

Chapter 3

3.0 Key Consideration in Preparing the ISWM Plan (Situational Analysis)

3.1. Location and Service Area

The municipality of Jagna is located in the eastern part of the province of Bohol. It is approximately 63 kilometers away from Tagbilaran City – the capital city of the province. Travel time by bus from Tagbilaran City, averages one-and-a-half hour. The municipality is a coastal town, highly accessible by land and sea transportation. Accessibility to other places in the province is made easier through the coastal and inland highways that connect Jagna to other municipalities in the province.

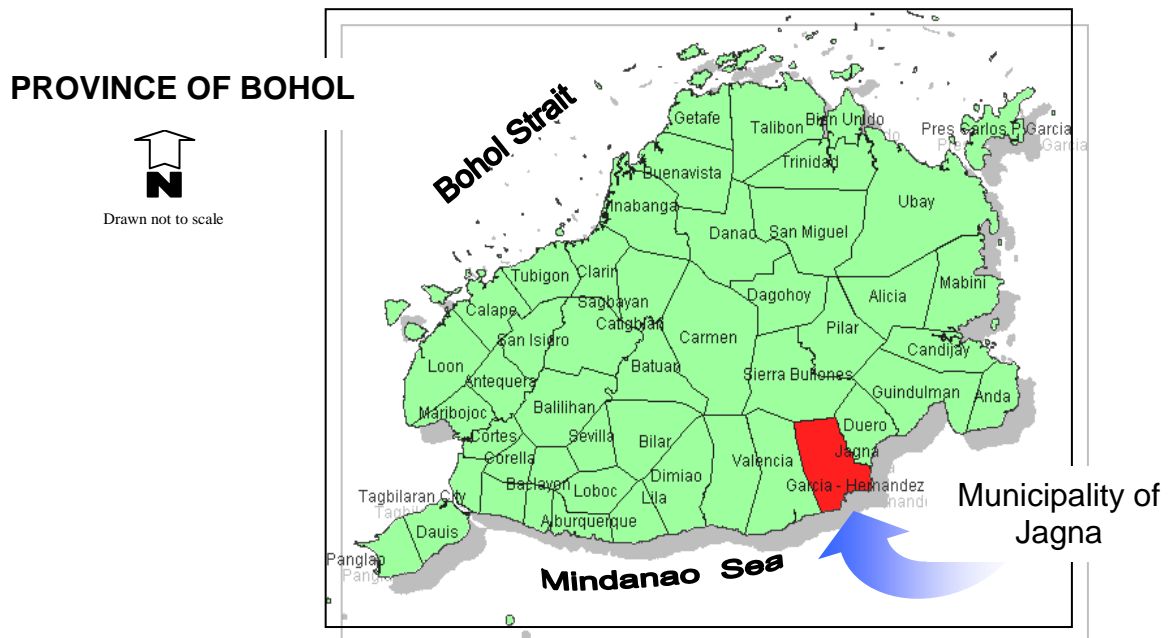


Figure 3.a: Locational Map of Jagna, Bohol

Figure 3.a, shows Jagna’s geographic location with respect to the rest of the 46 municipalities and 1 city, comprising the province of Bohol.

Jagna shares its political boundaries with the following municipalities: on the northwestern side with Sierra-Bullones, on it’s western side with Garcia-Hernandez and on the eastern side with Duero. The Mindanao Sea bounded the municipality on its southern portion.

With its port facilities, Jagna has become a strategic point of sea transport – as it straddles a major Visayas-Mindanao sealane. The Cebu-Jagna sea route would take 5 hours, whereas Jagna to either Cagayan de Oro City or Butuan City would take approximately 3 hours.

Conceived as the growth center of the eastern part of Bohol, it is a port-municipality paving way to the influx of potential business ventures from within and

outside the island. Because of this, the municipality gains the upperhand of access to major business trading with products coming in and out from the agriculture rich island of Mindanao. Moreover, the municipality has been renowned to be the central business borough in the eastern part of Bohol. It caters commerce within its adjacent municipalities, bringing in more goods from both land and marine products. Service area could reach up to 9 regular municipalities from both eastern and central part of the province. Though, some of its traders could bring their wares even up to the capital city of the province, spanning their coverage of business. With this scenario and the opportunity of being at the center of the cluster of municipalities, Jagna has now gained the reputation of being the business capital in the east.

3.2. Topographic and Geologic Features

The municipality is predominantly comprised of steep hills and mountains. The coastal areas are normally flat, but less than a kilometer away from the shoreline, the slope changes from gently sloping to steep hills and mountains. 14.13% of the total land area is classified as level or nearly level. 28.62 % on the other hand, is gently sloping to moderately sloping. While the rest of the area comprising the remainder of 57.25% is classified as hills to steep mountains. Based on the slope classification, those areas identified as moderately sloping to mountains are classified as public or forestland areas. And for those level or gently sloping areas, they are classified as Alienable and Disposable lands. Forestlands using this classification will cover 59.42% of the total land area of the municipality.

SLOPES (%)	DESCRIPTION	AREAS (Has.)	% Total
0 – 3	Level to nearly level	1,704.664	17.25
3 – 8	Gently sloping to undulating		
8 – 18	Moderately sloping to rolling	3,452.04	28.62
18 – 30	Rolling to hills	2,076.256	17.18
30 – 50	Steep hills and mountains	2,821.956	23.39
50 – above	Very steep hills and mountains	2,011.884	16.68
TOTAL		12,063.00	100.00

Table No. 3.a: Slope Category

Based on the slope classification, those areas having slopes of 18% and above area classified as public or forestland. Those areas with slope of below 18% are classified as Alienable and Disposable (A&D) lands. Forestlands using this classification will cover 59.42% of the total land area of the municipality.

Areas with slope of 50% and above will be categorized as protection forest. Protection forest would then cover 17% of the total land area. For the LGU to look for site for a Sanitary Landfill (SLF), it has an area of almost 5,000 hectares with slopes ranging from 18 – 50 %. Table 3.a shows the distribution of sloping category while Annex 3.a and Annex 3.b are the contour and river network map of Jagna, respectively.

Soil composition in the area is of two (2) types, namely, Calape Clay Loam and Annam Clay as indicated in Table 3.b below. Calape clay loam comprises 5.71% and

occupies most of the urban area, while Annam clay covering 94.29% of the total land area.

SOIL TYPE	AREA (sq. m.)	% TOTAL
Calape Clay Loam	689.38	5.71
Annam Clay	11,373.62	94.29
Total	12,063.00	100.00

Table No. 3.b: Soil Categories

The surface soil of the Calape clay loam is colored brown to brownish gray, cloddy and friable. The soil cracks easily on drying, sticky when wet and hard when dry. Its substratum is a mixture of red – coated gravel and sand, the sand predominating. Due to the sandy nature of the lower horizons, it loses water easily. This feature of the type of soil, which constitutes about 6% of the entire soil categories, is found not appropriate for the establishment of an SLF. Because of its high permeability characteristics, leachate can easily penetrate underground and the probability of contaminating the underground water is very high. The areas covered by this type of soil are the following barangays: Pangdan, Tejero, Pagina, Looc, Canupao, Poblacion and Bunga Mar.

Annam clay represents one of the soils of the Philippines. It is characterized by brown reddish brown to brick red clay surface soil. It is granular and friable when dry and sticky and plastic when wet. The soil easily dries up. This feature could however compensate for the area suitable for the disposal facility, SLF. Because of its characteristics of holding water when wet, it compliments to the condition required for the establishment of this facility. Lesser engineering designs shall then be required in lieu with the natural presence of clay which can hold water for a period of time. Hence potential area for a SLF is about 95% high of the total LGU land area. However, because of the variability of its slopes, this percentage could go mean, to the average practical and potential area for the said facility.

Generally, these geologic features of the municipality pose no restriction in the establishment of a sanitary landfill. This is so evident when a portion of one of its barangays has been assessed and found suitable for such facility as declared and approved by the Mines and Geosciences Bureau (MGB) – Regional Office in Central Visayas.

3.3. Accessibility

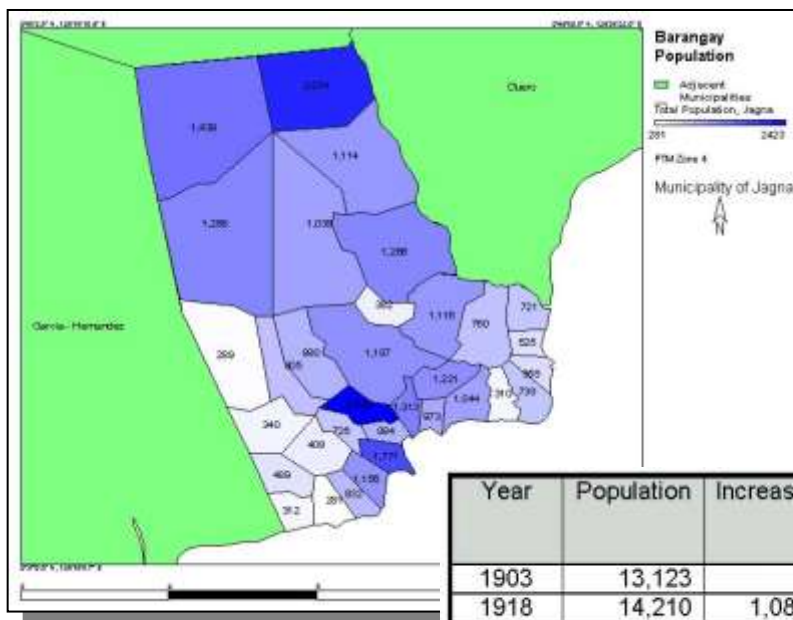
Jagna has an access road network towards its neighboring towns in Bohol. There are two National Roads that serves the municipality to the coastal and interior part of the province. Provincial, Municipal and barangay roads that link all the places in the town are already established but it is not properly maintained. Annex 3.c is a map of the municipality showing road network from and to: national, provincial, municipal, and barangay roads, connecting its barangays and leading to adjacent municipalities.

In the clustering of towns in Bohol, based on the clustering agreed by the PISWM – TWG the following towns are clustered into one namely: Garcia – Hernandez, Jagna, Duero, Guindulman, Anda, & Candijay. All these towns are

accessible via a national road which transect from one municipality to the other. Likewise these towns are strategically adjacent to each other and are all located in the eastern part of Tagbilaran City. Jagna is located 63 kilometers from Tagbilaran City were most of the recovered goods from our local junk buyers are shifted. Some are transported directly to Mindanao for processing specifically scrap irons.

There are transportation facilities that served all the barangays in Jagna especially in their neighboring towns. In the likes area tricycles, motorolas, multicabs and even jeepneys. These made access for local trading and transport of other goods and produced from the agricultural market.

3.4. Socio Demographic Features



Population of Jagna enumerated in various censuses: 1984 – 2000 have shown a consistent rise in the municipality's population. Generally, this municipality ranks 9th as the mostly populated town in the province, behind Tagbilaran City, Ubay,

Figure 3.b. Population per Barangay (NSO 2000) (Annex 3.I)

Table 3.c. Historic Population Growth

Year	Population	Increase	Ave Growth Rate ¹	Ave Growth Rate ²
1903	13,123			
1918	14,210	1,087	0.53%	0.53%
1939	15,371	1,161	0.37%	0.37%
1948	16,239	868	0.61%	0.61%
1960	16,732	493	0.25%	0.25%
1970	19,618	2,886	1.60%	1.59%
1975	21,895	2,277	2.22%	2.20%
1980	23,494	1,599	1.42%	1.41%
1990	26,163	2,669	1.08	1.08%
1995	29,354	3,191	2.33	2.30%
2000	30,643	1,289	2.54	2.51%

Talibon, Loon, Inabanga, Caremen, Tubigon and Guindulman constituting about 2.7% of the entire provincial populace.

As of latest head – count (2000 census) Jagna has a total population of 30,643, 35.20% of or 10,785 and 64.80% or 19,858 are the population in urban and rural barangays respectively. Figure 3.b (see annex 3.I for blown-up map) shows how they are distributed per barangay. Based on the same NSO Census, the municipality shows an annual population growth rate of 2.49%. By 2012, it is expected that population would go as high as 39,863. Table 3.c, is the table showing historical population growth since 1903 to 2000. Its population density (2000) is 2.54 persons per hectare

which is projected to grow by as much as 2.77 in the year 2010. The barangays having the highest and lowest population densities are barangays Poblacion with 68.8% and Balili with 1.25%. Household's population in 2000 was 5,957 with an average household size of 5.13.

The projected population of Jagna for the next 10 years is 39,863 (based on NSO data). Annex 3.d, shows a table of the distribution of municipality's current and projected population in the next 10 years per barangay.

3.5. Other Socio-Demographic Data.

Based on the Bohol Poverty Framework, there are four (4) indicators for the levels of deprivation. These are Health (% of malnourished children), Water Quality (% of Population with doubtful non-potable water sources), Sanitation (% of Households with unsanitary toilets) and Education (% of school drop-outs). Table 3.d, shows the ranking of barangays for each of the poverty indicators. The first barangay represents the most incidence (rank no. 1, down)

Malnutrition incidence	Unsanitary toilets	Unsafe drinking water	Incidence of drop-outs	Poverty incidence
Lonoy	Lonoy	Buyog	Poblacion	Lonoy
Cabungaan	Boctol	Bunga Mar	Looc	Bunga Mar
Cambugason	Mayana	Can-ipol	Faraon	Cambugason
Alejawan	Calabacita	Can-uba	Calabacita	Boctol
Cantagay	Bunga Ilaya	Nausok	Naatang	Alejawan
Boctol	Can-ipol	Bunga Ilaya	Mayana	Mayana
Bunga Mar	Alejawan	Mayana	Lonoy	Buyog
Kinagbaan	Can-upao	Tubod Norte	Tejero	Naatang
Pagina	Ipil	Tubod Mar	Bunga Mar	Bunga Ilaya
Tubod Mar	Buyog	Naatang	Cabungaan	Can-ipol
Mayana	Odiong	Cambugason	Balili	Calabacita
Naatang	Cambugason	Boctol	Buyog	Cabungaan
Bunga Ilaya	Pagina	Alajawan	Malbog	Cantagay
Odiong	Cantuyoc	Cantuyoc	Canjulao	Odiong
Tubod Norte	Cantagay	Can-upao	Can-uba	Tubod Norte

Table 3.d. Ranking of barangays per poverty indicators

From these indicators, Jagna ranked 36 of the 47 municipalities in terms of Poverty Incidence. In 2000, 33% of children were found to be malnourished. This dropped in 2002 where 1121 cases or 12% of the children population. As of 2002, there are 532 HHs in Jagna have no sanitary toilets, roughly around 105 of the total population.

The municipality literacy rate of Jagna is 97%, that is, functional and above functional level. The Student-teacher ration in Public Elementary School is 45:1 and the total recorded drop-outs in the elementary and secondary (2002) reached 187 students.

It was noted that the leading causes for Mortality and Morbidity is not due to poor sanitation or improper waste disposal. These are caused by the different illnesses as indicated in Tables 3.e and 3.f, respectively.

Cause	Total # of Deaths (5 years)	Rank
Pneumonia	219	1
CVA/HPN	90	2
Hypertension	54	3
CA all forms	52	4
Cerebral Sclerosis	46	5
Pulmonary Tuberculosis	39	6
Renal Failure	39	7
Myocardial Infarction	26	8
Septicemia	20	9
Respiratory Failure	16	10

Table 3.e. 10 Leading Causes of Mortality for the past 5 years (1998 to 2002)

Acute Bronchitis	4251.84	1
Flu	163.40	2
Abscess	237.10	3
Rheumatoid Arthritis	131.36	4
Hypertension	208.26	5
UTI	131.36	6
Asthmatic Bronchitis	182.63	7
Pulmonary Tuberculosis	118.55	8
Wound	176.22	9
Otitis Media	99.32	10

Table 3.f. 10 Leading Causes of Morbidity for the past 5 years (1998 to 2002)

3.6. Economic Sectors

The major economic sectors in the municipality are occupation, agriculture, trade & industry, tourism/eco – tourism and other income sources.

The major & minor occupation groups include farmers, farm workers, fishermen, crop farmers, orchard farmers, ornamental & other plant growers, livestock & dairy farmers, poultry farmers, aqua – farm cultivators, inland & coastal waters fishermen and deep sea fishing.

Major source of livelihood production comes from the agriculture sector, from both inland and the marine resources. Based on the local Department of Agriculture's report, the total agricultural area in the municipality covers 6,945.15 hectares or 57.57% of its total land area, identified however by the DENR to be under the Alienable and Disposal land classification. In contrary to this figure, municipal land use vegetation only covers about 12,000 has. Table 3.g. shows the latest annual crop production in the municipality.

Crops	Area Planted (has)	No of cropping per year	Average Yield	
			Metric Ton / ha	Total
Rice				
Irrigated	438	2	4.5	3,942
Rainfed, upland	30	1	2.5	75
Rainfed, lowland	212	1	3.4	721
Corn	325	2	2	650
Vegetable				
Leafy	10		2	20
Tomatoes	5		3	15
Others	45		2	90

Legumes	75	1	1.5	112
Rootcrops				
Cassava	142		10	1,420
Camote	245		9	2,215
Ube	5		10	50
Others	450		8	3,600
Fruits				
Mango	25		16.5	412.5
Others	181		10	1,810
Coconut	1,050		1.1	1,155
TOTAL	3,238			14,306

Table 3.g. Crop Production

Basically, Jagna's economy is very much dependent on agriculture. Farming and fishing are the main source. Besides crops and fruits, cut flower production has been on the rise. Livestock production as well as poultry more focused even though there are a couple of new commercial producers to meet future demands on meat. Vegetable production though seemingly slowly increasing still is not enough for the municipality's consumers. Fish catch and other marine product are less than even if it commands higher price it would still be easily consumed in the market

Though fishing is one major contributor of the economic stability in the municipality with about 1060 registered fishermen, yet study reveals that fish production could only substantially met the demand of the per capita fish requirement of about 941 kilograms a day for its own municipality. Hence it could not supply fish produce outside its municipality for further trading.

Agriculture sector comprises the agricultural & fisheries production and agricultural support facilities & services. However, the only services for Agricultural are the Integrated Pest Management Training extensions services for Barangay Pagina and Agricultural barangays with funding from LGU and DA.

The existing industrial establishments or major industries in the municipality are the calamay making, home – made cookies making and body building for automobile and motorela. There are 220 existing commercial establishment present.

Aside from the agricultural sector, the municipality of jagna likewise engages in industrial manufacturing, buy and sell, banking, and local tourism business to augment its economy. At present calamay making is the major industry with about 158 establishments engaging in the business. This is supplemented by the small-scale cottage industries. The availability of raw materials keeps these industries going. However, increase production and expansion of their operation is hampered by the lack of capital and a consistent market for their production.

There are presently about 220 small and medium scale business establishments in the locality. These are usually sari-sari store, general merchandise, tobacco dealer, educational supplies and many others. Likewise rural banks and other credit and lending institutions are likewise present in the area. While there are at least 22 sites offering scenic beauty to attract local and foreign tourist.

Economy in the area is projected to increase by 1% within the next 10 years. This is manifested with the fast growing commercialization of its major business capital and the continuous influx of trading and other business activities from within its service areas in the province and likewise from the neighboring islands of Cebu and Mindanao.

3.7 General & Urban Land Use

3.7.a. Development Scenario of Land Use

Land Use Category	Existing Land Use		Proposed Land Use		Difference
	Area (ha)	%	Area (ha)	%	
Agriculture	8,528.41	70.7%	4,180.72	34.66%	(4,347.69)
Production & Protection Forest			4,177.07	34.63%	4,177.07
Forest Zone	2,968.55	24.6%	2,968.55	24.61%	-
Public Land	372.55	3.1%	372.55	3.09%	-
Built-up	193.49	1.6%	331.09	2.74%	137.60
Industrial			14.77	0.12%	14.77
Utilities			0.66	0.01%	0.66
Socialized Housing Site			4.00	0.03%	4.00
Dumping Site			6.00	0.05%	6.00
Reclamation			7.60	0.06%	7.60
Total	2,063.00		2,063.00		

Existing vs. Proposed General Land Use

The existing general land use of the municipality shows that agricultural area covers the majority portion, covering about 8,528 has or 71% of the total land. Built-up area only spans about 193 has. equivalent to only about 1.6%,

Table 3.h. Existing vs Proposed General Land Use

which are distributed from every centers of each of the 33 barangays of the municipality. However, in the proposed land use, this built-up area shall be expanded to 364 has. to accommodate additional industrial and other commercial and institutional establishments, to include the proposed disposal facility, sanitary landfill. Annex 3.e and Annex 3.f are the existing and proposed general land use maps, respectively highlighting the built-up area of the municipality. Table 3.h above, is the comparison between its existing and proposed general land use plan.

Existing vs. Proposed Urban Land Use

The municipality's urban land use plan was legitimized by the new municipal zoning ordinance No. 4-06-98, Series of 1998. From the total existing urban land area of 316 has. covering 7 barangays, the zoning ordinance planned to increase this area to 329 has, or an additional of 13 has. which covers, this time, 8 barangays to include Tubod Monte as its new urban barangay. To accommodate the growing population and the increasing economic activities, agricultural classification of the plan is consequently reduced by 69 has. which has been mostly reclassified into either residential or commercial zones. This paved way from congestion in the said areas. It is noteworthy however that the reclassification has likewise juggled the existing residential and commercial zones in barangays Pagina and Can-upao, where most residential area are designated in the former barangay while converting the latter from residential to either commercial or industrial zones. Hence, it is expected to have a significant increase in population in barangay Pagina while it shall be the opposite in

barangay Can-upao. This scenario weaves the projected population in these areas, and subsequently its projected wastes generation which is the main focus of this plan.

Annex 3.g and 3.h are the respective maps showing the existing and proposed urban land use plan of the municipality. Table 3.i, on the other hand is the comparison in land area between the existing vs the proposed urban land use zoning.

Land Use Category	Existing Land Use		Proposed Land Use		Difference
	Area (ha)	%	Area (ha)	%	
Residential	57.464	18.2%	86.932	26.42%	29.468
Commercial	2.096	0.7%	25.023	7.60%	22.927
Institutional	6.928	2.2%	8.372	2.54%	1.444
Open Spaces	4.768	1.5%	5.344	1.62%	0.576
Agricultural	214.800	68.0%	145.631	44.26%	(69.169)
Industrial	0.272	0.1%	14.768	4.49%	14.496
Utility	0.544	0.2%	0.656	0.20%	0.112
Reclamation			7.600	2.31%	7.600
Roads and Bridges	28.984	9.2%	34.720	10.55%	5.736
Total	315.856		329.046		13.190

Table 3.i.Existing vs Proposed Urban Land Use Zoning

3.8. Current SWM Practices

Households

Based on the survey of practices conducted by the TWG for the 19 household samples, it was revealed that residents in Jagna don't practice waste segregation in their homes. Wastes are mixed and are burned in open areas. Others, especially near the creeks and rivers disposed their waste by throwing them into the water. Although few have their own compost area, most people in the urban Barangay burn or if not have their biodegradable waste collected.

Residents are inclined to rely on curbside collection by the LGU. These are for the 7 urban Barangays covered by the collection. Garbage is usually placed in sacks, plastic bags or empty cans and are placed outside during collection schedule. Others placed their waste in a communal waste receptacles provided by the LGU. These are all not segregated wastes.

Some residents have their own means of separating only reusable materials. They secure these wastes, mostly metals and bottles and sell it to their local "suki bote't dyaryo" buyers, whom mostly of them have, or directly to the junkshops.

In some areas, open burning is very rampant. These include communal garbage areas, where mixed wastes are thrown and eventually burned.

Residents are found to be aware of the collection services, including the schedule of collection as provided by the LGU, though at present no garbage fee has been charge from them, so far.

Commercial Establishments

There are 17 respondents for the commercial establishments; these are from Barangays Polacion, Looc, Pagina, Pangdan and Can-upao. Same as from the residents, commercial establishments doesn't practice waste segregation, except those, which they find reusable or can be readily sellable by junkshops or ambulant buyers. 4 to 5 years ago, segregation was practiced and exercised in commercial establishments, as required by the LGU, however, this was not sustained for actually there were no enough disposal facility to complement with the segregation process.

Containers like used cans, plastics, sacks are used as temporary storage before collection. In the highly urbanized areas, a communal garbage receptacle is provided where these establishments throw their waste for the LGU curbside collection.

These establishments likewise practice open burning of mixed wastes. Especially those far from built-up areas where wider space is available. Very seldom developed compost pit for their biodegradable wastes for composting.

Most of them have the largest volume of waste on Saturdays, aside from holidays like fiestas, Christmas and New Years, while it is lowest on Mondays, Tuesdays & Wednesdays on regular days. Majority is aware of waste collection and the schedule as implemented by the LGU and found to be satisfied with the service.

They believe the government is the sole responsible and accountable for SWM services. However some say it is the residents or the people. Garbage fee has been collected ranging from 20 to 50 pesos per annum, depending on the nature and dimension of the business establishment. They are also aware of the SWM ordinances and confirm their awareness and appreciation of the LGUs effort in managing solid waste in their municipality.

Institutions and Services

This category includes government agencies, church and other service facilities in the municipality. Still, waste segregate at source is not sustained. Communal waste receptacles are found within the establishment but enforcement of the segregation requirements is not in-place. Burning is seldom practiced usually on biodegradable waste mostly of leaves, trunks and other wastes generated outside the building.

Curbside collection is the main diversion or disposal from their establishment. There is a schedule of collection that these establishments shall bring their wastes outside for collection.

Garbage fee is collected ranging from PhP 75.00 to PhP 250.00. Mixed reactions on the responsibility of wastes is observed with some saying garbage is the responsibility of the LGU while the rest says it is the residents who should manage their wastes. These establishments nevertheless are fully aware of the SWM ordinances and the steps and programs the LGU has currently implemented to improve the services of solid waste in their area.

Establishments handling special waste

Special waste generators includes hospitals, warehouses for electric company, telecommunication office, clinics and machine shops.

The survey reveals that about 50% of these generators practice segregation at source and recycling of their wastes. Others tend to mix their wastes. Some of these generators have processing procedures before bringing their wastes outside for curbside collection. Others have their own “*suki bote’t dyaryo*” buyers for their recyclable materials. Other materials like paint containers and rubbers are converted or processed to other useful equipment or decorative materials. Hospitals practice segregation in their vicinity but collection tends to mixed their wastes during collection period.

The main disposal means is the curbside collection by the LGU, hence collection fee of about Php 30.00 is collected from the LGU per annum.

These establishments likewise believed that solid waste is a shared responsibility between the LGU and the residents or generators themselves. They are aware however on the ordinances and guidelines, and other management programs set by the LGU for the solid waste implementation.

Junkshop, itinerant scrap buyers and scavengers.

There are seven (7) junkshops operators in the municipality, engaging in the buy and sell operation of recyclable materials. They buy materials directly from vendor and / or from itinerant *bote’t dyaryo* operators and sell them in bulk volume in the city

Materials	Unit	Buying Price (PhP)	Selling Price (PhP)
Bottles			
Tanduy long	Pc	0.70	0.80
Tanduy lapad	Pc	0.65	0.75
Tanduy Jr	Pc	0.60	0.80
Mallorca	Pc	0.65	0.75
Kulafo	Pc	0.65	0.70
Patis	Pc	0.40	0.50
Grapa			
Efficascent	Pc	0.05	0.15
Colored	Pc	0.10	0.15
Metals	Kilo	2.50	5.00
Cartoons	Kilo	0.40	0.50
Aluminum	kilo	40.00	45.00

capital Tagbilaran. Though, recyclable materials are abundant in the area, sellable materials are very few which only based on the kind of materials and the volume as required by junkshop owners in Tagbilaran City. In addition, factors like volume is likewise considered in these junkshop buyers. Like mineral waters are not sold because it requires big spaces with very minimal income. Because of the nature of the open dump

Table 3.j. Buying and Selling Prices of selected sellable materials
 facility that is a steep cliff, no scavengers are found the municipality. Table 3.j is a list of sellable materials and its corresponding selling and buying price.¹

Generally, the Municipality of Jagna is not yet prepared and aware of the problem of garbage. Most of the people exercise the traditional way of disposing their

¹ Selling price is based on the buying price in Tagbilaran City

waste by open burning and throwing of waste on streams and rivers or any other vacant places near the vicinity. Very few however practice composting in their home, especially in remote areas where agricultural wastes is in volume.

Some though practice segregation at source, but unfortunately, because of the lack of facility support, collection tends to mixed their wastes during collection time and disposed them in an open mixed area.

3.9. Solid Waste Generation (current status)

3.9.a Total Waste at Sources

Data generated from the Solid Waste Assessment and characterization activity, which spans 7 days, reveals that the municipality of Jagna generates an average weight of 10,483 kg or about 10.5 tons of solid wastes per day, with a total volume of approximately 105 cu. m. daily. Table 3.k, shows the different categories of solid wastes generators in the municipality with its corresponding waste generations per day.

Source	Weight	%	Volume	%	Per day/ unit
Food Establishment	169.09	1.6%	0.75	0.7%	4.45
General Stores	572.42	5.5%	25.31	24.3%	2.77
Industries	521.92	5.0%	2.51	2.4%	5.07
Institutions	141.16	1.3%	0.85	0.8%	0.74
Public Market	795.30	7.6%	6.67	6.4%	795.30
Recreation Center	32.36	0.3%	0.20	0.2%	2.70
Residential	8,117.42	77.5%	66.49	63.9%	1.27
Service Center	34.92	0.3%	0.47	0.5%	0.90
Slaughter house	9.84	0.1%	0.03	0.0%	9.84
Special Waste	85.92	0.8%	0.79	0.8%	3.44
Total	10,480.3		104.07		

Table 3.k. Waste generated per day by source, kg and cu.m.

almost 800 kg/day. Residential on the other hand generates on an average of about 1.27 kg/day only. The least contributor comes from the slaughter house, recreation center and service centers where they only contribute about 0.1%, 0.3% and 0.3%, respectively from the entire generator within the municipality.

Residential is given special attention in this analysis considering that it is the no. 1 generator of solid wastes in the municipality. Table 3.l shows that the most wastes generated by the residents are biodegradable wastes constituting 66% of the overall wastes. This is clearly illustrated in Chart 3.a.

Classification	Weight	%
Bio-degradable	5,334.29	65.7%
Recyclable	1,087.18	13.4%
Special Wastes	197.29	2.4%
Residuals	1,500.42	18.5%

Table 3.l. composition of waste from the residential category.

The biggest contributor of wastes in terms of weight per day comes from the residential category considering that it constitute the most number of units than other categories. This is followed by the market area. However, on a per day per unit value, the public market poses the highest waste generator with

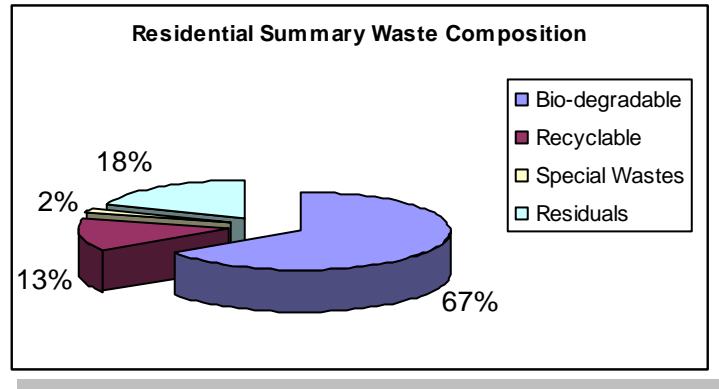


Chart 3.a. Pie chart distribution of waste composition for residential

Table 3.m shows the overall composition of wastes generated in the municipality. It reveals that out of the 10.5 tons waste generated per day, about 7 tons of these wastes is biodegradable or compostable wastes. This comprises about 67% of the entire wastes. In reference to the provisions of RA 9003, these wastes should not go to the disposal facility of an LGU, hence the LGU should make the necessary guidelines to, if not totally eliminate this type of waste, at least reduce the biodegradable wastes. It is now clear that by reducing biodegradable wastes, the LGU reduces waste disposal by at least about 60% of the total generation. Chart 3.b illustrates how this classification has been distributed.

Classification	Weight	%
Bio-degradable	6,989.4	66.7%
Recyclable	1,261.9	12.0%
Special Wastes	238.1	2.3%
Residuals	1,993.0	19.0%

Table 3.m. Overall Composition of wastes.

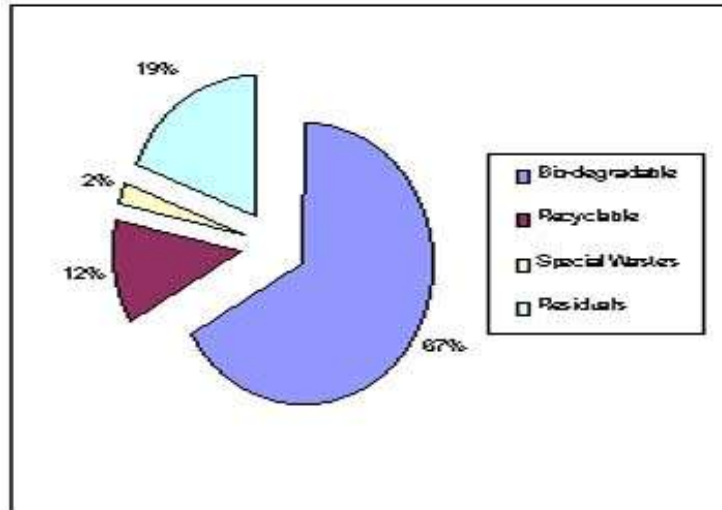


Chart 3.b. Distribution of waste classification

Table 3.n, this time shows the sources of biodegradable wastes. Again, residential is the highest biodegradable contributor with about 5.3 tons a day while the slaughterhouse, service and recreation centers are the least contributors.

In these tables decision-makers are given clear view of what and where they should concentrate their efforts in reducing their waste, from generation up to disposal. Chart 3.c further illustrates how the biodegradable generation is distributed by source.

Category	Weight	%
Food Establishment	101.9	1.5%
General Stores	385.1	5.5%
Industries	367.9	5.3%
Institutions	66.1	0.9%
Public Market	656.9	9.4%
Recreation Center	23.0	0.3%
Residential	5,334.3	76.3%
Service Center	22.3	0.3%
Slaughterhouse	5.8	0.1%
Special Waste	26.2	0.4%
TOTAL	6,989.4	100%

Table 3.n. Distribution of biodegradable generations

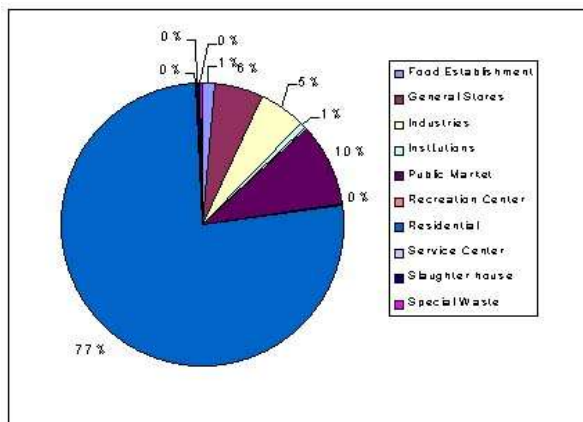


Chart 3.c. Pie chart on the biodegradable wastes generation percentage per source.

Table 3.o, shows the recyclable materials generation for the entire municipality. It reveals that plastics are abundant in the area. This gives an idea in the design of the materials recovery facility. LGU should find means and ways to sell, process and make profit of this kind of materials considering its abundance in terms of accumulation from generators. This is followed by glass and metals. Annex 3.j shows the details of the said recyclable materials

Annex 3.i, are the summary of tables generated during the data analysis activity, based on the waste characterization from all sources. Corresponding bar charts are likewise found in the said annex.

Type of recyclable	Weight	%
Plastics	455.38	35.5%
Paper	61.96	4.8%
Glass	368.76	28.7%
Metals	258.81	20.2%
Leather	139.45	10.9%
Total	1,284.36	

Table 3.o. Composition of recyclable materials

3.9.b. Per Capita

The Municipal Profile of the Municipality showed that average number of households’ members is 5.14. With every household generating waste at 1.27 kg per day, per capita waste generation is therefore 0.25 kg/day. Meaning every person in the residential category contributes about a quarter (0.25) kilograms of solid wastes a day.

In Table 3.p is the overall summary, from samples to the extrapolated value revealing the per capita generation from all sources. It is illustrated in the same table that per capita from all wastes sources is 0.34 kg/day. 0.22 kg of which is biodegradable while the other reminder is either: recyclable, residual or special waste.

Source	Total no. of units/source in the LGU	Average solid waste/source based on samples (Kg/day)	Total SW from each source for the whole LGU (kg/day)	% of Biodegradables for the whole LGU	% of Recyclables for the whole LGU	% of Residuals for the whole LGU	% of Special Wastes for the whole LGU
Food Establishment	38	20.0	169	59.3%	7.7%	32.3%	0.6%
General Stores	207	10.9	572	69.4%	4.8%	25.2%	0.5%
Industries	103	10.1	522	61.6%	19.0%	14.2%	5.3%
Institutions	191	20.1	141	57.1%	1.3%	41.4%	-
Public Market	1	1,534.5	795	82.4%	7.7%	27.1%	0.4%
Recreation Center	12	8.3	32	66.9%	10.9%	22.0%	0.1%
Residential	6000	22.59	8,117	65.6%	14.0%	17.9%	2.6%
Service Center	39	7.6	35	63.5%	8.8%	26.9%	0.9%
Slaughter house	1	9.8	10	55.1%	-	44.9%	-
Special Waste	25	24.3	86	32.3%	25.6%	22.9%	19.3%
TOTAL	6,617	1,668	10,480.3	6,989	1262	1993	238
AVERAGE		167	1,048	61.3%	10%	28%	3%
Per Capita			0.34	0.22	0.04	0.07	0.008

Table 3.p Summary of generation from the samples and the extrapolated value showing per capita from the whole category

This data reveal that outside the residential area of the municipality, people produce 0.09 Kg/day.²

3.9.c Waste Density

Based from the waste characterization conducted at the disposal area using 1-trackload of wastes hauled to the dumpsite, the waste density is 227 kgs/cu.m. This is about 4.4 tons per cubic meter of waste.

3.9.d Projection³

Based on the NSO, the Municipality of Jagna has a total population of 32,643 and is expected to rise at 41,386 by year 2014. Presently, Jagna generates 10,483 kilograms of waste per day based on the conducted 7 – day Waste Characterization. These wastes were taken from fifty – eight (58) samples from the sources such as general stores, food establishments, recreation centers, institutions, industries, public market, residential, service centers, slaughter house and special waste generators.

The municipality produces about 10.5 tons of solid wastes everyday (year 2003 baseline). Basing on Population Annual Average Growth Rate (AAGR) and the economic growth rate (assumed at 1% per annum) of the municipality, these figure is projected to go up to about 13.5 tons by 2014, if measures are not taken to divert or reduce these wastes from the source. At present the LGU, for lack of facility and disposal system, only covers some portion of the entire municipality for their ISWM services. Considering the collection route and area, it is found out that the LGU only have a collectable of about 4.2 tons of waste a day. This further consider that not the entire waste sources in a barangay that is part of the collection area will have wastes collected since some of the areas will not be reached by the collection system.

In the residential collection area, only 1.8 tons a day is for collection while for business establishments and other institutions, including the public market, generation is approximately 2.4 tons a day. The proposed increase of collection coverage connotes the expected increase of volume of wastes for collection. By 2012, total waste for collection will be about 11.2 tons /day, from the total municipal generation. Residential shall then have about 8.0 tons/day while establishments and market have about 3.3 tons/day generated within the collection area. Table 3.r shows projection of residential wastes within collection area.

² Per capita of 0.34 kg/day from all sources subtracted by per capita from residential which is 0.25 kg/day.

³ The projection figures shown are all based on the baseline data that are results from the waste characterization conducted. These projections figures changed in Chapters 4 and 5 as the data in said chapters as derived from the general ISWM strategy discussed in Chapter 4.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Jagna Popn Growth Rate	2.37%	2.32%	2.26%	2.25%	3.67%	0.66%	2.11%	2.06%	2.00%	1.99%	3.40%	0.40%
Economic Growth Rate 1%		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Jagna	2,363	2,442	2,521	2,603	2,725	2,770	2,856	2,944	3,032	3,123	3,260	3,306
Food Establishment	169	175	180	186	195	198	204	210	217	223	233	236
General Stores	572	591	611	631	660	671	692	713	734	756	790	801
Industries	522	540	557	576	602	612	631	651	670	690	721	731
Institutions	141	146	150	155	163	165	170	176	181	186	195	197
Public Market	795	822	849	876	917	932	961	991	1,020	1,051	1,097	1,113
Recreation Center	32	33	34	36	37	38	39	40	41	43	45	45
Residential												
Service Center	35	36	37	38	40	41	42	43	45	46	48	49
Slaughter house	10	10	10	11	11	12	12	12	13	13	14	14
Special Waste	86	89	92	95	99	101	104	107	110	114	119	120
Outside Public Market	1,568	1,620	1,673	1,727	1,808	1,838	1,895	1,953	2,012	2,072	2,163	2,193

Table 3.q Projections of waste generation for the whole LGU establishments, kg per day

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Jagna Popn Growth Rate	2.37%	2.32%	2.26%	2.25%	3.67%	0.66%	2.11%	2.06%	2.00%	1.99%	3.40%	0.40%
Economic Growth Rate 1%		1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Jagna	1,750	1,792	2,026	4,325	4,485	5,653	5,773	6,504	6,635	7,617	7,877	7,909
Biodegradable	1,150	1,177	1,331	2,841	2,947	3,714	3,793	4,273	4,359	5,004	5,175	5,196
Biodegradable												
Recyclable	234	240	271	579	601	757	773	871	888	1,020	1,055	1,059
Residual	323	331	374	799	829	1,045	1,067	1,202	1,226	1,408	1,456	1,462
Special Waste	43	44	49	105	109	137	140	158	161	185	191	192

Table 3.r Projected residential waste generation at collection areas, by waste category, kg per day

Table 3.q reveals that the largest contributor of waste in this municipality is the public market. It was known that this complex generates approximately 795 kg/day of solid waste and is projected to go high to about 1.13 tons/day in 2014. The least generator is the slaughterhouse considering that it is a lone establishment owned by the LGU. Total waste generation from these establishments tallied about 2,363 kg/day and will increase to about 306 kg/day in 2014. Considering that these establishments are normally found within the urban Barangays of the town, hence the amount of waste indicated here is subject to collection.

For residential, Barangay Canjulao is found to have the highest waste generation of solid waste with approximately 642 kg/day and could reach to 807 kg/day by year 2014. The least on the other hand is Barangay Ipil with only 74 kg/day. Table 3.t below shows the details of the projected wastes per Barangay.

Barangays shaded green is the current collection service area (urban Barangays) and the light blue shall be transformed to urban Barangay and shall be served by 2005. The rest of the rural Barangays shall be served by 2006.⁴

Per Capita Waste		1.00	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Per Capita Waste		0.246	8,118	8,306	8,495	8,686	9,004	9,064	9,254	9,445	9,634	9,826	10,160	10,201
Alejawan	100%	0.25	191	195	200	204	212	213	218	222	227	231	239	240
Balili	100%	0.25	336	344	352	359	373	375	383	391	399	407	420	422
Boctol	100%	0.25	295	302	309	316	327	329	336	343	350	357	369	371
Buyog	100%	0.25	77	78	80	82	85	85	87	89	91	93	96	96
Bunga Ilaya	100%	0.25	192	197	201	206	213	215	219	224	228	233	241	242
Bunga Mar	100%	0.25	306	313	320	328	340	342	349	356	363	371	383	385
Cabunga-an	100%	0.25	296	303	309	316	328	330	337	344	351	358	370	372
Calabacita	100%	0.25	381	390	399	408	423	426	435	444	452	461	477	479
Cambugason	100%	0.25	201	206	211	215	223	225	230	234	239	244	252	253
Can-ipol	100%	0.25	101	104	106	108	112	113	115	118	120	122	127	127
Canjulao	100%	0.25	642	657	672	687	712	717	732	747	762	777	803	807
Cantagay	100%	0.25	220	226	231	236	244	246	251	256	262	267	276	277
Cantuyoc	100%	0.25	213	218	223	228	237	238	243	248	253	258	267	268

⁴ Because of the proposed built-up area categorized for residential, population projection in barangay Pagina is increase by 30% of its growth rate, while subsequently reducing barangay Can-ubao by the same ration

Per Capita Waste		1.00	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Per Capita Waste		0.246	8,118	8,306	8,495	8,686	9,004	9,064	9,254	9,445	9,634	9,826	10,160	10,201
Can-uba	100%	0.25	83	85	86	88	92	92	94	96	98	100	103	104
Can-upao	100%	0.25	459	467	475	482	495	498	505	513	521	528	542	544
Faraon	100%	0.25	130	133	136	139	144	145	148	151	154	157	162	163
Ipil	100%	0.25	74	76	78	80	83	83	85	87	88	90	93	94
Kinagbaan	100%	0.25	108	111	113	116	120	121	123	126	128	131	135	136
Laca	100%	0.25	90	92	94	96	100	101	103	105	107	109	113	113
Larapan	100%	0.25	196	200	205	209	217	218	223	227	232	237	245	246
Lonoy	100%	0.25	335	343	351	359	372	374	382	390	398	406	420	421
Looc	100%	0.25	234	240	245	251	260	261	267	272	278	283	293	294
Malbog	100%	0.25	233	239	244	249	259	260	266	271	277	282	292	293
Mayana	100%	0.25	549	562	575	588	609	613	626	639	652	665	688	690
Naatang	100%	0.25	139	142	146	149	154	155	159	162	165	168	174	175
Nausok	100%	0.25	82	84	86	88	91	92	94	96	97	99	103	103
Odiong	100%	0.25	275	281	288	294	305	307	313	320	326	333	344	346
Pagina	100%	0.25	358	369	380	392	411	415	426	438	449	460	481	483
Pangdan	100%	0.25	277	283	289	296	307	309	315	322	328	335	346	348
Poblacion	100%	0.25	258	264	270	276	286	288	294	300	306	312	323	324
Tejero	100%	0.25	323	331	338	346	359	361	369	376	384	392	405	406
Tubod Mar	100%	0.25	148	151	155	158	164	165	169	172	175	179	185	186
Tubod Monte	100%	0.25	314	322	329	336	349	351	358	366	373	381	394	395
Urban Areas			2,857	2,924	2,990	3,057	3,169	3,190	3,257	3,324	3,391	3,458	3,576	3,590
Rural Areas			5,261	5,383	5,505	5,629	5,835	5,874	5,997	6,121	6,244	6,368	6,584	6,611

Table 3.1 Residential Waste Generation Per Day by Barangay, Total Generation

Cluster	Barangays
Cluster 1	Calabacita, Mayana, Boctol, Lonoy, Cabaungaan, Cambugason, Alejawan
Cluster 2	Tubod Monte, Can-ipol, Odion, Nausok, Larapan, Tubod Mar, Naatang
Cluster 3	Balili, Malbog, Cantuyoc, Buyog, Laca, Kinagbaan, Bunga-Ilaya
Cluster 4	Faraon, Can-uba, Ipil, Cantagay

Table 3.s. Cluster of Barangays for residual/special waste collection

Annex 3.n is a summary of tables on the projected waste generation from residential and establishments, percent collection and graph showing the trend of wastes by classification.

The actual waste generated per person in the municipality is 0.25 kg per day. This figure is likewise expected to increase within 10 years due to the economic growth and the changing lifestyle of the area.

3.9.d. End of Pipe: (Market and Various Sources from current collection schedule)

The total weight of waste at the dumpsite covers the waste collected from the public market and the various waste sources of the seven urban barangays covered by waste collection. Data from the 7-day waste characterization showed that based on the samples taken, 78.7% is biodegradable wastes. Only 15.7% is residual waste, which accordingly, is the only type of waste that should go down to the sanitary landfill.

However, when the total end-of-pipe was expanded to the whole LGU, that is multiplied by the no. of garbage trucks disposing everyday, the % composition of biodegradable dropped from 78.7% from the samples, to 77.4%, while the residuals marks 16.4% of the total waste composition.

The current schedule of collection various waste, which is the collection within the 7 barangays from household, commercial and institutions, their collection normally runs twice a day, while only one truckload of collection is done in the market area.

Annex 3.o shows the different tables and pie charts for the end-of-pipe wastes, as generated by the data template provided by EcoGov.

3.10. LGU SWM Services And Resources

There are 33 barangays in the Municipality of Jagna; eight barangays covered the metro Jagna area. The LGU of Jagna serves the seven barangay from this built-up areas on solid waste collection. The collection is done once a week for every barangay from Monday to Saturday and the market area is collected daily.

The municipality has only one compactor truck and one dump truck that collect waste daily with three personnel including the driver. The LGU had only one disposal facility, which is the open dumpsite. The said dumpsite is located three kilometers from

the town proper accessible through a Provincial Road. The municipality has employed two War on Waste (WOW) enforcers and five utilities. Each has a buggy cart that maintains the cleanliness in the public places. The implementing person-in-charge on solid waste management is within the Office of the Mayor by an Executive Assistant (EA). The LGU starts to allocate funds for SWM operation in the year 2001 until at present. In 2001, the LGU appropriated Ph70, 000.00 for its SWM Operations. In 2002, Ph215, 000.00 and in 2003 Ph220, 000.00 but it reach Ph 320,000.00 because it was supplemented in this later month. Before, the LGU allocated fund for SWM there were already existing SWM services in the town especially on waste from the market and public places, while its operation expenses was taken from the budget of the market operation and maintenance. This fund is mainly for the wages of the personnel, fuel and maintenance services for the equipments use in collection.

There were already Information and Education Campaigns (IEC) conducted by the LGU through Barangay Assemblies. This involves the presentation of any proposal and ordinance of the Municipality in terms of SWM, for implementation and public hearing purposes. The people have yet to yet adopt proper waste disposal method as introduced, hence the need for more rigid IEC and information dissemination activities for Solid Waste Management.

The municipality of Jagna has yet to generate revenue from its solid waste. Instead, its expense figures increase every year for the maintenance and operation of its solid waste management services. However business establishments in the town were charged with a “garbage fee” during renewal of licenses, while others have enjoyed the services for free.

3.10.a. Collection

The system of collection performed by the LGU limits only to the seven barangays along the Metro Jagna. Everyday our garbage collectors collect first the market waste before going to the scheduled barangay in the morning and in the afternoon. Table 3.u is the current collection schedule and route for the 7 urban barangays covered by the LGU collection services.

Day	Time	Area	Time	Area
Monday	5:00- 6:00A.M.	Market	8:00 – 11:00	Brgy. Looc
	1:00– 2:00 P.M.	Market	2:00 – 4:00	Brgy. Looc
Tuesday	5:00- 6:00A.M.	Market	8:00 – 11:00	Brgy. Pagina
	1:00– 2:00 P.M.	Market	2:00 – 4:00	Brgy. Pagina
Wednesday	5:00- 6:00A.M.	Market	8:00 – 11:00	Brgy. Tejero
	1:00– 2:00 P.M.	Market	2:00 – 4:00	Brgy. Can-upao
Thursday	5:00- 6:00A.M.	Market	8:00 – 11:00	Brgy. Pangdan
	1:00– 2:00 P.M.	Market	2:00 – 4:00	Brgy. Pangdan
Friday	5:00- 6:00A.M.	Market	8:00 – 11:00	Brgy. Poblacion
	1:00– 2:00 P.M.	Market	2:00 – 4:00	Brgy. Poblacion
Saturday	5:00- 6:00A.M.	Market	8:00 – 11:00	Brgy. Canjulao
	1:00– 2:00 P.M.	Market	2:00 – 4:00	Brgy. Canjulao
Sunday	8:00- 12:00A.M.	Market		

	P.M.	Check-up and maintenance services at of the Garbage Truck
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Table 3.u. Current collection schedule and route

Other commercial establishments especially those who have a larger investment carries their own garbage to the dumping site. In addition, aside from this regular schedule, the LGU further entertains request form other barangays or same barangays for garbage pickup depending on the volume of wastes requested for collection.

3.10.b. Infra / Institutional Support

The equipment fro garbage collection/disposal are the following:

- One (1) garbage compactor
- One (1) dump truck in case of the breakdown of the garbage compactor
- Three (3) Buggy carts
- One (1) Road grader to clear the leftover garbage on the road not thrown downs the slope.

Road condition to the open dumpsite is passable with an all-weather barangay road.

Barangay constituents at Canjulao where the dumpsite is currently located has no objection of the site but one adjacent barangay Bunga Ilaya opposed the site due to bad odor and flies.

- Household garbage is placed at the side of the road for collection on the scheduled day.
- Has existing solid waste Ordinance but not strictly implemented
- No sludge remover
- Disposal of waste from funeral parlors not known
- BEMO provided trainings
- Garbage fees collected as part of business permit (PhP25-30.00)
- No NGO program in SWM

3.10.c. Disposal

The Municipality of Jagna, like most other LGUs, has the same problem in disposing collected waste. The LGU had only one disposal facility, which is the Open Dumpsite. This Open Dumpsite did not pass the qualification of the DENR on all the measures considered. The waste dump is periodically burned once its volume becomes larger, that in general, the way of disposal in the locality at present is inconsistent with the solid waste management vision and likewise does not comply with the provisions of RA 9003.

The Municipality of Jagna is not yet well prepared and totally aware of the problem of Garbage. Most of the people exercise the traditional way of disposing their waste. Many people still used the way of burning, indiscriminate throwing of waste on

streams and rivers or any other vacant places near their vicinity. A few however practice composting in their home for fertilizer use.

3.10.d. ISWM Organization of the LGU

The LGU of Jagna has formed for itself a Solid Waste Management Board⁵, (ISWMB) through an Executive Order (EO) passed by the mayor. This creates the team to look into the current situation of the municipality in terms of solid waste generation and its proper management and the crafting of an SWM plan. Another EO was also passed creating the Solid Waste Management Technical Working Group. The main function of which is to assist and act as the working arm of the ISWM Board.

However, like most of the LGU at present, the implementation aspect of the program, garbage collection and other operations related to solid waste, is under the office of the Local Chief Executive. An executive assistance of the mayor is assigned as the officer-in-charge for this operation. Members of the organization include War-on-Wastes (WOW) enforcers, two (2) garbage collectors, a truck driver and market sweepers.

3.10.e. ISWM Ordinances.

Analysis of the current ISWM policies

An analysis of the existing ordinances of the Municipality of Jagna on solid waste management (SWM) was conducted. The analysis focused on two main aspects, namely: 1) identification of gaps in terms of the requirements of RA 9003 and its IRR; and 2) identification of gaps in terms of good governance elements of transparency, accountability and participatory decision-making in the ordinances enacted. Guidelines were prepared and used for the actual analysis of the ordinances.

a. Current SWM Ordinances

The existing ordinances of the Municipality of Jagna on solid waste management are shown in the following table

Ordinance No. and Yr	Title	Major Components
Mun. Ord No. 3, Series of 1993	Ordinance Prohibiting Owners Of Restaurant/Carenderia To Let Their Cats & Dogs To Stay Inside Their Establishment	Prohibits dogs and cats to roam around the restaurant & carenderia to maintain cleanliness & sanitation
Mun. Ord No. 8, series of 1993	Ordinance Penalizing The Throwing Of Trash At Rivers, Creeks And Waterways.	<ul style="list-style-type: none"> • Penalizing
Mun. Ord	Ordinance Prohibiting The Local Constituents	<ul style="list-style-type: none"> • Penalizing

⁵ Before the LGU-EcoGov partnership, Jagna has already created an ISWM Board and TWG, though during the EcoGov Project, Board was reconstituted and refined basing on the guidelines from RA 9003

No. 02-02-94, series of 1994	Of The Municipality To Construct Or To Make Piggins & Toilets At The Rivers, Streams, Seashores, Springs And Other Sources Of Water.	
Mun Ord. No. 01-20-95, series of 1995	Ordinance Penalizing Owners; Managers & Master Of Shipping Lines Who Throws Or Cause To Throws Or Dispose Waste And Other Trashes, Used Paints Or Oil At The Municipal Water At The Port Area In The Municipality Of Jagna.	<ul style="list-style-type: none"> • Penalizing the throwing of waste, trash, paints & oil in the municipal sea water.
Mun. Ord No. 14-07-94	Ordinance Imposing Penalties To Person/S Who Make Intentional Breaking Of Bottles And Other Glass Materials And Throwing Of Trashes In The Public Places.	<ul style="list-style-type: none"> • Penalizing
Mun. Ord No. 05-10-95	Ordinance Requiring All Stall Occupants To Provide Garbage Cans Lined With Sacks Or Cellophane To Be Used As Their Garbage Container To Maintain Cleanliness And Sanitation	<ul style="list-style-type: none"> • Waste storage
Mun. Ord No. 10-04-96	An Ordinance Requiring All Households, Commercial, Industrial And Other Concerns To Properly Disposed Of Their Garbage	<ul style="list-style-type: none"> • Waste disposal
Mun. Ord No. 13-11-2003	An Ordinance Establishing An Integrated Solid Waste Management System In The Municipality Of Jagna	<ul style="list-style-type: none"> • Education • Engineering • Waste processing and resource recovery • Collection and transport of solid waste • Disposal of solid waste • Enforcement component <ul style="list-style-type: none"> – Garbage fee – Violation & penalty

Table 3.v. List of Existing Ordinances

b. Analysis and Findings

Presently, the Municipality of Jagna, through its Sangguniang Bayan (SB) has passed 8 ordinances on solid waste management (SWM). However, 7 of these ordinances were passed prior to the effectivity of RA 9003 and its IRR. Thus, these ordinances are inadequate insofar as compliance with the provisions of RA 9003 and its IRR is concerned.

The latest ordinance on SWM enacted by the LGU, i.e., “An Ordinance Establishing An Integrated Solid Waste Management System In The Municipality Of Jagna”, complies with some prescriptions of RA 9003 and its IRR as it was passed after the effectivity of the latter. However, not all aspects of RA 9003 and its IRR are

covered by the said ordinance. In addition, since the said ordinance was passed prior to the formulation of the ESWM Plan of the LGU, it cannot provide adequate policy support for the implementation of the ESWM Plan. The same goes for the other ordinances.

Most of these ordinances are not implemented due to lack of resources and the absence of clear enforcement mechanisms. Although, efforts have been exerted in disseminating the said ordinances, there are no records of apprehensions or filing of cases for violation of the said ordinances to date.

The LGU has no ordinance creating or designating a permanent office that will manage the solid waste of the municipality. At present, all SWM activities of the municipality are handled by the Office of the Mayor. An executive assistant of the mayor is assigned as the officer-in-charge for this purpose. He is assisted by two (2) War-on-Wastes (WOW) enforcers, two (2) garbage collectors, a truck driver and market sweepers.

As stated above, the latest SWM ordinance of the Municipality of Jagna complies with some provisions of RA 9003 and its IRR but not all aspects thereof are covered. Thus, while segregation for residential, commercial, institution, hospitals, transport facilities, and agricultural areas are specified in the ordinance, the classification of solid waste as stated therein needs to be revised to conform to the classification provided in the law and IRR. While the establishment of MRF is provided in the ordinance, there are no guidelines for the establishment, operation and funding of the MRF. Likewise, there is no mention of the establishment of a reclamation program and/or buy-back center in the ordinance.

With regard to collection and transport of solid waste, the guidelines contained in the ordinance are insufficient since they only cover scheduling and separate collection of solid waste. Guidelines on matters such as health, sanitation, safety, equipment and materials are not provided. Likewise, there are no guidelines on disposal of solid waste. Neither is there compliance with the requirements of the law and IRR on disposal facilities, particularly with regard to closure of open dumps or conversion thereof to controlled dumps.

There is no ordinance on incentives for and financing of SWM activities. With regard to SWM fees, the amount thereof is stated in the Municipal Revenue Code. However, there are no guidelines for payment and/or collection of the fees as well as the penalties for late or non-payment.

The present SWM ordinances do not provide mechanisms for enforcement. There is also a need to prohibit and penalize other acts in addition to those presently prohibited and penalized by existing SWM ordinances.

TAP ANALYSIS

On Transparency:

The mechanisms for transparency are inadequate. The main mechanism is through public hearings conducted before the passage of ordinances. However, the

dissemination to the general public of the provisions of the ordinances and of the subsequent acts to be undertaken pursuant to the ordinances is not clearly stipulated. The time frame as to information dissemination to the public is likewise not specified.

On Accountability:

The mechanisms for accountability are inadequate and are not specified in the ordinances.

On Participatory Decision-Making

The mechanisms for participation are inadequate. Public participation is had mainly through public hearings conducted before the passage of ordinances.

3.8.f. LGU Income and Budget for the past 3 years

For the past three years, the LGU has an annual IRA ranging from about 21.5 million to nearly 26.5 million pesos a year. On the other hand, budget for environmental management is taken from the 20% development fund of about 115,400 in year 2002. However, this budget is not allocated for the solid waste management alone. Other environmental concerns like the coastal resource management and forestry likewise take their budget from this allocation for environmental programs. Table 3.w. is the table of the annual income and budget allocation from year 2000 to 2004. Projected IRA is also shown until 2006.

This budget, apportioned for solid waste management includes operation and maintenance of the garbage truck, enforcement (WOW enforcers), maintenance of the disposal facility and other trainings and seminars to be conducted by the LGU, relative to solid waste management program. Likewise counterpart for the EcoGov project implementation is taken from the same budget.

Indicator	2000	2001	2002	2003	2004	2005	2006
A. Income:							
1. Total IRA	21,498,780.00	22,290,081.00	27,351,422.00	27,749,322.00	27,749,322.00	30,524,254.20	33,576,679.62
2. Income from operation of water supply/irrigation systems	866,444.90	913,327.30	1,000,000.00	760,248			
3. Income from slaughter house			195,400.00	190,359.16			
4. Income from Market operation			1,309,239.45	1,301,665.72			
B. Budget:							
1. Annual LGU operating budget	23,744,118.88	26,928,321.37	29,277,000.00	32,280,000.00	33,975,000.00		
2. 20% Development Fund	2,881,388.41	4,458,016.20	5,295,307.60	5,295,300.00	5,549,864.40		
3. Budget for environment projects (forestry, CRM, solid waste, others)	79,000.00	98,155.46	115,400.00	820,000.00	650,000.00		
4. Budget for LGU capability building projects	122,000.00	-	280,000.00	180,000.00	540,000.00		
5. Counterpart budget to existing or ongoing externally funded projects (CBRM, LGSP, etc.)	-	200,000.00	400,000.00	230,000.00	150,000.00		

Table 3.w. Income and budget of the LGU from the last 3 years

3.8.g. Local Institutions

The existing organizations (Private and Civil Organizations, NGO) or institutions in the locality that are potential in the SWM include schools, PTAs, religious organization or the church, women's organization, vendors and motorcab organization, and the media groups.

The School institutions can be utilized as potential source of information dissemination on the proper disposal of solid waste by educating the students and observing proper waste management. The Church also serves as a channel toward SWM awareness and knowledge thru giving inputs or information drive.

Radio Natin station and the local TV cable provider shall also be a potential institution to assist the implementation of the program. Because of the wide area of their coverage and the technology they are involve in bringing information and taking attention of the people, their active participation shall play a crucial role in the disseminating the general strategy of the LGU in their SWM program.

Since the Public Market in the town is considered one of the major contributors of waste, it shall beneficial advantage for the LGU to tap associations like Jagna Market Vendors Associations (JAMAVEA) and the Jagna Motorcab Operators & Drivers Association (JAMCODA) in the conduct of information drive for the SWM plan. They can be a potential mediums of change from the tradition practices in waste disposal to the desired strategy the LGU planned to implement.

Jagna Officials and Employees Multi-purpose Cooperative and Jagna Association of Municipal Employees (JAMES) can also be used as mediums in the IEC campaign.

The *Unlad Kabayan* Organization shall be considered to assist in the recycling activity in the proposed Materials Recovery Facility. This likewise includes the participation of personnel from the Technical Education and Skills Development Authority (TESDA) and the local Municipal Social Welfare and Development Office (MSWD), to provide trainings and inputs regarding indigenous production of recyclable materials.