181.74	8,436.74	64.00%	1,977.00	15.00%	2,636.00	20.00%	132.00	1.00%
Panabo	275,869.20	151,893.58	55.06%	37,242.34	13.50%	75,422.64	27.34%	11,310.64	4.10%
San Isidro	8,061.69	6,454.57	80.06%	391.36	4.85%	1,201.90	14.91%	13.86	0.17%
Sto. Tomas	37,131.53	27,079.24	72.93%	7,928.54	21.35%	1,879.09	5.06%	244.66	0.66%
Tagum	256,369.86	124,109.17	48.41%	38,722.74	15.10%	87,686.43	34.20%	5,851.52	2.28%
Talaingod	9,682.44	5,518.99	57.00%	387.30	4.00%	2,420.61	25.00%	1,355.54	14.00%
TOTAL	742,724.16	414,295.94	55.78%	106,463.16	14.33%	200,639.99	27.01%	21,325.07	2.87%

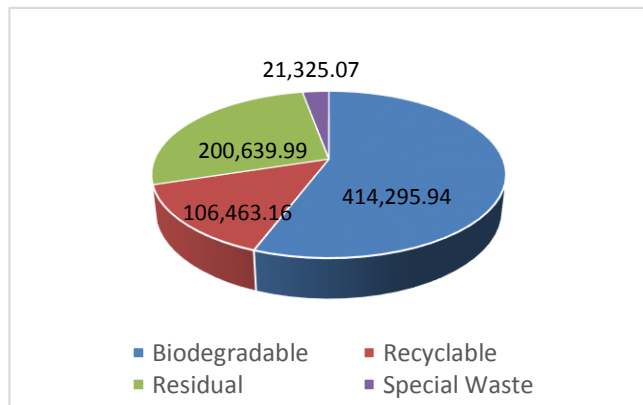


Figure 12. Distribution of Wastes Generation per Waste Composition, Davao del Norte

The table on the quantity of waste generated by composition provincewide showed that highest composition of wastes is the biodegradable with 55.78% or 414,295.94 kilogram per day, special wastes with 2.87% or 21,325.07 kilogram per day as the least.



Table 24. Waste Generation Projection Based on Population, per LGU of Davao del Norte

City/ Municipality	Daily Waste Generation Projection Based on Population (kg/day)										
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Asuncion	PCG	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
	Population	61,347	62,513	63,700	64,911	66,144	67,401	68,681	69,986	71,316	72,671
	Waste Gen/day	31,900.44	32,506.76	33,124.00	33,753.72	34,394.88	35,048.52	35,714.12	36,392.72	37,084.32	37,788.92
Carmen	PCG	0.62	0.632	0.644	0.656	0.669	0.682	0.695	0.708	0.722	0.736
	Population	74,878	76,069	77,278	78,507	79,755	81,023	82,311	83,620	84,950	86,300
	Waste Gen/day	46,424.36	48,075.61	49,767.03	51,500.59	53,356.10	55,257.69	57,206.15	59,202.96	61,333.90	63,516.80
Kapalong	PCG	0.346	0.352	0.359	0.366	0.373	0.38	0.387	0.394	0.402	0.41
	Population	77,285	78,784	80,313	81,871	83,459	85,078	86,729	88,411	90,126	91,875
	Waste Gen/day	26,740.61	27,731.97	28,832.37	29,964.79	31,130.21	32,329.64	33,564.12	34,833.93	36,230.65	37,668.75
New Corella	PCG	0.26	0.265	0.271	0.276	0.281	0.287	0.293	0.299	0.305	0.311
	Population	54,055	54,752	55,458	56,174	56,898	57,632	58,376	59,128	59,882	60,653
	Waste Gen/day	14,054.30	14,509.28	15,029.12	15,504.02	15,988.34	16,540.38	17,104.17	17,679.27	18,264.01	18,863.08
City of Panabo	PCG	0.3723	0.3723	0.3723	0.3722	0.3723	0.3723	0.3723	0.3722	0.3721	0.3723
	Population	181,588	185,318	189,125	193,009	196,974	200,939	204,904	208,869	212,834	216,799
	Waste Gen/day	67,605.30	68,992.30	70,408.50	71,832.00	73,328.50	74,806.75	76,285.00	77,745.00	79,205.00	80,714.27
IGACOS	PCG	0.364	0.371	0.378	0.385	0.392	0.399	0.406	0.414	0.422	0.43
	Population	103,284	104,833	106,405	108,001	109,621	111,266	112,935	114,629	116,348	118,093
	Waste Gen/day	37,595.38	38,893.04	40,221.09	41,580.39	42,971.43	44,395.13	45,851.61	47,456.41	49,098.86	50,779.99
Santo Tomas	PCG	0.79	0.81	0.82	0.84	0.86	0.87	0.89	0.91	0.93	0.94
	Population	109,269	138,021	143,500	149,197	155,120	161,279	167,681	174,338	181,259	188,455
	Waste Gen/day	86,322.51	111,797.01	117,670.00	125,325.48	133,403.20	140,312.73	149,236.09	158,647.58	168,570.87	177,147.70



City/ Municipality	Daily Waste Generation Projection Based on Population (kg/day)										
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
City of Tagum	PCG	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
	Population	282,294	290,932	299,834	309,009	318,465	328,210	338,255	348,606	359,273	370,267
	Waste Gen/day	271,002.24	279,294.72	287,840.64	296,648.64	305,726.40	315,081.60	324,724.80	334,661.76	344,902.08	355,456.32
Talaingod	PCG	0.06	0.07	0.07	0.08	0.09	0.09	0.09	0.1	0.11	0.12
	Population	28,672	29,306	29,986	30,682	31,394	32,122	32,867	33,630	34,410	35,209
	Waste Gen/day	1,720.32	2,051.42	2,099.02	2,454.56	2,825.46	2,890.98	2,958.03	3,363.00	3,785.10	4,225.08
Braulio E. Dujali	PCG	0.219	0.229	0.239	0.25	0.261	0.272	0.284	0.297	0.31	0.323
	Population	35,197	36,757	38,385	40,085	41,861	43,716	45,652	47,675	49,787	51,992
	Waste Gen/day	7,708.14	8,417.35	9,174.02	10,021.25	10,925.72	11,890.75	12,965.17	14,159.48	15,433.97	16,793.42
San Isidro	PCG	0.312	0.312	0.312	0.312	0.312	0.312	0.312	0.312	0.312	0.312
	Population	26,231	26,370	26,509	26,649	26,790	26,932	27,075	27,218	27,362	27,507
	Waste Gen/day	8,173.58	8,216.89	8,260.20	8,303.83	8,347.76	8,392.01	8,436.57	8,481.13	8,526.00	8,571.18
Province	PCG	0.44	0.44	0.45	0.46	0.46	0.47	0.47	0.48	0.49	0.49
	Population	1,034,100	1,083,655	1,110,493	1,138,095	1,166,481	1,195,598	1,225,466	1,256,110	1,287,547	1,319,821
	Waste Gen/day	453,396.49	482,018.75	499,205.52	519,050.90	539,749.32	559,092.70	580,302.30	603,597.28	627,941.88	651,979.58

The presented table on daily waste generation projection provincewide showed that at the end of the planning period Tagum City, highest share on waste contribution, will generate 355,456.32 kilogram per day or 54.51% of the total daily waste generation projection based on population. Thus, by 2024, 651,979.58 kilogram per day is the daily waste generation projection provincewide.



4.2 Wastes Disposed

Table 25. Quantity of Waste Disposed by Composition, per LGU of Davao del Norte

City/Municipality	Quantity of Waste Generated (kgs/day)	Waste Disposal by Composition				Quantity of Waste Disposed (kgs/day)	Percent Disposed (%)
		Biodegradable	Recyclable	Residual	Special Waste		
		Kgs/day	Kgs/day	Kgs/day	Kgs/day		
Asuncion	28,816.90	3,285.62	258.00	6,238.86	247.83	10,030.31	34.81%
BE Dujali	14,318.38	6,644.00	66.89	873.42	257.73	7,842.05	54.77%
Carmen	28,387.00	736.00	190.51	4,899.60	581.93	6,408.04	22.57%
IGACOS	45,092.48	3,138.56	2,525.97	12,504.23	150.41	18,319.17	40.63%
Kapalong	25,812.94	1,985.75	506.25	4,877.21	1,178.95	8,548.16	33.12%
New Corella*	13,181.74	2,135.41	500.17	2,636.00	132.00	5,403.58	40.99%
Panabo	275,869.20	23,521.26	110.35	75,422.64	11,310.64	110,364.89	40.01%
San Isidro	8,061.69	578.07	289.16	1,201.90	13.86	2,082.99	25.84%
Sto. Tomas	37,131.53	-	-	1,879.09	244.66	2,123.75	5.72%
Tagum	256,369.86	83,755.84	35,635.60	87,686.43	5,851.52	212,929.39	83.06%
Talaingod	9,682.44	1,221.80	37.37	2,420.61	1,355.54	5,035.32	52.00%
TOTAL	742,724.16	127,002.32	40,120.27	200,639.99	21,325.07	389,087.65	52.39%

The presented table on the quantity of waste disposed showed that residual wastes are disposed the most with 200,639.99 kilogram per day or 51.56%, and special wastes with 21,325.07 kilogram per day or 5.48% are disposed the least from the total waste generated provincially. Meanwhile, Tagum City has the highest percent of wastes disposed with 212,929.39 kilogram per day or 83.06% of their total generated wastes and Sto. Tomas has the least with only 2,123.75 kilogram per day or 5.72% from their total generated wastes.

On the summary, there is 52.39% of wastes disposed from the total daily generated wastes provincially.



4.3 Wastes Diverted

Table 26. Quantity of Waste Diverted per LGU, Davao del Norte

City/Municipality	Quantity of Waste Generated (kgs/day)				
		Biodegradable	Recyclable	Total Quantity Diverted	Percent Diverted
		Kgs/day	Kgs/day	Kgs/day	%
Asuncion	28,816.90	17,422.20	1,364.39	18,786.59	65.19%
BE Dujali	14,318.38	5,068.43	1,407.90	6,476.33	45.23%
Carmen	28,387.00	17,971.03	4,007.93	21,978.96	77.43%
IGACOS	45,092.48	19,821.55	6,951.76	26,773.31	59.37%
Kapalong	25,812.94	14,730.50	2,534.28	17,264.78	66.88%
New Corella	13,181.74	6,301.33	1,476.83	7,778.16	59.01%
Panabo	275,869.20	128,372.32	37,131.99	165,504.31	59.99%
San Isidro	8,061.69	5,876.50	102.20	5,978.70	74.16%
Sto. Tomas	37,131.53	27,079.24	7,928.54	35,007.78	94.28%
Tagum	256,369.86	40,353.33	3,087.14	43,440.47	16.94%
Talaingod	9,682.44	4,297.19	349.93	4,647.12	48.00%
TOTAL	742,724.16	287,293.62	66,342.89	353,636.51	47.61%

The above table showed that Municipality of Sto. Tomas has the highest wastes diverted with 35,007.77 kilogram per day or 94.28% of their total daily generated wastes. On the summary, there is 47.61% of wastes diverted from the total daily generated wastes provincewide.



Table 27. Summary of Waste Disposed & Diverted per LGU, Davao del Norte

City/Municipality	Quantity of Waste Generated (kgs/day)	Quantity of Waste Disposed (kgs/day)	Percent Disposed (%)	Quantity of Waste Diverted (kgs/day)	Percent Diversion (%)
Asuncion	28,816.90	10,030.31	34.81%	18,786.59	65.19%
BE Dujali	14,318.38	7,842.05	54.77%	6,476.33	45.23%
Carmen	28,387.00	6,408.04	22.57%	21,978.96	77.43%
IGACOS	45,092.48	18,319.17	40.63%	26,773.31	59.37%
Kapalong	25,812.94	8,548.16	33.12%	17,264.78	66.88%
New Corella*	13,181.74	5,403.58	40.99%	7,778.16	59.01%
Panabo	275,869.20	110,364.89	40.01%	165,504.31	59.99%
San Isidro	8,061.69	2,082.99	25.84%	5,978.70	74.16%
Sto. Tomas	37,131.53	2,123.75	5.72%	35,007.78	94.28%
Tagum	256,369.86	212,929.39	83.06%	43,440.47	16.94%
Talaingod	9,682.44	5,035.32	52.00%	4,647.12	48.00%
TOTAL	742,724.16	389,087.65	52.39%	353,636.51	47.61%

The table above showed the provincewide summary presentation of the waste disposed and diverted in kilogram per day.

Table 28. Summary of Waste Disposed & Diverted per Waste Composition Davao del Norte

Waste Type	Quantity of Waste Generated (kgs/day)	Quantity of Waste Disposed (kgs/day)	Percent Disposed (%)	Quantity of Waste Diverted (kgs/day)	Percent Diversion (%)
Biodegradable	414,295.94	127,002.32	30.65%	287,293.62	69.35%
Recyclable	106,463.16	40,120.27	37.68%	66,342.89	62.32%
Residual	200,639.99	200,639.99	100.00%	-	0.00%
Special	21,325.07	21,325.07	100.00%	-	0.00%
Total	742,724.16	389,087.65	52.39%	353,636.51	47.61%

The table above showed that from the total daily generated biodegradable and recyclable wastes, 69.35% and 62.32% is diverted.



LEGAL AND INSTITUTIONAL FRAMEWORK

5.1 Local Laws and Regulations

The procedures and standards enunciated in RA 9003 have been incorporated in the policies and ordinances of the component LGUs.

Table 29. Local Laws and Regulations Enacted for Solid Waste Management per LGU of Davao del Norte

City/Municipality	Local Laws & Regulations	Relevant Provisions
Asuncion	Municipal Ordinance No. 2006-017	Enacting the ESWMP of Asuncion, Davao del Norte and Providing Fines and Penalties for Violating Any of the Provisions thereof with the Use of Citation Tickets
BE Dujali	Municipal Ordinance No. 2009-124	Enacting the Ecological Solid Waste Management Program of Braulio E. Dujali and Providing for Fines and Penalties for Violations thereof and for other Purposes
Carmen	Municipal Ordinance No. 07 series of 2010	Adopting the Integrated Solid Waste Management of Carmen, Davao del Norte
IgaCoS	City Ordinance No. 2007-131	Amending City Ordinance No. 2000-28 known as " The Comprehensive Waste Management of IGS, Davao del Norte" by adding paragraph 6.5 & 6.6 of Section 6-waste generation, handling & storage of waste/refuse
Kapalong	Municipal Ordinance No. 574, series of 2008	Adopting the Ecological Solid Waste Management Program of Kapalong, Davao del Norte and Providing Fines and Penalties for Violating any of the Provisions thereof with the Use of Citation Tickets
New Corella	Municipal Ordinance No. 101, series of 2003	Requiring Households to Segregate the Biodegradable and Non-Biodegradable Wastes
Panabo	City Ordinance No. 28-05	Establishing Comprehensive Ecological Solid Waste Management Program
San Isidro	Municipal Ordinance No. 2008-02	Enacting the Municipal Implementation of Republic Act 9003, otherwise known as the Ecological Solid Waste Management Act of



City/Municipality	Local Laws & Regulations	Relevant Provisions
		2000, Setting up guidelines fines and penalties thereof
Sto. Tomas	Municipal Ordinance No. 006 series of 2004	Adopting the Provisions of RA 9003 and Providing Penalties Thereof
Tagum	City Ordinance No. 229 series of 2006	Revising Municipal Ordinance No. 2, s-1997, “ An Ordinance Establishing the Comprehensive Solid Waste Management of the Municipality of Tagum and Providing Penalties for Violation thereof
Provincial Government	Provincial Ordinance 2009-002	Environment Code of Davao del Norte Article IX – Integrated Waste Management
	Executive Order No. 19 series of 2015	An Order Reconstituting the Provincial Solid Waste Management Board of Davao del Norte and Incorporating Herein its Technical Working Group

5.2 Roles

5.2.1 Provincial Solid Waste Management Board (PSWMB)

The PSWM Board is the SWM policy making body. Hereunder are the functions of the PSWM Board as provided by R.A. 9003, to wit:

1. Develop a provincial SWM Plan from the submitted SWM Plans of the respective Municipal SWM Boards herein created. It shall review and integrate the submitted plans of all its component municipalities and ensure that the various plans complement each other, and have the requisite components. The Provincial SWM Plan will then be submitted to NSWMC for review and approval.
2. Provide the necessary logistical and operational support to its component municipalities;
3. Recommend measures and safeguards against pollution and for the preservation of the natural ecosystem;
4. Recommend measures to generate resources, funding and implementation of projects and activities as specified in the duly approved SWM plans;
5. identify areas within its jurisdiction, which have common solid waste management problems and are appropriate units for planning local SWM services in accordance with Section 41 of RA 9003;



6. Coordinate the efforts of the component municipalities in the implementation of the Provincial SWM Plan;
7. Development of appropriate incentive scheme as an integral component of the Provincial SWM Plan;
8. Convene joint meetings of the provincial and municipal SWM Boards at least every quarter for purposes of integrating, synchronizing, monitoring and evaluating the development and implementation of its provincial SWM Plan;
9. Represent any of its component municipality in coordinating its resource and operational requirements with agencies of the national government;
10. Oversee the implementation of Provincial SWM Plan;
11. Review every two (2) years or as the need arises, the Provincial SWM Plan for purposes of ensuring its sustainability, viability, effectiveness and relevance in relation to local and international developments in the field of solid waste management; and
12. Allow the clustering of LGUs for the solution of common solid waste management problems.

5.3 Creation of Provincial Solid Waste Management Board

5.3.1 Executive Order

Section 11 of R.A. 9003 provides that the Provincial SWM Board shall be established in every province which shall be chaired by the Governor. Executive Order No. 19, series of 2015 was issued by the Governor reconstituting the Provincial Solid waste Management Board of Davao Del Norte, incorporating therein its Technical Working Group.

5.3.2 List of Members of PSWM Board

Listed below are the members of the Provincial Solid Waste Management Board (PSWMB), chaired by the Governor as prescribed under RA 9003, to wit;

Table 30. Composition of the PSWM Board of Davao del Norte

PSWMB Chairman	HON. RODOLFO P. DEL ROSARIO	Governor Davao del Norte
PSWMB Members	HON. ANTONIO RAFAEL G. DEL ROSARIO	Congressman District 1, Davao del Norte
	HON ANTONIO F. LAGDAMEO	Congressman, District 2 Davao del Norte
	HON HERNANIE L. DUCO	Chairman, Committee on Natural Resources



PSWMB Members		and Environment Protection Sangguniaang Panlalawigan
	HON. ALLAN L. RELLON	City Mayor Tagum City
	HON. JOSEPH NILO F. PARREÑAS	Municipal Mayor Municipality of Asuncion, Davao del Norte
	HON. EDGARDO L. TIMBOL	Municipal Mayor Municipality of Kapalong, Davao del Norte
	HON. BASILIO A. LIBAYAO	Municipal Mayor Municipality of Talaingod, Davao del Norte
	HON. NESTOR L. ALCORAN	Municipal Mayor Municipality of New Corella, Davao del Norte
	HON. MARCELINO A. PERANDOS	Municipal Mayor Municipality of Carmen, Davao del Norte
	HON. JAMES G. GAMAO	City Mayor Panabo City
	HON. LOLITA A. MORAL	Municipal Mayor Municipality of B.E. Dujali
	HON. BENIGNO R. ANDAMON	Municipal Mayor Municipality of Sto Tomas
	HON. ANIANO P. ANTALAN	City Mayor Island Garden City of Samal
	HON. ARNEL H. SITOY	Municipal Mayor



		Municipality of San Isidro
	FOR. ORLY T. CARIAZO	Provincial ENR Officer PENRO-DENR, XI-2
	MS. JUDY DONNA DE ASIS	Provincial Director Department of Science and Technology
PSWMB Members	MR. ROMEO L. CASTAÑAGA	OIC Provincial Director Department of Trade and Industry
	ENGR. JOSIE JEAN R. RABANOZ	P.G. Dept. Head Provincial Planning and Development Office
	DR. AGAPITO B. HORNIDO	P.G. Dept. Head Provincial Health Office
	ENGR. RAUL MABANGLO	P.G. Dept. Head Provincial Engineer's Office
	MR. ROMULO D. TAGALO	Asst. P.G. Dept. Head Provincial Environment and Natural Resources Office
	MS. JUDEZA PINGOY	Gender and Dev't. Coordinator Provincial Government of Davao del Norte
	MS. PROVIDENCIA P. NUÑEZ	President Davao del Norte Council of Women
PSWMB Members	MR. HAROLD T. VILLANUEVA	Proprietor HPIC Manufacturing Industries
	MR. JOEMIL S. MONTEBON	Executive Director KASILAK Development Foundation Inc.



Table No. 31. PSWMB Description of Activities to Date and Plan, Davao del Norte

ACTIVITIES	PURPOSE	SCHEDULE
<ul style="list-style-type: none"> Board Meetings for the purpose of 	monitoring and evaluating the developments and accomplishments of provincial solid waste management based on the plan implementation targets	At least every quarter
<ul style="list-style-type: none"> Joint meetings of the provincial, city and municipal solid waste management boards 	integrating, synchronizing, monitoring and evaluating the development and implementation of its provincial solid waste management plan	At least every quarter
<ul style="list-style-type: none"> Provincial Solid Waste Management Plan Review 	ensuring its sustainability, viability, effectiveness and relevance in relation to local and international development in the field of solid waste management	every two (2) years or as the need arises



5.4 City/Municipal Solid Waste Management Board

Table No. 32. List of City/Municipal SWM Board/Council & Schedule of Meetings, Davao del Norte

City/Municipality	SWM Board Chair/Vice-Chair	SWM Board Members	Schedule of Meetings
Asuncion	Municipal Mayor Joseph Nilo F. Parreñas Mun. Vice-Mayor Eufrazio P. Dayaday Jr.	<ul style="list-style-type: none"> • SB Member Joel M. Camello • B Member Eduardo S. Binasbas • Alvin S. Almeda • Fely T. Villa • Engr. Lilibeth Ruth V. Cuajao • Evangeline N. Andoy • Sarah Pasion-Cubar • Thompson C. Uy, MD • Hermes E. Cosmod • Anecita A. Daclag • Manuel D. Puyong Sr. • Rodrigo Seismundo • Representative from SFARBEMCO • Representative from DOLE • Edilberto Guerzon • Floresa R. Solarte • Mary Val E. Cortez 	
BE Dujali	Municipal Mayor Lolita A. Moral	<ul style="list-style-type: none"> • Action Officer Edgar L. Taladhay • SB Member Jeolito B. Juriana • ABC President • SK Federation President • MLGOO • Nelson C. Baer • Chief of Police • Dr. Cherry T. Demaala • Engr. Jay R. Colajo • Janet Bantilan • Atty. Yasmin Valle-Campion • Leonardo L. Taladhay, Jr. 	



		<ul style="list-style-type: none"> • Abel T. Pagatpat • Divina P. Dela Cueva • Haidee E. Dino • Buena M. Allamillo • The President Bussiness Group • Melchor D. Alamis • DUFFAMCO President • BEDTODA President • Federation of Prk. Leaders • Market Vendors' Asso. • Organic Farmers' Cooperative • KAUPOD Asso. • MENRO Staff 	
Carmen	Municipal Mayor Marcelino A. Perandos	<ul style="list-style-type: none"> • SB Member Nenita Bugais 	
IgaCoS	<p>City Mayor Aniano P. Antalan City General Services Officer City Engineer</p>	<ul style="list-style-type: none"> • City Planning & Development Coordinator • City Health Officer • City Agriculturist • City Sanitary Inspector • City Social Welfare & Dev't. Officer • City DILG Officer • SP Chairman on Health & Sanitation • SP Chairman on Environment & Protection • DENR-CENRO • Market Supervisor • Community Affairs Officer-CMO • NGO, PO & PS Representative • SK Federation President • Rep. Of Market Vendors • ABC President • Rep. Of Land Transport Asso. 	



		<ul style="list-style-type: none"> • Rep. Of Water Transport Asso. • PNP • City Veterinarian • Chairperson Council of Women • Chairperson Tourism Council • DepEd District Supervisor • City Environment & Natural Resources Office 	
Kapalong	Municipal Mayor Edgardo L. Timbol	<ul style="list-style-type: none"> • SB Member Dominador S. Cruda III • SB Member Joevin P. Doriman • Arlene C. Datu • Engr. Alvin D. Agayan • Engr. Ladlio V. Doronio, Jr. • Raul V. Dela Cruz • Rodolfo P. Robles • Rizalie B. Calma • Eliaser Acenas • DANILO ancero • Beato A. Llubit 	
New Corella	Municipal Mayor Nestor Alcoran	<ul style="list-style-type: none"> • SB Member Pedro H. Lagumbay Jr. • Administrator Alex Marino A. Paña • Feliciano N. Bolador • Nancy O. Cacayorin M.D. • Joel A. Quinanahan • SB Member Valentino Mantica • Kim G. Pedro • Engr. Artemio Revita • For. Juanito Formentira Jr. • Engr. Robert C. Oracion • Marcelino Palmero • Engr. Henry Darunday • Wendelyn A. Brandino • Godofredo Gono 	



Panabo City	City Mayor James G. Gamao	<ul style="list-style-type: none"> • SP Member Ronald L. Ang • Miguel P. Niez/ ABC President • Najah P. Ranain/ SKCF • Engr. Zoilo C. Gudin, Jr. / CENRO • Danilo M. Hernandez/ CLGOO • Alejandro R. Mayato/ CAGRO • Aurora M. Lauron/CPDC • Atty. Gay Gerle M. Peloton • Dra. Imelda T. Bendijo/ CHO • Engr. Glenn A. Olandria/ City Engineer • PNP-Chief of Police • Nemesio L. Rasgo/ CGDH-CEEMDO • Emelia Gaviola/DENR Representative • Joel G. Claves/ New Malitbog Scavengers Cooperative • Engr. Felix Jonases P. Senajon/ Asst. CENRO • Norollah B. Pelayo/ EMS I 	
San Isidro	Municipal Mayor Arnel H. Sitoy Municipal Administrator Joel P. Seniedo	<ul style="list-style-type: none"> • Team Leader Arnel C. Fermilan • SB Member Aurelio F. Avenir • SB Member Edwin C. Talon • SB Member Lolito M. Salazar • ABC Pres. Baltazar Cuyos • Rosita R. Huico • Renalbert Aurelio • Esmael C. Alimes • PSI Joery T. Puerto • Marlon G. Ebrado • Oliver U. Emata • Marcelino B. Serondo 	



		<ul style="list-style-type: none"> • Leyh P. Castillo • Eduardo S. Cercado • All Barangay Captains 	
Sto. Tomas	<p>Municipal Mayor Benigno R. Andamon Municipal Administrator Jose L. Andamon</p>	<ul style="list-style-type: none"> • SB Member Mario S. Batosalem • SB Member Gabriel Eric L. Estela • SB Member Eduardo L. Llorente • SB Member Virgilio R. Recto • SB Member Cromwell S. Cocamas • Julie H. Mantequilla • SB Member Dario G. Romano • SB Member Ricky C. Inodio-an • PSI Rimas Wanasin Lambert • Dr. June P. Lim • Engr. Rey L. Sagot • Engr. Medel G. Subibi • Martha Flor D. De Ramos • Belinda D. Gonzaga • Rosario R. Berenguel • Benny Batoon • Noli T. De Felipe • Charlemagne C. Fernandez • Esmeralda Alforque • Baby Fernandez • Rev. Fr. Greg Dedal • Rene Bungabong • Juvy Cutay-Amar • Elmer Demecillo 	
Tagum City	<p>City Mayor Allan L. Rellon SP Member Fransico C. Remitar</p>	<ul style="list-style-type: none"> • SP Member Oscar M. Bermudez • ABC President Propero Estabillo Jr. • Renato Robles • Nino Cutin • Engr. Elias Ragos • Eliza Mendoza • Engr. Frederick Ferido 	



		<ul style="list-style-type: none"> • Victorio Ambit • City Environment and Natural Resources Office 	
Talaingod	Municipal Mayor Basilio A. Libayao SB Member, Chair Committee on Environment	<ul style="list-style-type: none"> • SB Member, Chair Committee on Health • Municipal Health Officer • Municipal Information Officer • Mun. Planning and Dev't Officer • Mun. Budget Officer • Principal, SNNHS • Principal, SNCES • Municipal Engineer • MLGOO • MENRO • Chief of Police –PNP Talaingod • Parish Priest – Sto. Nino, Quasi Parish • Municipal Tourism Council (MTC) • Barangay Captain-Sto. Nino • Barangay Captain –Palma Gil • Barangay Captain- Dagohoy 	



5.5 Stakeholders Participation

Collaboration with the private sector will be strengthened. Regular consultations and dialogues with schools, churches, plantation owners, individual farmers, motor vehicle operators, PO's, NGO's and other organizations will be conducted. Trainings, meetings/assemblies and workshops, through the CENRO will maximize these venues by incorporating SWM in activity designs of these programs.

Coordination and collaboration with the Provincial ENRO (Environment and Natural Resources Officer) of Davao Del Norte, the Provincial Environment and Natural Resources Office, DENR- EMB-Region 11, DILG, DepEd, private sector and non-government organizations will be strengthened in the following major areas:

- Technical assistance needed in the monitoring and improvement of the SWM technologies, e.g., composting technology adopted by agro-based and aquaculture industries;
- Water quality monitoring of major water sources within the province; and
- Collaboration with the private sector especially with agriculture-related activities.

Women groups will also be tapped to participate in the implementation of SWM program of the city by providing them orientation on SWM and trainings and workshop for the development of recycled products. They will also be tapped to be a member of the Speakers Bureau.

Table 33. ESWM Enthusiasts with their Involvements as Ecological SWM Partners of Davao del Norte

Partner	Involvement
Other Provincial Agencies	
Environment & Natural Resources, Agriculture, General Services, Social Welfare & Development, Health, Engineering & Planning Offices	<ul style="list-style-type: none"> • Maintenance of SWM vehicles & equipment • Promotion of compost & fertilizers produced in the MRF • IEC and Advocacy • Logistical support • Livelihood assistance • Market development of SWM products • Construction to SWM infrastructure • Operation Maintenance of SWM infrastructure and other facility • Monitoring & Evaluation of SWM implementation
Other National & Regional Agencies, Institutions, NGO's & Private Entities	
DA, DOST, DTI, DENR-EMB	<ul style="list-style-type: none"> • Information & technical assistance, technology transfer; market development; SWM programs in their agencies
Business Organization/Establishments/.Recycling Industries <ul style="list-style-type: none"> • HPIC Manufacturing Industry • Association of Junkshop Owners 	<ul style="list-style-type: none"> • Co-sponsorship of SWM activities, promotion of SWM within their establishment in compliance with ordinances



Partner	Involvement
Religious Organization <ul style="list-style-type: none"> • Couples for Christ • Singles for Christ • Association of Church Ministers 	<ul style="list-style-type: none"> • IEC campaign among member of church/congregation
DepEd, Tertiary, Secondary & Primary Schools	<ul style="list-style-type: none"> • Inclusion of SWM in school subjects, introduction of school-based programs (segregation, composting, recycling), establishment of learning sites/models for other schools
NGO's, PO's and other civic Organizations <ul style="list-style-type: none"> • Davao del Norte's Council of Women • KASILAK Foundation • Upland Farmers' Association • Fisherfolks' Association • Market Vendors' Association 	<ul style="list-style-type: none"> • Sponsorship of SWM activities, IEC within their organizations



PLAN STRATEGY OF THE PROVINCE OF DAVAO DEL NORTE

6.1 VISION

Davao del Norte, a premier province in exporting quality agricultural products that are globally competitive with climate change adaptive and risk resilient communities, social equity, improved quality of life under a transparent and responsive governance

6.1.1 MISSION OF SWM PROGRAM OF THE PROVINCE OF DAVAO DELNORTE

We, the people of Davao del Norte commit to protect the environment by properly managing the solid waste and waste water and ensure to establish a safe and environment friendly communities in partnership with various stakeholders.

6.1.2 GOALS OF SWM PROGRAM OF THE PROVINCE OF DAVAO DEL NORTE

- To ensure public awareness and participation in waste management activities.
- To implement the SWM plan in all component cities and municipalities.
- To establish efficient and sustainable SWM system in the entire province.
- To monitor the implementation of the city/municipal SWM plan.
- To establish one final disposal facility (SLF) for the residual and special wastes of the eight (8) benefiting local government units.
- To establish a systematic management system for the operation of the sanitary landfill situated at Sitio Tibi-tibi, Barangay Sto. Niño, Talaingod.

6.1.3 OBJECTIVES OF THE 10-YEAR SWM PLAN

- To sustain and strengthen the SWM program implementation of every component LGUs of the province in order to establish a responsive and quality SWM services to the people;
- To capacitate SWM implementors in every component LGU and barangays as front liners in the implementation of the LGU SWM plan;
- To see to it that in the course of the implementation of the LGU SWM Plans, environment and public health is protected.
- To assist in the achievement of the waste reduction and diversion target of every component LGUs of the province;
- To monitor the implementation of the 10 year plan of every component LGUs;
- To establish one (1) final disposal facility for the residual and THW waste of the eight (8) benefiting LGUs.



6.2 Targets

The following table shows the provincial targets for diversion and disposal within the 10-year planning period.

Table 34. 10-Year Targets for Diversion and Disposal per LGU, Davao del Norte

RA 9003 Mandate	City /Municipality	Yearly Targets in Percentage										
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
Diversion	Asuncion	65%	65%	70%	70%	70%	75%	75%	75%	80%	80%	
	BE Dujali	50%	55%	55%	60%	60%	65%	65%	70%	70%	70%	
	Carmen	64%	64%	65%	75%	75%	75%	80%	80%	90%	90%	
	IGaCoS	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	
	Kapalong	48%	50%	53%	57%	59%	61%	62%	63%	64%	65%	
	New Corella	55%	58%	61%	62%	62%	62%	66%	66%	70%	70%	
	Panabo	60%	65%	65%	65%	70%	70%	70%	75%	75%	75%	
	San Isidro	50%	50%	55%	60%	65%	70%	75%	75%	80%	80%	
	Sto. Tomas	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%	
	Tagum	50%	60%	60%	70%	70%	75%	75%	80%	80%	85%	
	Talaingod	34%	34%	46%	46%	49%	49%	52%	52%	55%	55%	
	Davao del Norte		56%	58%	61%	65%	67%	69%	71%	73%	76%	77%
	Disposal	Asuncion	35%	35%	30%	30%	30%	25%	25%	25%	20%	20%
BE Dujali		50%	45%	45%	40%	40%	35%	35%	30%	30%	30%	
Carmen		36%	36%	35%	25%	25%	25%	20%	20%	10%	10%	
IGaCoS		20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	
Kapalong		52%	50%	47%	43%	41%	39%	38%	37%	36%	35%	
New Corella		45%	42%	39%	38%	38%	38%	34%	34%	30%	30%	
Panabo		40%	35%	35%	35%	30%	30%	30%	25%	25%	25%	
San Isidro		50%	50%	45%	40%	35%	30%	25%	25%	20%	20%	
Sto. Tomas		45%	40%	35%	30%	25%	20%	15%	10%	5%	0%	
Tagum		50%	40%	40%	30%	30%	25%	25%	20%	20%	15%	
Talaingod		66%	66%	54%	54%	51%	51%	48%	48%	45%	45%	
Davao del Norte			44%	42%	39%	35%	33%	31%	29%	27%	24%	23%

6.3 Strategies

The key elements in implementation strategy are the following:

6.3.1 Partnership and Coordination

Partnership with the local citizens, organizations, educational institutions, the private sector and the territorial government, in effective segregation at source and



segregated collection. Working together ensures greater buy-in and participation in diversion programs and can help in creating effective solutions.

Coordination with other government agencies and offices in the establishment of effective Monitoring and Evaluation System for the disposal site facilities.

6.3.2 Policy and legislation

Policy and legislation that support waste diversion and strict implementation of SWM Ordinances with stipulated violations and corresponding penalties, at the local level.

6.3.3 Education and Promotion

Public education strategies that will showcase SWM to different programs, projects and activities or PPAs enclosed in the Provincial Development Investment Program or PDIP. Mainstreaming SWM to schools and other learning institutions activities is a very effective way of spreading the advocacy.

Promotional strategies that can encourage/motivate the component LGUs, through the LCEs and city/municipal SWM focal/coordinators, to develop SWM point source models through recognition and awards. This could be done through facilitation and transfer of new technologies through capability building trainings and seminars or other learning and development interventions that will fortify more the viability of SWM personnel/alternates/coordinators in implementing the program

6.3.4 Financial Option

Implementation of plan action/strategies and financing of activities with the available local resources or from the local development funds generated from the national government and other foreign grants.



SOLID WASTE MANAGEMENT SYSTEM

7.1 Source Reduction

Among the solid waste management elements, source reduction is the only approach that is PREVENTIVE. It is the cutback of waste volume before it enters the waste stream. One of the best focus on this is on the flow of consumable goods where empty packages are thrown and mostly found in bulk. Source reduction scheme is expected to be implemented at three levels.

Table 35. Source Reduction Schemes to be Implemented, Davao del Norte

Waste Source	Reduction Scheme	Sectors to Target	Categories of Waste to be Addressed	Gaps to be Address by the Province
Households	Advocacy for 100% waste segregation	Individual and families	Biodegradable, Residual, Special, Recyclable	Facilitation needs to formulate unified and effective IEC material
	100% practice of composting		Biodegradable	Facilitation requirement to tapping agencies providing orientation & trainings on composting
	Discouragement of the use of non-reusable, non-recyclable packaging material (selective Purchasing)		Residual	Technical assistance requirement
	Adoption and strengthening of the use of traditional "bayong"		Residual	Policy and legislation support
Institution	Strengthening 6'S	Schools, Public & private Offices, Hospitals/Clinics	Biodegradable, Residual, Special (Health Care), Recyclable	Institutional Policy support
	Conservation of office supplies		Biodegradable, Recyclable & Residual	Institutional Policy support



	<p>Discourage in bringing food material packed by non-reusable containers</p> <p>Encourage student to advocate for the conduct of IEC activities</p> <p>Establishment at schools of on-site MRF.</p>		<p>Residual</p> <p>Biodegradable, Recyclable & Residual</p> <p>Biodegradable & Recyclable</p>	<p>Institutional Policy support</p> <p>Technical assistance requirement; promotional incentives</p> <p>Linkage to agencies for market of recyclables</p>
Waste Source	Reduction Scheme	Sectors to Target	Categories of Waste to be Addressed	Gaps to be Address by the Province
Bussiness/Industry Level	<p>Promotion on the use of recyclable packaging material</p> <p>"Bring your own bag" scheme or program like "non-cellophane day"</p> <p>100% waste segregation</p> <p>To demand having an on-site MRF</p>	<p>Owners/Operators Vendors</p> <p>Agricultural plantations & individual farmers</p>	<p>Recyclable & Residual</p> <p>Recyclable & Residual</p> <p>Bio, Special, Recyclable & Residual</p> <p>Bio, Special (THW), Recyclable & Residual</p>	<p>Policy and legislation support</p> <p>Policy and legislation support</p> <p>Policy and legislation support</p> <p>Policy and legislation support</p>



Table 36. 10-Year Estimated (Target) Diversion per LGU, Davao del Norte

RA 9003 Mandate	City /Municipality	Yearly Targets in Percentage									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Diversion	Asuncion	65%	65%	70%	70%	70%	75%	75%	75%	80%	80%
	BE Dujali	50%	55%	55%	60%	60%	65%	65%	70%	70%	70%
	Carmen	64%	64%	65%	75%	75%	75%	80%	80%	90%	90%
	IGaCoS	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
	Kapalong	48%	50%	53%	57%	59%	61%	62%	63%	64%	65%
	New Corella	55%	58%	61%	62%	62%	62%	66%	66%	70%	70%
	Panabo	60%	65%	65%	65%	70%	70%	70%	75%	75%	75%
	San Isidro	50%	50%	55%	60%	65%	70%	75%	75%	80%	80%
	Sto. Tomas	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
	Tagum	50%	60%	60%	70%	70%	75%	75%	80%	80%	85%
	Talaingod	34%	34%	46%	46%	49%	49%	52%	52%	55%	55%
Davao del Norte		56%	58%	61%	65%	67%	69%	71%	73%	76%	77%

7.2 Collection

Overview

Generally, collection service on component LGUs is frequent only in the central business districts. Other areas are collected monthly or by request. In order to expand collection service coverage on rural areas possible options and schemes are designed.

Table 37. Collection Strategy of per City/Municipality of Davao del Norte

City/Municipality	Collection Equipment			Collection Service	Collection Type	Expansion (Plan)
	Current		Projected Future Procurement			
	Type	Qty.				
Asuncion	Mini Dump Truck; MC Vehicle w/ side car	2		Sustain the admin collection service	Segregated	
BE Dujali	Dump Truck; Motor Vehicle	2		Sustain the admin collection service	Segregated	
Carmen	Mini Dump Truck ; Mini Back Hoe	2		Sustain admin collection service	Segregated	Additional 19 barangays for collection coverage



IgaCoS	Garbage Compactor	1	2 Collection Trucks & 1 motorboat	Sustain admin collection service	Segregated	
Kapalong	Compactor, Dumptrucks, Back Hoe & MC vehicle	9		Sustain admin collection service	Segregated	Additional 8 barangays for collection coverage
New Corella	Mini Dumptruck	1		Sustain admin collection service	Segregated	Additional 12 barangays for collection coverage
Panabo City	Mini-Dumptrucks; Dump trucks; Compactors	24	Add'l. Garbage Collection Facility	Sustain admin collection service but also considers private garbage haulers as an option	Segregated	Additional 16 barangays for collection coverage
San Isidro	6 Wheeler Dump Truck	1		Sustain admin collection service	Segregated	Additional 12 barangays for collection coverage
Sto. Tomas	6 Wheeler Dump Truck; Backhoe & Grader	6	For acquisition are 1 compactor, 1 dump truck & 1 motorcycle with trailer cab	Sustain admin collection service but also considers private garbage haulers vital	Segregated	
Talaingod	Garbage Compactor; MC Vehicle	2		Sustain admin collection service	Segregated	Additional 2 barangays for collection coverage
Tagum City	Compactors; 6 wheeler truck; 10 wheeler truck; Mini Dumptruck; Forward Truck	9	3 Add'l. Garbage Truck	Sustain admin collection service	Segregated	Exterior 6 brgys. Shall be collected monthly

The necessity of rehabilitation and construction of provincial roads will be the provincial government's supplement to the collection activities of the LGUs, moreover, to far-flung areas. A joint effort shall be continued in the establishment of MRF to distant and rural areas, to serve as common collection point.



7.3 Segregation, Recycling, and Composting

The eleven (11) LGUs, are on the continuous process of efforts to implement waste segregation at source (households, schools, offices, hospitals/clinics and business establishments). Wastes from the public markets are collected; biodegradable wastes are brought to the composting facility of the LGUs.

Table 38. Summary of Diversion Efforts per LGUs of Davao del Norte

LGU	Segregation & Reduction at Source	Segregated Collection	Recycling	Composting
Asuncion	Segregation of waste at source is strictly implemented.	M.O. No. 96-0017 "No segregation, No collection" policy of the LGU is strictly implemented.	The municipality is operating a Central MRF where biodegradable, residual and special wastes are.	The municipality is operating a composting facility through vermi composting process.
B.E.Dujali	M.O. No. 2009-14 "Comprehensive Ecological Solid Waste Management Program" specifying therein proper waste segregation.	"No segregation, no collection" policy is being enforced.	The LGU is operating an MRF since 2006. This is where the final segregation is done.	The LGU is operating a composting facility managed by the MAGRO.
Carmen	Segregation at source is strictly enforced.	"No segregation, no collection" policy is enforced.	Households are required to do the recycling.	The LGU has no composting facility; composting is done at the household.
Island Garden City of Samal	Segregation is strictly enforced.	Segregated collection is strictly enforced.	Recycling is done by all waste generators. Recyclable wastes are sold to ambulant buyers.	Composting is done at the barangay level.
Kapalong	Segregation & reduction at source is implemented by the households.	Segregated collection is being implemented in the collection area	Recyclable wastes are left to the waste source for them to sell to the ambulant buyers	The collected biodegradable wastes are brought to the composting facility of the LGU
New Corella	"No segregation, no collection & no renewal of business permit" policy is strictly implemented. Agricultural industries are being monitored by the MMT (Multi – sectoral Monitoring Team)	"No segregation, no collection" is strictly enforced. Residual wastes are brought to the controlled dump site.	Recyclable wastes are left to the waste source for them to sell to the ambulant buyers.	The LGU is operating a Central Composting Facility.



LGU	Segregation & Reduction at Source	Segregated Collection	Recycling	Composting
Panabo City	Segregation is strictly enforced. Biodegradable wastes from the households are not collected. Residents are encouraged to practice backyard composting.	Segregated collection is strictly enforced.	Recycling is done at the household level.	The city is operating a composting facility located at the disposal site.
San Isidro	Municipal Ordinance was passed stipulating fines & penalties for non segregation of waste from source (households, public market, business establishments, institutions and other waste source).	Segregated collection is implemented.	Recyclable wastes are left to the waste source for them to sell to the ambulant buyers.	The LGU is operating a composting facility through vermin composting procedure.
Sto. Tomas	Segregation is being practiced. Compostable, residual, THW, commercial & institutional wastes are collected and processed at the disposal facility.	"No segregation, no collection" policy is strictly enforced. Not segregated wastes are not collected.	Recycling is done at the source.	Household composting is being promoted. The municipality is operating a composting facility located at the disposal site.
Tagum City	Segregated collection is strictly enforced.	"No segregation, no collection" policy is strictly enforced.	Recyclable wastes are left to the waste source for them to sell to the ambulant buyers.	The LGU is operating a Central Composting Facility where the product of which is used to fertilize the plants in the beautification project of the LGU
Talaingod	Municipal Ordinance No. 96-05 requiring all waste generators to adapt waste segregation, recycling and composting.	Segregated collection is strictly implemented.	All recyclable wastes are left at the waste source for them to sell to the ambulant buyers.	All biodegradable wastes are brought to LGU composting facility operated by MAGRO to undergo vermin composting process.
Provincial Government of Davao del Norte	Formulation of unified IEC material (format and content) for the entire province Mainstream IEC to PPAs, Pos, NGOs, schools and other institution Facilitation and transfer of new technologies through capability building trainings and seminars for SWM	Continuous rehabilitation and construction of provincial roads to supplement the collection activities to far-flung areas Participation in the joint-effort for the establishment of Material Recovery Facility (MRF)	Facilitation and transfer of new technologies in recyclables through capability building trainings Technical assistance extension to local activities related to organizing junkshop operators	Facilitation and transfer of new technologies in composting through capability building trainings e. g. Vermi-composting Facilitation of mother stock distribution of African Night Crawler (vermi) for vermi-composting propagation



personnel and local multi-sectoral monitoring team members	Coordination with the DOST, TESDA, DA, DENR,NGOs and other agencies for technical assistance on hauling system, innovations and techniques	Tapping national agencies as the DTI for wider market linkage	IEC support to centralize level of composting facility (for marketing approach), considering the province is characterized by wide agro-industrial production area
Creation of multi-partite provincial monitoring team to ensure implementation of SWM to LGUs			

7.4 Transfer

The province has no plan to put-up/manage/use of transfer facility.

7.5 Alternative Technologies

Tagum City had already entered into Memorandum of Agreement (MOA) last September 10, 2013 for the proposed alternative technology for residual waste, a Waste-to-Energy (WTE) Plant, with the Global Green International Energy Philippines (GGIEP), which encompasses thermal and biological conversion technologies that unlocks usable energy stored in solid waste to generate electricity and heat. It has a minimum capacity of 60 to 80 tons of municipal solid wastes.

However, the province has no plan to build/operate alternative technology.

7.6 Disposal

Table No. 39 Waste Disposal and Residual Waste Management
Davao del Norte

Province	City/ Municipality	Barangay	Disposal Type (OD, CDF, SLF, SLF Undergoing Construction with ECC)	Status (Operational, Closed, Undergoing rehabilitation in compliance with ATC)	Disposal Plans
Davao del Norte	Asuncion	Brgy. Sagayen	Controlled Disposal Facility with RCA for the accomodation of residual wastes	CDF operational; subject for Safe Closure & Rehabilitation Plan	Awaiting on the completion of the provincial-led Sanitary Land Fill
	BE Dujali	Brgy. Cabayangan	RCA for the accomodation of residual wastes	Operational RCA	Awaiting on the completion of the provincial-led Sanitary Land Fill
	Carmen	Brgy. Tuganay	RCA for the accomodation of residual wastes	Operational RCA	Awaiting on the completion of the provincial-led Sanitary Land Fill
	Island Garden City of Samal	Brgy. Mambago-A	SLF Undergoing Construction with ECC	1st cell or one-fourth of the 5-hectare SLF is completed and operational	Construction is progressive for the remaining 4.75 hectares of the 5-hectare SLF



Province	City/ Municipality	Barangay	Disposal Type (OD, CDF, SLF, SLF Undergoing Construction with ECC)	Status (Operational, Closed, Undergoing rehabilitation in compliance with ATC)	Disposal Plans
Davao del Norte	Kapalong	Brgy. Capungagan	Controlled Disposal Facility with alternative technology for residual wastes	CDF operational, has already submitted Safe Closure & Rehabilitation Plan	Awaiting on the completion of the provincial-led Sanitary Land Fill
	New Corella	Brgy. San Jose	Controlled Disposal Facility	Still operational; subject for Safe Closure & Rehabilitation Plan	Awaiting on the completion of the provincial-led Sanitary Land Fill
	Panabo City	Brgy. New Malitbog	RCA for the accomodation of residual wastes	CDF has been issued with NTP from EMB-RXI on its closure as per issuance of Authority to Close (ATC) on October 2007	Construction of Sanitary Land Fill Category 3
	San Isidro	Brgy. Sawata	RCA for the accomodation of residual wastes	Operational RCA	Awaiting on the completion of the provincial-led Sanitary Land Fill
	Sto. Tomas	Brgy. San Jose	Controlled Disposal Facility with RCA for the accomodation of residual wastes and alternative technologies as vermi-composting and residual waste processing facilities	CDF operational; subject for Safe Closure & Rehabilitation Plan	Awaiting on the completion of the provincial-led Sanitary Land Fill



Province	City/ Municipality	Barangay	Disposal Type (OD, CDF, SLF, SLF Undergoing Construction with ECC)	Status (Operational, Closed, Undergoing rehabilitation in compliance with ATC)	Disposal Plans
Davao del Norte	Tagum City	Brgy. San Agustin	Controlled Disposal Facility with RCA for the accomodation of residual wastes and alternative technology as vermi-composting facility	CDF operational; subject for Safe Closure & Rehabilitation Plan	To push for full operation of the proposed Waste-to-Energy Facility at Sitio Mangga, San Agustin, Tagum City; To continue the proposal for a Sanitary Land Fill Category 1 to identified area at Brgy. Nueva Fuerza with an area of 4.6 hectares
	Talaingod	Brgy. Sto. Niño	Controlled Disposal Facility with RCA for the accomodation of residual wastes	CDF operational; subject for Safe Closure & Rehabilitation Plan	Awaiting on the completion of the provincial-led Sanitary Land Fill

7.6.1 The Provincial Mechanism for the Final Disposal Facility

The province envisioned the establishment of a Sanitary Land Fill to serve as a final depository of generated solid wastes that shall only accepts residual wastes. Generally, this entails huge amount considering the site acquisition, support infrastructure, treatment facilities & equipments, engineering & site preparation and the provision of environmental control.

Table 40 Implementing Mechanism for the Establishment of SLF of Davao del Norte

Institutional	Financial
<ul style="list-style-type: none"> • Creation of SLF Engineering & Design Team (joint team of the province & the local/host LGU) • Provincial & local Admin contract in terms of program of works (instead of private contractor) • Memorandum of Agreement stipulating the process and managing of SLF & the technical workforce 	<ul style="list-style-type: none"> • Land acquisition & site development to the Province • Development of full feasibility study • Memorandum of Agreement involving scheme on tipping fees, proposed 250.00 pesos per ton, and related charges • Other agencies to tap for possible intervention on fund outsourcing



7.6.2 The Disposal Plan of the Province

SW Disposal Capacity

The proposed sanitary land fill category 3 will serve/accommodate the waste generated by the nine (8) LGU's namely: Municipalities of New Corella, Asuncion, Kapalong, San Isidro, Talaingod, Carmen, B.E. Dujali and Santo Tomas. In effect, all residual wastes generated by these LGUs shall be brought to the SLF. Total population of the 8 LGUs as of 2010 is 432,725.

Existing Facilities

Operational Controlled Disposal Facility (CDF) of the Municipality of Talaingod is existing on site with alternative technology approaches to include waste segregation and waste diversion initiative while awaiting completion of the Davao del Norte Provincial Integrated Sanitary Landfill.

New Facilities

Infrastructure facilities that will be constructed in the SLF site are the following:

- Entrance Gate
- Guard Houses
- Administrative Building
- View Decks
- Holding Area
- SLF Cell
- Leachate Collection Pond
- Parking Area
- Perimeter Fence
- Observation Well/Pond
- Water Storage Tank
- Material Recovery Facility
- Flush Box
- Kiosk
- Truck Scale

Sanitary Landfill (SLF) Design

Description and Component

The proposed site for Sanitary Land Fill covers an area of 8 hectares and it is located at Sitio Tibi-tibi, Barangay Sto. Niño, Municipality of Talaingod, Province of Davao del Norte. It is more or less 44 kilometers away from the urban center of Tagum City, the capital of Davao del Norte.

The existing site for the 8-hectare SLF area is only 3 hectares. There is a need to acquire additional area of 5 hectares to accommodate the volume of waste that will be generated in the future years. Initial talk with the Municipality of Talaingod and the land owner had been done and no problem is seen insofar as the expansion is concern. The additional 5 hectares is adjacent to the existing 3 hectare-facility.



There is no inhabitants within the proposed project site. Its distance from the nearest community is 400 meters, more or less. There are no settlements along the access road leading to the proposed project site.

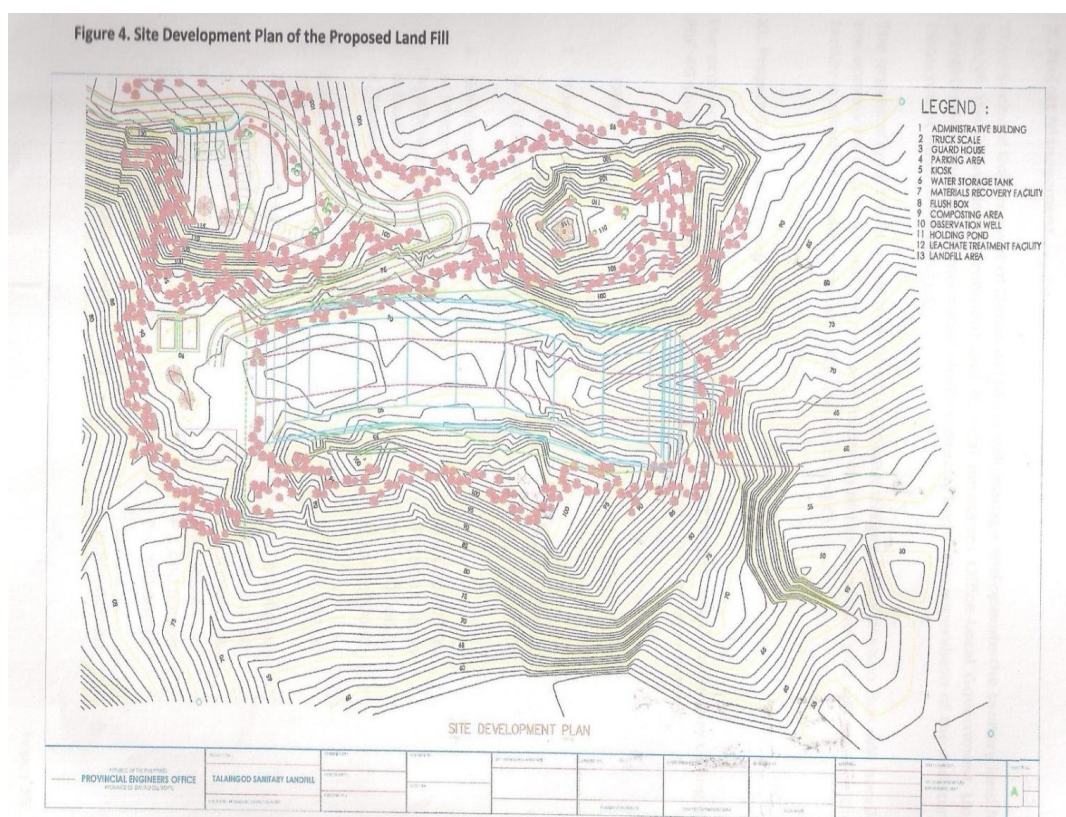


Figure 13. Site Development Plan of the Proposed Davao del Norte Inter-LGU Sanitary Land Fill

Environmental Considerations

Proper sewerage, drainage and waste disposal system will be installed. Appropriate project construction techniques and methods especially on the installation of high density polyethylene material will be strictly observed.

Several species of forest trees such as Narra, Lawaan, Mahogany and Neem Tree among others will be planted within the project area as buffer.

7.6.3 Implementation Status of Closure Plan for Controlled Dumpsites

The component LGUs of the province were issued with closure order to their CDF's, yet currently operating thru its RCA's and alternative facilities situated within the CDF perimeter, with exemption of IGACOS. It is understood that in the coming years of generation of wastes , pursuit for developing mechanism leading and/or upgrading the technology to Sanitary Land Fill is of great necessity.



Some of the LGUs has already submitted Safe Closure and Rehabilitation Plan for their CDF's and currently waiting for its approval. The following are the key elements to be strictly observed and adhered in the plan, to wit;

1. Land-use Plan
 - Eco -Parks
 - Recreation area
2. Application of Final Cover
 - Final and impervious layer of clay or synthetic material
 - Grading of the final cover
 - Prevent escape of gas underneath
 - Reduce infiltration of water into landfill cells
 - Prevent the proliferation of pests and vermins
 - Vegetation to control erosion
3. Drainage System
 - Surface water interception ditches
 - Under drain system to intercept groundwater flows
4. Leachate Management
 - Canals and ditches to intercept leachate on the surface
 - Interceptor trench for leachate below ground
 - Leachate collection and treatment pond Regular water test/analysis
5. Gas Management
 - Installation of landfill gas collection
 - Containment engineering (lateral and capping) to retard gas migration
 - Landfill gas extraction when necessary
6. Security Fence
 - Access restriction from unauthorized personnel/individuals
 - Environment Monitoring
 - Surface water
 - Groundwater
 - Leachate
 - Landfill gas
 - Air Quality
 - Noise

7.7 Special Wastes

7.7.1 Health Care Wastes

All component LGU's with existing hospitals, clinics and/or rural health units are under direct supervision of the Department of Health through the Provincial Health Office, which strongly adhered the Code on Sanitation of the Philippines (PD 856) and the Hospital Licensure Act (RA 4226). As regards to the public and private hospitals, they have their own septic vaults built.



Table No. 41 Plan for Treatment & Disposal of Health Care Wastes
Davao del Norte

City/Municipality	Health Care Wastes Management		
	Treatment	Estimated Qty. By 2023 or 2024	Disposal
Asuncion			Septic vaults at the back of Health Centers
BE Dujali			THW Vaults
Carmen			Septic vaults situated within hospital premises
IgaCoS	High temperature facilities as autoclave (hospitals)	6.85 kg per day	Septic vaults situated within hospital premises
Kapalong			Septic vaults situated within hospital premises
New Corella			Septic vaults of Barangay Health Clinics
Panabo City	w/treatment at hospitals		Disposal at Panabo Dumpsite Area
San Isidro			Septic vaults of Barangay Health Clinics
Sto. Tomas			Septic vaults of per hospitals & clinics, Funeral Parlors
Tagum City	Autoclve,microwave & hydroclave facilities	220 kg per day	Septic vault disposal facility of hospitals & clinics
Talaingod			Septic vault at controlled dump site

7.7.2 Toxic and Hazardous Wastes

Sustain the current segregated collection and disposal of Toxic and Hazardous wastes to designated septic vaults of LGUs. Existing special wastes chamber has enough space to contain more special wastes.

Table No. 42 Plan for Treatment & Disposal of Toxic & Hazardous Wastes
Davao del Norte

City/Municipality	Toxic & Hazardous Wastes Mangement		
	Treatment	Estimated Qty. By 2023 or 2024	Disposal
Asuncion	No specific treatment mentioned in the plan		THW vault at the Mun. Controlled Dump Facility
BE Dujali			THW vaults
Carmen			vault for the THWs
IgaCoS		198.85 kg per day	Concrete septic vault at IGACOS Ecopark
Kapalong		937.71 kg per day	THW vault at the Mun. Controlled Dump Facility
New Corella			
Panabo City			Special pit/vault located within the dumpsite area
San Isidro			
Sto. Tomas			Septic vault at Mun. Ecological Park & Ecology Center
Tagum City		5,631 kg per day	Septic vault at controlled dump site
Talaingod			Septic vault at controlled dump site



7.8 Information, Education and Communication (IEC)

7.8.1 Introduction

The Solid Waste Action Team of the Province of Davao del Norte which is composed of the different SWM focal persons of the component LGUs designed a unified IEC (in form and content) which will be used in the IEC activities in every component LGU. This unified IEC is designed primarily to promote the desired waste management practices of all waste generators such as waste segregation, composting, reuse and recycling. It essentially outlines the communication campaigns that each LGU intends to carry out: the key messages for specific target audiences and the strategies to institutionalize the education process (including the strengthening of IEC Teams) to sustain good SWM practices in every waste source.

Barangays are considered the front line of the program since they are directly in contact with their residents. Also, a Barangay Solid Waste Management Council shall be created in every barangay to look into the implementation of the program in the barangay level as provided in R.A. 9003. Institutions, e.g. schools, religious & government, are good vehicles to be utilized in the conduct of IEC since they are role models in this advocacy, that is why they will not be spared from the IEC activities.

It is expected that in the initial years of SWM plan implementation there will be resistance from some sectors to the SWM practices that will be introduced and enforced by the LGUs. As mentioned, LGUs will intensify their IEC campaign and mobilize more partners to improve people's understanding of waste segregation and other proper waste management practices that are set in the LGU SWM plans and ordinances. The goal of this SWM education plan is to inform and inspire waste generators to ultimately change their behavior and actively support the program.

7.8.2 Core Messages

The PGDDN will support the IEC programs of the LGUs through these activities in which to be implemented throughout the plan period:

- a. Assist the city/municipal SWM IEC team in their IEC activities.
- b. Together with the SWM focal person of the components LGUs, formulate a unified IEC (format and content) for the entire province which will be used in all the IEC activities in every LGU.
- c. Printing/reproduction of printed materials/fliers which are distributed to all the component LGUs which will be distributed to the barangays during IEC activity.
- d. Conduct of "Basura Summit" to be attended by the Barangay Chairman and SB Chairman on Environment of the 223 barangays of the province. This summit is intended to re-orient the Barangay Chairmen and SB Chairmen on Environment of every barangay on the provisions of R.A. 9003 and enjoin the creation of Barangay Solid Waste Management Committee in every barangay as provided by R.A. 9003.



- e. Mainstream IEC to PPAs of the Provincial Government and to the schools and other learning institutions.
- f. Conduct Enforcers' Training to be attended by the enforcers of every component LGUs. This training will provide the enforcers appropriate knowledge about R.A. 9003, city/municipal SWM ordinances and proper procedure in apprehending violators.

Incorporated in the plan of every component LGU is the establishment of Material Recovery Facility in every barangay where final segregation of collected residual wastes is done while recyclable wastes are left at the waste source for them to sell to the junk shop or ambulant buyers. Also, incorporated in the plan is to encourage the establishment of composting facility in every household where every household will do the composting of their generated biodegradable wastes through vermi composting procedure.

The support of the Provincial Government in the composting effort is the distribution of mother stock of African Nightcrawler (vermi) for the vermi composting procedure to the component LGUs for them to propagate the same and shall be distributed later to the barangay.

7.8.3 Approach

All eleven (11) LGUs will organize a Municipal and Barangay IEC Teams to carry out their respective IEC activities. All component cities/municipalities will implement IEC as a continuing program but in phases. During the first year of implementation, efforts will focus on the poblacion, schools and urban barangays. Subsequently, massive IEC will be expanded to cover the rural barangays. Additional copies of fliers on the content of the unified IEC prepared by the Solid Waste Action Team shall be the responsibility of the concerned LGU.

The Provincial Government, through the Provincial General Services Office (PGSO), will maintain the provincial MRF which is located at PENRO compound for the storage of recyclables and residual wastes which will be collected by the City Government of Tagum. The collected biodegradable wastes from the provincial offices will be deposited at the PENR office as food of the African Nightcrawler/Vermi. It is expected that in later years, the Provincial MRF will generate some revenues from the sale of recyclables.

The vermicast from the vermi composting will be used by the PGSO to fertilize the decorative plants/flowers within the Government Center.



7.9 Market Development

To develop wider linkages on marketing for compost & recyclable, the following are considered:

- a. Linkages to agencies as DTI is also considered by some LGUs to widen coverage of market establishment.
- b. For recycled materials, intensify recovery through establishment of operational Material Recovery Facility(MRF) to sustain the possible demand when engaged to business with private local junk dealers/shops.
- c. For biodegradable materials, encourage centralize level of composting facility (centralize, since approach is for marketing). Vermi-composting is one of the best option, since local marketing areas have already been identified in the province characterized by wide agro-industrial production area.
- d. Organize existing junkshop operators in the locality for registration to the Solid Waste Management Office (refer further to 7.2.5).

IMPLEMENTATION STRATEGY

8.1 Framework

The framework for sustainable and effective implementation is based on public accountability, transparency and people's participation through effective and unified advocacy in Information, Education and Communication (IEC).



Figure 14. Ecological Solid Waste Management Framework

The roles of the different local units are interconnected, in proper dissemination of IEC, for the sustainability of solid waste management implementation. The barangay level is responsible for the compostable and recyclables while the city/municipal LGUs shall take charge in the management of residuals and implementation of ordinances. Institutions, e.g. schools, religious sectors, households and other stakeholders shall be a good vehicle to be utilized in the conduct of IEC since they are role models in this advocacy.

Aside from additional copies of fliers on the content of the unified IEC prepared by the Solid Waste Action Team of the province, the Provincial Government shall support the following:

- in the composting effort, shall facilitate distribution of mother stock of African Nightcrawler (vermi) for the vermi composting procedure to the component LGUs for them to propagate the same and shall be distributed later to the barangay
- in the mainstreaming IEC to PPAs, shall provide logistical support and technical assistance to the LGUS

In the implementation of this framework, other activities coupled with logistical support from the province is also enumerated in *Section 7.8.2*.



8.2 Diversion Projections

Table 43. Diversion Projection for 10-Year Plan Period
Per LGU, Davao del Norte

Planning Period	Waste Generation	Diversion Target	Total Weight to be Diverted	Qty. Bio to be Diverted	Qty. Recyclable to be Diverted	Qty. Selected Residual
	kg/day	%	kg/day	55.76%	14.33%	27.03%
2015	453,396.49	56%	251,841.14	140,426.62	36,088.84	37,957.32
2016	482,018.75	58%	280,885.47	156,621.74	40,250.89	42,334.86
2017	499,205.52	61%	306,330.66	170,809.98	43,897.18	46,169.94
2018	519,050.90	65%	337,383.09	188,124.81	48,347.00	50,850.14
2019	539,749.32	67%	360,650.68	201,098.82	51,681.24	54,357.01
2020	559,092.70	69%	387,298.76	215,957.79	55,499.91	58,373.39
2021	580,302.30	71%	414,124.82	230,916.00	59,344.09	62,416.60
2022	603,597.28	73%	442,272.19	246,610.97	63,377.60	66,658.95
2023	627,941.88	76%	478,948.40	267,061.63	68,633.31	72,186.76
2024	651,979.58	77%	503,802.40	280,920.22	72,194.88	75,932.73

The above table showed the consolidated diversion projections in kilograms per day as per materials to be diverted with equivalent distribution percentage.

8.3 Monitoring Program

The Provincial Government through the Provincial Environment and Natural Resources Office (PENRO) in partnership with the local SWM implementors of LGUs and staff of MLGUs will conduct the following;

- Formulate an M & E program for SWM; agree on SWM performance criteria and assessment methods
- Organize quarterly or semi-annual performance assessment meetings with SWM staff of MLGUs and operators of provincial/cluster SWM facilities
- Conduct field inspections or validation as needed
- Prepare and submit periodic reports to the PSWMB, SP and PDC; feedback M and E results to LCEs of MLGUs
- Participate in the review and updating of SWM plans of MLGUs every three or five years



8.4 Incentive Program

The Provincial Solid Waste Management Board (PSWMB) can discuss and organize the Provincial Search for Cleanest and Greenest Municipality, School, Church, Store/Food Establishment and Hotel/Recreation Center to recognize the sustained efforts, creativity and innovations of local government units and stakeholders in enhancing the beauty, cleanliness and greenness of their respective area of responsibility. Said incentive will be given in the form of an award to the winner that will meet the criteria during the Araw ng Davao del Norte celebration as the proper venue for recognition. The criteria shall be approved by the Board and will be prepared and circulated through the Office of the PENRO as the head secretariat.

The good practices of those who are recognized and awarded need to be documented so these can be disseminated for possible replication by similar organizations or establishments in the province. The promotion of good practices can be extended outside of the province so Davao del Norte can be recognized in the region and even at the national level for its environmental management programs.



INSTITUTIONAL ASPECTS

9.1 Roles

The duties and responsibilities of the PSWM Board as provided by R.A. 9003 was enumerated in Legal and Institutional Framework Section of the plan. For its implementation during the initial years, the following are given priorities:

1. Harmonize the implementation of the Provincial SWM Plan with the efforts of the component cities and municipalities;
2. Recommend measures to generate resources, funding and implementation of projects and activities as specified in the duly approved SWM plans;
3. Recommend measures and safeguards against pollution and for the preservation of the natural ecosystem.
4. Identify areas within its jurisdiction, which have common solid waste management problems and are appropriate units for planning local SWM services in accordance with Section 41 of R.A. 9003;
5. Allow the clustering of LGUs for the solution of common solid waste management problems.
6. Institutionalization & capacity development of SWM focal system in the provincial government center and cascading the institutionalization process to local government centers provincewide.

Involvement of SWM Enthusiasts will be effectively coordinated as to the following:

Table 44. Partner Sectors and their Roles in SWM, Davao del Norte

Partner Sectors	Involvement
<ul style="list-style-type: none"> • Other Provincial Agencies PIO-IEC and Advocacy PHO-TOT on alternative disposal system & IEC PAGRO-TOT on Utilization of Agri. Wastes & IEC PPDO-aid to planning & outsourcing possible allocation PEO-Construction of SLF PGSO-Maintenance of SLF PENRO-Operation of SLF 	Maintenance and operations IEC and Advocacy Market Development
<ul style="list-style-type: none"> • Regional & National Agencies PIA-IEC & Advocacy DOST/DA/DENR/DOH-Technical Assist. & Technology transfer NEDA-technical assistance in planning & monitoring DepEd-IEC and Advocacy DILG- monitoring & evaluation DTI-investment & promotion NCIP-IEC for IPs 	Technical Assistance & technology transfer
<ul style="list-style-type: none"> • Private Sectors and civic organizations Junkshops Asso.-sponsorship to SWM activities DDN Council of Women/HPIC Manufacturing Ind./KASILAK Dev't. Foundation Inc.-resource person & planning on SWM implementation 	Sponsorship on SWM activities and IEC



<ul style="list-style-type: none"> Religious Organizations Youth for Christ Couple for Christ Diocesan Youth Asso. 	IEC and Advocacy
<ul style="list-style-type: none"> Schools DepEd City/Provincial Primary Secondary Tertiary 	Integration of SWM to school programs, IEC

The effective coordination with the above sectors is made possible through regular consultations and dialogues, trainings, meetings/assemblies and workshops.

9.2 Legal Requirements

In the LGU level, enforcement mechanism is strongly supported by the enacted ordinances relative to SWM program incorporating therein the violations and its corresponding penalties, which is to be implemented within the LGU and down to the barangay level.

In support to the program, the provincial government will also accelerate the enforcement of the local ordinances. With the Provincial Environment Code of Davao del Norte, in which the initiatives on SWM shall be consistent with existing national laws as stated in Article 9 Section 82, Waste Management Bodies in the LGU level will be equipped in devising approaches to waste management capability through provincial extension of technical assistance services.

The definition of penalties and/or sanctions for acts of violation of the provision of this code, as stated in Article 9 Section 88, is still subject for enactment of unified ordinances.

Table 45. Ordinances per LGU Plans to Enact, Davao del Norte

City/Municipality	Ordinances to Enact
Asuncion	<ul style="list-style-type: none"> Creation of SWM Section under MENRO, Composition, Duties, Functions, Powers and Responsibilities
BE Dujali	<ul style="list-style-type: none"> Creation of SWM Section under MENRO, Composition, Duties, Functions, Powers and Responsibilities
Carmen	<ul style="list-style-type: none"> Creation of SWM section under MENRO (composition, structure, power & function)
IgaCoS	<ul style="list-style-type: none"> Control of toxic substance and hazardous & nuclear wastes To require all land & sea transport vehicle to provide segregated garbage bins To require transport clearance (accreditation) to private vehicle conveying garbage for private operators Selective Purchasing To require disposal fee of private vehicle disposal residuals at city SLF and at Septage Treatment Facility for Private operators
Kapalong	<ul style="list-style-type: none"> Composition of IEC Team, Duties and functions IEC Plan (school curriculum, advertising campaigns, environmental projects and volunteer organizations) Funds/ Budget
New Corella	<ul style="list-style-type: none"> Creation of MENRO, composition, duties, functions, powers and responsibilities
Panabo City	<ul style="list-style-type: none"> Inclusion of proper waste segregation at source, use of appropriate waste receptacles and establishment of on-site MRFs, including



	<p>composting facilities in Environmental Management Plans (EMPs) of large-scale plantations;</p> <ul style="list-style-type: none"> • Development and implementation of SWM Action Plans of banana cooperatives and farmers' associations, which should include periodic monitoring of individual farms on compliance with ISWM Ordinance provisions; • Mandatory registration of recyclers of polybags within the city; • Establishment of own transport system in bringing segregated residual and special waste to disposal facility and THW vault, respectively; • Charging of tipping fees for disposal of residual and special waste to SLF and THW vault, respectively; • Prohibited acts, including open burning of agricultural waste and open dumping of agricultural waste without proper housekeeping, even for natural decomposition
San Isidro	<ul style="list-style-type: none"> • Creation of SWM Section under MENRO, Composition, Duties, Functions, Powers and Responsibilities
Sto. Tomas	<ul style="list-style-type: none"> • Mandatory creation of SWM section under MENRO (composition, structure, power & function) • Zoning and Building Codes • Penal Provisions of RA 9003
Tagum City	<ul style="list-style-type: none"> • Policies & guidelines on effective and proper handling, collection, transport, treatment, storage and disposal of health care wastes
Talaingod	<ul style="list-style-type: none"> • Creation of SWM Section under MENRO, Composition, Duties, Functions, Powers and Responsibilities



SOCIAL AND ENVIRONMENTAL ASPECTS

10.1 Social Aspects

The following are the impacts of community-based SWM, to wit;

Positive

- Improve public health sanitation and enhance healthy living
- Increase income to organic farmers and waste pickers/segregators
- Capacity built to SWM coordinators and implementors
- Increase local revenue collected from boosting markets of recyclables
- Resources/subsidy for other social services is made available

Negative

- Garbage collection failure when suddenbreakdown of equipment or unavailability of garbage trucks
- Vulnerability of waste pickers/segregators to illnesses and diseases
- Occurrence of malaria, dengue and other mosquito-related diseases developing from improper storage/embankment of recyclables

Aspects of social acceptability to proposed solid waste mangement system:

a. Collection

Customized solid waste management to the householdlevel, a simple way to cut the cost of man hours and collection routes. The trips saved can now be extended to unserved rural areas and industrial/commercial establishments.

b. Processing

Purok/Barangay-Operated Material Recovery Facility (MRF) is likely to intensifywhere Barangay Council will function as the buyer.

c. Disposal

A Sanitary Land Fill (SLF) with green buffer is proposed to accomodate the waste generated by 675, 526 population of the nine (9) component local government units (LGUs) and to minimize the expected hazards with the planting of several forest species as Narra, Lawaan, Mahogany and Neem within.

10.2 Environmental Aspects

- The proposed solid waste management system is functioned to counter the steady increase of volume of wastes and adverse impact to the fragile environment brought about by increasing level of economic activities and population growth in the urban and rural areas, the operative principles of the Environment Code of Davao del Norte, Article 9 section 83.
- It is also a program which is directly proportional to the Provincial Executive-Legislative Agenda (ELA), "adopting a science-based policy in agriculture, climate change adaptation and disaster risk reduction and management".
- At waste source, the SWM system is the most convenient and friendly practice of waste management that complies with the existing comprehensive air quality management policy and program, otherwise known as Philippine Clean Air Act, R. A. No. 8749.



- In the disposal site management, the mitigating potential of SWM to ground, surface and water pollution is identified and justified to be very beneficial, also stated in the feasibility study conducted on the establishment of Davao del Norte Inter-LGU Sanitary Land Fill (a project proposal of the Province of Davao del Norte).



COST ESTIMATES/FINANCIAL ASPECTS

11.1 Investment Cost

Table 46. Breakdown of Estimated Cost by Year for 5-Year per LGU, Davao del Norte

City/Municipality	Investment Cost				
	1st year	2nd year	3rd year	4th year	5th year
Asuncion	1,450,000.00	3,030,000.00	-	-	2,010,000.00
BE Dujali	50,000.00	52,000.00	10,000.00	62,000.00	2,010,000.00
Carmen	8,365,000.00	1,500,000.00	-	-	110,000.00
IGaCoS	-	-	8,745,000.00	4,815,000.00	6,105,000.00
Kapalong	1,125,000.00	74,000.00	-	350,500.00	127,500.00
New Corella	875,000.00	74,000.00	-	350,500.00	127,500.00
Panabo City	15,850,000.00	18,550,000.00	105,650,000.00	2,550,000.00	2,300,000.00
San Isidro	210,000.00	100,000.00	700,000.00	250,000.00	-
Sto. Tomas	-	2,400,000.00	600,000.00	-	5,000,000.00
Tagum	-	11,200,000.00	9,970,000.00	11,970,000.00	6,000,000.00
Talaingod	-	433,000.00	497,000.00	282,000.00	53,000.00

Table 47. 5-Year Projected Investment Cost for the Proposed Sanitary Land Fill Davao del Norte

SWM Implementation Activities	5-Year Projected Investment Cost				
	2015	2016	2017	2018	2019
Engineering Component					
<ul style="list-style-type: none"> ▪ Project Planning and Engineering Orientation/Training 	1 M				
<ul style="list-style-type: none"> ▪ Acquisition Of Additional 5-hectare Lot Area For SLF Expansion ▪ Planning and Engineering Studies ▪ Pre-Engineering 		1.2 M			
<ul style="list-style-type: none"> ▪ Construction of Sanitary Landfill ▪ Roads ▪ Buidlings ▪ Other land fill components ▪ Equipments 			5 M 2.5 M 4.3 M	6.6 M 12.8 M	8.6 M
<ul style="list-style-type: none"> ▪ Use of Sanitary Landfill as disposal facility; 					
SUB-TOTAL INVESTMENT	1 M		13 M	19.4 M	8.6 M
TOTAL INVESTMENT					42 M



The planned investment of the Province which shall address the engineering component of the solid waste management that encompasses disposal management.

The provincial government is planning and designing the project with a budgetary ceiling of Php 46 Million which will be appropriated for the following item of expenditures:

Table 48. Budgetary Ceiling of the Proposed Sanitary Land Fill

ITEM OF EXPENDITURES		COST
DIRECT COST		
1. Road & drainage	Main and access road	4,000,000.00
	Drainage System	1,000,000.00
2. Buildings	Material Recovery Facility	4,000,000.00
	Administrative Building	2,500,000.00
	Guard Houses	100,000.00
	Multi-purpose Building	2,500,000.00
3. Equipments		8,650,000.00
4. Others	Disposal Cells	8,000,000.00
	Leachate Treatment Facility	4,800,000.00
	Perimeter Fence	1,500,000.00
	Electrical Supply	1,500,000.00
	Water Supply	1,000,000.00
	Communication System	300,000.00
Total Direct Cost		39,850,00.00
INDIRECT COST		
1. Planning and Engineering Studies		1,000,000.00
2. Operation and Maintenance		1,350,000.00
3. Pre-Engineering		1,236,000.00
4. Supervision		1,236,000.00
5. Contingencies		1,208,000.00
6. Delivery Cost/POL		20,000.00
7. Monitoring		50,000.00
8. Quality Control		50,000.00
Total Indirect Cost		6,150,000.00
TOTAL PROJECT COST		46,000,000.00



11.2 Annual Cost

Table 49. Breakdown of Annual Costs by Year for 5-Year per LGU, Davao del Norte

City/Municipality	Annual Costs (PS & MOOE)				
	1st year	2nd year	3rd year	4th year	5th year
Asuncion	2,633,729.79	3,546,359.77	3,603,747.17	3,725,214.11	3,835,214.11
BE Dujali	615,400.00	741,550.00	713,010.00	731,479.50	754,542.38
Carmen	1,490,178.00	2,645,342.90	2,645,300.73	2,891,249.59	2,757,456.95
IGaCoS	-	-	4,926,803.70	5,438,000.00	5,685,000.00
Kapalong	3,281,118.00	3,670,269.95	4,218,710.18	4,397,814.24	4,312,405.43
New Corella	3,281,118.00	3,670,269.95	4,218,710.18	4,397,814.25	4,312,405.43
Panabo City	17,100,000.00	17,600,000.00	19,600,000.00	21,600,000.00	21,600,000.00
San Isidro	268,200.00	421,000.00	546,000.00	550,000.00	550,000.00
Sto. Tomas	4,247,304.00	4,331,384.00	4,527,368.00	4,517,368.00	4,522,368.00
Tagum	25,260,556.00	27,123,420.00	29,240,490.74	31,375,609.99	33,668,728.05
Talaingod	2,529,675.00	1,589,453.00	1,622,075.50	1,737,291.00	1,682,075.50



Table 50. reflected the expenses to be incurred for the operation of the project estimated at P29.8 million. Annual Operations and Maintenance Costs are assumed at 3% of the project cost. Facility management will be handled by the office of Provincial Environment and Natural Resources-Local Government Unit (PENRO-LGU).

Table 50. Annual Cost , 2015-2025, Provincial Government of Davao del Norte

Cost Items	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
• Annual O&M Costs	0	1,444,500	1,545,615	1,653,808	1,769,575	1,893,445	2,025,986	2,167,805	2,319,551	2,481,920	2,655,654
• Personal Services: Salaries and Wages for Sanitary Landfill operation and maintenance (10 personnel)	0	986,230.80	986,230.80	986,230.80	986,230.80	986,230.80	986,230.80	986,230.80	986,230.80	986,230.80	986,230.80
TOTAL	0	2,430,731	2,531,846	2,640,039	2,755,806	2,879,676	3,012,217	3,154,036	3,305,782	3,468,151	3,641,885



Table 51. reflected the financial aspect of the Ecological Solid Waste Management Program of the province. The provincial project title is under the framework of the Provincial Environment and Natural Resources Office -Local Government Unit (PENRO-LGU).

Table 51. 5-Year ESWM Program Appropriation of the Provincial Government of Davao del Norte, 2015-2019 (20% LDF)

Cost Items	2015	2016	2017	2018	2019
• Training Expenses (753)	60,000	70,000	70,000	70,000	70,000
• Other Supplies Expenses (765)	20,000	20,000	20,000	20,000	20,000
• Printing and Binding Expenses (781)	68,000	68,000	68,000	68,000	68,000
• Representation Expenses (783)	115,000	115,000	115,000	115,000	115,000
• Other Maintenance and operating Expenses (969)	20,000				
• Taxes, Duties and License (891)	10,000	10,000	10,000	10,000	10,000
• Env'l. Sanitary Services (794)	280,000	300,000	300,000	300,000	300,000
TOTAL	573,000	583,000	583,000	583,000	583,000

Source: Logical Framework of PENRO-ESWM Program, 2015 to 2016



11.3 Funding Options

The SWM Program as one of the prioritized programs, projects and activities of the Provincial Government of Davao del Norte, is also a component of the Provincial Development Physical Framework Plan (PDPFP). In order to sustain the program, an appropriation is included in the annual budget of the PENRO-LGU sourced out from the 20% Development Fund. This will be for capability enhancement training, disposal monitoring and evaluation, information drives and advocacy campaigns of the provincial government.

The province will explore other sources that provides for environmental management projects like the 5% Local DRRM Calamity Fund, People's Survival Fund of the National Climate Change Commission and grants from donor agencies and other financing institutions, Congressional Development Fund, and Priority Development Assistant Fund that may be used for the development of proposed sanitary landfill.



PLAN STRATEGY/IMPLEMENTATION

12.1 Phases and Responsibilities

The PENRO-LGU is the performing office of Ecological Solid Waste Management (ESWM) Program of the provincial government, in which program design summary involves the 10-Year Provincial Solid Waste Management Plan formulation, capability enhancement on Solid Waste Management, strengthening of information drive and advocacy campaign, waste reduction at source, Monitoring and Evaluation on permitted disposal facility, and finally the establishment of Sanitary Land Fill (SLF).

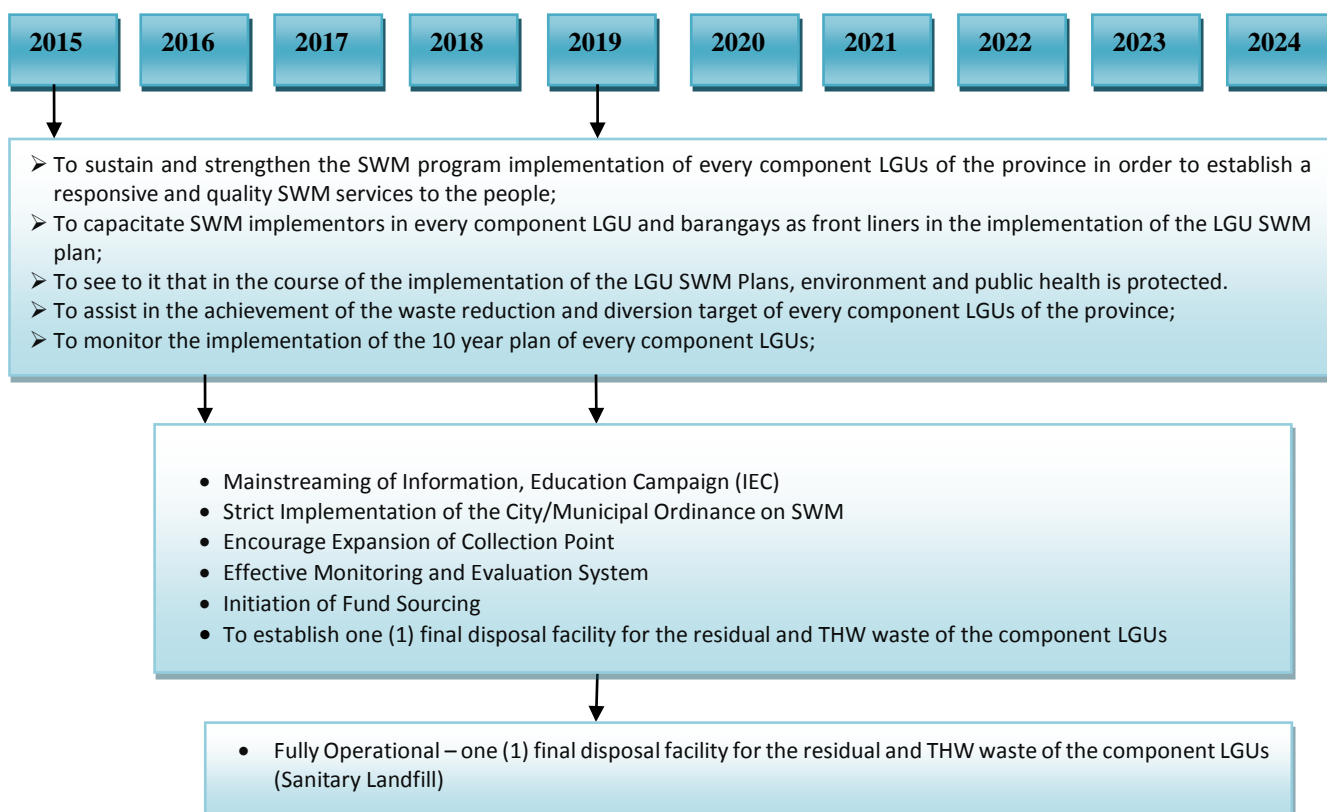
The role of the Provincial Solid Waste Management Board (PSWMB) is in accordance with IRR of RA 9003 Rule VI Section 2. Meanwhile, the drafting and formulation of the 10-year plan is tasked to the PSWMB Technical Working Group (TWG) which PENRO-LGU functioned as the secretariat.

As for the implementation of PPAs cited in the 10-year plan, MENROs and Barangay SWM Committee of the component LGUs will have the most advanced position.

12.2 Milestones

The provincial milestone in implementation of the solid waste management system;

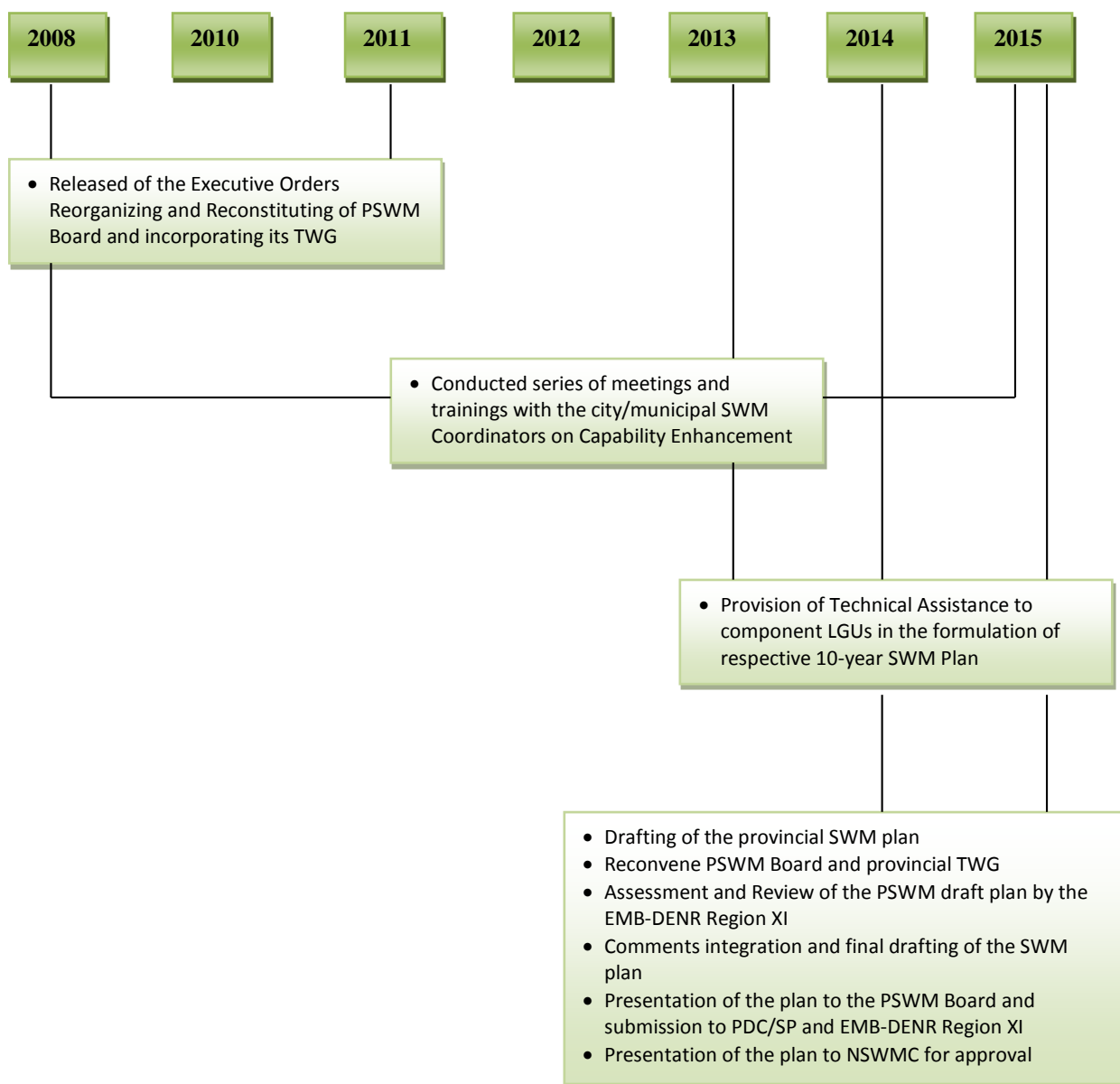
Figure 15. Provincial Milestone of SWM





The provincial milestone in implementation of the institutional/legal aspects of the plan;

Figure 16. Implementation of Plan Institutional/Legal Aspects





12.3 Implementation Schedule

Table 52. Implementation Activities of Davao del Norte

SWM Implementation Activities	2015-2024									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Education Component										
▪ Enhancement and strengthening of Solid Waste Action Team of the Province	X	X	X	X						
▪ Mobilizing Barangay Solid Waste Management Council of LGUs in IEC Activities	X	X	X	X						
• Formulating unified IEC (format and content) for the entire province	X	X								
▪ Mainstreaming IEC to PPAs of the Provincial Government, schools and other learning institution	X	X	X	X	X	X	X	X	X	X
▪ Printing/reproduction of fliers distributed to all component LGUs	X	X	X	X	X	X	X	X	X	X
Engineering Component										
▪ Project Planning and Engineering Orientation/Training	X	X	X							
Acquisition of lot area for SLF										
▪ Planning & engineering studies;	X	X	X							
▪ Engineering phase for SLF Establishment;			X	X	X	X				
▪ Use of Sanitary Landfill as disposal facility;						X	X	X	X	X
Enforcement and Incentive System										
▪ Conducting "Basura Summit for BSWMC and 223 Barangay Functionaries"			X	X						
▪ Conducting Enforcers Training for SWM Enforcers of every component LGUs			X	X	X	X	X	X	X	X
▪ Recognition and awarding to recognize the sustained efforts,			X	X	X	X	X	X	X	X



SWM Implementation Activities	2015-2024									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
creativity and innovations of LGUs and stakeholders										
▪ Promotion of good practices outside the province	X	X	X	X	X	X	X	X	X	X
Financing Component										
▪ Appropriation in the annual budget of PENRO-LGU from the 20% Provincial Development Fund	X	X	X	X	X	X	X	X	X	X
▪ Exploration and out sourcing of funds from 5% LDRRMF, PS Fund of NCC Commission and grants from donor agencies and other financing institutions		X	X	X	X					



ANNEXES



REPUBLIC OF THE PHILIPPINES
PROVINCE OF DAVAO DEL NORTE

OFFICE OF THE PROVINCIAL GOVERNOR

Telefax No. (084) 400-2678
Tel. No. (084) 217-3199

GOVERNMENT CENTER, MANKILAM, TAGUM CITY 8100.
EMAIL: davaonorte@yahoo.com • www.davaonorte.gov.ph



RODOLFO P. DEL ROSARIO
Governor

EXECUTIVE ORDER NO. 19 Series of 2015

AN ORDER RECONSTITUTING THE PROVINCIAL SOLID WASTE MANAGEMENT BOARD OF DAVAO DEL NORTE AND INCORPORATING THEREIN ITS TECHNICAL WORKING GROUP

WHEREAS, pursuant to the provisions of Section 11 of Republic Act No. 9003, also known as the Ecological Solid Waste Management Act of the Philippines, a Provincial Solid Waste Management Board (PSWMB) was created in 2005 and reconstituted in 2008 and 2011;

WHEREAS, solid waste is the third biggest contributor of greenhouse gas in the atmosphere. Thus, pursuant to Republic Act No. 9729 or otherwise known as the "Climate Change Act of 2009" and in support of the vision of the Province of Davao del Norte in having a climate change-adaptive communities, the measures on climate change mitigation and adaptation be integrated in solid waste planning and management and articulated as an integral function of the PSWMB;

WHEREAS, under, Section 16 of Republic Act No. 7160, or otherwise known as the "Local Government Code of 1991" it is provided that, within their respective territorial jurisdictions, local government units shall ensure and support, among other things, the preservation and enrichment of culture, promote health and safety, enhance the right of the people to a balanced ecology, encourage and support the development of appropriate and self-reliant scientific and technological capabilities, improve public morals, enhance economic prosperity and social justice, promote full employment among their residents, maintain peace and order, and preserve the comfort and convenience of their inhabitants;

WHEREAS, Section 17, par.b (3) (iii), of the same Code and pursuant to national policies subject to supervision, control and review of the DENR, the province has the duty for the enforcement of forestry laws limited to community-based forestry projects, pollution control laws; and mini-hydroelectric projects for local purposes;

WHEREAS, some of the members of the PSWM Board and its Technical Working Group (TWG) constituted in 2011 have already been transferred to another office and others have retired from public service;

WHEREAS, to assist the board in its functions, the TWG of the Provincial Solid Waste Management Board was also incorporated in 2008 and reorganized in 2011;

WHEREAS, the TWG shall also be amended for the same reason and shall be incorporated in this order;

NOW, THEREFORE, I, RODOLFO P. DEL ROSARIO, Governor, Province of Davao del Norte, by virtue of powers vested in me by law, do hereby order the reconstitution of the Provincial Solid Waste Management Board of Davao del Norte and incorporating herein the new composition of the Technical Working Group.

Section 1. *Composition of the Provincial Solid Waste Management Board (PSWMB) of Davao del Norte.* Pursuant to RA 9003, The Provincial Solid Waste Management Board of Davao del Norte shall be composed of the following:

Chairman: HON. RODOLFO P. DEL ROSARIO
Governor
Davao del Norte

Members: HON. ANTONIO RAFAEL G. DEL ROSARIO
Congressman
District 1, Davao del Norte

INTEGRITY • COMPETENCE • COMMITMENT

1



HON. ANTONIO F. LAGDAMEO

Congressman
District 2, Davao del Norte

HON. HERNANIE L. DUCO

Chairman, Committee on Natural Resources and Environment Protection
Sangguniang Panlalawigan

HON. ALLAN L. RELLON

Mayor
Tagum City

HON. JOSEPH NILO F. PARREÑAS

Mayor
Municipality of Asuncion

HON. EDGARDO L. TIMBOL

Mayor
Municipality of Kapalong

HON. BASILIO A. LIBAYAO

Mayor
Municipality of Talaingod

HON. NESTOR L. ALCORAN

Mayor
Municipality of New Corella

HON. MARCELINO A. PERANDOS

Mayor
Municipality of Carmen

HON. JAMES G. GAMAO

Mayor
Panabo City

HON. LOLITA A. MORAL

Mayor
Municipality of B.E.Dujali

HON. BENIGNO R. ANDAMON

Mayor
Municipality of Sto. Tomas

HON. ANIANO P. ANTALAN

Mayor
Island Garden City of Samal

FOR. ORLY T. CARIAZO

Provincial Environment and Natural Resources Officer
PENRO-DENR, XI-2

MS. JUDY DONNA DE ASIS

Provincial Director
Department of Science and Technology

MR. ROMEO L. CASTAÑAGA

Officer-In-Charge/Provincial Director
Department of Trade and Industry

MS. JOSIE JEAN R. RABANOZ, CE, MPA

Provincial Planning and Development Officer
Davao del Norte



MR. AGAPITO B. HORNIDO, MD, MHA
Provincial Health Officer
Davao del Norte

MR. RAUL G. MABANGLO, CE
Provincial Engineer
Davao del Norte

MR. ROMULO D. TAGALO, MM, MPP
Officer-In-Charge/Assistant Provincial Environment and Natural Resources Officer
Davao del Norte

MS. JUDEZA A. PINGOY, MSLRG
Provincial Coordinator, Gender and Development
Davao del Norte

MS. PROVIDENCIA P. NUÑEZ
President
Davao del Norte Council of Women

MR. HAROLD T. VILLANUEVA
Proprietor
HPIC Manufacturing Industries

MR. JOEMIL S. MONTEBON
Executive Director
KASILAK Development Foundation Inc.

Each member of the board may assign a permanent alternate to be designated by their principals, who shall have full powers and authority to vote in Board meetings in the absence of the principal.

The Provincial Solid Waste Management Board may from time to time call on any other concerned agency or sector and create committee as it may deem necessary.

Section 2. Functions. Pursuant to RA 9003, the Provincial Solid Waste Management Board shall have the following functions and responsibilities:

2.1. Develop a gendered and climate change-adaptive provincial solid waste management plan from the submitted solid waste management plans of the respective city and municipal solid waste management boards. It shall review and integrate the submitted plans of all its component cities and municipalities and ensure that the various plans complement each other, and have the requisite components. The Provincial Solid Waste Management Plan shall be submitted to the National Solid Waste Management Commission for approval.

The Provincial Plans shall reflect the general program of action and initiatives of the provincial government and implementing a solid waste management program that would support the various initiatives of its component cities and municipalities.

2.2 Allow for the clustering of LGUs for the solution of common solid waste management problems and spearhead planning and implementation of solid waste disposal technologies that supports climate change mitigation and adaptation such as sanitary landfills and waste-to-energy facilities.

2.3 Provide the necessary logistical and operational support to its component cities and municipalities in consonance with subsection (f) of Sec.17 of the Local Government Code;

2.4 Recommend measures and safeguard against pollution and for the preservation of the natural ecosystem;

2.5 Recommend measures to generate resources, funding and implementation of project and activities as specified in the duly approved solid waste management plans;



2.6 Identify areas within its jurisdiction which have common solid waste management problems and are appropriate units for planning local solid waste management services;

2.7 Coordinate the efforts of the component cities and municipalities in the implementation of the Provincial Solid Waste Management Plan;

2.8 Develop an appropriate incentive scheme as an integral component of the Provincial Solid Waste Management Plan;

2.9 Convene meetings at least once in every quarter for the purposes of monitoring and evaluating the developments and accomplishments of provincial solid waste management based on the plan implementation targets;

2.10 Convene joint meetings of the provincial, city and municipal solid waste management boards at least once in every quarter for purposes of integrating, synchronizing, monitoring and evaluating the development and implementation of its provincial solid waste management plan;

2.11 Represent any of its component city or municipality in coordinating its resource and operational requirements with agencies of the national government;

2.12 Oversee the implementation of the Provincial Solid Waste Management Plan;

2.13 Review every two (2) years or as the need arises the Provincial Solid Waste Management Plan for purposes of ensuring its sustainability, viability, effectiveness and relevance in relation to local and international development in the field of solid waste management.

Section 3. Composition of the PSWMB Technical Working Group. The PSWMB Technical Working Group shall be composed of the following

Team Leader : **MR. ROMULO D. TAGALO, MM, MPP**
Officer-In-Charge/Assistant Provincial Environment and Natural Resources Officer
Provincial Environment and Natural Resources Office

Members : **MS. JIVELLYN B. CO, CE, MPA**
Assistant Provincial Engineer
Provincial Engineer's Office

MR. NELSON F. PLATA
Provincial Planning and Development Officer IV
Provincial Planning and Development Office

MR. EDUARDO L. MALICAY
Supervising Environmental Management Specialist
Provincial Environment and Natural Resources Office

MR. FRANCIS G. LINOGAO, CE
Engineer IV
Provincial General Services Office

FOR. REIL G. DELOSA
Environmental Management Specialist II
Provincial Environment and Natural Resources Office

MR. JOSE ALVIC P. SUAYBAGUIO, CE, MPA
Sanitary Engineer III
Provincial Health Office

MR. TRICHEL L. DELUSO
Agriculturist I
Provincial Agriculturist's Office



MS. PRINCESS LYN I. NABONG
Community Development Assistant I
Provincial Environment and Natural Resources Office

MS. ANALIA G. PLAYDA
Community Development Assistant I
Provincial Environment and Natural Resources Office

FOR. RO-ANN V. GRANCHO
Community Development Assistant I
Provincial Environment and Natural Resources Office

MS. HELEN E. BERMUDEZ
Community Development Assistant I
Provincial Environment and Natural Resources Office

Section 4. Functions of the PSWMB-TWG. The Technical Working Group shall provide technical assistance to the Provincial Solid Waste Management Board and shall have the following functions:

- 4.1 Facilitate and draft the provincial solid waste management plan;
- 4.2 Collect, generate and process data for the completion of the plan;
- 4.3 Identify and recommend policies, projects and activities in line with the approved provincial solid waste management plan for adoption by the PSWMB;
- 4.4 Provide technical and logistical assistance and training support to component cities and municipalities in planning, implementation, monitoring and evaluation of solid waste management programs and projects;
- 4.5 Prepare annual work and financial plans and other required planning documents for the SWM program and;
- 4.6 Prepare and submit monthly, quarterly, and annual accomplishment report to the PSWMB.


Section 5. The Provincial Environment and Natural Resources Office shall provide administrative support as the Secretariat and the project management arm of the PSWMB.

Section 6. Funding. In order to sustain the program, an appropriation shall be included in the annual budget of the Provincial Environment and Natural Resources Office of the Provincial Government (PENRO-LGU).

Section 7. Repealing Clause. All issuances, orders and memoranda issued inconsistent herewith are hereby repealed accordingly.

Section 8. Effectivity. This executive order shall take effect immediately.

DONE this 11th day of November 2015 at Provincial Governor's Office, Provincial Capitol, Government Center, Mankilam, Tagum City, Davao del Norte, Philippines.


RODOLFO E. DEL ROSARIO
Governor



Telephone Number (084) 400-4332

Excerpts from the Minutes of the Provincial Solid Waste Management Board (PSWMB) Meeting held on February 11, 2016 at the Provincial Training Center (GSP Building) Government Center, Mankilam, Tagum City, Davao del Norte

Attendance:

Present:

- | | |
|---------------------------------------|--|
| 1. HON. RODOLFO P. DEL ROSARIO | Governor, PSWMB Chairperson, Presiding Officer |
| 2. HON. ANTONIO RAFAEL G. DEL ROSARIO | Congressman, District 1 |
| 3. MS. JUDY DONNA DA NUEVA ECIJA | Provincial Director, DOST |
| 4. ENGR. JOSIE JEAN R. RABANOZ | PGDH, PPDO |
| 5. MR. ROMULO D. TAGALO | Asst. PGDH, PENRO |
| 6. MS. JUDEZA PINGOY | GAD Coordinator |
| 7. MS. PROVIDENCIA P. NUÑEZ | President, DDN Council of Women |
| 8. MR. JOEMIL S. MONTEBON | Exec. Director, KASILAK Dev't. Foundation Inc. |

Representatives:

- | | |
|-------------------------------|--|
| 1. MR. DEMOCRITO TUGADO JR. | SP, Davao del Norte |
| 2. MR. RENE B. VICENTE | City Government of Tagum |
| 3. MR. MANUEL PUYONG | Municipal Government of Asuncion |
| 4. MR. LADALIO V. DORONIO JR. | Municipal Government of Kapalong |
| 5. MR. PEPITO DALUPE | Municipal Government of Carmen |
| 6. ENGR. FELIX SENAJON | City Government of Panabo |
| 7. MR. EDGAR L. TALADHAY | Municipal Government of BE Dujali |
| 8. MR. ALLAN DELIDELI | Municipal Government of San Isidro |
| 9. ENGR. TERESITA ESPERANZA | City Government of IGACOS |
| 10. FOR. JOSE SALVADOR | PENRO-DENR, XI-2 |
| 11. MS. ZERLINE T. BALLEQUE | Provincial Office, Dept. of Trade and Industry |
| 12. MR. CANDELARIO F. SUICO | HPIC Manufacturing Industry, Panabo City |
| 13. MS. MARIFE B. TAMPADONG | Provincial Health Office |

On Official Business:

- | | |
|-----------------------------|--|
| 1. HON. ANTONIO F. LAGDAMEO | Congressman, District 2 |
| 2. HON. BASILIO A. LIBAYAO | Mun. Mayor, Talaingod, Davao del Norte |
| 3. HON. NESTOR L. ALCORAN | Mun. Mayor, New Corella, Davao del Norte |
| 4. HON. BENIGNO R. ANDAMON | Mun. Mayor, Sto Tomas, Davao del Norte |
| 5. DR. AGAPITO B. HORNIDO | PGDH, Provincial Health Office |
| 6. ENGR. RAUL MABANGLO | PGDH, Provincial Engineer's Office |

Technical Working Group (TWG):

- | | |
|-------------------------------|---|
| 1. ENGR. JIVELYN B. CO | Provincial Engineer's Office |
| 2. MR. NELSON PLATA | Provincial Planning & Dev't. Office |
| 3. MR. EDUARDO L. MALICAY | Provincial Environment & Natural Resources Office |
| 4. ENGR. FRANCIS G. LINOGAO | Provincial General Services Office |
| 5. FOR. REIL G. DELOSA | Provincial Environment & Natural Resources Office |
| 6. ENGR. TRICHEL L. DELFUSO | Provincial Agriculture Office |
| 7. MS. PRINCESS LYN I. NABONG | Provincial Environment & Natural Resources Office |
| 8. MS. ANALIA G. PLAYDA | Provincial Environment & Natural Resources Office |
| 9. MS. RO-ANN V. GRANCHO | Provincial Environment & Natural Resources Office |
| 10. MS. HELEN BERMUDEZ | Provincial Environment & Natural Resources Office |



RESOLUTION NO. 1 SERIES OF 2016

"A RESOLUTION ENDORSING THE 10-YEAR PROVINCIAL SOLID WASTE MANAGEMENT 2015-2024 PLAN TO THE PROVINCIAL DEVELOPMENT COUNCIL"

WHEREAS, pursuant to the provisions of Section 11 of Republic Act No. 9003, also known as the Ecological Solid Waste Management Act of the Philippines, a Provincial Solid Waste Management Plan that reflects the general program of action and initiatives of the provincial government in implementing a solid waste management program that would support the various initiatives of its component cities and municipalities shall be developed by the Provincial Solid Waste Management Board (PSWMB) and submitted to the National Solid Waste Management Commission for approval;

WHEREAS, solid waste is the third biggest contributor of greenhouse gas in the atmosphere. Thus, pursuant to Republic Act No. 9729 or otherwise known as the "Climate Change Act of 2009" and in support of the vision of the Province of Davao del Norte in having a climate change-adaptive communities, the measures on climate change mitigation and adaptation be integrated in solid waste planning and management and articulated as an integral function of the PSWMB;

WHEREAS, under, Section 16 of Republic Act No. 7160, or otherwise known as the "Local Government Code of 1991" it is provided that, within their respective territorial jurisdictions, local government units shall ensure and support, among other things, the preservation and enrichment of culture, promote health and safety, enhance the right of the people to a balanced ecology, encourage and support the development of appropriate and self-reliant scientific and technological capabilities, improve public morals, enhance economic prosperity and social justice, promote full employment among their residents, maintain peace and order, and preserve the comfort and convenience of their inhabitants;

WHEREAS, Section 17, par.b (3) (iii), of the same Code pursuant to national policies and subject to supervision, control and review of the DENR, the province has the duty for the enforcement of forestry laws limited to community-based forestry projects, pollution control laws; and mini-hydroelectric projects for local purposes;

WHEREAS, the members of the PSWMB Board, after thorough deliberation, finds the 10-Year Provincial SWM 2016-2025 Plan in consistent with the national solid waste management framework and that the waste management plan for the re-use, recycling and composting is proficient, valid and appropriate;

WHEREFORE, on motion of Hon. Antonio Rafael G. del Rosario and duly seconded by Engr. Josie Jean R. Rabanoz, it was

RESOLVED, as it is hereby being resolved, to endorse the 10-Year Provincial SWM 2015-2024 Plan to the Provincial Development Council;




RESOLVED FINALLY, that a copy of this resolution shall be forwarded to the Provincial Development Council for consideration.


CARRIED AND APPROVED.

I hereby certify to the correctness of the above-quoted resolution.

Prepared by:


ROMULO D. TAGALO
PG Assist. Department Head
OIC-PENRO

Approved:


RODOLFO P. DEL ROSARIO
Governor
PSWMB Chairperson