



CITY GOVERNMENT OF NAGA

City Planning and Development Office

Comprehensive Land Use Plan (CLUP) for the City of Naga 2016-30

Volume I

Revised Draft 3.0 | September 2020

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Republic of the Philippines
City of Naga

CITY DEVELOPMENT COUNCIL EXECUTIVE COMMITTEE



J. Miranda Ave., Concepcion Pequeña, Naga City 4400

RESOLUTION NO. 6, S. 2016

APPROVING NAGA CITY'S COMPREHENSIVE LAND USE PLAN (CLUP) FOR 2016-30:

WHEREAS, the city's existing Comprehensive Land Use Plan (CLUP) approved in 2002 is long overdue for updating;

WHEREAS, the Housing and Land Use Regulatory Board (HLURB) issued new guidelines in 2013 in preparing CLUPs which are risk-sensitive, embodying Disaster Risk Reduction-Climate Change Adaptation (DRR-CCA) principles;

WHEREAS, the City Planning and Development Office (CPDO) was tasked to prepare a new CLUP that will cover the period 2016-30;

WHEREAS, a series of consultation-workshops were conducted by the CPDO wherein recommendations and suggestions were taken into consideration in its preparation;

WHEREAS, the new CLUP will continue to be guided by the "Maogmang Lugar" vision enhanced by the recently adopted "Ambisyon Natin 2040" long-term vision for the Philippines;

WHEREAS, it shall respond to the need to manage urban growth; sustain economic development and competitiveness; increase agricultural income and productivity; enhance access to basic services; and build livable, safe and resilient communities;

WHEREAS, to address these needs, it proposes a tri-nodal urban form anchored on a radial-circumferential pattern of spatial development, which will be built around the existing city center as primary growth center, with Del Rosario and Pacol as secondary growth areas;

WHEREAS, the plan has identified high-density mixed-use development, commercial, services, light industry, high-value agriculture processing and tourism as drivers of the city's sustainable development and continuing competitiveness:

WHEREAS, the draft plan was presented and was unanimously approved during the last full council meeting on December 16, 2016;

NOW, THEREFORE, on motion duly seconded, be it,

RESOLVED, as it is hereby resolved, to approve Naga City's proposed Comprehensive Land Use Plan (CLUP) for 2015-30.

LET COPIES of this resolution, be furnished the Sangguniang Panlungsod for their information, review and concurrence.

APPROVED: December 16, 2016.

xxx


xxx

xxx

WE HEREBY CERTIFY to the correctness of the foregoing resolution.


CECILIA VELUZ-DE ASIS
Chairman, SP Committee on Appropriations
Member


TOMAS RAMON SANCHEZ
ABC President
Member


AUGUSTO R. NIEVES
NCPC, NGO Representative
Member


NELSON S. LEGACION
Vice Mayor
Co-Chairperson


JOHN G. BONGAT
City Mayor
Chairperson

Chapter 1

INTRODUCTION

This document, the product of a process that leverages the city's participative traditions consistent with the 2014 guidelines of the Housing and Land Use Regulatory Board (HLURB),¹ presents a successor Comprehensive Land Use Plan (CLUP) for the City of Naga.

It consists of three volumes: Volume I contains the CLUP proper; Volume II contains the Zoning Ordinance implementing the new CLUP; and Volume III contains the city's detailed Ecological Profile.

Volume I, in turn, consists of five chapters.

Chapter 1 presents a brief profile of Naga, including its demographic trends.

Chapter 2 takes a closer look at the physical, infrastructure, social, environmental and economic sectors of the city.

Chapter 3 provides highlights of the results and findings of assessment studies that collectively used the Climate and Disaster Risk Assessment (CDRA) framework mandated by the DILG and HLURB.

Chapter 4 presents a multi-level situational analysis of the city to define development challenges facing its land use sector, which the new CLUP must address.

Finally, guided by the city's vision statement, Chapter 5 presents the new CLUP, including the land use policies, implementation arrangements, as well as monitoring and evaluation mechanisms.

LEGAL BASES AND METHODOLOGY

Legal bases. The preparation of Naga City's CLUP was carried out pursuant to Executive Order (EO) No. 2013-006 issued by Mayor John G. Bongat on February 20, 2013, which organized the planning team and technical working groups (TWGs) that will formulate the successor land use plan. Guided by HLURB guidelines, the planning team comprised of CPDO staff joined by the City Legal Officer. The TWGs, on the other hand, were built around the five sectoral committees previously organized under EO No. 2011-026, which sought to strengthen the City Development Council (CDC).

The CLUP is the key planning document that defines the allocation, utilization, development and management of all lands within a given territory or jurisdiction according to the inherent qualities of the land itself and supportive of sustainable, economic, demographic, socio-cultural and environmental objectives as an aid to decision-making and legislation. Its legal bases flow from the following mandates:

- Section 20(c) of Republic Act 7160, otherwise known as the Local Government Code of 1991, provides that "The local government units shall, in conformity with existing law,

¹ Accessible from <http://2014.hlurb.gov.ph/laws-issuances/clup-guidebooks/>

continue to prepare their respective Comprehensive Land Use Plans enacted through zoning ordinances which shall be the primary and dominant bases for the future use of land resources”;

- Executive Order No. 72 provides for the preparation and implementation of the CLUP by the local government units and for the review and approval thereof by the HLURB; and
- Joint Memorandum Circular No. 001, series of 2009 issued by the Department of the Interior and Local Government (DILG) and the HLURB provides that CLUPs may cover a period of 10 years at the minimum, and ideally must be prepared before the Comprehensive Development Plan (CDP), the former being a framework or long-term guide for all other local plans.

Methodology. Leveraging the city’s participative governance processes, the CLUP’s preparation followed the 12-step process described by the HLURB under its 2014 guidelines. The aforementioned EOs took care of Steps 1 and 2 (organizing and stakeholder identification), followed by a multi-stakeholder visioning workshop on May 24, 2013 that took care of Step 3 (setting the vision). Subsequently, the planning team updated the city’s sectoral database and ecological profile so that from May to July 2015, 16 sub-sectoral planning workshops took care of Steps 4 and 5 (situational analyses and goals and objectives setting).

On September 22-23, 2015, the five Sectoral Committees met and using the sub-sectoral workshop outputs, took care of Step 6 (establishing the development thrusts and spatial strategies). For most of the intervening period, technical assistance under two projects² filled the gap in terms of the city’s climate change adaptation and disaster risk reduction and management (CCA-DRRM) compliance, yielding a risk-sensitive CLUP.

For the last quarter of 2016, the planning team prepared the first draft of the CLUP, thereby taking care of Step 7 (CLUP preparation). It made extensive use of the CCA-DRRM data prepared under the two projects, with mapping capability supplied by the city’s geographic information system (GIS) supplemented by the open-source Google Earth application. On December 16, 2016, the draft CLUP was presented and approved with modifications during the 4th quarter meeting of the Naga CDC.

On April 25, 2017, the first draft was submitted to the Sangguniang Panlungsod, which promptly scheduled five sectoral consultations through its Committee on Land Use on May 17-19. The suggestions and improvements on the draft plan were subsequently incorporated in this revised draft of the CLUP.

BRIEF PROFILE

Brief history. Naga is an independent component city in the Bicol Region (Region V) of the Philippines. Even before the coming of the Spaniards, it was already a flourishing community off the riverbanks of Naga River. The name “Naga” is said to have derived its origin from narra

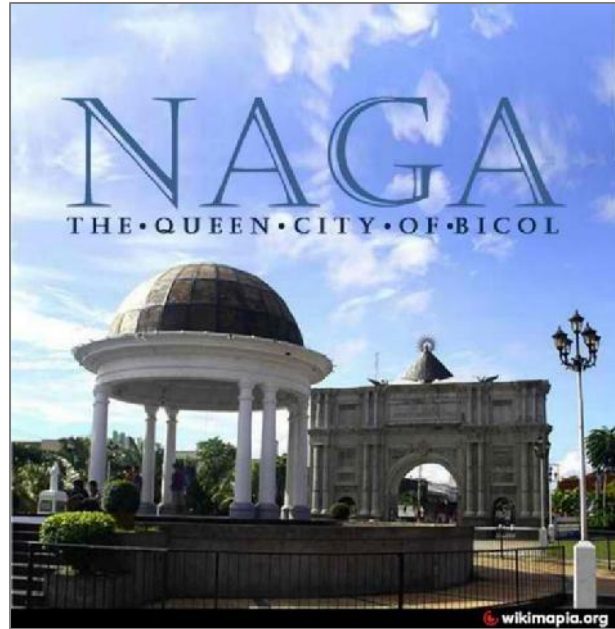
² These are (1) the “Climate-Associated Risk Assessment for Climate Change Adaptation and Disaster Risk Reduction and Management (CCA-DRRM) in Naga City, Camarines Sur: Validating a Space-Based Decision Support System (DSS) for Urban Resilience (Naga City DSS for CCA-DRRM)” implemented by the ICLEI-ACCCRN (International Council for Local Environmental Initiatives-Asian Cities Climate Change Resilience Network) through The Manila Observatory, and (2) the “Climate Resilience and Green Growth for Critical Watersheds” project being implemented by the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) Consortium.

trees, which were then in abundance. The late Fr. Raul Bonoan, S.J., former president of Ateneo de Naga University, however advanced an alternative theory linking the name to the Nagas, a serpent-worshipping northern Indian tribe that settled near or around water springs.

The modern town was established in 1575 on order of Spanish Governor-General Francisco de Sande, a native of Cáceres in Extremadura, Spain. It was named Ciudad de Nueva Cáceres (New Cáceres City) in his honor, thus becoming the third royal city in the Spanish East Indies after Cebu and Manila.

Nueva Cáceres served as capital of Ambos Camarines and later of Camarines Sur province. In 1919, the Americans reclassified the city into a town and restored its former name. It regained its status as an independent component city by virtue of Republic Act (RA)

No. 305, which became a law on June 18, 1948 under the sponsorship of Rep. Juan Q. Miranda. On June 6, 1955, it ceased as provincial capital when the Camarines Sur provincial government moved its seat to neighboring Pili pursuant to RA No. 1336.

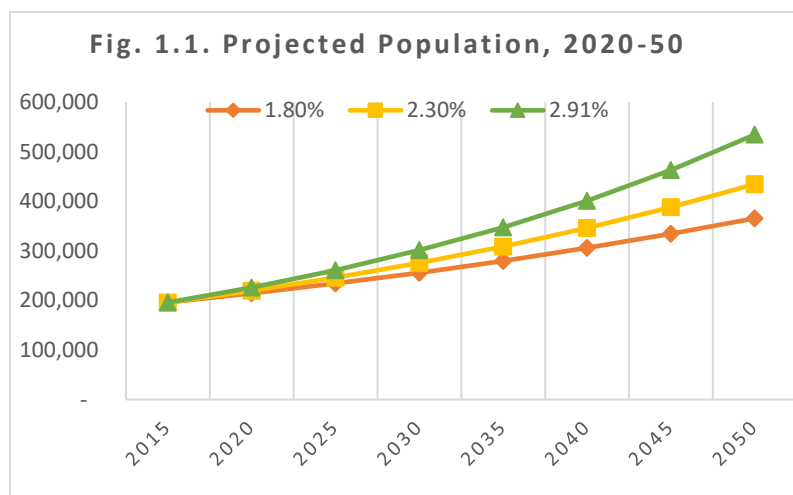


Naga City goes by many names.

Religious center. Naga City goes by many names: "Queen City of Bicol" and Heart of Bicol due to its central location in the Bicol peninsula, and the Pilgrim City because it is also home to the largest Marian pilgrimage in Asia, the Lady of Peñafrancia, the region's patroness. The 315-year old devotion makes Peñafrancia, together with the Divino Rostro, one of the most popular objects of devotion in the country.

Consequently, Naga is also Bicol's religious center. It is the seat of the metropolitan Roman Catholic Archdiocese of Cáceres, whose jurisdiction includes all the suffragan sees of Bicol, the Dioceses of Daet, Legazpi, Libmanan, Masbate, Sorsogon, and Virac.

Development administration. Coordinating growth and development is the City Government of Naga, which directed the city's transformation into a center of good governance in the Philippines. For the last two decades, it has earned close to 200 national and international awards for innovations and excellence in diverse areas of local governance from the time of the late Mayor Jesse M. Robredo up to the present under Mayor Bongat. It is the "Most Competitive Component City" for 2015 and 2016.



Naga is also the core of Metro Naga, an official designation given the city and 17 municipalities in the area administered by the Metro Naga Development Council. Metro Naga is a metropolitan area that also includes Pili, the provincial capital, and covers most of the 3rd district of the province and part of its 2nd, 4th and 5th districts. Metro Naga comprise about 40% of the total population of the province, and 23% of its land area.

Territorial jurisdiction. Naga has a total of 27 barangays of varying sizes. In terms of population, Dinaga is the smallest with 456 inhabitants as of 2015 while Concepcion Pequeña is the largest with 23,577. In terms of land area, Lerma is the smallest with 5.1 hectares while Carolina is the biggest with 1,777. Lerma is also the densest at 461 persons per hectare while Panicuason is the least dense at only 2 persons per hectare.

DEMOGRAPHY

Population count and trends. The 2015 Census by the Philippine Statistics Authority (PSA) puts Naga's population at 196,003. This is an increase of 21,072 inhabitants over the 2010 total of 174,931, making Naga the fastest growing city in Bicol in terms of population. This translates to a 2.3% annual population growth rate, lower than the 2.91% registered between 2007 and 2010. Of the total, 49% are male while 51% are female. The latter's share has been steadily growing: in 1995, there were only 95 females for every 100 male population; in 2010, there were already 104 females for every 100 males.

In 2015, the city's household population reached 42,152, higher by 6,223 compared to the 35,929 recorded in 2010, yielding an average household size of 4.61, lower than the 4.84 recorded five years back. By comparison, there were 5.20 persons per household in 2000. These mean there are around 5 persons in the average Nagueño family over the last 15 years.

By 2030, the city's population is projected to hover between a low of 256,028 to a high of 301,300³. (Fig. 1.1.) If the current 2.3% growth rate is maintained, Naga's population will reach 273,715 by 2030. (See Tables 1.1 and 1.2.)

Age-sex structure. Naga is a city of young people. Children and the youth (those aged 24 and below) comprise more than half (54%) of the total population. More than a quarter (29%) is of school age, with preschoolers accounting for 4%, elementary 12% and secondary 13% of the total.⁴ While males make up 52% of the total school-age population in the lower years, the situation is equalized at the secondary level with males and females each getting 50%.

Population density. Based on PSA standards, Naga is 100% urban. At 2,320 residents per sq km as of 2015, up from 1,631 per sq km 15 years ago, it remains the most densely populated city in Bicol using a land area of 84.48 sq kms as base.⁵

³ The low-growth scenario is based on an annual population growth of 1.80% recorded between 1991-2000. The high-growth scenario is based on a 2.91% annual growth recorded between 2007-2010.

⁴ This is further broken down into 9% for junior high school (Grades 7-10) and 4% (Grades 11-12) under the new K-12 curriculum.

⁵ This document will use 84.48 sq. kms as Naga's land area, consistent with the Philippine Geographic Standard Code (PGSC) reflected in the PSA website. This is notwithstanding the reduced 77 sq, kms measure put forward by the Land Management Bureau of the DENR in 2013, which is under review.

Migration. In 1990, 39% of the city's population were considered migrants. In the 2007 Ateneo de Naga University SSRC survey, 43% of city residents are born in Naga, 38% are from Camarines Sur, 9% are from other Bikol provinces, and 11% from outside Bikol. Their average length of stay in Naga is 28 years.

The pace of migration has remained largely the same between 2000 and 2010. Only 5% (2010) to 6.7% (2000) of the household population aged five years old and above moved their place of residence: almost all (between 93.3 to 95%) stayed in Naga. In 2010, 2.8% moved in from other cities or towns of Camarines Sur, 2% from other provinces, and 0.2% percent from other countries.

According to OWWA data, there were around 2,155 overseas Filipino workers (OFWs) who are from Naga in 2016; after adjustments, it is estimated that around 8.5% of the city household population have an OFW member. The city's CBMS data for 2011 and 2015 place their number between 6.5 to 6.8%. Both are higher than the 2015 PSA data placing the share of Bikolano OFWs to the Philippine total at only 3.1%.

The OWWA and CBMS figures, however, are closer to results of the 2014 ASSRC survey which says that 16.3% of the city's household population have a family member abroad. (Fig. 1.2.) The same survey said that 61.8% of these international migrants are female while 38.2% are male. Moreover, two of every three (67.6%) are Overseas Filipino Workers (OFWs) working abroad, while 32.3% have permanently migrated or Overseas Filipinos (OFs).

Poverty incidence. According to NSCB estimates, the official figures used by government, poverty incidence in Naga reached 15.7% in 2012, an improvement over the 16.6% registered in 2006 and the 24.4% in 2009.

To more fully capture the extent of poverty, these official figures are supplemented by two other data sets. One is the self-rated poverty data generated through the annual Naga City Poverty and Governance Public Opinion Poll conducted by the Ateneo de Naga Social Science Research Center. Over the last few years, there has been a significant downtrend in the number of people saying they are poor: from a high of 62% in 2007, it went down to 48% in 2013, 42% in 2014 and 43.5% in 2015.

The other source are official data generated through the Community Based Monitoring System (CBMS), a survey conducted by the city government every three years. In 2015, the CBMS identified a total of 10,872 households (33.4%) as income poor. This means at least 1 in every 3 households has no significant income to satisfy its basic food and non-food needs. Income poverty is highest in Carolina (49.4%) and Concepcion Pequeña (1,291 households).

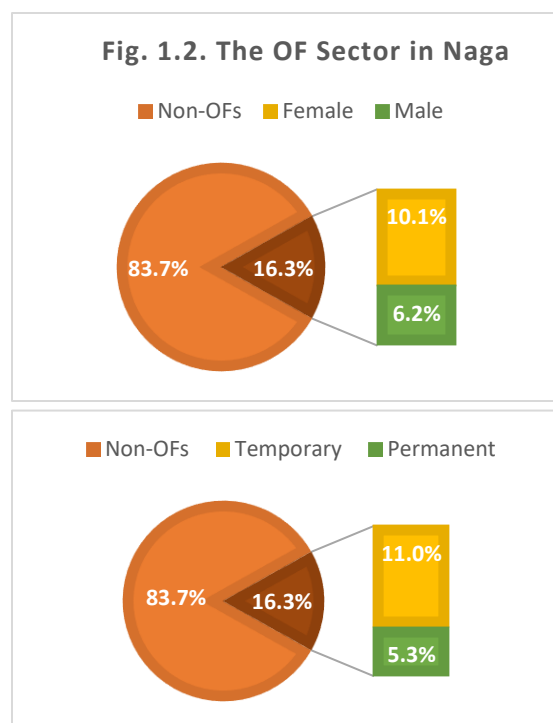


Table 1.1. Population of Naga City, 1960-2015

Feb 15 1960	May 6 1970	May 1 1980	May 1 1990	May 1 2000	May 1 2010	May 1 2015
55,506	79,846	90,712	115,329	137,810	174,931	196,003

Table 1.2. Projected Population of Naga City, 2015-50

YEAR	1.80%	2.30%	2.91%
2015	196,003	196,003	196,003
2020	214,258	219,615	226,208
2025	234,214	246,072	261,068
2030	256,028	275,715	301,300
2035	279,874	308,930	347,733
2040	305,941	346,146	401,320
2045	334,435	387,846	463,166
2050	365,584	434,569	534,543

Table 1.3. Population of Naga City by Barangay, 1990-2015

BARANGAY	1990	1995	2000	2007	2010	2015
NAGA CITY	115,329	126,972	137,810	160,516	174,931	196,003
Abella	6,348	5,740	5,016	5,150	4,418	4,788
Bagumbayan Norte	2,099	1,952	2,331	2,193	2,669	2,911
Bagumbayan Sur	5,482	5,544	4,709	5,265	6,036	6,959
Balatas	5,092	5,719	6,808	6,964	8,333	10,404
Calauag	5,045	6,707	7,208	10,529	11,022	11,513
Cararayan	3,487	5,469	7,355	9,108	12,108	15,998
Carolina	3,248	3,330	4,349	3,347	5,542	5,841
Concepcion Grande	6,095	7,598	8,524	10,725	11,979	11,137
Concepcion Pequeña	12,943	15,615	16,818	20,555	21,326	23,577
Dayangdang	4,653	5,216	4,604	4,026	4,635	4,568
Del Rosario	1,824	5,021	6,260	7,046	7,055	9,332
Dinaga	887	741	467	371	485	456
Igualdad Interior	2,290	2,620	2,591	3,345	3,775	3,379
Lerma	2,235	2,363	2,329	2,150	2,056	2,337
Liboton	2,712	3,269	3,006	3,119	2,870	3,075
Mabolo	5,167	5,751	5,962	6,529	6,875	7,611
Pacol	3,158	3,146	6,271	7,996	9,981	11,673
Panicuason	1,236	1,366	1,847	2,246	2,033	2,715
Peñafrancia	5,753	5,644	5,451	5,563	5,139	5,712
Sabang	5,587	6,179	5,991	5,953	6,742	7,000
San Felipe	4,840	3,977	6,126	13,238	14,196	17,444
San Francisco	1,628	1,483	1,139	953	941	947
San Isidro	1,333	1,698	1,813	2,053	2,301	2,768
Sta. Cruz	6,603	6,135	5,750	6,879	6,761	7,442
Tabuco	4,578	4,392	4,276	4,034	4,265	4,129
Tinago	4,844	3,721	3,927	3,521	3,403	3,268
Triangulo	6,162	6,576	6,882	7,658	7,985	9,019
Annual average growth rate		1.94%	1.80%	2.20%	2.91%	2.30%

Table 1.4. Household Population of Naga City by Age Group and Sex, 2010

	BOTH SEXES	MALE	FEMALE
All Ages	173,731.00	85,318.00	88,413.00
Under 1	3,785.00	1,967.00	1,818.00
1-4	15,105.00	7,842.00	7,263.00
5-9	19,289.00	9,957.00	9,332.00
10-14	19,738.00	10,096.00	9,642.00
15-19	19,286.00	9,348.00	9,938.00
20-24	16,462.00	8,080.00	8,382.00
25-29	13,714.00	6,800.00	6,914.00
30-34	12,410.00	6,082.00	6,328.00
35-39	10,591.00	5,115.00	5,476.00
40-44	9,849.00	4,869.00	4,980.00
45-49	8,703.00	4,179.00	4,524.00
50-54	7,369.00	3,503.00	3,866.00
55-59	5,813.00	2,829.00	2,984.00
60-64	4,158.00	1,855.00	2,303.00
65-69	2,806.00	1,140.00	1,666.00
70-74	2,039.00	769.00	1,270.00
75-79	1,293.00	461.00	832.00
80 years old and over	1,321.00	426.00	895.00

Chapter 2

THE SETTING

This chapter summarizes the physical and socio-economic context of Naga City as a means of defining current realities that underpin the plan.

PHYSICAL PROFILE

Geographic location. Naga City is centrally located in the province of Camarines Sur, about 377 kms south of Manila and 100 kms north of Legazpi City, Albay. Nestled at the foot of Mt. Isarog, the city has a total land area of 8,448 hectares or 84.46 sq kms.

On the Philippine Map, it is placed between 13 to 14° North Latitude and between 123 to 124° East Longitude. It is bounded on the North by the towns of Canaman, Magarao and Calabanga; on the East by Mt. Isarog; on the South, by Milaor and the capital town of Pili; and on the West by the town of Camaligan. (Fig. 1.3.)

Topography. The city's terrain generally slopes upward from west to east. Its city center, trisected by the Bicol and Naga rivers which are fed by creeks and riverines that crisscross the city, is located near its lowest point, making it susceptible to flooding when unusually heavy rainfall causes these waterways to overflow.

Slope suitability. The low flatlands from the city center up to the upper barangays of Pacol and San Isidro at foot of Mt. Isarog have slopes of 0-3% (almost level) to 3-8% (nearly level to slightly sloping). Collectively, they account for 58% of the total land area.

On the other hand, the eastern part covering barangay Carolina has slopes of 8-18% while Panicuason, which includes the Forest and Parks Reserve of Mt. Isarog that forms part of the

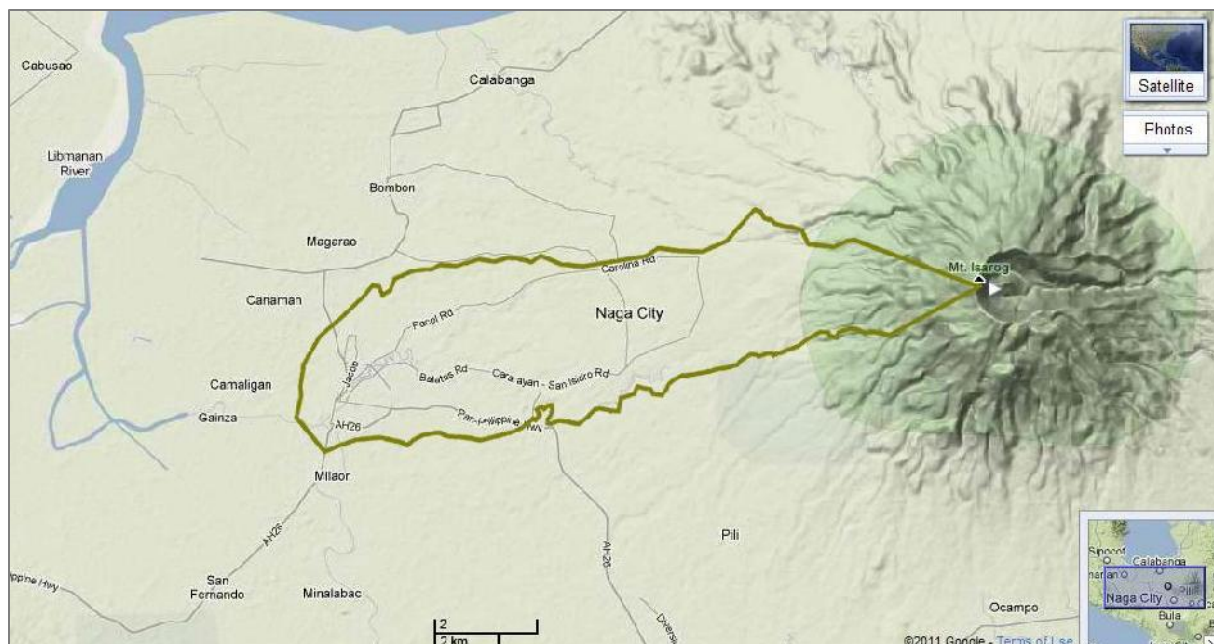


Figure 1.3. Location Map of Naga City. Base map from Google Maps, city boundaries from Comprehensive Land use Plan 2000

National Integrated Protected Areas System (NIPAS), has the steepest from 18-30% and above.

Soil fertility. Agricultural adaptability of the soil is well-suited for palay, corn, abaca, coffee, sugar, fruit, root crops and other vegetable varieties. Soil-fertile areas are generally located in the agricultural barangays of Cararayan, Pacol, Carolina, Panicuason and San Isidro. Some agricultural activities can also be seen in some portions of San Felipe, Balatas, Tabuco, Mabolo and Concepcion Grande.

They correspond to the three major soil types found in the city. The Pili clay loam, part of the Pili Series of Philippine soils, is found in the low elevation areas of the city. Pili soils are poorly drained and renewed by the Bicol River every year by delivering and depositing fine volcanic materials and organic matter from highlands through flooding. On the other hand, the Tigaon clay, found in the city's midlands (Pacol, Cararayan, San Isidro and lower Carolina) is part of the Tigaon Series, found in undulating and rolling, or hilly to mountainous (east of Mt. Iriga and Lake Buhi) areas in Camarines Sur. Tigaon series has good moisture retentivity with water easily percolating through soil layers. Finally, the Bulusan loam is found in upper Carolina and the whole of Panicuason. These are primary soils developed from the weathering of massive to fragmented volcanic rocks, mostly basalt and andesite.

Climate and rainfall. Naga's climatic type falls under Type II under the Modified Coronas classification. This condition is characterized by a definite absence of dry season and a very pronounced maximum rain period from November to January. Under the Köppen climate classification system, this is equivalent to a tropical savanna climate. It is

characterized by monthly mean temperatures above 18 °C in every month of the year and typically a pronounced dry season, with the driest month having precipitation less than 60 mm.

Between 2005 and 2014, the city had an average annual rainfall of 2,450 mm, ranging between a low of 2,083 mm (2007) and a high of 3,393 mm (2011). The 10-year average represents a 19% increase over the 2,104 mm recording during the previous planning period. September to December are usually the wettest, while February and April are the driest. During the same period, mean temperature ranged between a low of 23.4 to a high of 31.3 °C, or an annual average of 26.8 °C.

Typhoons. Naga, as is the whole of Bicol Region, is susceptible to typhoons, lying in the usual east-to-northwest path taken by these weather disturbances that regularly visit the Philippines.

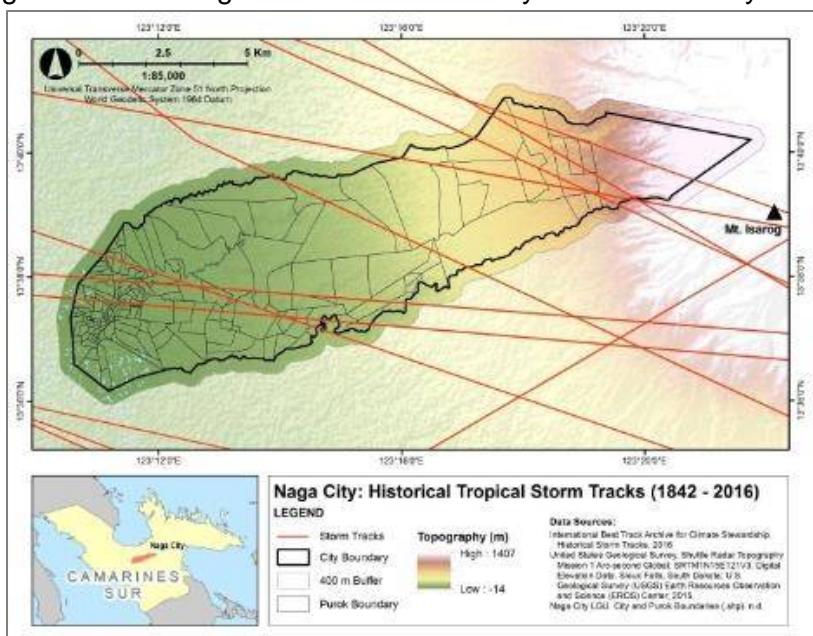


Fig. 1.4. Historical Typhoon Tracks in Naga City

(See Fig. 1.4.) Between 2005 and 2016, an average of 18 typhoons entered the Philippine area of responsibility – from a high of 25 in 2013 to a low of 11 in 2010.

While most hardly caused material damage to the city, they remain a threat. In fact, 13 of the 16 strongest typhoons that hit the Philippines from 1947-2016 all passed through Bicol. (See Table 1.4.) Three of these took place between 2006 and 2016: “Reming” (Dorian) on November 30, 2006, whose winds peaked at 320 kph; “Glenda” (Rammason) on July 15, 2014, with maximum winds of 215 kph; and “Nina” (Nock-Ten) on December 25, 2016, with maximum winds of 250 kph.

THE NAGA RIVER WATERSHED

The land area of Naga City spans 8,448 hectares but its watershed area is estimated at only 5,445, part of which extends beyond the city’s territorial boundary. The Naga River watershed appears like an elongated leaf with a pointed tip, lying down along the east-west axis; with its outlet oriented almost due west and its tip oriented almost due east. Its widest portion is located approximately one-third of its total length reckoned from its lowest portion (mouth of the river). (See Fig. 1.5.)

Slope. The slope of the watershed varies: It is relatively level from its junction of the Bicol River up to Barangay Carolina, with very gentle slope below 18%. This starts to rise from Barangay Carolina to Panicuason to about 18% slope. From the lowest portion of Barangay Panicuason, the slope starts to rise quickly beyond 18% and up to more than 100% towards the peak to Mt. Isarog. In terms of land area, it is broken down as follows: 1-18%, 4,996 hectares; 18-38%, 519 hectares; and above 38%, 28 hectares.

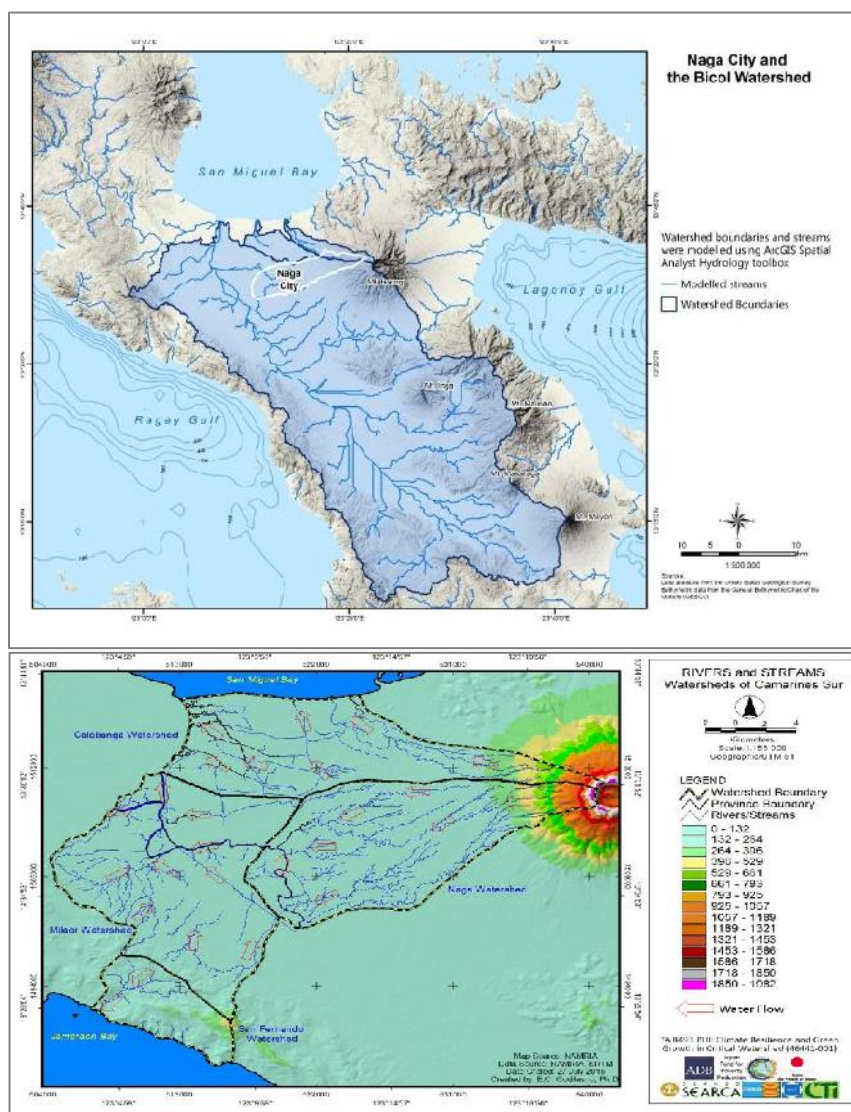


Fig. 1.5. The Naga River Watershed

Altitude. The lowest portion of the watershed is the outlet of the Naga River that empties into the Bicol River. At its junction with the Bicol River, the riverbed is a little lower than sea level inasmuch as it allows backflow of sea water into the lower portion of its river system (i.e., within the urban area). At the boundary of Barangay Pacol and Carolina, the altitude is approximately 100 meters above sea level and about 350 meters at the boundary of Barangay Carolina and Panicuason. Within the latter, it rises to approximately 1400 meters, until it reaches the highest altitude of 1,966 meters above sea level at the peak of Mt. Isarog.

Land use. In 2000, land use was measured as follows: forestry, 547 hectares; agricultural, 3,812 hectares; built-up area, 958 hectares; water bodies, 55 hectares; and others, 73 hectares for a total of 5,445. The main portion of the city is located in low and flat topography that is frequently inundated by floods when water from the Naga and Bicol rivers overflow their banks.

The watershed boundary of Naga City River was delineated by tracing the topographic divide/ridgeline using a NAMRIA topographic map. The boundary of watershed extends beyond the administrative jurisdiction of Naga City. Specifically, it includes portion of barangay Tinangis of the Municipality of Pili, and some parts of the Municipality of Goa in its eastern side. In particular, the watershed is bounded in the north by the Municipality of Calabanga; in the south by the Municipality of Pili; in the east by the Bicol River; and in the west by the Municipality of Goa.

FLOOD MANAGEMENT

Climate change will significantly influence decisions to be made in Naga City regarding water supply, flood protection and flood mitigation in the coming years. Climate variability and climate change influences precipitation, storms, and flooding. Climate change is synonymous with the human induced part of global warming. Climate variability refers to natural climate changes. The natural climate has been changing since the beginning of time and climate “change” simply modifies the dynamic. Climate change has been occurring mostly over the past 100 years in particular the emission of greenhouse gases into the atmosphere, particularly CO₂.

A variety of climatic and non-climatic processes create river floods, flash floods, urban floods, and coastal floods. Flood magnitude depends on precipitation intensity, volume, and timing. Antecedent conditions (like saturated or unsaturated soils) are also important factors. The climatological parameters that are affected by climate change are precipitation, wind storms, storm surges, and sea level rise. The intensity of precipitation events due to climate change is projected to increase in tropical regions of the world. Return periods of flood events are expected to be altered whereby a 10 year return period (RP) flood event today could become the 5 year RP flood event tomorrow.

Naga City is therefore situated in a relatively precarious position. Of the 20 typhoons that are expected to hit the Philippines each year, five will directly impact Camarines Sur and Albay provinces although some will skirt the city. Based on Global Circulation Models (GCMs), typhoons are expected to increase in intensity and frequency. The destruction power of storms will also be strengthened by rising sea levels. Wind damage as well as flood inundation in Naga City will be the result of storm surges. Offshore winds pushes river and tidal water well ahead of storm fronts and pushes the water as far away as 30 km from San Miguel Bay up the Bicol River and then up the Naga River. This was demonstrated by Super Typhoon “Reming” in 2006 where

a tidal surge pushed river water to a recorded elevation of 4.2 msl at the Peñafrancia landing about 2.8 km up Naga River. This is over two meters above normal water surface elevation.

The 2007 Intergovernmental Panel on Climate Change (IPCC) projected that global mean sea levels would rise by 20-60 cm by 2090. Using a slightly different technique, future sea levels were estimated to rise by 50-140 cm by 2100. Whichever is most correct, both expect significant increases in sea levels. The IPCC identified several key impacts to towns located in coastal areas such as Naga City including: (i) lowland inundation and wetland displacement, (ii) altered tidal range in rivers and bays, (iii) changes in sedimentation patterns, (iv) more severe storm surges and flooding, (v) increased saltwater intrusion into freshwater aquifers, and (vi) increased wind and rainfall damage.

INFRASTRUCTURE

Roads and bridges. As of December 2015, Naga's road network has expanded to 195.7 kms, 31.4 more than the 164.3 kms recorded in 2000 – an increase of 19%. Of these roads, a total of 31.8 kms (16%) were built by the national government. (See Table 1.6.)

In terms of road type, 145.2 kms (or 74% of the total) are concreted; 30.4 kms (16%) are asphalted; 14.1 kms (7%) are gravel surfaced; while 6.0 kms (3%) are still earth road. Over the last 15 years, the share of asphalt-overlain roads showed the biggest increase, from 10 to 16% of the total, while concrete roads went down by 6 percentage points from 80 to 74%.

The number however does not include around 50 kms in private subdivision roads still to be turned over the city government. When these are considered, Naga would have a total road network of around 246 kms as of 2015.

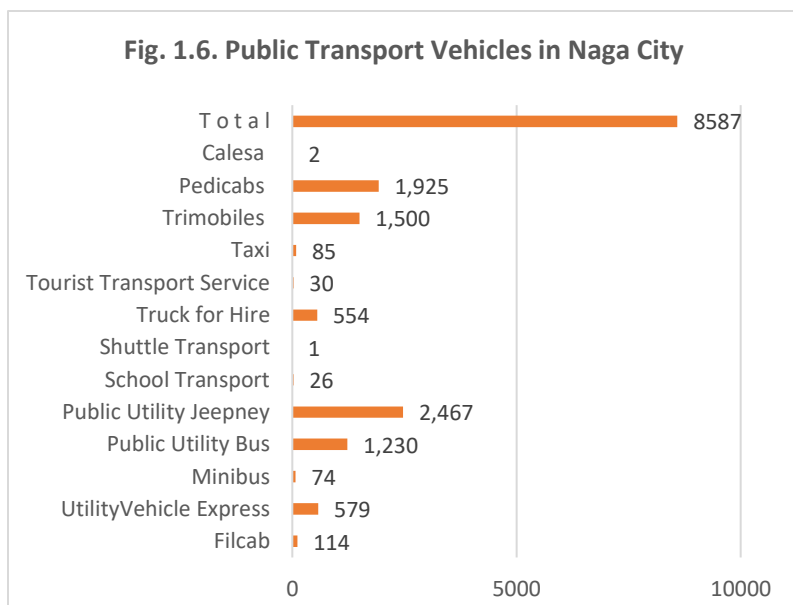
Within the city, there are 13 city bridges, each with a 10-ton capacity, and six national bridges. Most of these bridges are found in the city center which is trisected by the Bicol and Naga Rivers. Over the last 15 years, three new bridges were added, two by the city and one by the national government.

Road gap. According to the DILG Local Road Management Manual as well as relevant HLURB guidelines, the standard urban road to population ratio is 2.4 kms per 1,000 urban population. On the other hand, the standard rural road to rural land area ratio is 1.5 kms per 100 hectare of rural area. Applied to Naga at its 2015 population of 196,003, the city road network would be a maximum of 470 kms if all of its 27 barangays were considered urban, and a minimum of 126.6 kms if all of its 8,440-hectare land area were rural. As pointed out in the 2001 Comprehensive Land Use Plan (CLUP), the city has long exceeded the rural standard decades back.

But factoring in its population by 2030, which is projected to grow between 2.3 to 2.91% annually based on the last three censuses, the situation becomes more daunting. Going by the DILG and HLURB standard for urban areas, Naga will have to double and even triple its current road network to attain the ideal of 662-723 kms. Thus, the city needs to bridge a road gap that stands between 220 kms for 2015 and as much as 477 by 2030.

Land transport. In 2013, Naga's public transportation system is mainly provided by around 8,587 units, an increase of 71% over the 2010 figure of 5,007. (See Fig. 1.6) It is broken down into the following:

- 1,304 aircon and non-airconditioned buses that ply inter-provincial routes within Bicol, as well as trips between Naga and Metro Manila, which account for 15%
- 693 Filcab and UV Express vans cover intra- and inter-provincial routes, mainly to Camarines Norte, Sorsogon and Albay, which account for 8%
- 2,467 public utility jeepneys (PUJs) cover routes to other towns in Camarines Sur and intra-city routes, which account for 29%
- 554 trucks for hire connecting Naga City to any point in the Philippines, mainly Luzon island, which account for 6%
- 27 school and 30 tourist transport service vehicles that account for 1%
- 85 taxi units representing another 1%
- 1,500 trimobiles serving mainly intra-city routes, whose number is fixed by a city ordinance, representing 17%, and
- 2 units of calesa and 1,925 units of pedicabs¹, which account for 22% of the total.



As of 2015, the total number of registered vehicles in Naga reached 35,044 units, 4% higher than the 33,761 registered in 2010. Of these, 30,856 (88%) are private, 3,729 (11%) are public utility, and 459 (1%) are government-owned vehicles. In 2010, the ratio is 93% private, 6% public, and 1% government. In terms of vehicle type, motorcycles continue to dominate city roads, accounting for 52-59% or almost 3 of every 5 registered in the city. Utility vehicles, which are mostly jeepneys, comprise the next biggest group at 21-25%, followed by cars and SUVs at 9-11%, trucks and buses at 4-5%, and trimobiles at 6-11%. (See Table 1.7.)

Air transport. By plane, Naga is about 45-55 minutes away from Metro Manila via Naga Airport which is located in the capital town of Pili, Camarines Sur some 12 kilometers from the city proper. PAL Express and Cebu Pacific field regular morning and afternoon flights to and from the national capital. Every week, around 35 flights serve the Naga-Manila route which allows greater flexibility to connect with other national and international destinations.

Legazpi Airport, which is about two hours away from Naga, can also be utilized in going to Manila or Cebu.

Rail and water transport. Operations of the Manila-Bicol run of the Philippine National Railways (PNR) have been on and off. Efforts to resume operations between Manila and Naga were constrained by accidents, destruction of key segments in the railroad system during strong

¹ Popularly known as “padyaks,” which are supposed to cover only barangay and subdivision roads but have contributed to congestion of a few city and national roads where their services could not be dispensed with.

typhoons, and pilferage of railroad track materials. The DOTC has conducted an audit to determine the safety and reliability of the system before resuming operations.

As a result, the Bicol commuter service was launched in 2009, between Tagkawayan, Sipocot, Naga and Legazpi. But after further service reductions, only the service between Naga and Sipocot was operational by 2013. In October 2015, service resumed between Naga and Legazpi, but the devastation of Typhoon 'Nina' again cut it short.

The advent and popularity of land transport has eliminated water transport services between Naga and its neighboring towns, reaching as far as Libmanan. The establishment of wharves along Naga River is also being pursued by the city government to jumpstart water transport services within the urban center in the context of its Integrated Naga River Revitalization Project.

Communication. Globe (which has recently acquired Bayantel) and PLDT (formerly Digitel) are the two major telecommunication companies that provide basic and advanced fixed-line telecommunication services in the city. In 2011, their combined subscriber base of almost 11,500 subscribers has pushed the city's fixed line telephone density to one for every three households.

The entry of the wireless telecommunication companies, now reduced to a duopoly between Smart and Globe, has accelerated growth of the local telecommunication industry. The 2007 Ateneo SSRC research shows that Nagueños have greater access to cellular service than landline, with every household owning two to three mobile phones on the average, some even have dual-sim cellphone units.

Internet access has also been increasing, powered by more accessible and affordable broadband services being offered by PLDT-Smart and Globe-Bayantel, as well as bundled offerings by local cable TV operators Skycable and Caceres Cable. Recently, new players like Signal and Dream have joined the fray by offering direct-to-home satellite TV services. Cybercafes offering cheap internet services and games have also been mushrooming in the city, further enhancing greater access by local residents and visitors alike. Some service and commercial establishments, particularly hotels and restaurants, offer free wi-fi internet service to customers as a value-added amenity. The 2010 Census reflects this, showing that around 34% of the city's household population have internet access, with 17% accessing it from their home and the other 17% accessing it elsewhere. These are expected to have grown as the city government, in partnership with PLDT, has offered free wi-fi services in the three plazas at the downtown area as well as the Bicol Central Station.

The broadcast media in Naga has continued to grow over the decade. These are being provided by around 20 AM and FM radio stations, and five local television stations, ABS-CBN, GMA, PBN, UNTV and GNN. Also, two local cable TV companies provide up-to-date news, relevant information and entertainment to Nagueños. National dailies and local weekly newspapers are also available in the city.

Postal services are being provided by the Philippine Postal Corporation (PhilPost) with 24 staff and personnel for 2013. It also operates a mailing station located at the SM City and UNC Compound. Complementing it are seven messengerial companies (JRS Express, LBC Air Cargo, DHL, Daily Overland Express, FedEx, OCS and 2Go). However, the advent of internet-based technologies and social networking sites like Gmail, Yahoo, Hotmail, Google, MSN, Skype, Facebook and Twitter have affected these traditional communication services.

Waterworks. The waterworks system run by the Metro Naga Water District (MNWD) supplies the requirements of Naga and the four neighboring towns of Canaman, Camaligan, Gainza and Magarao. Its main water source comes from three springs located in Pili, Camarines Sur – the Anayan, Kalinisan and Rumangrap springs – and 18 operational deep well pumping stations located in strategic sites within its service area. Complementing the MNWD is the city government's Water Services Division (formerly called Task Force Tubig) that installs Levels I and II water systems in key areas of the city, as well as the barangay-operated Panicuason Water Services Association (PAWASA).



Fig.1. 7. Perspective of the MNWD Septage Facility in Sitio Caromatig, Carolina.

As of 2013, the MNWD water system has a total of 40,248 active connections, which is continuously growing at the rate of 157 average new connections per month. It is 23% higher than the 2010 level of 32,769, or an average annual growth of 8%. This is more than three times faster than the city's population growth over the same period. Average water consumption of domestic, commercial, industrial and government users reached 15.4 million cubic meters.

With the approval of its proposed environmental service charge, the MNWD is expected to offer septage treatment services by around 2018 on top of basic potable water provision, anchored on a treatment facility located in Sitio Caromatig in Barangay Carolina that is capable of handling 56 cu. meters of sludge per day. (Fig. 1.7.)

Power. Electric power services in the city is being provided by the Camarines Sur II Electric Cooperative (CASURECO II), one of the four electric cooperatives engaged in power retail in the province, and the second biggest in the Bicol region in terms of market size. Power is sourced mainly from newly privatized generating plants connected to the Luzon Grid being operated by the National Grid Corporation of the Philippines (NGCP).

Data from the National Electrification Administration (NEA) show that as of December 31, 2016, CASURECO II has achieved 100% energization of all barangays (259), 83% of all sitios (341 of 409), and 97% of all potential households (117,538 of 120,900) within its coverage area. In Naga, which accounts for around 65% of its market, it has energized all 27 city barangays.

One of the three mega-large electric cooperatives in Bicol, and second biggest in terms of sales behind ALECO, CASURECO II's finances have been improving. In 2014, it registered a P104.5

million net margin out of P1.842 billion sales, equivalent to 6%. This is more than a two-fold improvement over the 2010 level of 2.8%.

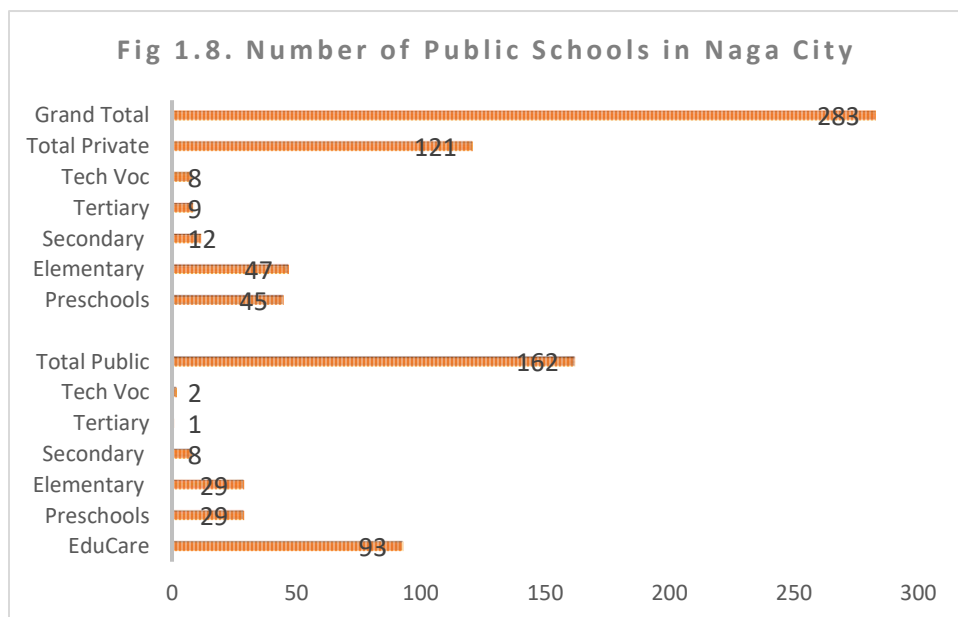
A lingering challenge is its 14.3% system loss for the 1st semester of 2016, which is marginally lower than the 15.5% registered in 2010 and 16.8% in 2006. As a result, it failed to meet the 8.8% systems loss level targeted for 2010 and beyond under the DOE Power Development Plan, and even the 13% cap set by NEA. This, and a 91.8% collection efficiency that remains below the 95% standard, are some of the reasons why CASURECO II was only rated B in the 2015 performance assessment by NEA, although an improvement over its C rating the year before. But it continues to lag behind the triple A-rated CASURECO I and IV and the double-A rated CANORECO which are tops in Bicol. (See Table 1.8.)

SOCIAL SERVICES

Education. As a center of education in Bicol, Naga offers quality education from preschool to graduate courses. In 2016, its educational institutions, including city and barangay-operated SEED Montessori and Educare centers which provide preschool training, totaled 283. Of these, 162 are public and 121 private. The figure is 56% higher than the 2009 level, driven by both the private sector which grew by 75% and the public sector which grew by 45%. (Fig. 1.8.)

Preschool. Both government and the private sector in Naga provide preschool services. Barangay Educare centers (including its flagship SEED schools) increased to 93 from only 27 in 1987. All Educare centers provide Montessori-type instruction to preschoolers as a result of a city government program aimed at strengthening early child education and development. The city's Educare centers are mentored by 86 well-trained teachers. Complementing them are 45 privately-owned schools that provide similar services through their kindergarten classes.

For school year 2016-17, their combined enrolment reached 9,110, which is 11% higher than the 8,212 recorded in 2009. Against the projected preschool age (3-5 years old) population of 7,884, it also translates to a 116% participation rate, which indicates that 16% of preschool enrollees are non-city residents.



Elementary. Elementary education is provided by 29 public and 47 private schools. For school year 2016-17, public elementary schools recorded a total of 29,546 enrollees while private schools had 6,105 for a total of 30,651. Against the projected elementary school age (6-12 years old) population of 22,900, this translates to a 134% participation rate, substantially higher

than the 111% recorded in 2009. This indicates that about one-third of enrollees in the local elementary school system are non-city residents. Table 1.9 presents the enrolment in public and private schools in the city for the period 2010-17.

Secondary. Secondary education is provided by 8 public and 12 private schools. For school year 2016-17, public secondary schools accommodated 16,491 enrollees while private schools welcomed 8,917 for a total of 25,408. The total is 40% higher than the enrolment in 2009. Meanwhile, enrolment in public schools grew by 29% while private schools grew by 67% during the same period. Against the projected high school age (13-16) population of 16,808, this translates to a 151% participation rate, significantly higher than the 118% participation rate recorded in 2009. More importantly, these data include enrolment of non-city residents, which mask access issues at the secondary school level.

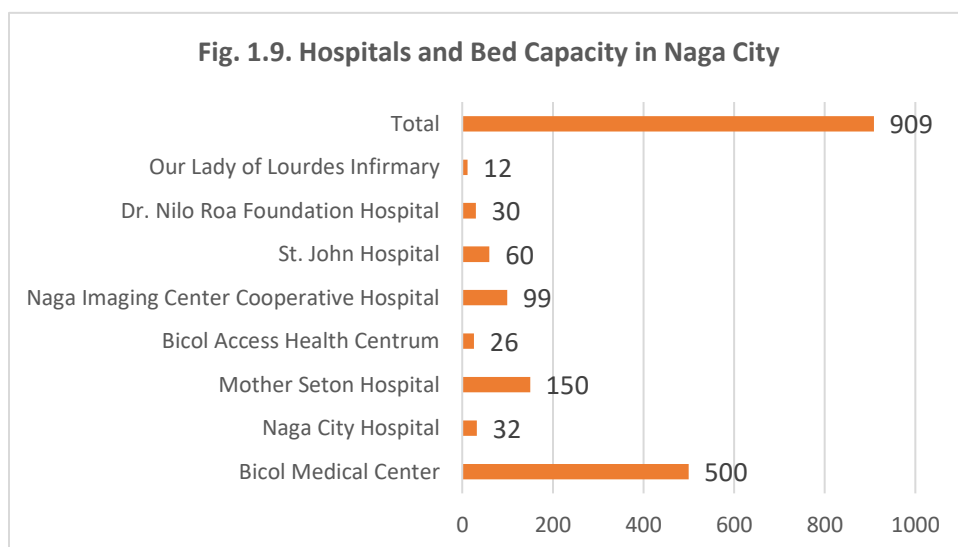
Tertiary. Naga City has 10 schools at the tertiary level, eight of which are privately-owned and two – the Bicol State College of Applied Science and Technology (BISCAST) and the City College of Naga – are state-owned. These institutions offer various courses ranging from 2-year secretarial course to a 4 to 5-year academic degree course such as nursing, engineering, law, arts and sciences. They also offer graduate and post-graduate courses. For school year 2016-17, their combined enrolment reached 27,412, which is 56% higher than the 17,539 recorded in 2009.

Technical-Vocational. Students who cannot afford formal college education usually avail of courses offered by 10 technical-vocational (TechVoc) schools in the city, eight of which are privately-owned. Courses offered vary from care giving to basic computer operations. For school year 2016-17, their combined enrolment reached 1,088.

Health. As of 2016, Naga is home to a total of eight hospitals and infirmary, three of which are government-owned with the rest private. The three government health facilities are the 500-bed Bicol Medical Center (BMC) along Panganiban Avenue, the 32-bed Naga City Primary

Hospital in Peñafrancia Avenue, and the 12-bed Our Lady of Lourdes Infirmary in Barangay Carolina, the latter two owned and operated by the Naga City Government. (Fig. 1.9.)

On the other hand, the five private hospitals – Mother Seton Hospital, Bicol Access Health Centrum, Naga Imaging Center Cooperative (NICC), St. John Hospital and Dr. Nilo Roa Foundation Hospital – have a combined 365 beds. Together with the government hospitals' 544, it brings Naga's total number of hospital beds to 909. This translates to a bed-to-population ratio of 1:4,617, lower than to the standard ratio of 1:2,000.



In addition, there are 139 clinics in the city, 109 of which are medical and 28 dental. The number of physicians and dentists practicing their profession reached 302 and 76, respectively, which translate to a ratio of 1.5 physicians per 1,000 and 0.4 dentist per 1,000 population. Against the standard of 1 physician and 1 dentist per 20,000 population, this means that Naga has more than enough physicians and dentists to serve its residents.

Housing. Based on the 2010 Census, there were 35,210 housing units in the city, 37% higher than the 25,674 recorded in 2000. At an annual average increase of 3.7%, it means that house construction grew at a faster clip than the city's population growth. Of these 77% were single houses, 13% were multi-unit residences (apartments, rowhouses, condominiums, townhouses), 9% duplex-type, and the remaining 1% were institutional living quarters, other housing units, and commercial, industrial and agricultural buildings being used for dwelling. (Fig. 1.10.) Compared to the previous survey, there was a marked shift towards multi-unit and duplex-type residences (up by 3 percentage points each) from single houses over the last 10 years.

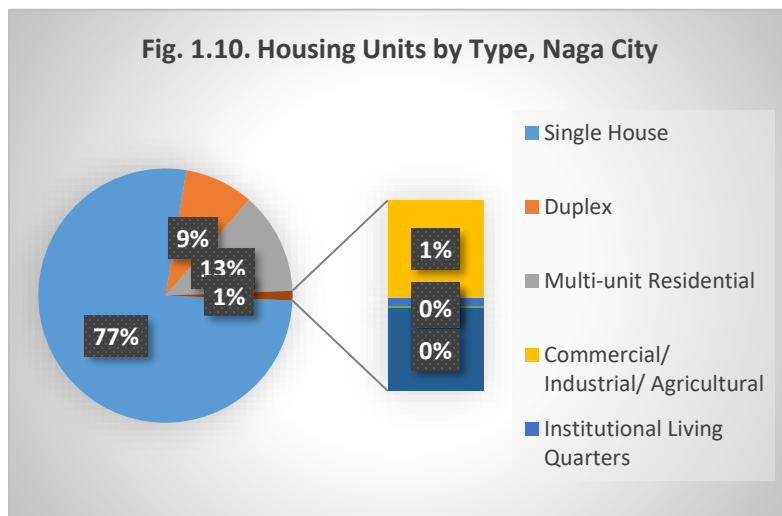
The same survey showed that 88% of the housing units had outer walls and 87% had roofing made of strong materials – a 5 and 9 percentage-point improvement over the previous period, respectively. Moreover, 80% of the housing units do not need repair, or if at all only needs minor repairs (8 percentage points better). More than 4 of every 5 units (86%) were built within the last 30 years (up by 7 percentage points), with a third (35%) built only in the last 10 years, again indicating a robust pace of house construction in the city. (See Table 1.9.)

The PSA survey results tally with findings of the 2015 CBMS survey conducted by the city government, which shows that a total of 2,030 out of 32,509 households (6.2%) were reported to be living in makeshift houses. This is lower compared to the 8.4% recorded in 2011. In addition, only 830 households out of the same total (2.6%) were considered informal settlers. The PSA survey places those staying rent-free without consent of owner at 9%.

Most of the new housing stock in the city were built in the 52 subdivisions covering a combined area of 320.39 hectares that were issued development permits by the City Government since 2000 and completed over the last 14 years. (See Table 1.10.)

On the other hand, according to the Naga City Disaster Mitigation Plan, areas that are considered danger zones for housing are those located along the Naga and Bicol Rivers and those areas that are perennially flooded during

heavy rains and typhoons. Severely flooded areas, which cover approximately 60 hectares, can be found in low-lying parts of barangays Abella, Calauag, Dayangdang, Iguadad Interior, Peñafrancia, Sabang, San Francisco, Sta. Cruz, Triangulo and Tinago. Records of the Housing and Settlements Development Office (HSDO) also indicate that about 55% of urban poor families covered by its Kaantabay sa Kauswagan (KSK) Program are located in these flood-prone barangays.



To address the needs of Naga's urban poor, the city government has been implementing the Naga Kaantabay sa Kauswagan (KSK) program which focuses on helping urban poor communities obtain security of tenure either by helping them acquire their homelots on-site or providing new ones in off-site government-owned relocation sites. Twenty-six years after its launching in 1989, KSK program beneficiaries have reached 9,191 in 2015 (representing 23% of the 40,535 estimated household population), more than twice the 4,000 households originally targeted for coverage.

Protective. The Naga City Police Office (NCPO) handles the daily peace and order situation of the city, with its manpower complement of 359 in 2013 increasing by 65% compared to four years back. Protective services in Naga is further enhanced by the presence of 50 police aides and 26 volunteers hired by the city government through the Public Safety Office (PSO), as well as 24 private security agencies.

In keeping the peace, the local police force has finger-printing equipment, intra-station radiocom systems, police vehicles, motorcycles and assorted PNP-issued firearms at its disposal. These are complemented by Closed Circuit Television (CCTVs) equipment installed throughout the city which are being monitored by the PSO.

For effective response time in case of emergency, the NCPO has established three community precincts in Plaza Quezon, Concepcion Pequeña, Peñafrancia Avenue and Cararayan in addition to its headquarters along Barlin Street. Backing them up is the 185-strong City Public Safety Company based in Elias Angeles Street, as well as police assistance centers in Tabuco and Carolina.

On the other hand, fire protection services in Naga are provided mainly by the local branch of the Bureau of Fire Protection (BFP) which falls under the operational control and supervision of the BFP Regional Office. As of 2013, the local firefighting force is composed of 86 personnel, 20% smaller than the 108 it had four years back. The BFP unit is nonetheless complemented by around 100 volunteers from the Progressive Mason Club (Chin Po Tong) Fire Brigade and Naga White.

Firefighting facilities and equipment being used by the local fire bureau consist of six firetrucks, an ambulance and a rescue truck. Complementing them are Chin Po Tong and Naga White's respective fleet of firefighting, fire suppression, rescue and mechanical extraction equipment.

The Naga City District Jail (NCDJ) in barangay Del Rosario houses all inmates of MTC and RTC and detainees/prisoners of the third and fourth districts of the province. As of 2016, there were 493, 87% more than the 263 inmates it housed in 2009. The NDCJ is one of the facilities in the province being maintained by the Bureau of Jail Management and Penology (BJMP), an agency under the Department of Interior and Local Government (DILG).

ENVIRONMENT

Solid waste management. In 2016, the city generated 108,019 cu. meters of solid waste. Out of this, 35,641 cu. meters were diverted, representing a 33% waste diversion effort. Of the waste diverted, 62% takes place at the community level, with the remaining 38% processed at the Materials Recovery Facility (MRF) of the Balatas controlled dumpsite. As a result, the facility accepted only 72,378 cu. meters for the year.

The profile of solid waste in the city also shows that food waste account for 30% of the total volume, followed by plastics at 18%, wood and yard waste at 15%, paper-based materials at 14%; glass, bottles and metals at 10%; textile at 5%; and miscellaneous waste at 9%.

Solid waste are collected via the city's government's fleet of 15 garbage trucks which make 3 to 4 trips daily to cover ten routes on a daily basis. They are supported by 10 fixed barangay MRFs, with 12 more on the pipeline as well as five mobile MRFs to serve urban barangays with space constraints. Collected wastes are then delivered, processed and deposited at the 3.6-hectare Balatas dumpsite, which is programmed for partial closure within 2016.

Expected to take the place of the 55-year old Balatas facility is a 10-hectare sanitary landfill (SLF) in Barangay San Isidro that will double as a waste-to-energy (WTE) facility. It is targeted to open in 2018 as the Balatas dumpsite reaches its full capacity. (See Fig. 1.11.)

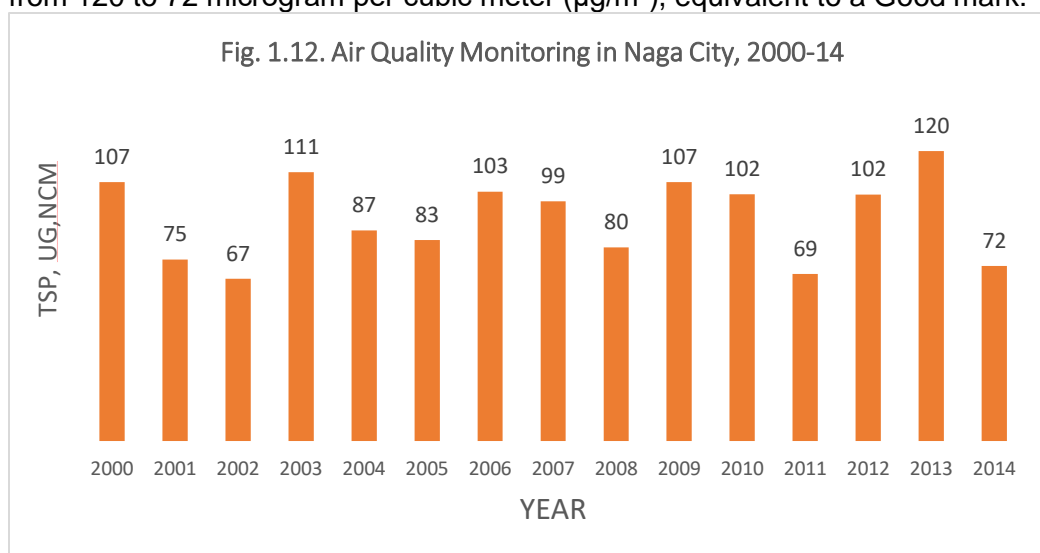
Air quality. As a pilot Airshed Area in the Bicol Region, weekly air quality monitoring through Hi-volume Sampling were made at Concepcion Pequeña, Magsaysay, and Panganiban crossing beside PNP Substation-1 to measure particulates that go with the air.



Fig. 1.11. Location and layout of the San Isidro SLF-cum-WTE

Since measurements were first taken in 2000, the city's air quality reading has been shifting between Fair and Good rating. In 2014, air quality reading improved by 40% compared to the last two years, from 120 to 72 microgram per cubic meter ($\mu\text{g}/\text{m}^3$), equivalent to a Good mark.

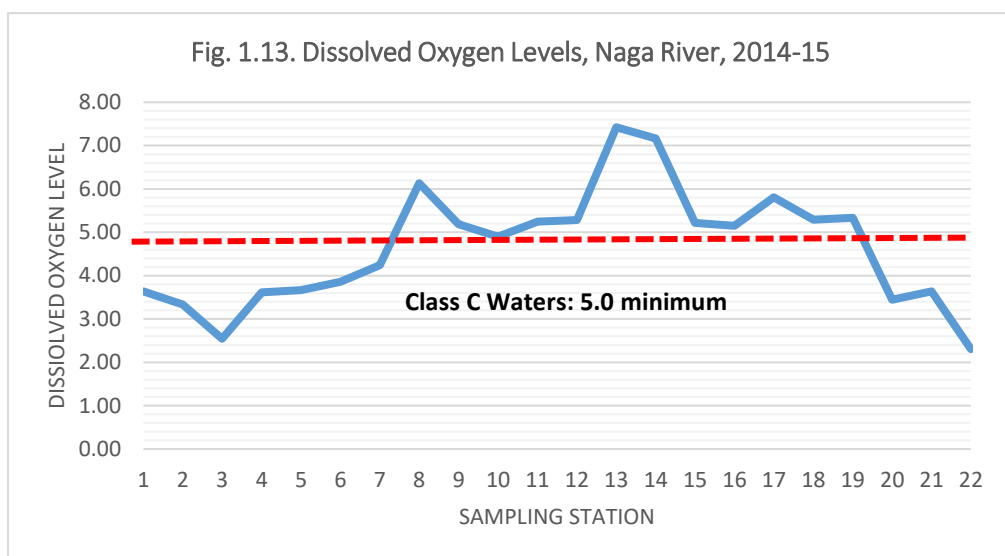
This mirrored a similar improvement in 2008 and 2011 which saw the city's air quality rating bounce back from a two-year decline from Good to Fair. (See Fig. 1.12.)



Water quality.

At present, the current environmental situation of the Naga River remains challenging. Along the urban center, it is classified as Class C, based on intended Water Use Stream Classification Scheme of the

Philippine government. The river's identification as Water Quality Management Area (WQMA) by the DENR is a good step to address this challenge.

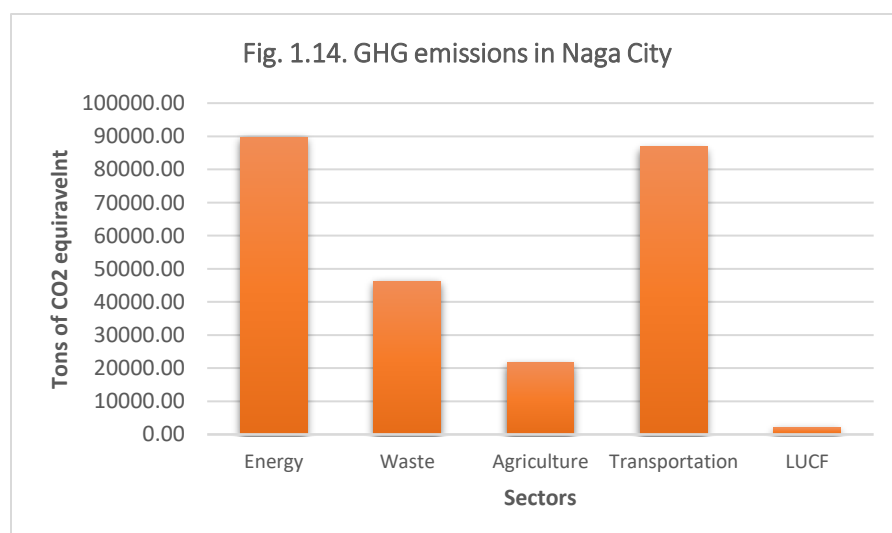


According to the 2014-15 water analysis, only half of the 22 sampling stations met the minimum of 5 for dissolved oxygen. Nonetheless, 18 of the 22 met the 10 mg/L threshold for Biological Oxygen Demand (BOD). More worrisome is that all stations registered very high levels of coliform bacteria, way above the 5000 most probable number (MPN)/100mL threshold. (Fig. 1.13.)

This qualifies its waters for irrigation of agricultural crops, the propagation and growth of fish and other aquatic resources; boating for recreation; and industrial water supply for manufacturing processes after treatment.

Greenhouse gas emission. Total emissions of Naga City, including the land use change and forestry (LUCF) sector, amounted to 246,640.13 tons. The Energy and Transportation sectors contributed almost the same amount in the total emissions at 36% (equivalent to 89,760 tons) and 35%, (86,776 tons) respectively; combined, they account for 71% of the total GHG emissions. Coming at third was the Waste sector with an emission of 46,288 tons of CO₂ (19%) of the total, and Agriculture sector, which contributed 21,633 tons (9%). Finally, with a comparatively small area allotted to crop production and few livestock, the LUCF sector contributed only 2,183 tons (1%) of the total. (See Fig. 1.14.)

Considering the amount of carbon absorbed by the LUCF sector of Naga City (9,502 tons), which



is very small to offset carbon emissions, the city's net carbon emission stood at 237,137 tons. This translates to a 1.4 ton per capita emission of CO2 equivalent, which is almost double than the World Bank estimated standard value of 0.7.

ECONOMY

Structure. According to the 2000 ADB Cities Databook, Naga has a primarily trading and service-driven economy. "The service sector employs the bulk of the city's labor force, accounting for 71% of the total. The secondary and infrastructure sector (manufacturing, utilities and construction at 14%) and others (agriculture and government at 15%) account for the rest." The service sector is further broken down into wholesale and retail trade (32%), consumer services (15%), financial and real estate services (9%), and social services (15%). (Fig. 1.15.)

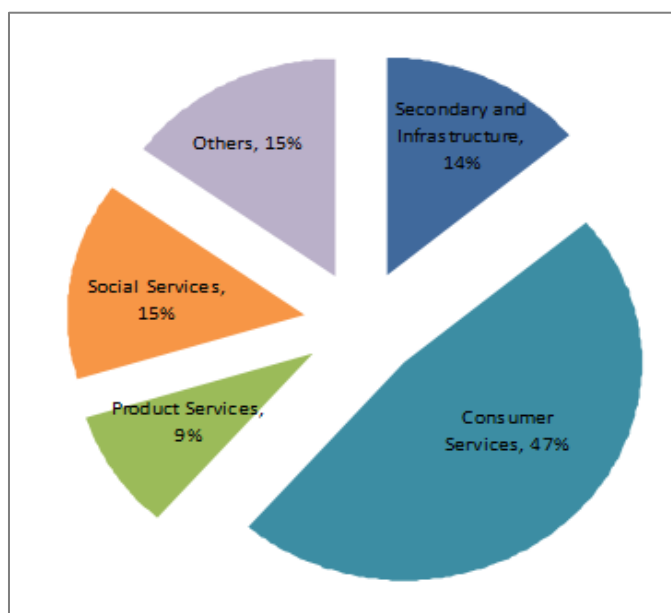


Fig. 1.15. Structure of Naga's economy. Based on 2000 ADB Cities Data Book.

With the entry of business process outsource (BPO) companies and the country's two leading mall operators, especially over the last 10 years, it stands to reason that the share of the service sector has grown larger, especially at the expense of agriculture and manufacturing. In fact, using local revenues derived from economic activities as proxy indicator, the primary sector of the local economy (built around agriculture) accounted for 8% of the total, the secondary sector (built around manufacturing, utilities and construction) accounts for 3%, while the tertiary sector (built around services) accounts for 89% of the total in 2016.

Trade, commerce and services. As of December 2013, Naga City has a total of 7,468 business establishments (1,079 new, 6,389 renewals). This is 37% higher than the 5,459 firms registered in 2011 (1,046 new, 4,413 renewals) which translates to a 12.2% annual growth of the business sector for the last 3 years. It is also 86% higher than the 4,025 firms registered in 2000 (889 new, 3,136 renewals). By comparison, the sector grew by only 4.8% between 2000 and 2010.

The business registry of the Metro Naga Chamber of Commerce and Industry (MNCCI) however shows that the local economy is more robust than what official figures show. In 2015, the city had a total of 16,202 micro, small and medium enterprises (MSMEs). Of the total, 8,806 (54%) were registered enterprises while 7,396 (46%) were unregistered and belonged to the informal sector. This is six percentage points higher than the 40% recorded in 2007, indicating a thriving and growing underground economy.

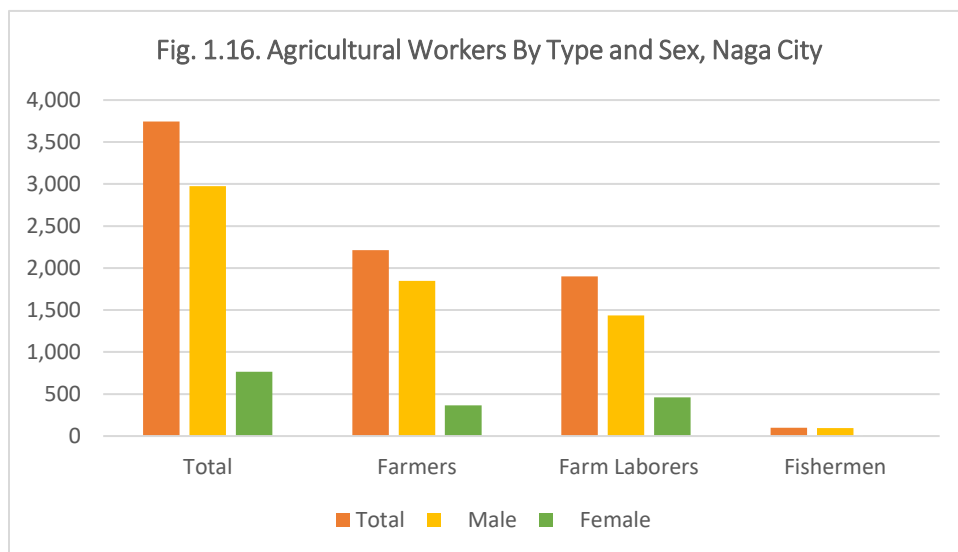
In terms of economic activity, retail (46%) and services (20%) are the predominant type of businesses, affirming the ADB figure. Others include real estate and leasing (9%); agribusiness (7%); financial intermediation (4%); transportation, storage and communications (4%); health

and social work (3%); hotels and restaurant (2%); fishing, construction, manufacturing and education (1% each). (See Table 1.11.)

In 2013, a total of 54 banks were operating in Naga – eight more than the 46 recorded in 2010 and 14 more than the number in 2000 – further reinforcing the city’s standing as the regional financial center of Bicol. Of these, 15 are commercial banks, 19 universal, 3 thrift, 13 savings, and four rural banks. Joining them in the financial services subsector are 60 finance cooperatives, 23 pawnshops, five remittance centers and three micro-finance institutions.

Agriculture. In terms of land use, Naga remains an agricultural city. Of the city’s total land area of 8,448 hectares, 4,550 (54%) were allocated to agriculture in 2000. But data from the City Agriculture Office (CAgO) shows that in 2014, only 3,198 hectares (70% of the total) were actually being used for agricultural production. Of these, 1,847 hectares are planted with rice, 1,139 hectares with corn, 15 with vegetables while 198 were used for livestock and poultry. (See Table 1.12.)

Meanwhile, the 2012 Registry System for Basic Sectors in Agriculture (RSBSA) data for Naga showed that 4,210 are working in the sector, broken down into 2,212 farmers (53%), 1,899 farm laborers (45%), and 99 fishermen (2%). In terms of sex, 3,379 (80%) are male while 831



(20%) are female. (See Fig. 1.16.) The total is 5% lower than the CAgO data for 2009. This means that on the whole, the sector provides employment for around 12% of the city’s household population, two percentage points lower than three years back.

On the other hand, Naga has a thriving livestock and poultry industry where 10 commercial farms are the main players, an increase of 25% over the 2009 figure. In 2014, they raised a total of 1,686 heads of livestock and 290,000 heads of poultry, with an estimated value of P55 million.

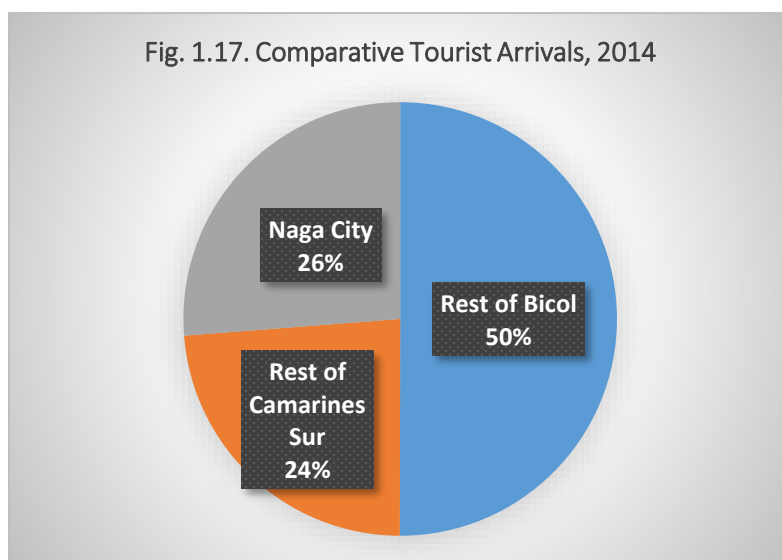
Manufacturing. Naga has a relatively small industrial base. As pointed out above, the city’s manufacturing sub-sector accounts for only 7.4% of the total economic activity, about five percentage points lower than the 12.5% in 2009 and the 14% in 2000.

While a handful of specialized manufacturing activities such as bottling (Pepsi and Coca Cola), chicken dressing and cooking oil processing exist, most other firms are engaged in small to cottage-scale food processing, metalworks, furniture manufacturing, jeepney bodybuilding, auto shops, warehousing and storage that fall under one of 17 key industry classifications in the city.

Property development. Another key driver of economic growth in the city is its vibrant construction and property development subsector. Between 2010 and 2014, building construction grew by an annual average of 14% in terms of volume (from 95 to 128), and by 8% in terms of project cost (from P601.7 million to P775.9 million). (See Table 1.13.)

A total of 22 new subdivision permits were also issued during the period, an average of 4 to 5 new projects with a combined project cost of P283.2 million every year. Combined, the subsector accounts for 71% of new investments infused into the local economy, down from 79% during the preceding period.

Tourism. The local tourism industry in Naga continues to grow, especially with the disaggregation of data being pushed by the Department of Tourism. For 2014, a total of 976,822 tourists visited the city, 13% higher than the 859,743 recorded the year before. (See Table 1.14.) The number also represents 50% of the 1,861,010 tourists that visited Camarines Sur and 26% of the 3,724,073 tourists that went to Bicol for the year. (Fig. 1.17.)



The city's accommodation facilities continued to increase substantially over the last 15 years, from only 22 hotels, lodging and pension houses and resorts in 2000 to 63 as of 2014, a 186% increase. It is also higher by 85% compares to the 34 recorded in 2010. In terms of combined room capacity, the expansion is more pronounced, reaching 1,924 in 2014 – an increase of 249% over the 551 rooms in 2000 and of 65% over the 1,169 in 2010. Notwithstanding the increased capacity, occupancy rates also increased by 7.5 percentage points from 49.8% to 57.2% during the same period.

On top of the 13 socio-cultural and 3 historical tourism assets, including the renowned devotion to the Lady of Peñafrancia which celebrated its tercentenary in 2010 and continues to draw millions of pilgrims to Naga every year, another emerging draw is the City Government's governance innovations that regularly attract both domestic and foreign visitors. In response, the JMR Center was put in charge of organizing seminars that will address their needs.

Heritage district. Building on the Bongat administration's thrust to enhance awareness of local cultural heritage as a means of boosting tourism, the Nueva Caceres Heritage Movement, Inc. (NCHMI) proposed to establish the Ciudad de Nueva Caceres heritage district in the city center through a resolution adopted on February 18, 2016.

The NCHMI, a tourism organization that seeks to promote general heritage consciousness in the city, sought the help of Dr. Danilo Gerona, a renowned Bicol historian and NCHMI member, in drawing up the map of the proposed heritage district. (See Fig. 1.18.)

On the other hand, the 17 historical sites that no longer exist are the Ruina de la Catedral, the old Episcopal Palace and the old Cemetery (which are located in what is now the Naga City People's Mall), Plaza del Fuente (Plaza Oragon), Casa de Clerigos (the original site of the seminary is what is now the Benito Commercial building), Mercado (Aristocrat Hotel up to Regent Hotel), Casa del Escribano (where the UCPB, BPI Family Savings Bank and former New England Restaurant now stand), Tribunal (former Naga City Library building), Casa del Gobernador and Carcel de la Provincia (LBRDC, BDO and PNB buildings), Casino Español (McDonald's and Bigg's Diner, in front of Quince Martires), Hospital Medalla Milagrosa (Barlin Satellite Market), Escuela Comun (Grageda Apartment), and Imprenta (current Philamlife Building).

[illegible]

Fig. 1.18. The proposed heritage district.

Transit-oriented development. Building on the PNR South Long Haul Project of the national government -- whose proposed new alignment in Naga involves the abandonment of its existing line and the construction of a new one, including the construction of a new Naga City terminal -- and the ongoing construction of the P480-million Almeda-Mabulo Bypass road by the DPWH, there is a need to readjust land use allocation for this key project. (See Fig. 1.19).

Along this line, the city shall implement a TOD strategy built around this new terminal and its proximity to the new bypass road, which will provide for non-motorized transport (NMT) facilities, especially protected



Fig. 1.19. The proposed new PNR alignment. The green line is the existing alignment, while the dark blue line represents the new alignment. The yellow portion represents the new station.

bicycle and pedestrian lanes. The bypass road will not only connect Almeda Highway to the Maharlika Highway in Barangay Mabulo, but will also provide an alternate access to the planned Bicol River Esplanade and the 2.3-hectare People's Park and Recreation Center (PPRC). This connection will ensure that the southern CBD 2 will be ringed by NMT facilities, making it ideal to anchor the city's TOD strategy.

Green growth. Guided by the vision of sustaining Naga as "Maogmang Lugar," the city also seeks to implement a "sponge city" urban water management strategy, based on the following five pillars of green growth: (1) Liveable Communities, (2) Employment Opportunities, (3) Sustainable Development, (4) People and Community Empowerment, and (4) Heritage and natural assets conservation.

The evolution and logic of Naga's green growth strategy is described under Table 1.16. This strategy will be anchored on the following key projects:

- Bicol River esplanade, PPRC and mixed-use river front development built around a floodable park
- Strategic city road network development, anchored on the TOD scheme described above
- Socialized low-rise housing projects that will provide accessible housing supply for shorter work-to-home trips for the labor force, and
- Development of (a) urban mini-forests (Forests in our Midst or FOM project) in the urban areas; and (b) mangrove rivers and cascading retention ponds in the peri-urban areas of Naga.

Table 1.5. Most Intense Typhoons that Hit the Bicol Region, 1947-2006

Name	Period of Occurrence	Highest Wind Speed Recorded (in km/hr.)	Distance from Naga City (in km.)
1. STY Reming (Durian)	Nov 26 - Dec 1, 2006	320	15 - South
2. STY Sening (Joan)	Oct 11 - 15, 1970	275	Direct Hit
3. STY Rosing (Angela)	Oct 30 - Nov 4, 1995	260	40 - North
STY Anding (Irma)	Nov 21 - 27, 1981	260	30 - NE
4. STY Nina	Dec 20 - 28, 2016	250	
STY Loleng (Babs)	Oct 15 - 24, 1998	250	35 - NNE
5. STY Sisang (Nina)	Nov 23 - 27, 1987	240	30 - SW
STY Saling (Dot)	Oct 15 - 20, 1985	240	70 - North
STY Herming (Betty)	Aug 7 - 14, 1987	240	70 - SSW
STY Yayang (Vera)	Nov 04 - 07, 1979	240	90 - NE
6. TY Harriet	Dec 28, 1959 - Jan 2, 1960	225	Direct Hit
7. TY Glenda	July 9 - July 20, 2014	215	
TY Trix	Oct 16 - 23, 1952	215	22 - North
TY Unsang (Ruby)	Oct 21 - 26, 1988	215	100 - NE
8. TY Warling (Orchid)	Nov 17 - 27, 1983	205	180 - NE
TY Welming (Emma)	Oct 31 - Nov 08, 1967	205	20 - SW
9. STY Yoling (Patsy)	Nov 17 - 20, 1970	200	90 - North
10. STY Dindo (Nida)	May 13 - 19, 2004	185	117 - ENE
STY Kading (Rita)	Oct 25 - 27, 1978	185	90 - North
TY Huaning (Ruby)	Jun 22 - Jul 2, 1976	185	70 - NE
11. TY Milenyo (Xangsane)	Sep 25 - 30, 2006	180	30 - SW
12. TY Dinang (Lee)	Dec 23 - 28, 1981	175	60 - South
TY Yoning (Skip)	Nov 3 - 12, 1988	175	150 - SW
13. TY Monang (Lola)	Dec 2 - 7, 1993	170	35 - North
14. TY Didang (Olga)	May 12 - 27, 1976	150	200 - North
TY Fran	Dec 27, 1950 - Jan 1, 1951	150	30 - North
TY Jean	Dec 22 - 29, 1947	150	Direct Hit
15. TY Unding (Muifa)	Nov 14 - 21, 2004	130	5-10 - East
TY Konsing (Ora)	Jun 23 - 25, 1972	130	20 - SW
TY Bebung (Vera)	Jul 12 - 16, 1983	130	30 - SW
16. TY Saling (Dan)	Oct 6 - 13, 1989	120	15 - SW

Source: Weather Philippines Foundation Inc.

Table 1.6. Inventory of Roads, Naga City. 2015

Road Class	Surface Type				Total (in kms)
	Concrete	Asphalt	Gravel	Earth	
National	1.4	30.4			31.8
City	143.8		14.1	6.0	163.9
Total	145.2	30.4	14.1	6.0	195.7

Source: City Engineer's Office

Table 1.7. Registered Motor Vehicle by Kind/Type, Naga City. 2010-15

Type of Vehicle	2010	2011	2012	2013	2014	2015
Cars	2,136	2,600	3,293	2,543	289	2,866
Utility Vehicle	8,197	8,637	8,370	7,035	6,245	7,286
Sport Utility Vehicles	668	665	800	763	840	1,063
Buses	92	31	23	13	32	215
Trucks	1,251	1,240	1,807	1,305	1,395	1,469
Tricycles	2,598	2,211	2,315	3,784	3,975	3,813
Motorcycles	17,654	21,800	24,211	19,695	11,902	18,259
Trailer	12	8	10	21	4	73
TOTAL	32,608	31,192	40,829	35,159	24,682	35,044

Table 1.8. Comparative Performance Indicators, Bicol Electric Cooperatives. 1st Semester 2016

ELECTRIC COOPERATIVES	INDICATORS									
	Cash General Fund	One Mo. Working Capital	Coll. Eff.	GENCO As of Jun 2016	NGCP As of Jun 2016	Profitability	Net Worth 2016	Net Worth 2015	Net Worth 2014	System Loss
CASURECO I	56,457	39,063	100	Res-Current	Current	6,426	317,421	406,822	208,636	11.62
CASURECO IV	133,594	37,580	97.07	Current	Current	15,141	690,128	629,865	558,473	11.88
CANORECO	168,166	82,593	95.83	Current	Current	2,706	388,328	383,768	349,910	11.10
FICELCO	7,828	36,567	99.65	Current	N/A	10,514	301,681	291,756	275,016	14.00
SORECO I	35,026	29,081	86.49	Res-With Arrears	Current	7,317	313,941	338,279	294,742	13.5
SORECO II	46,959	58,859	88.99	Res-With Arrears	Current	27,293	526,581	394,132	250,419	12.96
CASURECO II	265,024	169,200	91.81	Current	Current	68,357	675,113	623,556	856,036	14.26
ALECO	121,861	242,470	66	With Arrears	With Arrears	2,524	(119,658)	(49,559)	141,786	22.79
CASURECO III	53,298	57,513	90.37	Res-With Arrears	Current	28,049	(487,668)	(507,948)	(473,148)	19.14
MASELCO	(24,696)	44,900	86.48	Res-With Arrears	N/A	(36,496)	225,405	234,386	217,052	23.74
TISELCO	10,454	4,013	NS	Res-With Arrears	N/A	3,191	123,764	123,096	40,376	17.49

Table 1.9. Enrolment in Public and Private Schools, Naga City. 2010-17

	2010	2011	2012	2013	2014	2015	2016	2017
Preschool	6,879	7,037	7,199	7,364	7,534	7,707	7,884	8,066
Elem	19,979	20,439	20,909	21,390	21,882	22,385	22,900	23,427
JHS	15,700	16,061	16,431	16,808	17,195	17,590	17,995	18,409
SHS	7,714	7,892	8,073	8,259	8,449	8,643	8,842	9,045
TOTAL	50,272	51,429	52,612	53,822	55,059	56,326	57,621	58,947

Table 1.10. Occupied Housing Units by Construction Materials of the Outer Walls and Roof, Naga City. 2010

CONSTRUCTION MATERIALS OF THE OUTER WALLS	TOTAL OCCUPIED HOUSING UNITS	CONSTRUCTION MATERIALS OF ROOF								Not Reported
		Galvanized Iron/ Aluminum	Tile Concrete/ Clay Tile	Half Galvanized Iron and Half Concrete	Wood	Cogon/ Nipa/ Anahaw	Asbestos	Makeshift/ Salvaged/ Improvised Materials	Others	
Total	35,210	29,097	637	736	263	4,071	7	319	76	4
Concrete/Brick Stone	19,747	18,735	598	147	8	201	5	5	48	
Wood	5,809	4,405	18	74	201	1,085	1	19	6	
Half Concrete/ Brick/ Stone and Half Wood	5,316	4,360	19	434	31	445	1	18	8	
Galvanized Iron/Aluminum	367	308	1	7	3	44		2	2	
Bamboo/Sawali/ Cogon/Nipa	2,817	839		52	14	1892		16	4	
Asbestos	4	2	1	1						
Glass										
Makeshift/ Salvaged/ Improvised Materials	740	263		7	4	234		229	3	
Others	69	51		1		14			3	
No walls	2			1		1				
Not reported	339	134		12	2	155		30	2	4

Table 1.11. Inventory of Approved Subdivisions, Naga City. 2010-16

Name of Subdivision	Developer	Location	Total Area (ha.)	Date Approved
LPHI High Subdivision Phase I	Laguna Properties Holdings, Inc.	Pacol	10.8575	21-Jun-00
San Alfonso Homes	Laguna Properties Holdings, Inc.	Pacol	10.8575	28-Jun-00
Expansion of Eternal Gardens Memorial Park	Peñafrancia Memorial Park Corporation	Balatas	2.8781	04-Oct-00
San Francisco Village II	Laguna Properties Holdings, Inc.	Pacol	8.5800	20-Dec-00
Caceres Heights Resort Subdivision	Jamaica Realty & Marketing Corp.	Pacol	26.2150	06-Dec-00
Parkview Village I	Enjoy Realty & Development Corporation	San Felipe	6.8026	02-May-01
Parkview Village Subdivision II	Enjoy Realty & Development Corporation	San Felipe	4.9827	27-Jun-01
San Francisco Village I-D	Laguna Properties Holdings, Inc.	Pacol	1.1300	27-Jun-01
San Ignacio Estate Phase II	Laguna Properties Holdings, Inc.	Pacol	3.0660	23-Jan-02
Villa San Vicente de Paul Subdivision	St. Louise de Marillac Village, Sta. Isabel Village, St. Elizabethan Village HOAs	Pacol, Cararayan	12.4690	19-Dec-02
Villa Obiedo Subdivision	8990 Housing Development Corporation	Cararayan	10.8635	07-Dec-03
LBC Resettlement Site	City Government of Naga	Sabang	0.1859	22-Dec-03
LPHI Commercial Development Area	Laguna Properties Holdings, Inc.	Pacol	2.4160	09-Aug-04
St. Jude (Thaddeus) Village 1	Concepcion Grande Development, Inc.	Concepcion Grande	3.4235	11-Oct-04
Naga Greenpark Village Subdivision	Enjoy Realty & Development Corporation	Del Rosario	1.5000	17-Jan-05
Vista Basilica Homes Subdivision	Enjoy Realty & Development Corporation	Balatas	2.4812	21-March-05

Isarog Hills 1	Fil-Estate Properties, Inc.	Carolina	7.9787	25-Apr-05
Haciendas de Naga Farmlot Subdivision	Enjoy Realty & Development Corporation	Carolina	21.1799	14-Nov-05
Isarog Hills Phase 1-A Subdivision	Fil-Estate Properties, Inc.	Carolina	7.3113	14-Nov-05
Haciendas de Naga (Residential Estate Subdivision)	Enjoy Realty & Development Corporation	Carolina	39.6496	05-Dec-05
Deca Homes Naga	8990 Housing Development Corp.	San Felipe	6.8435	02-May-06
St. Jude (Thaddeus) Village II	Concepcion Grande Development. Inc.	Concepcion Grande	1.7804	24-Jul-06
Chito Community Housing Project	Consuelo "Chito" Madrigal Foundation, inc.	Pacol	4.0000	07-May-07
Parkview Executive Townhomes	Enjoy Realty & Development Corporation	San Felipe	4.2197	07-May-07
St. Jude (Thaddeus) Village III	Concepcion Grande Development. Inc.	Concepcion Grande	8.3028	26-Mar-07
Deca Homes Northfield Estates	8990 Housing Development Corporation	Bagumbayan Norte	2.2619	04-Mar-08
Laura Village Subdivision	Mr. Fortunato P. Mendoza	Concepcion Pequeña	0.6132	02-Sep-08
Laura Village Subdivision	Mr. Fortunato P. Mendoza	Carolina	0.2626	02-Sep-08
Camella Naga Subdivision	Communities Phils. Cam. Sur, Inc.	Del Rosario	9.8294	09-Sep-08
Deca Homes Grandvale Residences	LYRR Realty Development. Corp.	San Felipe	5.7379	21-Apr-09
Deca Homes Langon Vista	LYRR Realty Development Corp.	Cararayan	6.7119	02-Jun-09
Don Pepe Farm Lot Subdivision	First Pacol Realty Development & Builders Corp	Pacol	5.9920	23-Jun-09
Lessandra Naga Subdivision	Communities Naga Inc.	Del Rosario	3.2574	02-Mar-10
Chito Community Hidalgo Plains	Consuelo "Chito" Madrigal Foundation, inc.	San Isidro	2.0000	25-May-10
Austria Village Relocation Project	Ms. Carolina Austria-Molistecu	Carolina	3.0000	26-Oct-10
St. James Homes Subdivision	Concepcion Grande Development. Inc.	Concepcion Grande	6.1061	26-Oct-10
Parkview Executive Townhomes Phase II	Enjoy Realty & Development Corp.	San Felipe	1.9912	08-Feb-11
Camella Heights Subdivision. (formerly Cerritos Heights)	Communities Naga, Inc.	Del Rosario, Cararayan	11.2880	24-May-11
Parkview Employees Village	Enjoy Realty & Development Corporation	San Felipe	1.8328	29-Nov-11
St. James Homes Phase II	Concepcion Grande Development. Inc.	Concepcion Grande	7.3475	22-May-12
Jolly Neighbors Resettlement Project	City Government of Naga	Sta. Cruz	4	10-Jul-12
Consuelo Heights Subdivision	Consuelo "Chito" Madrigal Foundation, inc.	Pacol	3.0216	04-Dec-12
Isarog Heights Subdivision	City Government of Naga	Carolina	2.0000	04-Dec-12
Golden Roseville Subdivision	City Government of Naga	Bagumbayan Sur	7.0000	04-Feb-14
Deca Homes – Sabella	LYRR Realty Development Corp.	Abella	1.9697	04-Mar-14
Deca Homes - Sabella 2	LYRR Realty Development Corp.	Sabang	1.1633	11-Nov-14
Naga City Employees Housing Project Phase I	City Government of Naga	San Felipe	0.9986	25-Aug-15
Deca Homes Grandvale II	LYRR Realty Development Corp.	San Felipe	4.2287	07-Jul-15
Naga City Employees Housing Project Phase II	City Government of Naga	Del Rosario	0.9960	29-Jul-15
Krisco Homes I Socialized Housing Subdivision	Hi-Tone Construction & Development. Corp	Cararayan	1.7892	29-Sep-15
Faber Homes Socialized Housing Subdivision	Realty Investments Incorporated	Pacol	0.9523	29-Sep-15

Deca Homes Vistansa Subdivision	LYRR Realty Development Corp.	Pacol	14.0645	31-May-16
Total Land Area			320.39	

Table 1.12. Business Permits Granted by Type of Economic Activity, Naga City. 2016

BUSINESS PERMITS	ECONOMIC ACTIVITY	NUMBER	PERCENTAGE
Primary			
	Agriculture, Hunting & Forestry	616	81%
	Fishing	139	18%
	Mining & Quarrying	4	1%
Primary Sub-Total		759	8%
Secondary			
	Manufacturing	139	45%
	Electricity, Gas & Water Supply	39	13%
	Construction	131	42%
Secondary Sub-Total		309	3%
Tertiary			
	Wholesale & Retail trade/repair of motor vehicles personal & household goods	4,271	51%
	Hotels & Restaurants	211	3%
	Transport, Storage & Communication	394	5%
	Financial Intermediation	360	4%
	Real Estate, Renting & Business Activities	823	10%
	Public Administration & Defense/ Compulsory Security	22	0%
	Education	72	1%
	Health & Social Work	256	3%
	Private Household with Employed Persons	0	0%
	Other Community, Social & Personal Service Activities	1,890	23%
	Extra-Territorial Organizations & Bodies	1	0%
Tertiary Sub-Total		8,300	89%
TOTAL		9,368	100%

Table 1.13. Existing Major Agricultural Crops By Area, Naga City. 2016

Major Crops	Location	Area (In Hectares)
1. Rice		
- Irrigated	Balatas	82.75
	Cararayan	99.82
	Carolina	237.25
	Con. Grande	63.00
	Con. Pequena	158.00
	Mabolo	103.00
	San Felipe	273.50
	Pacol	377.00
	San Isidro	230.00

-Non-irrigated	Cararayan	222.18
	Subtotal	1,846.50
2. Corn	Carolina	381.00
	Panicuason	240.00
	Cararayan	175.00
	Pacol	183.00
	San Isidro	145.50
	Del Rosario	8.00
	San Felipe	6.00
	Subtotal	1,138.50
3. Vegetables	Panicuason	15.00
4. Livestock and Poultry Farms	San Felipe, Pacol, Carolina and Panicuason	197.87
Total		3,197.87

Table 1.14. New Investments, Naga City. 2010-14

INDICATOR	2010	2011	2012	2013	2014
New Enterprises	287.00	246.28	587.45	399.49	419.23
New Building Permits (Commercial, Industrial & Institutional)	601.66	570.49	544.88	726.34	775.91
New Subdivision Development Permits	492.96	358.14	182.75	6.50	375.64
TOTAL	1,381.63	1,174.91	1,315.08	1,132.33	1,570.78
EMPLOYMENT GENERATION	5,527	4,700	5,260	4,529	6,282

Table 1.15. Tourist Arrivals, Naga City. 2013-14

MONTH	2013	2014	INCREASE/ DECREASE
January	57,642	57,711	0.1%
February	54,492	58,200	6.8%
March	75,842	83,946	10.7%
April	82,265	87,377	6.2%
May	88,705	95,258	7.4%
June	54,872	63,681	16.1%
July	62,209	66,274	6.5%
August	59,423	66,890	12.6%
September	107,557	129,159	20.1%
October	66,039	80,825	22.4%
November	65,537	80,335	22.6%
December	85,160	105,152	23.5%
Total	861,756	976,822	13.4%

Table 1.16. The Logic of Naga's Green Growth Strategy

Pillars Specific actionable themes to achieve the Green and Resilience Commitment	Recommendations Measures which can help achieve any of the pillars	Enhanced Recommendations What are we prioritizing and what is a good target measurable outcome	Projects Identified projects which can be pitched for funding the future
1. Liveable Communities	1.1 Put up more parks and public space 1.2 Strategic land banking for the social housing sector	1. All households are within 15-minute walk from a park or recreational space 2. Relocating all informal settlers households into safer shelters with access to opportunities (10,000 households now → reduce to 3,000 households by 2030)	1. Bicol River esplanade and mixed-use river front development 2. Strategic city road network development 3. Socialized low-rise housing projects 4. Development of (a) urban mini-forests (Forests in our Midst or FOM project) in the urban areas; and (b) mangrove rivers and cascading retention ponds in the peri-urban areas of Naga.
2. Employment Opportunities	2.1 Opening growth areas for investment 2.2 Seamless ease of doing business	3. Reduce unemployment from 4% to 2% by 2030 4. Increase investment in the industrial sector from 1B to 10B	
3. Sustainable Development	3.1 Improve access to quality social services 3.2 Upgrade urban mobility in both motorized and non-motorized transport 3.3 Protect water resources by promoting water harvesting initiatives	5. Reduce GHG emissions from 237,000 tons to 120,000 tons annually by 2030	
4. People and Community Empowerment	4.1 Further strengthen cutting-edge institutions to promote people and community empowerment		
5. Heritage and natural assets conservation	5.1 Promote walkability in the city's heritage district		

Chapter 3

CLIMATE AND DISASTER RISK ASSESSMENT

This chapter provides highlights of the results and findings of assessment studies that collectively used the Climate and Disaster Risk Assessment (CDRA) framework mandated by the DILG and HLURB. These include the following: 1) climate change projections and potential future impacts; 2) hazard exposure assessment, 3) climate change vulnerability assessment, and 4) GHG inventory. Its focus is on the most critical barangays, population, physical and natural assets exposed to various hydro- meteorological and geological hazards presently and potentially affecting the city.

Equally given emphasis are the impacts of climate change in the six development sectors, namely: health, water resources, transportation, forestry, coastal and marine resources and agriculture sector. Assessments on HEA and CCVA were conducted both at the barangay and city level while the GHG inventory and LGU Capacity assessment were conducted at the city level.

LOCAL CLIMATE CHANGE SCENARIO

Precipitation, Temperature Change

It is projected that the temperature of Camarines Sur, in which Naga City is a part, during the summer season will increase by 1.1°C for 2020 and by 2.2°C by 2050. There shall be longer El Nino spells. (Fig. 1.20)

Rainfall change. Rainfall is projected to decrease by almost 15% during the summer months of March, April and May for 2020 and by 25% for 2050. The projected highest rainfall increase is 9.5% during the rainy months of June, July and August for 2020 and by 16.5% for 2050. This means that

Camarines Sur including Naga City will suffer more from heat stress and drought during the summer months for the years 2020 and 2050 while the province will experience more rainfall during the months of June, July and August for the two projected years. (See Table 1.17.)

The frequency of rainfall with greater than 300mm is projected at 4 days by 2020 and 11 days by 2050 which are much higher than the baseline observed value of only 1 day. This simply means more flooding days by 2020 which will further double by 2050. The number of dry days will decrease to 3,698 by 2020 and by 3,811 by 2050 from the observed baseline of

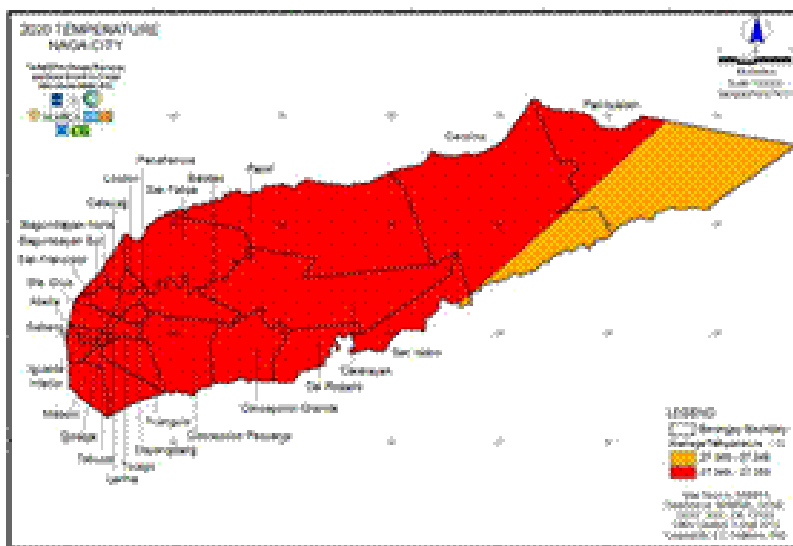


Fig. 1.20. Projected Temperature (2020), Naga City

6,219 days. This means that Camarines Sur will have longer wet days than dry days in the near and distant future but with extreme El Nino spells.

Sea rising level. The World Meteorological Organization (WMO) said the Philippines posted the highest average increase in sea levels, at 60 cms, against the global average of 19 cms since the year 1901. As Naga is in the mouth of Bicol River basin, the overflow coming from the Bicol River tributaries results to increase frequency and depth of flooding including the nearby towns downstream of Naga River.

Extreme events. From 1948-2009 or for a total period of 61 years, Camarines Sur recorded a total of 114 tropical cyclones. Out of the 114 tropical cyclones recorded, 1 is considered as super typhoon, 56 typhoons, 35 tropical storms and 23 tropical depressions. The month of October had the most number of tropical cyclones with 26 occurrences and the months of February and April had the least with one occurrence each. From a range of 1 to 10 – 10 being the most vulnerable – Naga City got a score of 6.10 (WWF and BPI Foundation). It is second to Tacloban City (6.74) in being the city most vulnerable to climate change.

ELEMENTS, SECTORS AND INSTITUTIONS EXPOSED TO CLIMATE CHANGE IMPACTS

Under Hazard Exposure Assessment (HEA), existing hazards in the city and their potential future threats are examined considering not only hydro-meteorological but also geological hazards that are of major concern to the local governments (Fig. 1.21).

The assessment centered on barangays, population, physical and natural assets that are exposed at varying degrees to different natural hazards.

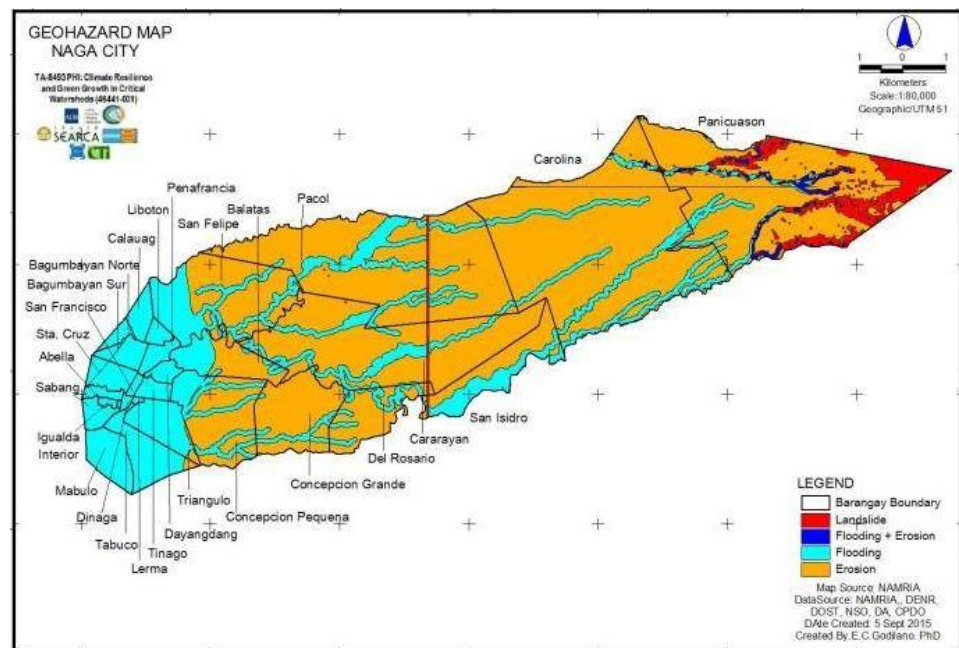


Fig. 1.21. Hazards affecting Naga City

Barangays exposed to various hazards

- **Flooding.** Seventeen of the 27 barangays or 63% of the total number of barangays in the city have 90-100% of their area exposed to flooding.

- **Landslide:** On the other hand, only six out of the 27 barangays are exposed to landslides. These barangays include: Cararayan, Carolina, Del Rosario, Pacol, Panicuason, and San Isidro. The total area exposed to landslides comprises only 4% of the total area of the city. Two barangays in the city registered high exposure to erosion, namely: Panicuason (100% of the barangay's total area); and Carolina (98%). About 32% of the city's total land area is exposed to slight erosion and 7% to moderate erosion.
- **Liquefaction.** About 11% of the total land area of the city is exposed to liquefaction. Most of these liquefaction prone areas are located on the western end of the city. Twelve barangays have their whole land area (100%) exposed to liquefaction.

Population exposed to various hazards

- **Flooding.** About 61% of the total population of the city is affected by flooding of different depths. Seventeen of the 27 barangays in Naga City have more than 90% of their total population exposed to floods. These barangays include Abella; Bagumbayan Norte; Bagumbayan Sur; Calauag; Dayangdang; Dinaga; Iguualdad Interior; Lerma; Liboton; Mabulo; Penafrancia; Sabang; Sta. Cruz; Tabuco; Tinago; Triangulo; and San Francisco.

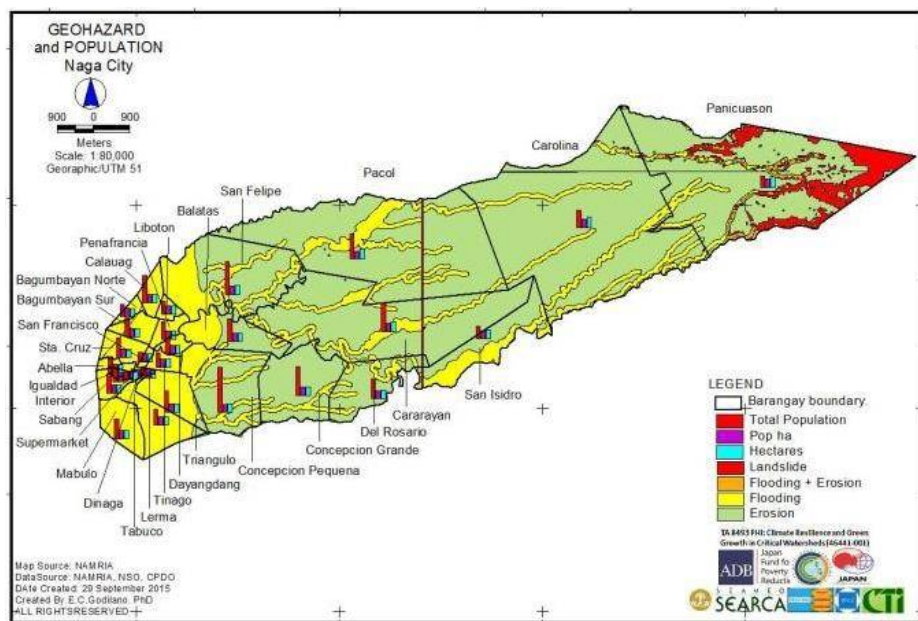


Fig. 1.22. Population exposed to Various Hazards, Naga City

- **Landslide.** Of the total population of the city, less than one percent is exposed to landslides. Six barangays which were found to be exposed to landslides are: Cararayan; Carolina; Del Rosario; Pacol; Panicuason; and San Isidro. All these barangays have less than 1% of their total population exposed to landslides except Panicuason, which has 27% of its population exposed to landslides.
- **Liquefaction.** Forty-one percent (41%) of the total population of the city is exposed to liquefaction. The 13 barangays with 90-100% of their total area prone to liquefaction include: Abella (100%); Bagumbayan Sur (100%); Calauag (100%); Dinaga (100%); Iguualdad Interior (100%); Liboton (100%); Sabang (99.97%); Mabulo (99.84%); San Francisco (99.78%); Sta. Cruz (99.73%); Lerma (97.71%); Bagumbayan Norte (99.70%); and Penafrancia (96.14%). Population exposed to various hazards such as flood, landslide and erosion is depicted in Figure 1.22.

- **Flooding.** Seventeen of the 27 barangays or 63% of the total number of barangays in the city have 90-100% of their area exposed to flooding.

Physical assets of barangays exposed to hazards

Physical facilities exposed to flooding were identified and counted to be 73 in all. These facilities include food/store (14); Hospital/Clinic/Pharmacy (9); Government facilities (6); Police station (5); Motel/Hotel (8); Bank (9); Church (6); Gas Station (6); Tourist Attraction/Recreation (7); Bus Station/Stop/Repair (2); and Train Station (1). A total of 50 physical assets are also exposed to liquefaction. Others are as follows:

- Four bridges in the city are exposed to flooding. These bridges are located in Liboton, San Francisco, Igualdad Interior, and Tabuco. These bridges are also exposed to liquefaction.
- The city has 46 schools located in 17 barangays that are exposed to flooding. On the other hand, 24 schools located in 10 barangays are exposed to liquefaction.

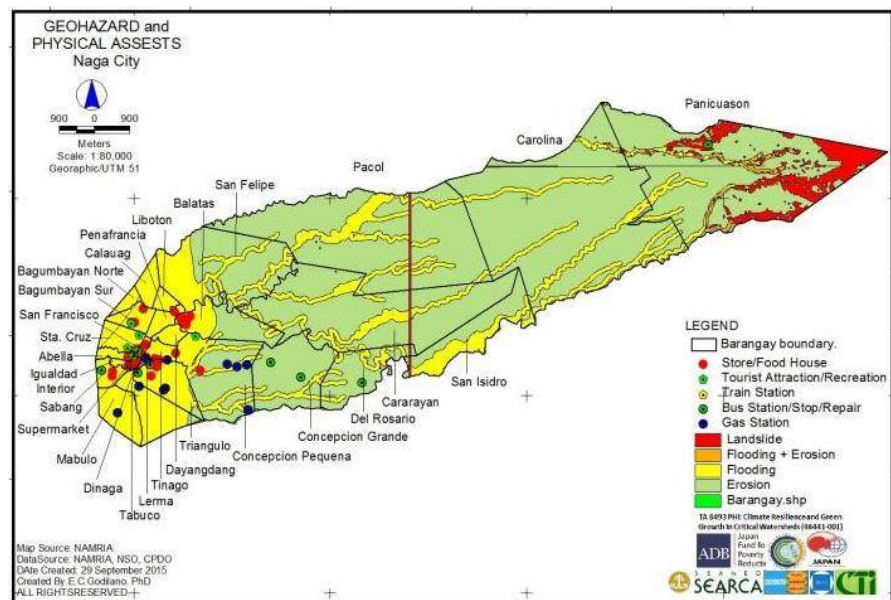


Fig. 1.23. Physical Assets exposed to Various Hazards, Naga City

- Of the total length of roads exposed to all types of hazards (i.e., flood, erosion and landslide), about 27% are exposed to flooding. Roads exposed to landslides are located in only two barangays in the city: Cararayan and Panicuason. In addition, about 21 km or 7% of the roads in the city is exposed to liquefaction.

Figure 1.23 depicts the physical assets located in different barangays which are exposed to various hazards.

Land uses exposed to hazards

Total built-up areas exposed to various flooding depths comprise about 8% of the total city area. Of the total built-up areas exposed to flooding, about 8% is susceptible to deep floods of more than 1.5m depth. Three barangays are considered critical since more than 75% of their total built-up areas prone to floods are susceptible to deep flooding. These barangays are: Dinaga (82%); Mabulo (79%) and Tabuco (77%).

About 2,252 hectares of agricultural areas in the city that are planted to annual and perennial crops are exposed to flooding of various depths. Of the total agricultural areas that are exposed

to flooding, 15% is affected by deep floods of more than 1.5m depth. Two barangays registered the largest proportion of agricultural areas that are exposed to deep flooding: Tabuco with 84% of its agricultural areas affected; and Mabulo with 74% affected.

SUMMARY FINDINGS OF VULNERABILITY ASSESSMENT (EXPOSURE, SENSITIVITY AND ADAPTIVE CAPACITY)

Sectoral CCVA Assessment, Health Sector

Diarrhea/diarrheal diseases. Twelve of the 27 barangays in Naga City have moderate vulnerability to a diarrhea outbreak. These include Mabolo, Tabuco, Triangulo, Abella, Bagumbayan Sur, Dayangdang, Iguadad Interior, Sabang, Santa Cruz, Tinago, Lerma, and Bagumbayan Norte, with the rest of the barangays having low vulnerability to a diarrhea outbreak. All barangays with moderate susceptibility to a diarrhea outbreak have the highest proportion of total population residing in flood-susceptible areas at > 60% to 80%

Dengue fever/dengue hemorrhagic fever. Twenty-three (23) barangays in Naga City have moderate vulnerability to an outbreak of dengue fever/dengue hemorrhagic fever while four, namely Carolina, Dinaga, Panicuason, and Penafrancia have low vulnerability. The observed gradient in the vulnerability of barangays to a dengue fever outbreak can be explained – in part – by differences in sensitivity to the given climate change impact. In particular, barangays with low vulnerability to an outbreak of dengue fever / dengue hemorrhagic fever are among the barangays with the lowest susceptibility to flooding (< 0.1 meter), and the lowest proportion of total population residing in flood-susceptible areas.

Leptospirosis. Mabulo and Tabuco have moderate vulnerability while the rest of the barangays having low vulnerability to a leptospirosis outbreak. The observed gradient in the vulnerability of barangays to a leptospirosis outbreak can be explained – in part – by differences in sensitivity to the given climate change impact. In particular, Mabolo and Tabuco have the highest susceptibility levels to flooding (>1.5 meters) among barangays in Naga City.

Sectoral CCVA Assessment, Water Resources Sector

Drought. Overall, Naga City's water resources are moderately vulnerable to drought. Forest cover and land use attributes are factors that increase the drought susceptibility wherein, the built-up area is increasing in all directions from the center of the city. On the average, sixteen (16) barangays have built up area of 11 to 30% of the total land area while 31 to >50% of the total land area is already building up in eleven (11) barangays.

Flood. The water resources of Naga City is moderately vulnerable to flood with two barangays qualifying under the "high vulnerable" category: Mabolo and Triangulo. Both were found to have the largest portion of their total area (more than 90%) under the high inundation zones. Barangays that belong to higher limit of moderately vulnerability include Dayangdang, Dinaga, Iguadad Interior, Lerma, Sabang, San Francisco, Tabuco and Tinago. Barangay Penafrancia has no apparent flooding. However, its settlements and communities are located along or adjacent to the Bicol and Naga rivers thereby making it moderately vulnerable to floods. Panicuason registered the lowest vulnerable area to flooding mainly because 89% of its total area is located in rolling to hilly terrain. A review of the flood inundation maps would show

that deep flooding would occur in the western portion of Naga City in the vicinity of Bicol and Naga rivers.

Sectoral CCVA Assessment, Transportation

Flooding. All of the city's roads, which include primary roads situated in its western part, are vulnerable to flooding. Historically, the eastern portion, which part covers Mt. Isarog, is not prone to flooding. Within the sub-watershed, the city proper is located in the downstream area making it highly sensitive and exposed to inundation as water flows westward from eastern uplands. Roads in the following 7 barangays have high vulnerability to flooding based on the flood model results conducted by the Project: Cararayan; Carolina; Mabulo; Pacol; San Isidro; San Felipe; and Triangulo. The rest of the 20 barangays in the city have moderate vulnerability to floods.

Landslide. Generally, the whole city is not susceptible to landslides except for barangays Carolina and Panicuason. Some road segments in the following five (5) barangays are highly vulnerable to landslides: Cararayan; Carolina; Pacol; Panicuason; and San Isidro. The other 22 barangays have their road segments moderately vulnerable to landslides.

Liquefaction. Naga City has low to moderate vulnerability to liquefaction. Except for strips of land around the town and within Barangay Carolina, the city is less vulnerable to liquefaction. Historically, only one fifth of the city or the entire town proper, is susceptible to liquefaction. The land area outside the city proper and going eastward to Mt. Isarog, is not prone to liquefaction. Seven barangays have road segments with moderate vulnerability to liquefaction: Balatas; Calauag; Carolina; Concepcion Pequeña; San Felipe; Tabuco; and Triangulo. The other 20 barangays have low vulnerability to liquefaction. Overall, the road segment with highest vulnerability to liquefaction belongs to Triangulo, a barangay that is historically prone to the hazard.

Sectoral CCVA Assessment, Forestry sector

The barangays that were identified to harbor forests are Carolina, Pacol, Panicuason and San Isidro. The forestry sector of Naga City is composed of the forestry areas in the Mt. Isarog National Park (MINP) that are inside the administrative boundaries of the city. This consists of 484.02 hectares of closed broad leaved forest and 8.87 hectares of communal forest. The sector also includes the areas consisting of strips in river banks planted to trees and are part of the National Greening Project of the city. The findings are as follows:

- **Erosion.** The forests of all the four barangays (Carolina, Pacol, Panicuason and San Isidro) have moderate level of overall vulnerability to soil erosion. All the forests of the four barangays were rated to have moderate vulnerability to erosion.
- **Flooding.** Except for Barangay Panicuason, which has a low vulnerability to flooding, the other three forested barangays are moderately vulnerable to flooding when the rivers and tributaries traversing them swell and overflow.
- **Landslide.** The overall vulnerabilities to landslides of the forestry sector of the four barangays are moderate in Pacol, Panicuason and San Isidro. Carolina forestry sector has a high vulnerability to landslide.

- **Drought.** All four barangays (Carolina, Pacol, Panicuason and San Isidro) have high vulnerability to drought based on projected rainfall volume.
- **Wildfire.** Barangays Carolina and Pacol have moderate vulnerability to wildfire while Pacol and Panicuason have low vulnerability to wildfire.

Sectoral CCVA Assessment, Agriculture sector

Naga City remains primarily an agricultural community. Of the city's total land area of 8,448 has, around 4,550 (54%) is devoted to agriculture and the sector employs 14 percent of the total households. Eleven of the city's 27 barangays are crop production areas. These barangays include: Carolina (Upland/Hilly); San Isidro (Upland/Hilly); Cararayan; Pacol (Upland/Hilly); Panicuason (Upland/Hilly); San Felipe; Mabolo; Balatas; Concepcion Grande; Del Rosario; and Concepcion Pequeña.

Floods, Drought, Typhoons, Soil Erosion and Pests and Diseases. All the eleven 11 agriculture crop areas, namely: Carolina (Upland/Hilly); San Isidro (Upland/Hilly); Cararayan; Pacol (Upland/Hilly); Panicuason (Upland/Hilly); San Felipe; Mabolo; Balatas; Concepcion Grande; Del Rosario; and Concepcion Pequeña are moderately vulnerable to flood, drought, typhoon, soil erosion and pests and diseases.

GHG EMISSION ASSESSMENT

Summary of findings

The rapid urbanization of the city has raised the concern on its GHG Emission. A community-based GHG Assessment conducted in 2015 highlights the following Summary of Major Findings:

- Total emissions of Naga City including the LUCF sector amounted to 246,640.13 tons. The Energy and Transportation sectors contributed almost the same amount in the city's total emissions.
- About 36% of the total emissions came from the Energy sector while around 35% was contributed by the Transportation sector. The Energy sector had an emission of 89,760.04 tons while the transportation sector contributed 86,776 tons.
- Ranking third among the sectors was the Waste sector with an emission of 46,288 tons of CO₂ or 19% of the total emissions. Following the Waste sector was the Agriculture sector which contributed about 21,632.70 tons or 8.77% of the total emissions. Results indicate that Naga City has small area allotted to crop production and has few livestock. LUCF which contributed 0.89% of the total emissions of Naga City had a total emission of 2,183 tons CO₂.

Net emission

Considering the amount of carbon absorbed by the LUCF sector of Naga City (9,501.47 tons CO₂), the net carbon emission of Naga City is 237,138.66 tons. Results show that the LUCF sector of Naga City is not large enough to offset the carbon emission of the City. The

estimated per capita emission of CO₂ equivalent for the city is 1.4. This per capita value is almost double than the World Bank estimated standard value of 0.7tons CO₂e per capita.

DISASTER RISK REDUCTION AND MANAGEMENT

Natural Hazards, such as typhoons, flooding, land instability, earthquakes, urban fires and conflagration, power failure, have the potential to cause environmental, social economic loss through damage to habitation, life line facilities, and infrastructure. Land uses that fail to recognize the areas prone to hazard risks are not sustainable and can cause communities and the environment unnecessary harm or damages especially to the business community. Communities need to be developed in a sustainable manner by insuring a close linkage between hazard mitigation, comprehensive land use planning that focus on future land uses and climate change adaptation.

Guide to action

Although disasters will be basically felt at the barangay level, it is important to build confidence and self-reliance at the barangay level, which can be best effected through timely, supportive and planned interventions by the city government.

A Counter-Disaster Plan is an understanding of the causes of disaster, anticipating its effects to constituents and their environment, knowing the counter measures to prevent or lessen the consequences and applying the appropriate measures effectively. Only a sustained effort and preparedness can make a disaster management plan effective socially acceptable.

The city's Risk and Hazard Maps, developed by the EDP-GIS unit, were updated by DRRM personnel to suit up with the current state of city's development plan. This includes the study on the state of the Naga River where barangays are situated that were prone to flooding. Flood hazard maps were developed as well as the population at risk was determined, hence, infrastructural mitigation were developed to minimize the effect of the flooding.

Institutional arrangements

This multi-hazard approach in disaster risk reduction and management, proposes that all agencies and departments with their disaster specific functions come under a single umbrella of control and directions to attend to all kinds of disasters, thus understanding and implementing the pre-defined Incident Command System will be followed all along.

The existing arrangements have strengthened this administrative arrangement, with the City Mayor as ground commander being the LDRRMC chairman. He is being supported by the Executive Officer of the Local Disaster Emergency Operations Center (DEOC) at City Hall. The objective is to have a simplified and uncluttered system of disaster response.

The Disaster Emergency Operation Center (DEOC). The Disaster Emergency Operation Center is the center of the operation during a disasters or even during normal times. The structure of the DEOC can expand or contract depending on the disaster situation. This is located at the Naga City Public Safety Office where the Central Communications Center is located, that also serves as the Command Center.

The primary function of DEOC is to implement the NDRRM Plan, which includes coordination, operations management, data collection, record keeping, public information, resource management and proposed project to the chairman of the Public Safety Committee for policy development.

The DEOC, its systems and procedures are designed in such a way that information can be promptly assessed and relayed to concerned parties. Rapid dissemination contributes to a faster response and effective decision-making during an emergency. As the master coordination and control point for all counter-disaster efforts, the DEOC is the center for decision making under a unified command. In a disaster situation, the DEOC will come under the direct control of the chief executive. Or any person designated by him as the chief of operations.

The usual activities of the DEOC will be to:

- Ensure that all barangays continue to regularly update the BDRRM Plan and encourage them to prepare specific plans for areas prone to specific disasters;
- Continue identify and interact with the Government departments/agencies, laboratories, research institutions and NGO's to evolve mitigation strategies and set-up study groups and task forces for specific vulnerability studies.
- Serve as the data bank and ensure that mitigation strategies are planned and implemented;
- Upgrade and update the city DRRM Plan according to the changing situation of the city, and its development trend;
- Disseminate the information about the city DRRM Plan to other departments of the city government and barangay level.
- Organize damage assessment and needs assessment and update the city DRRM Plan accordingly;
- Ensure that the warning and communication systems and instruments in the DEOC are in working conditions.
- Ensure that all emergency rescue equipment and personnel are all ready for deployment at any given time and situation.

On the receipt of the warning or alert from any agency which is competent to issue such warning, all community preparedness measures including counter-disaster measures will be put into operation. The chief executive will assume the role of the chief of operations for disaster management with the aid of the DRRM Officer.

The occurrence of disaster would essentially bring into force the following:

1. The DEOC will be on full alert.
2. The DEOC can expand to include agencies/Office with responsibilities for specific tasks.
3. An on-going UHF RADIO 406.3000 Mhz. will be used for radio communication, wireless communication and hotline contact with the PNP 166, BFP 160, and Ambulance, BMC OPCEN, will be the contact numbers of the DEOC for the dispatch of their personnel, fire trucks and ambulances and other emergency equipment.
4. The DEOC will implement THE HELP LINE 3000 (472-3000, 811-3000, 478-3000) for the use of the key agencies involved in disaster management to be backed up with a mobile cellular number and a VHF communications facility.
5. The DEOC will implement and use an Incident Command System for its operation.

Agencies, Offices Primarily Responsible in Addressing a Threat. Helping the DEOC are the following agencies:

- City Mayors Office (DRRMC, City Disaster Management Services)

- The Naga City Public Safety Office
- Naga City Disaster Risk Reduction and Management Office
- Bureau of Fire Protection/Naga City Central Fire Station/BFP SRU/EMS
- Department of Education/Pre-Determined Evacuation Centers
- Naga City Hospital/Emergency Rescue Naga
- Philippine National Police/Naga City Police Office
- Philippine National Police/MARITIME Group
- City Health Office/Center for Disease Prevention and Surveillance
- City Social Welfare and Development Office-Relief Operations
- City Agriculturist Office
- City Engineers Office
- Philippine National Red Cross
- Naga City Peoples Council
- Camarines Sur Medical Society/Philippine College of Surgeon
- KABALIKAT NAGA CENTRAL/Emergency Communications System

A set of protocols for pre-crisis, crisis and post-crisis action plans have been adopted by the City Government to guide its efforts in times of disasters.

Table 1.17. Frequency Table for 1-day Rainfall (mm) based on Observed Values (1951-2010) and Projected for 2020 (2006-2035), Camarines Sur

Frequency (Year)	2	3	5	10	20	30	50	70	80	100
1951-2010										
Observed Values	180.0	213.5	251.5	300.3	348.4	376.6	412.4	436.7	445.8	461.7
2020, bias-corrected										
(2006-2035)	175.9	215.1	262.5	327.9	397.5	440.9	498.6	539.6	555.3	583.5

SITUATIONAL ANALYSIS

Based on the multi-sectoral data presented in the two previous chapters, this chapter undertakes a multi-level situational analysis. Firstly, it looks at the priority issues and concerns facing Naga City on the one hand (using current reality analysis, which is largely informed by the city's past and present performance). Secondly, it will also track changes in the city's land use since the 1970s and population movement during the past 15 years (using trend analysis). Lastly, building on these two, it will look at the development opportunities and challenges (using the more forward-looking SWOT analysis), which the new Comprehensive Land Use Plan (CLUP) should respond to.

CURRENT REALITY ANALYSIS: PRIORITY ISSUES AND CONCERNS

From the foregoing, the following sectoral issues and concerns stand out:

Physical

Naga's geographic location, as well as the impact of climate change to the Philippines which is one of the world's most disaster-prone countries, further elevates risks arising from natural hazards that affect the city. These hazards include the following:

Typhoons. As pointed out in Chapters 2 and 3, climate change will bring about more intense typhoons. Three of the 16 strongest typhoons over the last 70 years devastated Naga in a span of roughly a decade (2006-16), packing maximum winds of at least 215 kph. One of them ("Glenda" or Rammasun in July 2014) hit the city outside the usual typhoon season, an event that happened only seven times during the period.¹

Of course, no one is spared when a typhoon comes. But these natural calamities put at risk the most Naga's urban poor, especially the 2,513 households (6.2%) reported to be living in makeshift houses as of 2015.² The number can reach as high as 5,270, which correspond to the number of households with weak walls and roofing materials.

Flooding. The major hydro-meteorological hazard facing the city is rain-induced flooding events that put the city's main urban areas at risk, being located at the outlet of the Naga River watershed. In fact, as pointed out above, a tidal surge in 2006 brought about by Super Typhoon "Reming" pushed water levels to a recorded elevation of 4.2 msl at the Peñafrancia landing about 2.8 km up Naga River, over two meters above normal water surface elevation.

The flood susceptibility map prepared by the Mines and Geosciences Bureau puts 97 hectares (located at the junction of the Naga and Bicol rivers) as highly susceptible to flooding, representing 7% of the 1,492-hectare urban district. Another 245 hectares, representing 16% of the total, are considered to have medium susceptibility, while 475, equivalent to 32%, are of low susceptibility. In all, this means more than half (55%) of the urban district is susceptible to

¹ The strongest was in August 1987 when "Herming" (or Betty, which packed winds of 240 kph) came within 70 kms of the city.

² Arrived at by applying the CBMS ratio (6.2%) to the 2015 household population using NSO data.

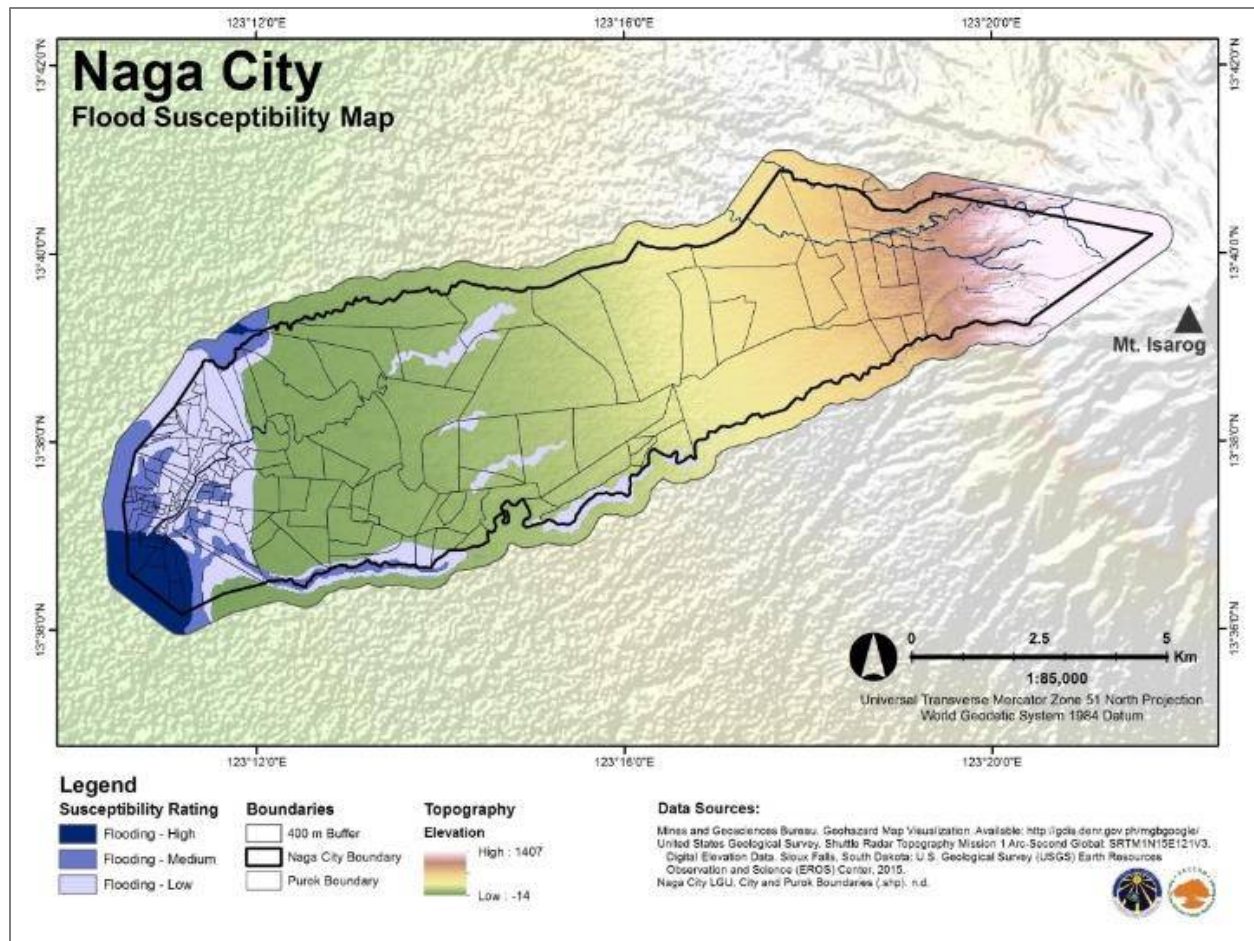


Fig. 1.24. Flood susceptibility map of Naga City. More than half of the urban district is susceptible to flooding.

flooding. (Fig. 1.24.) The Naga City Local Climate Change Action Plan (LCCAP) places this at an even higher 61%.

Over the next 15 years, flooding events are expected to worsen due to climate change. Using climate modeling tools applied to Naga, a precipitation anomaly map prepared by the Manila Observatory shows that by 2025, even with modest efforts at climate change adaptation³, rainfall is expected to increase by an average of 5-6% within the urban district, by 4-5% in the peri-urban areas, and 3-4% in uplands. During rainy season, it is projected to increase by as much as 10-11% in the urban district. The LCCAP agrees, projecting the highest rainfall increase at 9.5% during the rainy months of June, July and August by 2020 and by 16.5% by 2050.

Flooding therefore will put at risk the city's two major central business districts (CBDs), where most of the secondary and tertiary economic activities take place. It will also affect between 55-61% of the 136,539 residents (or around 75,000) in the urban district, which account for 70% of

³ Specifically, it assumes a Representative Concentration Pathway (RCP) 4.5 scenario – “a stabilization scenario, which means the radiative forcing level stabilizes at 4.5 W/m² before 2100 by employment of a range of technologies and strategies for reducing greenhouse gas emissions.” (NOAA)

the city's total population. This will include as many as 6,974 households (around 24% of the total) who experienced flooding, according to the city's CBMS survey.

Other climate and geophysical hazards. Lastly, the city also needs to consider three other geophysical hazards that can impact development.

One is *rising temperature and drought*, especially in the peri-urban and upland agricultural areas. From a baseline historical mean temperature of 26.7 °C for the period 1971-2000, a temperature anomaly map prepared by the Manila Observatory shows that by 2025, under the same modest efforts at climate change adaptation, temperature in Naga will increase by 0.6 °C, raising average temperature to 27.3 °C. (Fig. 1.25.) During the dry season, the increase can reach as much as 1.2 °C, raising the average temperature to 27.9 °C. More worrisome is the LCCAP projection, which sees a 2.2 °C increase by 2050. This means that the city will have longer wet days than dry days in the near and distant future but with extreme El Niño spell.

Another is *landslides*, which are confined to the Mt. Isarog protected area in Barangay Panicuason and its environs. The MGB landslide susceptibility map identified around 481 hectares (68%) as moderately susceptible and another 226 hectares (32%), located at the peak and two radiating gullies of Mt. Isarog, as highly susceptible to landslides. Fortunately, they do not affect existing built-up areas and developments in said barangay. (See Fig. 1.26.)

The other would include *seismic hazards* that can bring about ground shaking, rupture and/or liquefaction. While the nearest active fault, located across Ragay Gulf, is around 70 kms away from Naga, it triggered a magnitude 7.0 earthquake on March 17, 1973 that wrought the most damage to Calauag, Quezon. Said earthquake caused intensity 4 ground shaking in Naga and as far as Legazpi City. A similar disaster will put at risk around 14% of the city's old housing stock that were built before 1980, when there was weak enforcement of building standards.⁴ Also at risk would be old buildings, especially at the urban district, that might be damaged in

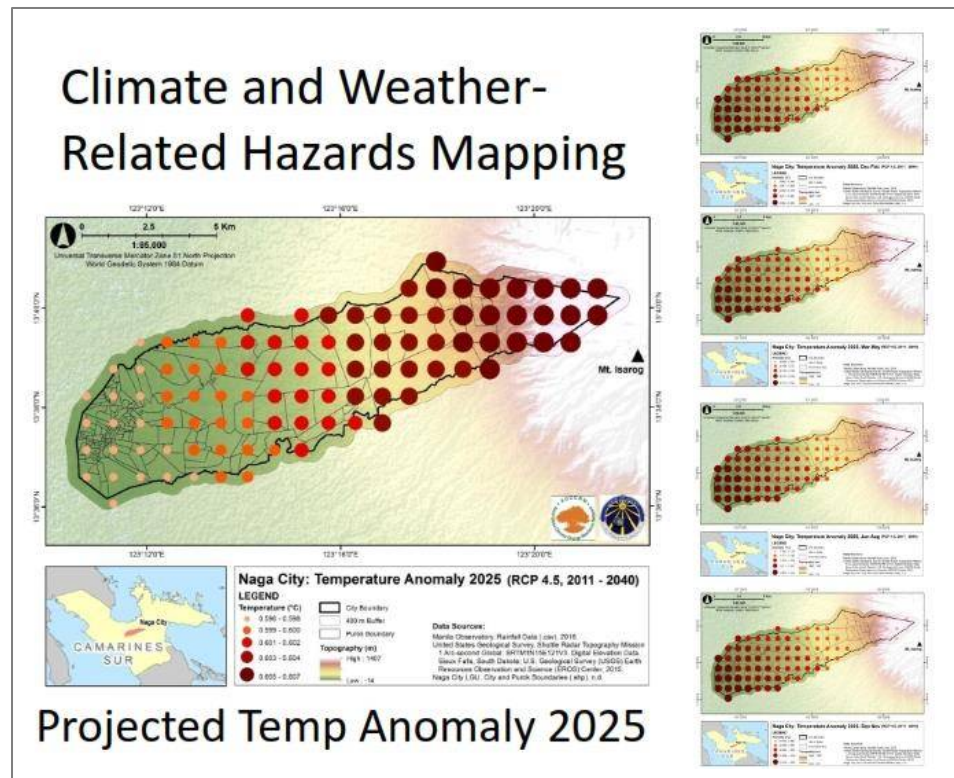


Fig. 1.25. Due to climate change, temperature in Naga can increase by as much as 1.2 °C by 2025 based on a model prepared by The Manila Observatory.

⁴ The current National Building Code was only adopted in 1972 and has just taken effect for a few years. Its enforcement would later be delegated to the city government by early '80s.

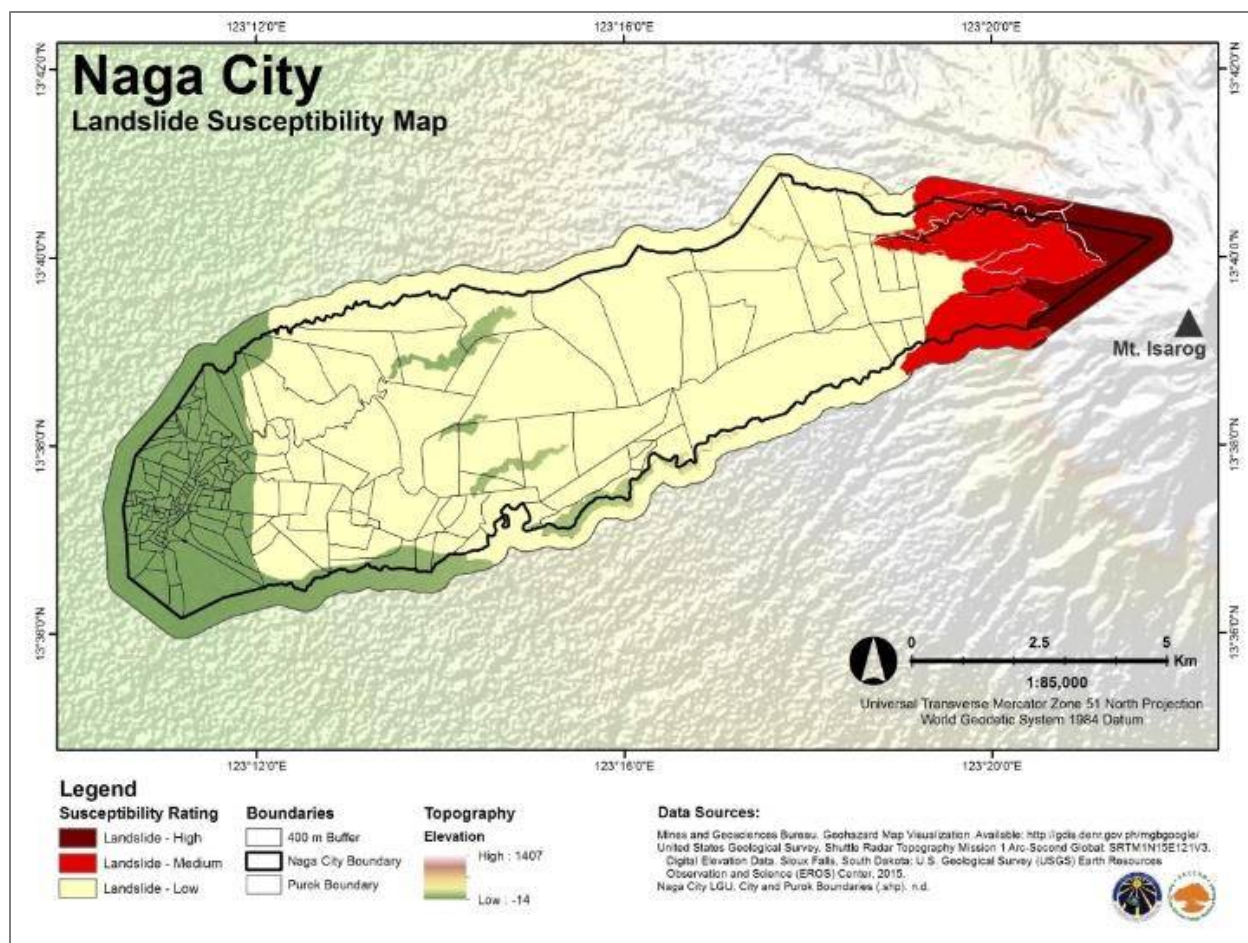


Fig. 1.26. Landslide susceptibility map of Naga City. At present, they do not affect existing built-up areas in Panicuason.

such an event. For example, a study conducted by engineering students of the Ateneo de Naga University in 2014 found that 238 out of 480 (50%) public school buildings in the city earned a failing score under a moderate seismicity scenario and were recommended for detailed investigation by design professionals.⁵

Infrastructure

While the city has made substantial progress in providing infrastructure that underpins its fast-growing economy, it also needs to address the following concerns, mainly driven by its demographics and role as a modernizing major city in the Bicol region.

Road gap. Just like the previous planning period, the city government is setting aside the DILG and HLURB standard for urban areas, which will require Naga to double and even triple its current road network to attain the ideal of 662-723 kms, which is unrealistic given its historical performance.

⁵ Buquid, Delfin and Marpuri, *Rapid Visual Screening of Public School Buildings Within Naga City*, College of Engineering, Ateneo de Naga University (2014).

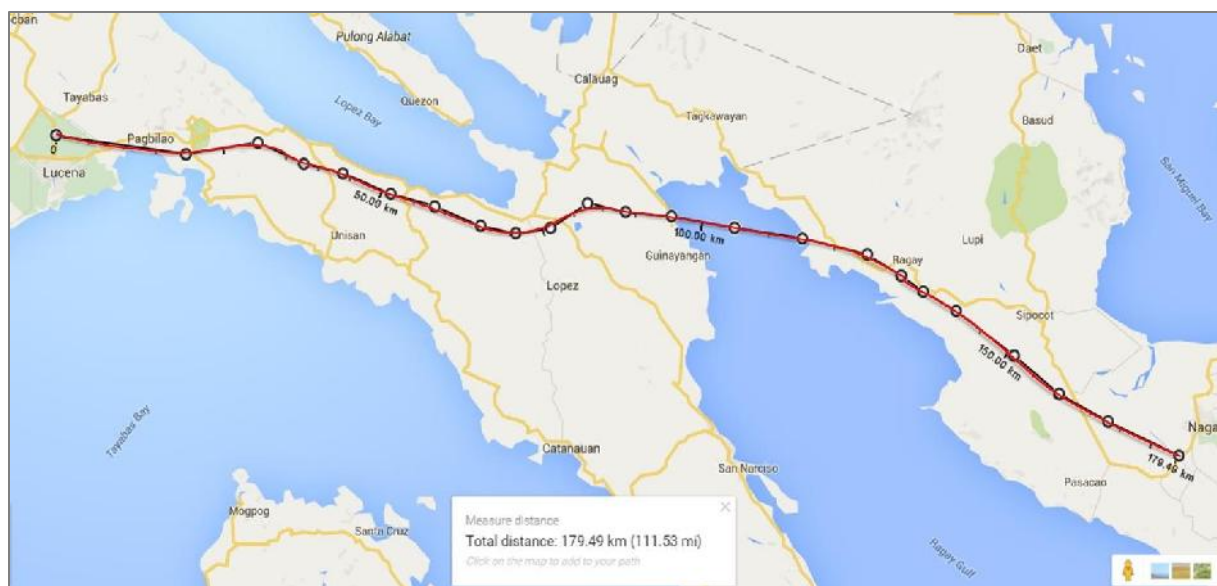


Fig. 1.27. The proposed 180-km Quezon–Bicol Expressway (QBEx) from Lucena to Naga City.

Thus, the City Road Network Development Plan, 2016-30 aspires to add only around 100 kms to its current road network of 195.7 kms, with the city government focusing on strategic new road projects accounting for 40% of the total. Building on these public sector investments, the private sector is expected to generate the balance, which should yield a 350-km road network by 2030. It also seeks to widen and upgrade existing ones, especially the city's primary roads. These new road projects, which includes a new circumferential road (C-3), will support and operationalize the urban form and spatial development strategy that will be adopted under the new CLUP.

Transportation. Several issues need to be addressed under the transportation sector.

For *land transport*, the growing congestion in major thoroughfares of the city, especially during peak hours, points to both demand and supply-side issues. At the demand side, the continuing dominance of private over public transport is unmistakable, with the former outnumbering the latter almost on a 9:1 ratio.⁶ The recent entry of car dealerships in the city and neighboring Pili will not ease the situation. Aside from contributing to increased greenhouse gas emissions, private transport, especially cars, is not an efficient means of moving people. Nonetheless, this is expected to subsist as car ownership remains one of the aspirations of the average Filipino family.⁷ For those unable to afford cars, the motorcycle has become a popular and accessible option, which explains why it account for 3 of every 5 registered vehicles over the last 15 years.

At the supply side, there is the issue of quality public transport, especially in intra-city routes. As things stand, the 2,467 registered PUJs and 1,500 trimobiles remain the backbone of the city's public transportation system that moves people from their home to work, school and other destinations, and vice versa. While undoubtedly affordable, they are non-airconditioned and in

⁶ This, in spite of a 5 percentage point improvement in the share of registered public transportation vehicles between 2010-15.

⁷ Surveys conducted by NEDA to prepare its AmBisyon Natin 2040 long-term vision show that owning a car, in addition to their own house, are two of the major aspirations of Filipinos across social, demographic and geographic divides.

a tropical climate do not offer enough incentives for the car-riding middle class to shift from private to public transportation.

Moreover, while the city government has initiated efforts to promote walking and biking, non-motorized transportation (NMT) – the most environment-friendly of all transportation options in a city – still needs to be supported with a package of policy and infrastructure support to really take off as an alternative.

Finally, to improve the city's connectivity to Metro Manila and the rest of Luzon, there is also the need to fast track development of the proposed Quezon–Bicol Expressway (QBEx), a 180-km project that will connect the cities of Lucena and Naga. (See Fig. 1.27.) The proposed expressway will start about two kilometers from the end of the proposed Toll Road (TR)-4 project in Malicboy, Lucena and will end before the start of the proposed Camarines Sur Expressway in the outskirts of Naga City. To be implemented under a Public-Private Partnership (PPP) scheme, the DPWH has commissioned the development of a business case for the project.

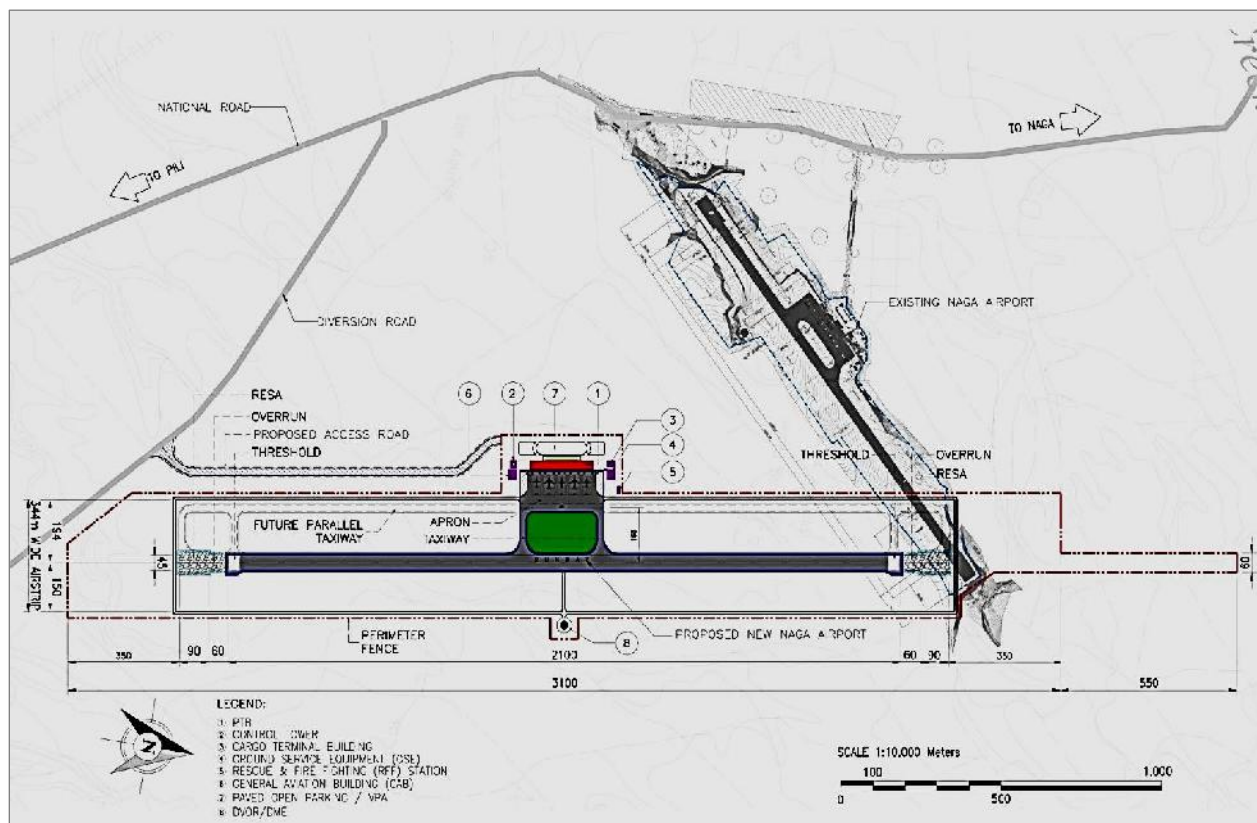


Fig. 1.28. The proposed Naga Airport Development Project will bring back jet service to the city.

For *air transport*, the need to fast track implementation of the P4.5-billion Naga Airport Development Project is a major issue. The project, which has been approved by the national government, seeks to modernize air transportation services in Camarines Sur by supporting the entry of jet service, which is long overdue and critical in sustaining the city's overall competitiveness. (Fig. 1.28.)

For *rail transport*, the long overdue modernization of the 653-kilometer Manila to Bicol railway system – of which Naga is a major linchpin – continues to be the major issue. The take-off point is the P117.3-billion Manila-Bicol South Railway project was approved in 2015 by NEDA.⁸ The focus should not just be rehabilitation, as this would only mean restoring service using the existing narrow gauge railway tracks which will not shorten travel time and improve reliability. Rather, it should aim at modernizing the system by upgrading it a Standard Gauge Railways (SGR) capable of handling modern high speed trains that can cut travel time by as much as 50%.

Water. For the water sector, the city, together with its neighboring towns being served by the MNWD, must ensure sufficient and sustainable supply that will meet its growing needs at the residential, commercial and industrial level. From 2010-13, demand grew by 8% annual, more than three times the city's population growth; if this trend continues, the MNWD – with the support of stakeholders and end-users themselves – need to implement supply and demand-side strategies to maintain its current service levels and competitive rates⁹, and manage growth in a sustainable manner.

According to the LCCAP, a primary concern is the over-extraction of groundwater in Naga, which is projected to be depleted in the coming years unless recharge rates are dramatically improved. A study by the Local Water Utilities Administration (LWUA) shows that over the last few years, the annual groundwater recharge was estimated at only 2.38 M cu. m. per year while current extraction is at 4.79 cu. M. per year.

For the long term, especially when Naga becomes a highly urbanized city¹⁰ within the next 15 years, the city government and the MNWD should also work together in establishing a proper sewerage system as mandated under the national and local laws¹¹ as a means of ensuring water quality in Naga River as recommended under the pre-feasibility study for the Integrated Naga River Revitalization Project (iNRRP). This should complement MNWD's septage treatment facility in Barangay Carolina that will start to treat sludge by around 2018.

Power. For the power sector, the major issue remains CASURECO II's inability to improve its B-rating similar to three neighboring smaller electric cooperatives in the Camarines provinces, which have attained triple or double-A rating. To achieve that, it should bring its system loss below the cap set by NEA and DOE (8% and 13%, respectively), and raise its collection efficiency above the 95% standard.

Moreover, the LCCAP also notes that Naga's energy system is dependent on a single supplier (CASURECO II), thus making it unreliable and unsustainable. Alternative sources of energy are costly with limited information, incentives and partnership mechanism.

⁸ This is being eyed for implementation under a PPP scheme.

⁹ MNWD has the one of the lowest water tariff in Southern Luzon, and was ranked top government agency in terms of customer satisfaction in an Ateneo de Naga survey.

¹⁰ They refer to Philippine cities with a minimum population of 200,000 as certified by the Philippine Statistics Authority, and with an annual income of at least P50 million based on 1991 constant prices as certified by the City Treasurer. The latter is being proposed to be raised to P250 million in locally generated income in Congress.

¹¹ The Clean Water Act of 2004 (Republic Act No. 9275) and Wastewater Management Ordinance (Ordinance No. 2014-076).

In the context of the city's recent experience with Super Typhoon "Nina," there is also a need to invest in improving the resilience of its distribution system, especially in the context of climate change, and enhance local capacity to restore services at the shortest possible time.

Finally, the city should work with stakeholders in exploring means of developing local renewable energy sources, like solar and bio-waste, to promote the development of decentralized power generation and distribution systems anchored on locally embedded generation plants.

Communication. For a city that has gained a foothold in the business process outsourcing (BPO) industry and seeks to branch out to IT and creative segments, the major issues with the communication sector have to do with access and quality of internet services. The 2010 census puts internet access at only around 34% of the city's household population, which clearly must be improved as the national average already reached 37% by 2014. The goal should be 100% internet connectivity anywhere in Naga City.

At the same time, there is also the issue of quality, which is a national concern; an international publication reported in 2015 that for household download speed, the Philippines ranks 176th out of 202 countries worldwide and that the average broadband download speed is 23.3 Mbps, nearly eight times faster than the Philippines.¹²

Social

Again, similar to the infrastructure sector, its growing demographics is the main driver behind the key issues and concerns in the social sector. But side by side, this is magnified by Naga's long-standing commitment to promote equitable growth and equalize opportunities, especially for its low-income households.

Education. For the education sector, the major issues are two-fold.

One is the need to sustain the great strides made by the city in ensuring access to education. This includes its multi-awarded Educare preschool program that predates the K-to-12 kindergarten policy of the national government by at least two decades, as well as the MDG-inspired Quality Universal Elementary Education in Naga (QUEEN) program that seeks to improve survival and completion rates in city public schools. With a population estimated to grow between 1.8 to 2.91% annually, ensuring there is sufficient capacity that will address increased demand will be a major concern. The city government, together with DepEd-Naga, will need to work together in increasing capacity in existing schools, especially at the urban district, and build new ones in key settlement areas that will be identified under this plan. This will require investments in quality teaching staff, physical plant, equipment and learning materials required by a fully functioning school.

The other has to do with ensuring that children of city residents are able to complete the basic education curriculum. Naga's role as a center of education necessarily attracts enrollees from neighboring towns, especially within the Metro Naga area. This is mainly the reason why it has recorded participation rates as high as 144%. Especially as children move towards junior and senior high school age, these numbers can mask access issues at the secondary school level, which can be caused by poverty, family problems and a host of other factors, including crowding-out effect due to non-resident enrollment. Sustained school and community-based

¹² <http://www.csmonitor.com/Technology/2015/0630/How-the-Philippines-plans-to-improve-pathetic-Internet-speed>

efforts to identify and enroll school-age children, track their progress and ensure that they will not drop out are important interventions in this respect.

Health. Similar to education, the main issue for the health sector is access, and will be driven by the city's rapidly growing population. To address growing demand for basic health services, this will require establishing and operationalizing more community-based rural health units that will complement the Naga City Hospital and the Our Lady of Lourdes Infirmary. At the same time, it should also promote the establishment of strategically located privately-owned birthing facilities that will help the city sustain, if not improve, its Sustainable Development Goal (SDG) indicators for health, especially for maternal and child care.

Housing. Notwithstanding the robust pace of house construction in the city, which grew at 3.7% annually and built a third (35%) of the total housing stock between 2000-10, a housing backlog of 719 units (2%) remained as of 2010, mainly as a function of a population growth rate that was on the high side. Addressing this backlog, and ensuring that the sector will construct housing units sufficient to address even the high-growth scenario of the city's household population over the next 15 years, is a major issue that needs to be addressed.

There is also the need to build quality, typhoon-resistant housing capable of withstanding more intense typhoons that are expected to occur due to climate change. Along this line, the city government and the Bicol State College of Applied Sciences and Technology (BISCAST) should work together in promoting and popularizing the affordable typhoon-resistant model housing unit developed under the German government-funded Urban Nexus project, under which they are partners.

In addition, there is the need to sustain the city's flagship Kaantabay sa Kauswagan housing project, and strengthen its focus in building safe and resilient communities. According to HSDO, on top of the 9,191 households already covered, there are still around 4,000 more applications pending with the office. Addressing their needs require additional investments in landbanking and settlements development compliant with housing standards prescribed by the national government. These are resource-intensive activities that can only be sustained by regular amortization of current beneficiaries which can be reflowed into the project.



The Urban Nexus typhoon-resistant model housing unit at the Bicol State College of Applied Sciences and Technology.

Building safe communities also requires that future KSK projects are located in safe zones and away from high-risk areas that will be designated under this new CLUP. For its existing projects, the city government will have to implement adaptation and mitigation measures, including interventions recommended under the flood management component of the iNRRP pre-feasibility study that will lessen these risks.

Finally, there is the issue of urban sprawl. In spite of the previous CLUP's commitment to compact urban development, its land use allocation scheme designated areas along the entire stretch of the Naga-Carolina corridor as residential, leapfrogging agricultural areas that served as the city's functional greenbelt. In the process, it actually promoted a sprawl type of urban development driven by the rise of residential communities located far away from their usual place of work. Even the city's own KsK project contributed to this phenomenon as it strove to deliver housing services to the urban poor at minimum financial resources possible, and taking advantage of the significantly lower cost of raw lands at the peri-urban barangays of Cararayan and Pacol is a rational way of doing so. The downside of such decision, however, takes the form of longer home-to-work trips that is more expensive in the long run, both at the household level due to increased transportation cost and at the societal level due to increased GHG emissions that the local public transport system generates in servicing these trips.

Environment

The need to promote sustainable development that balances both present and future needs of the city and its people are the primary drivers of the following environmental issues.

Solid waste management. Effecting a smooth transition from the Balatas controlled dumpsite, which is being partially closed down, to the new San Isidro Sanitary Landfill-cum-Waste-to-Energy (WTE-SLF) that is up for development, is one of the major challenges for this sector. The new 10-hectare facility, which is projected to become operational by mid-2018 comes at a time when the remaining space available at Balatas will have run out.

The second issue is the level of waste diversion that the city must implement. The projected 10-year maximum useful life of the San Isidro SLF is contingent on an optimal waste diversion strategy, which includes the adoption of an ordinance banning plastics and a more active participation of the city's 27 barangays in implementing waste segregation efforts mandated under the Ecological Solid Waste Management Act of 2000. Otherwise, the facility may only be serviceable for around 6 years under a business-as-usual scenario.

Finally, there is also the need to operationalize the facility's energy generation component, using leachate and methane gas that will be generated, which will primarily benefit Barangay San Isidro as host community. This is also being eyed under a PPP arrangement, which is one of the recommendations made by a study commissioned under the Urban Nexus project.

Air and water quality. For *air quality*, the obvious challenge is the need to move air quality from its current inconsistent rating (shifting between Fair and Good marks) over the last 15 years to sustained positive performance. This will require more aggressive and regular effort to monitor emission of all public and private transportation vehicles, and link results with the vehicle registration process of the Land Transportation Office. Positive gains from the effort will also contribute to climate change mitigation since the transport sector is one of the major sources of GHG emissions to the atmosphere.

For *water quality*, there is a need to build on Naga River's designation as Water Quality Management Area (WQMA) by the DENR to improve various metrics of the quality of its water, starting from its headwaters from Mt. Isarog down to the flood plains where it empties into the Bicol River.

This includes improving on its Class C rating under the agency's classification system, as well as moving results of the other indicators (dissolved oxygen, Biological Oxygen Demand (BOD) and coliform bacteria) within standards in all sampling stations within its entire 20-km stretch.

Greenhouse gas emission. Obviously, the challenge here is to reduce the city's 1.4 ton per capita emission of CO₂ equivalent and progressively bring it closer to the World Bank standard of 0.7. This, of course is a tall order for the short term. But over the next 15 years, the city can start taking concrete steps, especially on the four major contributors that account for 99% of total emissions: Energy, Transportation, Waste and Agriculture sectors. The overarching framework here is integrated resource management, or the so-called "urban nexus" of food, energy, water and land use.

Economic

Issues facing the economic sector combine the previously mentioned factors – like demographics, sustainable development and equitable growth – and frame this against the city's need to maintain its competitive edge as the leading growth center in the Bicol region.

Structure. The dominance of trading and services in the local economy is expected of a fast-growing city like Naga, especially in the Philippine context. But the extent to which it dominates the economy (ranging between 71% in 2000 and 89% in 2016) is an issue that need to be raised and addressed if a healthier balance is desired.

For instance, for a city where 54% of the land area remains agricultural, and where 12-15% of the household population depends on agriculture, an 8% share of the local economy indicates an underperforming primary sector. The same can be said for a secondary sector that is supposed to generate the biggest value-adding in an economy and creates higher quality jobs.¹³ The challenge therefore of attracting investments into these sectors must be addressed

Trade, commerce and services. For this dominant segment of the economy, the major issue concerns the size of the underground economy, which is placed at 46% as of 2015. While vibrant underground business activities is a common feature of urban economies, it should not stop the city government, in partnership with the local business chamber, from encouraging the more mature ones to aspire for official status by securing the needed permits. This will not only protect them moving forward, but will also open doors to government assistance that can help promote long-term sustainability, not to mention contributing to quality job creation in the economy.

Agriculture. For the agricultural sub-sector, the main issue have to do with productivity, especially with local crops. As of 2014, only 70% of the city's agricultural areas are actually being used for production. This indicates that the remaining 30% remains idle, most probably by design, as landowners eye their conversion into residential use which promises bigger financial returns. The challenge therefore is to improve productivity and income opportunities in crop

¹³ The 3% share based on type of business is understated, as it fails to capture contribution of the property development sector to the economy, which accounts for around 70% of new investments.

farming, similar to what is happening in the local livestock and poultry industry, to lessen the pressure to idle and convert prime agriculture areas. This requires adoption and promotion of good agricultural practices (GAP) as well as tapping the potentials of organic farming.

Relatedly, this points to the need to achieving balance in addressing the city's housing needs on the one hand and food security on the other. Of course, the city's fast-growing population which is projected to reach as many as 301,300 by 2030 (a 50% increase over the 2015 level) will necessarily require conversion of some agricultural areas into non-agricultural use. An optimal allocation scheme that carefully balances the interest of these two competing uses should be one of the major goals of this new CLUP.

Lastly, while there is improved productivity in the local livestock and poultry industry, it should not come at the expense of public health and sanitation issues, which is a recurring complaint of upland communities that host commercial poultry and piggery farms in Naga. Ensuring that effective waste disposal management practices become the norm among all players in the industry, and whose compliance with environmental standards are strictly monitored and enforced by local regulatory agencies of the city government is of paramount importance.

Manufacturing. For the manufacturing sector, the challenge is pretty obvious: expand the city's relatively small industrial base. The vehicle has been identified in the previous CLUP, which had in fact already designated an area for industrial use between Pacol and Carolina that can host an export processing zone. The ongoing negotiations led by the Naga City Investment Board, aided by the Philippine Economic Zone Authority (PEZA), with potential Japanese locators that will jumpstart the development of said ecozone is a step in the right direction.

Property development and tourism. For these two other sectors which have seen double-digit growths over the last 15 years, sustainability is the major issue.

For *property development*, it requires maintaining the current performance of at least 10% annual growth in the number of building permits issued, and at least four new subdivision projects annually to maintain its 70% share in new investments in the city. This sector should take advantage of gains in local migration and development (M&D) efforts that Naga City pioneered among Philippine local governments and tap diaspora investments to sustain its growth. Latest data show that around 17% of the city's household population have a member working abroad.



The Overseas Filipino sector is expected to fuel property development in Naga. Fortunately, the city has one of the best migration and development programs in the Philippines, anchored on its Migrants Resource Center (which was inaugurated in December 2015).

For *tourism*, it means focusing on the so-called Five As of tourism development¹⁴ in partnership with local stakeholders to maintain, if not improve, its solid performance over the last few years, indicated by positives like double-digit growth in tourist arrivals and accommodation facilities, and continuous growth in hotel occupancy rates. Among others, the sector will directly benefit if the three major transportation projects that will dramatically enhance access to Naga City – the Quezon-Bicol Expressway, modernization of the Manila to Bicol railway system, and the Naga Airport Development Project – are realized. Hence, it should play a lead role in advocating fast tracked implementation of these key projects.

Of particular importance is the need to ensure that the QBEx will directly benefit the city by arranging that the expressway will terminate within Naga's territory, preferably at the peri-urban areas between Pacol and Carolina. A possible scheme is shown in Figure 1.29, which operationalizes the Libmanan-Naga-Iriga axis. The scheme will allow greater connectivity between the three major population centers of Camarines Sur, aside from ensuring greater access to both ends of the Partido district through exits to the Naga-Calabanga Road and the Fuentebella Highway.



Fig. 1.29. The Libmanan-Naga-Iriga axis will promote greater connectivity within Camarines Sur.

Heritage district. The proposed Nueva Caceres Heritage District being spearheaded by the Nueva Caceres Heritage Movement, Inc. (NCHMI) answers the need for new attractions and activities to further boost cultural tourism that leverages Naga's unique legacy as one of the five royal cities established by the Spaniards in the 16th century. Toward this end, the city should work with the NCHMI and other stakeholders, including the National Historical Commission of the Philippines (NHCP), in formally establishing the heritage district. As a preliminary undertaking, they should pursue the installation of street signs bearing current and Hispanic street names, which the NHCP endorsed. Finally, within the framework of the National Cultural

¹⁴ These are Accommodation, Accessibility, Amenities, Attractions and Activities.

Heritage Act of 2009 (R.A. No. 10066), they should take the needed steps to preserve and promote adaptive reuse of historic buildings within the district that are over 50 years old.

Poverty. Lastly, while poverty is an intractable multi-dimensional problem that will take several generations to address, successful poverty reduction efforts have a pronounced economic dimension. This is a perspective shared by many Naga City residents; in the 2015 Poverty and Governance Public Opinion Poll conducted by student researchers of Ateneo de Naga University, most of the respondents (30.5%) said that having no permanent job is the major reason for their being poor.

This points to a major over-arching issue in the city's development over the next 15 years: sufficient quality job creation that will ensure that Naga's economic growth will be equitable and will benefit its citizenry, particularly low-income households of the city whose number range between 15% to as many as 40% of its population. This has been recognized by the city government itself; in preparing its 2016-19 Executive-Legislative Agenda, the Economic sector have identified priority convergence projects that consciously incorporates job creation for low-income households as a key goal.

Development constraints

Based on the foregoing discussion, Table 1.18 below summarizes the major land-related development constraints facing Naga that need to be addressed under the plan:

Table 1.18. Development Constraints facing Naga City

Land Use-Related Problems	Extent of the Problem	Interventions Needed
1. Urban sprawl	Current urban form actually promoted sprawl with identification of residential areas far away from the city center	<ul style="list-style-type: none"> • Prioritize residential development near the city center in the new CLUP's land use allocation • Automatic reversion of idle residential lands when unused after five years
2. Conversion of prime agricultural lands	Premature conversion of prime agricultural lands makes "white elephants" or idle lands out of it. It also diminishes productivity of the agriculture sector	<ul style="list-style-type: none"> • CLUP 2016-30 and Zoning Ordinance provisions protecting prime agricultural areas • Increase agricultural income and profitability • Automatic reversion of idle lands when unused after five years • Political will and enabling legislations • Stiffer reclassification fee
3. Climate, meteo-hydrological and geo-physical hazards		
a. Weather-related hazards	<p>Naga lies in the usual path of strong typhoons. Between 5-6 of these pass by Bicol every year. Climate change is expected to bring more intense typhoons</p> <p>At the same time, average temperature can rise between 0.6 to 1.2 °C at the</p>	<ul style="list-style-type: none"> • Pursue safer, typhoon-resistant housing designs, e.g. Nexus demonstration unit • Use CBMS data in targeting KsK beneficiaries for shelter assistance, i.e. those with makeshift housing which are most vulnerable • Continuing reforestation of and around Mt. Isarog • Provision of a forest buffer around the MINP

	peri-urban and upland areas by 2025, to as high as 2.2 °C by 2050.	<ul style="list-style-type: none"> • More responsive greening program in the urban and peri-urban areas of the city
b. Flooding	More than half of the city's urban district are susceptible to flooding events. Climate change is expected to magnify risks from this hazard	<ul style="list-style-type: none"> • Continuing reforestation of Mt. Isarog • Limit land conversion • Declogging of rivers, waterways, canals • Progressive expansion of storm drainage system, especially towards Bicol River • Identify and designate strategically located flood catchment areas and parks around the urban district • Strictly implement mandated buffer zones for rivers and key waterways • Implement KsK projects in safer areas away from high-risk zones
c. Seismic hazards	Ragay Fault is around 70 kms away. Around 14% of city's housing stock is more than 30 years old. Half of public school buildings need detailed review by design experts	<ul style="list-style-type: none"> • Rapid visual appraisal of all buildings, especially at CBD and urban district, by local building office • Detailed review by experts of priority buildings identified • Retrofitting of old building at risk when necessary
4. Transportation	Worsening congestion during peak hours. Lack of quality public transportation options that can encourage private car owners to shift. Underdeveloped infrastructure, policy support for non-motorized transportation (NMT) options. Efficiency of primary roads constrained by width, on-street parking. Underdeveloped circumferential road network	<ul style="list-style-type: none"> • Widen primary roads. Strictly implement ban on on-street parking on primary roads. • Eliminate unlimited free parking policy within CBD to incentivize parking business, discourage unnecessary trips • Open up airconditioned BRT Lite service along Maharlika Highway between Del Rosario and CBD I • Fully develop C-2 and C-3 circumferential roads, and a new access road to Pacol • Establish a truck terminal and strictly enforce ban on truck parking in primary and secondary roads • Adopt pedestrianization policies for CBD and promotion of NMT options and infrastructure support
5. Excessive groundwater extraction	A groundwater recharge rate of only around 50% (per LWUA study) will bring about possible depletion in the medium term.	<ul style="list-style-type: none"> • Implement both supply and demand-side water management measures, especially those that will improve recharge rates • Prepare groundworks for tapping surface water as source for the long term
6. Pollution	Naga City's water, air and land pollution brought about by increased social and economic activities	<ul style="list-style-type: none"> • New SLF-WTE at Barangay San Isidro • Optimal waste diversion plan/Waste management system • More effective forest management and urban greening efforts • Greater coordination among Mt. Isarog PAMB, Metro Naga, PDA • Strict enforcement of forestry and environment laws

		<ul style="list-style-type: none"> • Consistent monitoring and assessment/evaluation of City-ENRO, CPDO • Air quality monitoring and more aggressive anti-smoke belching campaign by LTO, City ENRO • Progressively shift public transport vehicles from fossil fuel-fed to electric engines • Septage (medium-term) and sewerage projects (long-term) to improve water quality of Naga River
7. Deforestation	Intrusion of native dwellers inside protected areas. These practices are especially pronounced outside Naga. If unchecked, this can compromise the city's water supply.	<ul style="list-style-type: none"> • Continuing large-scale reforestation • More effective forest management • Greater coordination among Mt. Isarog PAMB, Metro Naga, PDA • Strict enforcement of forestry and environment laws • Consistent monitoring and assessment/evaluation of City-ENRO, CPDO
8. Key public facilities at full capacity	Both the Balatas controlled dumpsite and the public cemetery at Concepcion Pequeña have reached full capacity	<ul style="list-style-type: none"> • New SLF-WTE at Barangay San Isidro • New public cemetery at Barangay Balatas
9. Incompatible uses	Construction of structures in "flood-prone areas" and environmentally constrained areas like riverbanks and along creek and major waterways. Also includes construction of informal housing within right-of-ways of various utilities.	<ul style="list-style-type: none"> • Strict enforcement of CLUP 2016-30 • Easement delineation and recovery • Consistent monitoring and assessment/evaluation of City-ENRO, CPDO

TREND ANALYSIS: LAND USE AND POPULATION MOVEMENT

Land Use Development Trends, 1970-2015

Since its inception as a chartered Philippine city in 1948, Naga has only had two approved land use plans.

1978 Town Plan. First is the 1978 Town Plan adopted by the city government under the Pamayanang Pilipino program of the then Ministry of Human Settlements. (See Fig. 1.30.) The program helped major urban and urbanizing centers like Naga prepare town plans that sought to facilitate and implement the country's development projects during the Marcos regime.

The Naga town plan was approved by the Human Settlements Regulatory Commission on September 21, 1978. To implement it, the Sangguniang Panlungsod enacted City Ordinance

No. 603, series of 1978, also known as the “Comprehensive Zoning Ordinance for the City of Naga” on December 20, 1978. The plan had the following features:

- Land use development shall follow a radial circumferential pattern as much as possible.
- Prime agricultural lands shall be devoted to agriculture as much as possible.
- Dump sites shall be located as far as possible from built-up areas.
- Urban developments shall be located away from identified critical zones such as fault zones, flood-prone areas, dams and other man-made hazards.
- The town plan and zoning ordinance shall be reviewed at least once every five years.

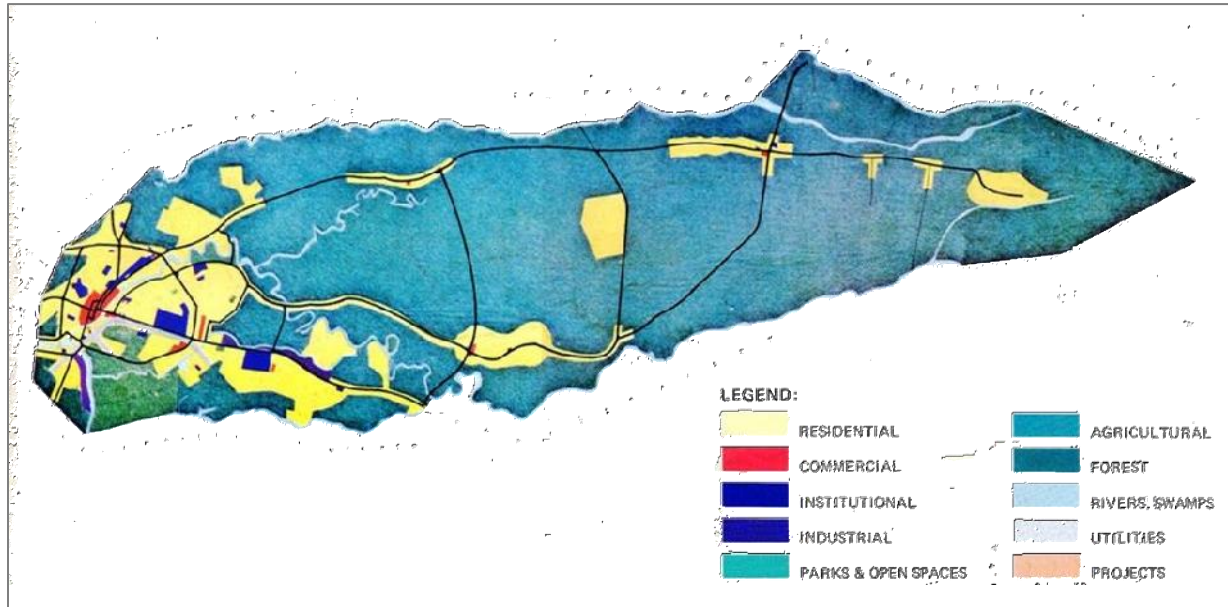


Fig. 1.30. The 1978 Town Plan for Naga City.

In terms of land use allocation, the town plan prescribed the following adjusted figures:¹⁵ residential, 734.98 hectares (8.7%); commercial, 16.9 hectares (0.2%); industrial, 8.45 hectares (0.1%); agricultural, 5,854 hectares (69.3%); institutional, 50.69 hectares (0.6%); recreation, parks and open spaces, 16.9 hectares (0.2%); vacant lands, 946.18 hectares (11.2%); roads, rivers, creeks, swampland and marshland, 337.92 hectares (4%); and forest parks and reserves, 481.54 hectares (5.7%).

2000 Comprehensive Land Use Plan. After an earlier effort in 1994 to update Naga’s land use plan failed, the city government finally succeeded in updating said planning document by the turn of the century. (See Fig. 1.31.)

The plan noted that in 1999, Naga remained predominantly agricultural in terms of land use, with agricultural areas accounting for 68% of the total, compared to 69% under 1978 Town Plan. The biggest gainers were commercial areas, which grew almost ten-fold from 0.2% to almost 2% (17 to 161 hectares), and residential, whose share almost doubled from 9% to 14% (735 to 1,208 hectares). This tracked Naga’s economic rebound in the 1990s from a lackluster

¹⁵ Normalized to the current total land area of 8,448 hectares. In the 1970s, the city government used 9,600 hectares as Naga’s land area.

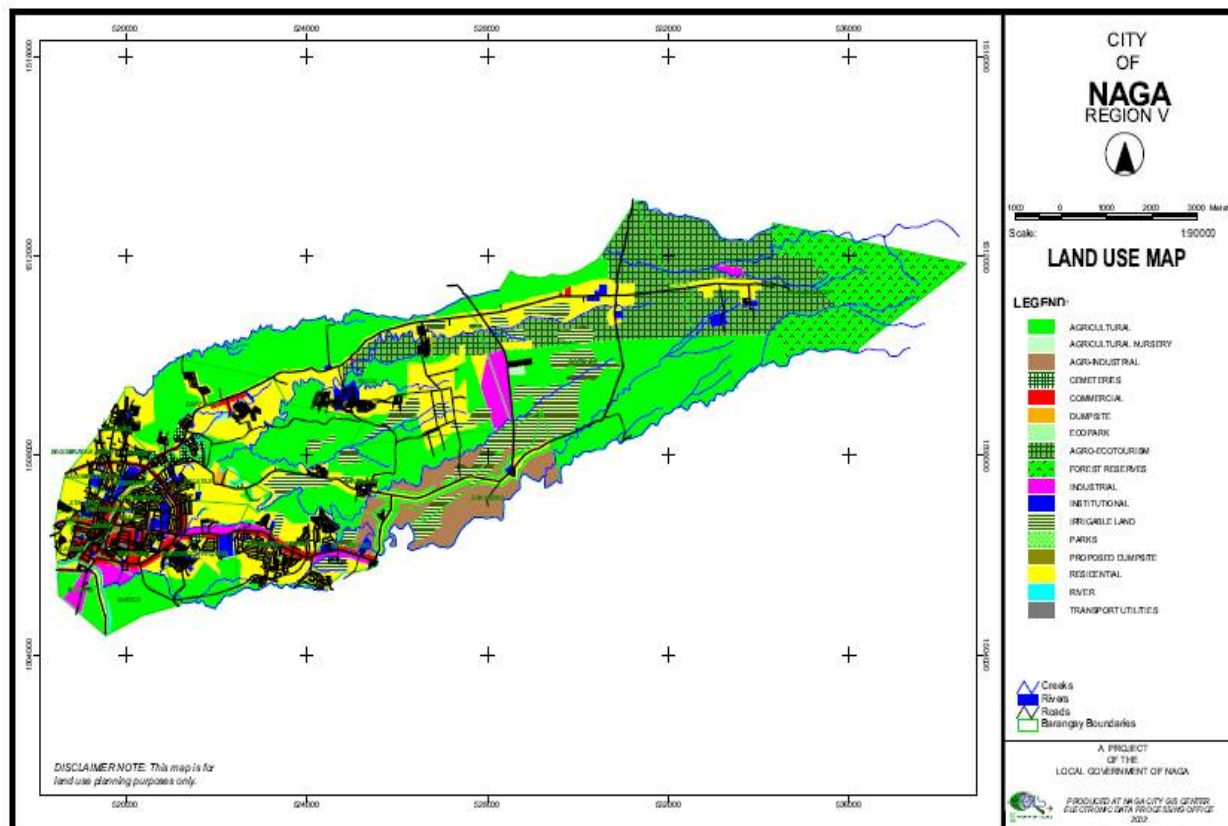


Fig. 1.31. The 2000 Comprehensive Land Use Plan for Naga City.

performance during the previous decade. Industrial and institutional areas also grew; the former from 0.1% to 0.4% (9 to 32 hectares), and the latter from 0.6% to 1.8% (51 to 150 hectares).

Another important factor that drove approval of a new land use plan was the fact the presence of sizeable tracts of land that were already reclassified by the Sangguniang Panlungsod or have already been converted by DAR into non-agricultural areas, which were idled by owners and thus became grassland or marginal agricultural lands. They totaled 504 hectares or 6% of Naga's aggregate land area, and represent 53% of 946 hectares declared vacant lands under the 1978 Town Plan.

In response, the city government adopted the 2000 Comprehensive Land Use Plan on July 3, 2002, which was approved later in the year by the Housing and Land Use Regulatory Board (HLURB) by virtue of Resolution No. 733, Series of 2002. Two years back, the Sangguniang Panlungsod enacted City Ordinance No. 2000-072 (also known as the "2000 Comprehensive Zoning Ordinance of Naga City") on November 15, 2000 to implement the plan.

The 2000 CLUP adopted the following strategies:

- Proximity of residential areas to places of work
- Only light industrial activities which are non-hazardous and less pollutive shall be allowed in the city
- Distribution of community services along a hierarchical arrangement
- Preservation of prime and highly productive agricultural lands and forest areas
- Compact urban development

- Expansion of commercial and light industrial areas, and
- Recovery of easements.

To implement these strategies, Table 1.19 shows that the city further expanded commercial areas from 2% to 4% (161 to 341 hectares), residential from 14% to 22% (1,208 to 1,886 hectares), and industrial from 0.4% to 2.5% (32 to 214 hectares). Institutional areas also increased from 1.8% to 2.2% (150 to 183 hectares). These increases came at the expense of agricultural areas, which dropped by 26 percentage points (from 68% to only 42%).

Table 1.19. Changing Land Use in Naga City, 1978-2000

CLASSIFICATION	2000 LAND USE PLAN		1999 ACTUAL LAND USE		1978 TOWN PLAN	
	Area	%	Area	%	Area	%
Residential	1,886.28	22.33	1,208.42	14.30	734.98	8.70
Commercial	340.72	4.03	161.13	1.91	16.90	0.20
Agricultural	3,553.23	42.06	5,709.05	67.59	5,854.46	69.30
Industrial	214.00	2.53	32.20	0.38	8.45	0.10
Institutional	182.47	2.16	150.29	1.78	50.69	0.60
Forest reserves	611.14	7.24	611.14	7.23	481.54	5.70
Parks	9.95	0.12	2.49	0.03	16.90	0.20
Transportation utilities	24.45	0.29	4.47	0.05	337.92	4.00
Dumpsite	5.89	0.07	3.55	0.04		
Cemeteries	33.95	0.40	17.11	0.20		
Water bodies	43.72	0.52	43.72	0.52		
Idle lands/Grasslands/ Marginal agricultural lands			504.43	5.97	946.18	11.20
Agri-industrial	346.43	4.10				
Agro-ecotourism	1,195.66	14.15				
TOTAL	8,448.00	100.00	8,448.00	100.00	8,448.00	100.00

The 2000 CLUP also eliminated idle lands, grasslands and marginal agricultural lands as a category and in its place added two new classes: agri-industrial (346 hectares or 4%) and agro-ecotourism (1,196 hectares or 14%).

Actual use as of 2015. In a workshop facilitated by the Manila Observatory using a satellite image of the city taken on December 25, 2015, an inter-agency team of the city government identified unplanned developments in the city over the last 15 years. The results are summarized in Table 1.20.

In sum, it shows that unplanned development affected around 403 hectares, representing 5% of the city's land area and 35% of the 1,143 hectares net urban expansion incorporated in the 2000 CLUP. The bulk of unplanned developments took place in residential (263 hectares or 65% of the total), agri-industrial (75 hectares or 19%), and agricultural (49 hectares or 12%).

In terms of actual use, 308 hectares (76% of unplanned, or more accurately, unrealized developments) were agricultural use of other classes, mostly residential, while 76 hectares (19%) involved residential use of other classes, particularly agricultural and agri-industrial. This points to unplanned developments being skewed in two directions: one, planned residential developments, located mostly in the upland areas, that did not materialize and remained largely agricultural; and two, planned agricultural/agri-industrial developments, located in the urban fringe, that actually became residential development.

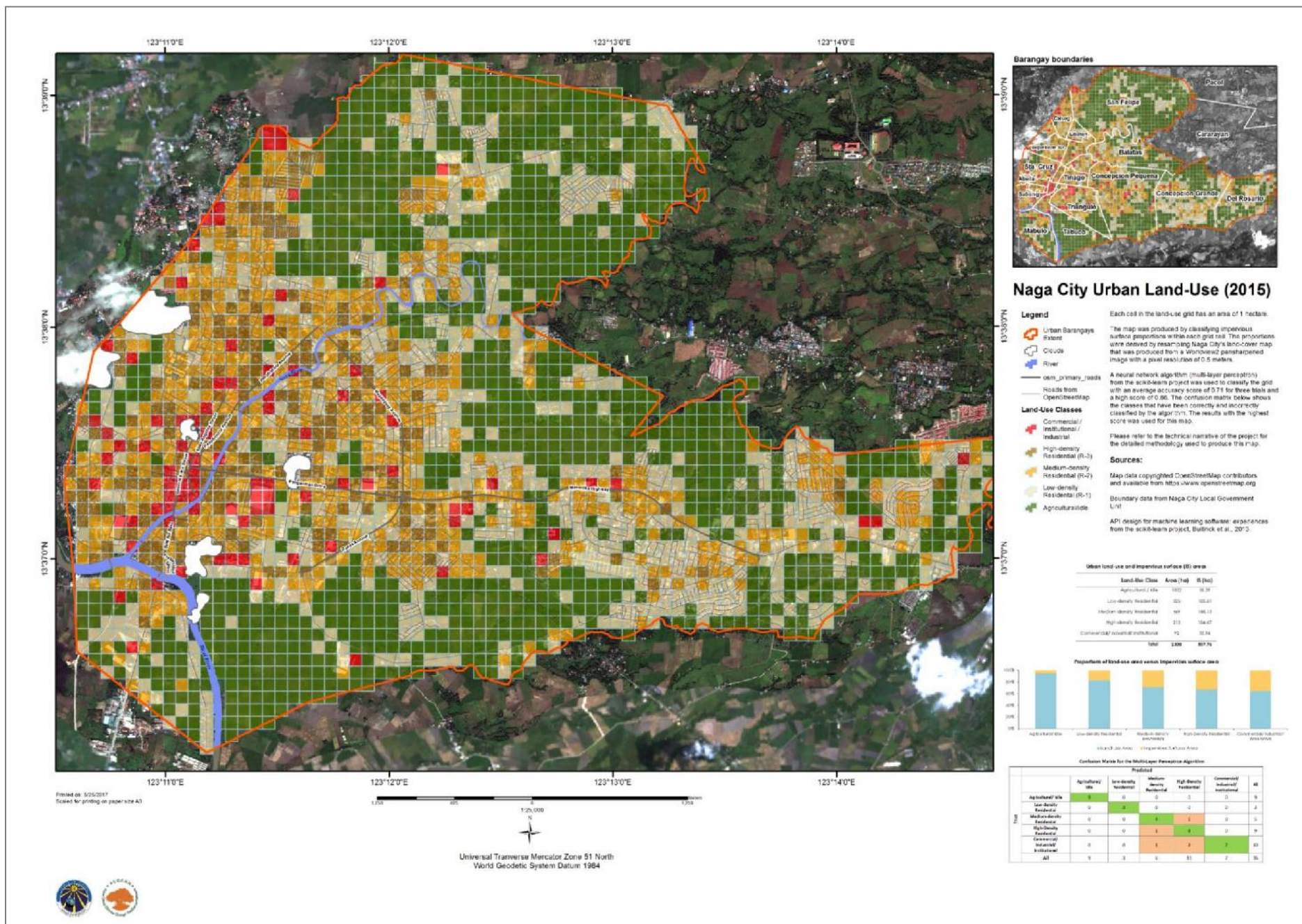


Fig. 1.32. Naga's existing land use as of 2015, generated using satellite data.

Table 1.20. Unplanned Development in Naga City, 2000-15

	CLASSIFICATION	UNPLANNED (In Hectares)	PERCENTAGE
	AGRICULTURAL	49.30	1%
ACTUAL USE	Residential	32.73	
	Commercial	9.90	
	Cemeteries	6.67	
	RESIDENTIAL	263.35	14%
ACTUAL USE	Agricultural	263.24	
	Commercial	0.11	
	COMMERCIAL	10.92	3%
ACTUAL USE	Residential	9.21	
	Institutional	1.71	
	AGRI-INDUSTRIAL	74.96	22%
ACTUAL USE	Agricultural	44.58	
	Residential	29.74	
	Commercial	0.64	
	INDUSTRIAL	4.07	2%
ACTUAL USE	Residential	3.94	
	Institutional	0.10	
	Commercial	0.04	
	TOTAL	402.60	5%

The 2015 Urban Land Use Cover map generated by The Manila Observatory using the Worldview-2 satellite image validates these findings (See Fig. 1.32.)

Of these unplanned developments, a total of 261 hectares (65%) have been covered by 73 reclassification or rezoning applications approved by the Sangguniang Panlungsod between 2002 and 2020. These are detailed under Tables 1.24 and 1.25 at the end of this chapter.

Table 1.21. Changing Land Use in Naga City, 2000-16

CLASSIFICATION	2016 ACTUAL LAND USE		2000 LAND USE PLAN	
	Area	%	Area	%
Residential	1,622.93	19.21	1,886.28	22.33
Commercial	329.80	3.90	340.72	4.03
Agricultural	3,906.64	46.24	3,553.23	42.06
Industrial	209.93	2.48	214.00	2.53
Institutional	182.47	2.16	182.47	2.16
Forest reserves	611.14	7.24	611.14	7.24
Parks	9.95	0.12	9.95	0.12
Transportation utilities	24.45	0.29	24.45	0.29
Dumpsite	5.89	0.07	5.89	0.07
Cemeteries	33.95	0.40	33.95	0.40
Water Bodies	43.72	0.52	43.72	0.52
Agri-Industrial	271.47	3.21	346.43	4.10
Agro-Ecotourism	1,195.66	14.15	1,195.66	14.15
TOTAL	8,448.00	100.00	8,448.00	100.00

Altogether, these are summed up in Table 1.21 which compares actual use as of 2016 vis-à-vis land use allocations in the 2000 CLUP. It showed that the city underperformed in its planned residential development by around 4 percentage point of the city's total land area (and 14% of the total residential area).

Conversely, its agricultural areas actually covered 4 percentage points more. But as shown in the sectoral analysis above, only 70% of these were actually being used for production; thus, the policy that contributed to urban sprawl also led to the idling of farmlands allocated for residential development.

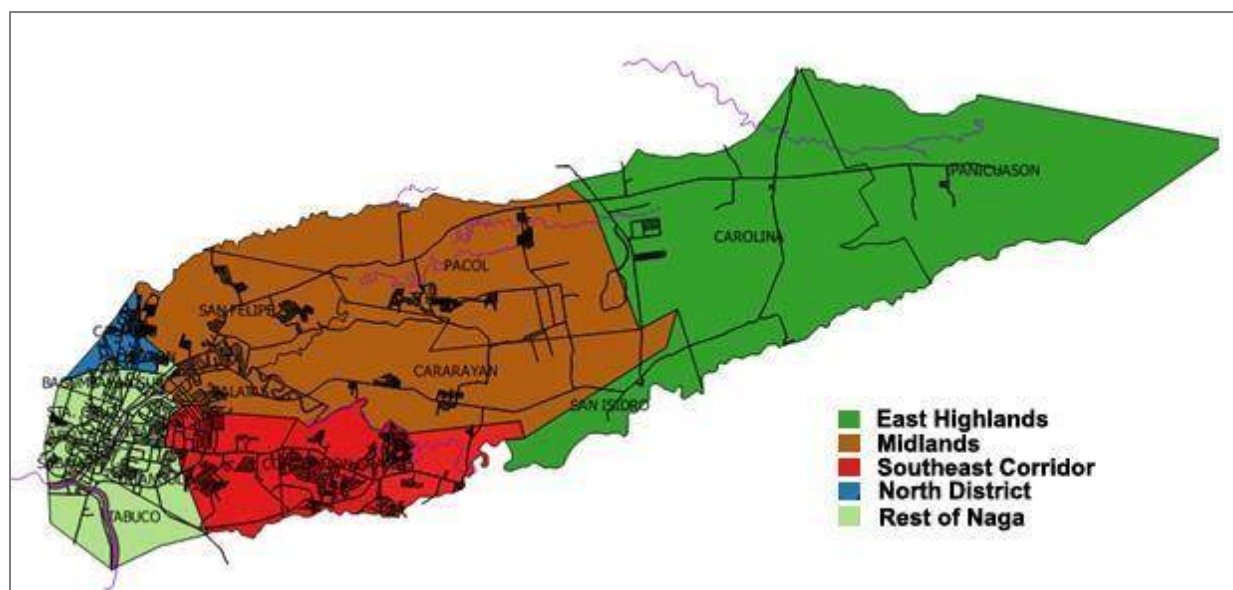


Fig. 1.33. The five demographic districts of Naga City. Half of the additional population settled in the Midlands.

Population movement

The city's changing land use patterns also need to be viewed in the context of its population movement over space and time. Between 2000 and 2010, around 37,000 were added to Naga's 138,000 population, an increase of 27% over 10 years. By comparison, based on the newly released 2015 Census results, Naga's population increased by 21,072 over the 2010 population of 174,931. As pointed out in Chapter 1, this translates to a 2.3% annual population growth rate, which is lower than the 2.91% registered between 2007 and 2010.

Table 1.22 captures the spatial trends of the population movement. Dividing the city into five districts, it shows that over the last 15 years, half of the incremental population moved to the Midlands or the peri-urban areas of Naga (Balatas-San Felipe-Cararayan-Pacol), and a quarter to the Southeast (Concepcion Pequeña-Concepcion Grande-Del Rosario).

Altogether, these barangays account for 71 to 74% of the population movement. (Fig. 1.33.) The city's new CLUP should therefore factor in this trend.

Table 1.22. Distribution of Incremental Population by District, 2010 and 2015

District	Southeast Corridor	North District	Midlands (Peri-urban)	East Highlands	Urban Center
Barangays covered	<i>Concepcion Pequeña-Grande- Del Rosario</i>	<i>Bagumbayan Norte, Calauag, Liboton</i>	<i>San Felipe-Pacol- Cararayan- Balatas</i>	<i>Carolina- Panicuason</i>	<i>Rest of Naga</i>
Incremental population (2000-10)	8,758	4,016	18,058	1,867	4,422
Percentage (2010)	24%	11%	49%	5%	12%
Percentage (2015)	21%	9%	0%	4%	16%

S.W.O.T. ANALYSIS: DEVELOPMENT OPPORTUNITIES AND CHALLENGES

Land Use SWOT Analysis

Table 1.23 summarizes results of the SWOT analysis of Naga City's land use sector.

Table 1.23. SWOT Analysis, Naga City's Land Use Sector

STRENGTHS (+)	WEAKNESSES (-)
<ul style="list-style-type: none"> Geographical advantage. Strategic central location: history, economy, service, governance center Topography: Generally flat terrain Available areas for expansion Accessible by all modes of transportation 	<ul style="list-style-type: none"> Non-responsive land use plan Urban sprawl Weak NMT infra and policy Limited accessibility through other transportation modes (airport and rail)
OPPORTUNITIES (+)	THREATS (-)
<ul style="list-style-type: none"> National and sub-national physical framework plans Metro Naga strategy QBEx, NADP and Bicol Railways modernization CLUP 2016-30 and Zoning Ordinance 	<ul style="list-style-type: none"> Climate and weather-related hazards, especially longer wet days and more intense El Nino episodes Other geophysical hazards Possible depletion of groundwater resource within the city

Strengths. The city is endowed with four fundamental strengths.

One is its **geographical advantage**, owing to a **strategic central location** in the Bicol peninsula. Located at the confluence of Bicol and Naga Rivers, Naga over time grew and played a central role in the development of Bicol region itself. Historically, it is one of the four royal cities established in the Philippines by Spain. It is the seat of the dominant Roman Catholic Church, propelled by the Lady of Peñafrancia which is said to be the biggest Marian

devotion in Asia. At the same time, it also became its center of economic (trade, commerce, tourism, property development and business process outsourcing) and social (education and health) services. And over the last 25 years, the city distinguished itself as a center of good governance.

Another is its **topography**. It is blessed with a generally flat terrain that is suitable for most type of development. From the junction of Bicol River up to parts of Barangay Carolina, which accounts for around 60% of the city's territory, the land slopes very gentle below 18%.

Third is **availability of expansion areas**. Based on the land use accounting exercise conducted, Naga still has around 435 hectares (representing more than 5% of its territory) in net buildable area available for urban expansion, especially for non-agricultural uses. These are located at the fringe of the urban core, especially the peri-urban barangays (San Felipe, Pacol, Cararayan and Balatas) and its southeast corridor (Concepcion Pequeña, Concepcion Grande and Del Rosario).

Lastly, it is **accessible by all modes of transportation**. Naga is accessible by land transportation, with the Bicol Central Station (formerly central bus terminal), biggest of its kind in the region, handling some 1,304 buses that serve intra and interregional destinations. It is a major terminal for the Bicol commuter service as well as the Manila-Bicol run of the Philippine National Railways. By air, it is accessible through the Naga Airport in neighboring capital town of Pili, which is up for upgrading to jet service. And by water, there are new facilities that can handle small private boats and there are plans of restoring service to the central bay town of Libmanan.

Weaknesses. At the same time, the city must contend with four basic weaknesses.

First and foremost is a **non-responsive land use plan** that at this point is no longer adequate to guide the city's spatial development, particularly in regard to the four needs identified under the 2000 CLUP: (a) controlled urban growth; (b) increased agricultural income and productivity; (c) additional/enhanced basic services; and (d) sustained growth. An indicator of this limitation are the unplanned developments covering a total of 403 hectares during the last 15 years, which represented 35% of the net urban expansion authorized under the plan. Of the total, 169 hectares covered by 48 approved applications for reclassification or rezoning were approved to cure and legitimize these unplanned developments.

Second, and as a consequence of the first, is the **urban sprawl** that these unplanned developments engendered. As pointed out above, in spite of the previous CLUP's commitment to compact urban development, it designated areas along the entire stretch of the Naga-Carolina corridor as residential, leapfrogging agricultural areas that served as the city's functional greenbelt. Even the city's own KsK off-site resettlement projects contributed to the rise of residential communities located far away from the residents' usual place of work. For the long run, it penalizes households with higher transportation costs and society with a bigger carbon footprint that contributes to global warming and climate change.

Third, notwithstanding new initiatives by city leaders, both from the executive and legislative departments, it is weighed down by **weak non-motorized transportation (NMT) infrastructure and policy support**. This is to be expected: typical of a city whose historic urban core was heavily influenced by European design, Naga has narrow streets with equally narrow sidewalks that do not promote walking as a transportation option. Worse, like other Philippine cities, it has grown to embrace motorization, typified by the dominance of fossil fuel-fed vehicles, around

90% of which are privately owned. This context did not lend well to environment-friendly NMT options like walking and cycling.

Lastly, while accessible to all modes of transport, Naga suffers from constrained services, especially in air and rail that **limits accessibility**. The short 1.2-km runway of the Naga Airport is only suitable for turboprop aircrafts that can accommodate a maximum of 70 passengers at any given time, and do not address the need of passengers that prefer jet service. The planned introduction of night landing capabilities also did not materialize, thereby limiting operations only during the day. The continuing disrepair of the PNR railtracks, especially between Naga and Metro Manila, and its narrow gauge that limits the state firm's ability to offer competitive services, has effectively sidelined rail transport as a viable transportation option.

Opportunities. On the other hand, there are four opportunities that the city can take advantage of within the next 15 years.

First is Naga's identification as a **regional center in Luzon in the national and regional physical and spatial development framework plans** formulated by the national government¹⁶ -- one of two in Bicol, and 22 in Luzon island itself. (Fig. 1.34.) This will enable the city to benefit from three key policies adopted under the Philippine National Spatial Strategy (NSS), which defines the country's desired spatial structure based on trends in population, economic activities and services. These three policies are:

- *Concentration*, which refers to the distribution of population in existing urban areas and metropolitan centers according to urban hierarchy, and following the principles of densification, compaction and smart growth;
- *Connectivity*, which calls for seamless integration of urban centers, production area and protection areas through infrastructure development; and
- *Vulnerability Reduction*, which focuses on hazard mitigation, exposure minimization, protection of elements at risk, and enhancement of adaptive capacity.

Another opportunity arises from the city's **Metro Naga strategy**, which seeks to promote balanced growth and development in the program area by building on the strengths and complementarities of its member city and towns. For instance, in the draft NPFP 2016-45, Metro Naga¹⁷ has been identified as a tourism hub, anchored on the city's tourism facilities, assets and attractions. The ADB's National Urban Assessment for the Philippines, which will guide development of its strategic policy options and targeted Investments in the urban sector, also identified Metro Naga as one of the 12 metropolitan areas that serve as the country's leading industrial, financial, and technological centers.



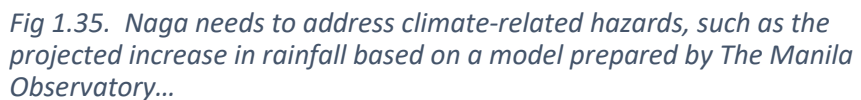
Fig. 1.34. The spatial development plan for Bicol is anchored on its two regional centers.

¹⁶ This includes the draft National Physical Framework Plan, 2016-45; the Luzon Spatial Development Framework and the Bicol Regional Physical Framework Plan, 2000-30.

¹⁷ Comprising of Naga, City, Bombon, Calabanga, Camaligan, Canaman, Gainza, Magarao, Milaor, Minalabac, Pamplona, Pasacao, Pili, San Fernando, Bula and Ocampo.

Finally, there is the opportunity to adopt ***a risk-sensitive and sustainable development-oriented CLUP and Zoning Ordinance*** that can better guide the city's development over the next 15 years. This document can therefore address the weakness identified above. Implemented well, it can place the city's development trajectory on a more sustainable path – one that will be instrumental in realizing the city's vision for itself and its people, in the process contributing more substantially to national development.

One are the **climate and weather-related hazards**, specifically extreme typhoons and flooding events, as well as rising temperature that can bring about drought especially during dry season.



It is projected that these will bring about longer wet days on one hand, and more intense El Nino spells on the other. As discussed above, global warming and climate change will cause more frequent and intense storms, where 200 kph-strong super typhoons in the mold of “Reming” and “Nina” will become more commonplace. The low elevation of the city’s central business districts, in conjunction with the semi-diurnal tidal patterns along Naga River, the faster velocity of floodwaters from upstream sections of the Bicol River basin due to channelization projects in Albay, as well as the projected increase in rainfall when triggered by typhoons can bring about more destructive flooding events. (Fig. 1.35.)

The other broad category cover **geophysical hazards**, specifically landslides and seismic risks. Of the two, the former carries the lesser risk considering that it can only affect mountain communities near Mt. Isarog and thus far, existing ones in Panicuason are outside of areas identified to be susceptible to landslides. (See Fig. 1.36.) The latter, on the other hand, poses the bigger risk considering the presence of the Ragay Fault around 70 kms away from Naga, which had a history of a destructive earthquake in 1973.

To address them, the city needs to improve its resilience as indicated in the Philippine spatial strategy by focusing on hazard mitigation, vulnerability reduction, exposure minimization, and adaptive capacity enhancement. This CLUP would be an important platform to help achieve these goals.

Lastly, the city should prepare for a scenario where its groundwater resources will be depleted unless recharge rates are dramatically improved. A LWUA study shows that over the last few years, the annual groundwater recharge is only 50% of the city’s current extraction. As such, the city needs to pursue both supply and demand-side water management measures, especially those that will improve recharge rates, and prepare the groundworks for tapping surface water as source for the long term.

Development challenges

Summing up, the City of Naga need to address the following development challenges in this new CLUP.

Sectoral

For a sectoral perspective, the following *four cross-sectoral challenges* identified in the city’s Comprehensive Development Plan (CDP), 2011-20 remain valid and will inform this planning document.

- ***Reducing poverty incidence***

At the demand side, this requires greater efficiency and effectiveness in harmonizing existing poverty programs of government, and ensuring that they are targeting the same clientele, especially the 15% households in Naga in extreme poverty. This requires making full use of the CBMS databases that have identified the poor, and ensuring that they are prioritized in terms of all poverty programs of the city government, i.e. housing, education, microfinance, skills training, livelihood and enterprise development, health and nutrition, etc.

At the supply side, this requires creating employment and entrepreneurial opportunities and improving agricultural productivity that will keep pace with, if not exceed, the city’s increasing migration-driven population growth.

- ***Improving access to basic services***

Similarly, in the face of an increasing population, it requires government to strategically manage investments in the delivery of social services to ensure that they will maintain, if not exceed, the current performance levels described in Chapter 2

- ***Enhancing quality of life thru livable communities.***

This requires well-crafted government policies, programs and projects on transport and urban development that will operationalize “smart growth” and real “compact city” development in Naga – built around revitalizing public transport, developing and protecting vibrant public spaces (which includes Naga River), promoting mixed-use development, and reducing travel time and transportation costs between home and work.

- ***Good governance and responsible citizenship***

This requires the city government to bring its governance innovations to the next level, anchored on a strong civic education program that promotes the virtues of responsible citizenship – which is the fundamental value and vision behind the HELP Your CITY agenda¹⁸ of the Bongat administration.

At the same time, it requires continuously broadening participatory and collaborative governance mechanisms that will encourage individual citizens, households, organized groups, local institutions and even neighboring municipalities to partner with the city government in realizing mutually beneficial goals.

Spatial

From a spatial perspective, which is the underlying logic behind a land use plan, those cross-sectoral challenges can be reformulated into *five land use-oriented development challenges*, which will be addressed in this planning document.

1. Managing urban growth

More effective and efficient management of urban growth seeks to optimize use of the city's land resource, especially those available for development, as a means of attaining its vision. This requires government to proactively address and progressively reverse the urban sprawl that has characterized Naga's spatial development over the last 15 years. Toward this end, it will be guided by the principles of densification, compaction and smart growth enunciated under the Philippine national spatial strategy to bring about the “compact city” envisioned under the previous CLUP.

2. Improving access to basic services

¹⁸ A mnemonic device that stands for Health and Nutrition; Housing and the Urban Poor; Education, Arts and Culture, and Sports Development; Livelihood, Employment and Human Development; Peace and Order and Public Safety; Cleanliness and Environmental Protection; and Transparency, Accountability and Good Governance.

Leveraging the strategic investments in social services contemplated under the CDP to sustain, if not exceed Naga's current performance levels, this is ultimately aimed at developing a hierarchy of self-contained communities with sufficient allocation of land for health, education, recreation and protective facilities. This will enable government and its partners to provide community-based urban basic services that will be accessible to city residents.

3. Sustaining economic development and competitiveness

Building on Naga's designated role as a regional center in Bicol, this challenge has to do with further growing its local economy in a sustainable manner. This will require government and its partners in the business sector to work together in ensuring Naga's continuing vitality and competitiveness as a center of health and education; trade and commerce; tourism and leisure; finance and services; and public management and local governance. At the same time, it should also carve its niche in emerging new technologies and green industries. Finally, guided by its development philosophy of attaining "growth with equity," it needs to leverage economic growth in creating quality jobs that will enable Naga to further reduce poverty, especially its core economic dimension.

4. Increasing agricultural income and productivity

Completing the troika of poverty reduction-oriented challenges is the need to improve productivity and household income in the city's agricultural sector, leveraging Naga's predominant land use. First and foremost, it requires government to protect prime agriculture areas from conversion to non-agricultural use. Side by side, this policy must be complemented by increased investments in inputs, facilities and services that will improve productivity and income by focusing on value chain opportunities from priority commodities identified for Naga and the Bicol region.

5. Building livable, safe and resilient communities

Finally, this dual challenge calls for building livable communities on the one hand, and safe and resilient ones on the other. To stimulate the development of more livable communities, government needs to promote mixed-use development in its settlement areas, a departure from the usual zoning enclaves that have characterized traditional Philippine urban planning. Mixed-use development is seen as a more sustainable option, creating community-based economic and social activities and services that minimize home-to-work trips and help lessen its carbon footprint.

At the same time, the city must effectively manage the various climate, weather and geophysical hazards that pose a threat to its development as a city, especially in the lives of its people. In the draft NPFP 2016-45, the lower Bicol River basin, which includes Metro Naga, was cited as a case where flooding hazards in flood plains overlap with the built-up areas of Camarines Sur. As pointed out above, it requires improving Naga's resilience as an urban community by mitigating the impact of these various types of hazards; reducing local vulnerabilities, especially among low-income households; minimizing exposure by designating and maintaining no-build zones in high-risk areas; and improving the adaptive capacity of local communities in built-up areas susceptible to these hazards.

Table 1.24. Inventory of Reclassified Agricultural Land, As of September 2020

OWNER	LOCATION	AREA (HAS.)	RESOLUTION/ ORDINANCE NO.	DATE	RECLASSIFIED
Frederick Jay Cheng, Aida Asero & Bicol Multi-Purpose Coop. Inc. (BIVEMCO)	Carolina	10.0000	Res. No. 2002-275	23-Oct-02	Non-Agricultural
Antonio L. Austria II	Carolina	54.5216	Res No. 2004-228	20-Apr-04	Residential
Engr. Emeterio L. Aman	San Felipe	2.2781	Res No. 2005-063	21-Feb-05	Residential
Miguel V. Vargas & Carmen Ocampo	Balatas	1.7082	Res No. 2005-065	21-Feb-05	Non-Agricultural
Oscar F. Nunez	San Felipe	0.3000	Ord No. 2006-046	25-Sep-06	Residential
Antonio Martinez	Tabuco	4.5200	Ord No. 2007-011	7-May-07	Commercial/ Residential
Rev. Fr. Luis Hidalgo	San Isidro	2.0000	Ord No.2009-233	23-Jun-09	Residential
Sps. Germato E. Vergara & Ma. Lourdes S. Vergara	Cararayan	0.1995	Ord No. 2010-010	16-Feb-10	Residential
Roland T. Obiedo	Balatas	2.8781	Ord No. 2010-017	2-Mar-10	Institutional
Monserrat M. Matos	Cararayan	2.1369	Ord No. 2010-021	23-Mar-10	Residential
Rose Anne T. Obiedo	Balatas	1.8820	Ord No. 2010-033	8-Jun-10	Residential/ Institutional
Richard T. Rocha	Balatas	1.8820	Ord. No. 210-033	8-Jun-10	Residential
Grace B. De Leon	Balatas	1.4863	Ord No. 2011-036	19-Jul-11	Commercial
Richard T. Rocha	Cararayan	0.0947	Ord No. 2010-055	9-Nov-11	Residential
Harly Cristo	Cararayan	0.0200	Ord No. 2012-036	24-Jul-12	Commercial
Fortunata O. Odiamé	San Felipe	0.9700	Ord No. 2012-048	25-Sep-12	Residential
Benito Francisco	Tabuco	0.5520	Res. No. 2012-060	20-Nov-12	Residential
Elizabeth G. Del Castillo	Tabuco	2.1085	Ord No. 2013-029	20-Aug-13	Residential/ Commercial
Golden Roseville Subdivision (Formerly Queborac Resettlement Project)	Bagumbayan Sur	6.0860	Ord. No. 2013-046	22-Nov-13	Residential
Del Rosario Homeowners, Inc.	Del Rosario	2.3698	Ord. No 2013-039	22-Nov-13	Residential
Roquimar John T. Obiedo	Tabuco	0.7769	Ord No. 2014-038	8-Jul-14	Industrial
Elizabeth G. Del Castillo	Tabuco	1.1150	Ord No. 2014-021	29-Apr-14	Commercial
Leonida B. Oberos	San Felipe	1.5001	Ord No. 2014-049	5-Aug-14	Residential
Ricardo Uy Ung	Mabolo	0.3225	Ord No. 2014-073	18-Nov-14	Commercial
Heirs of Dolores Narag	San Felipe	8.0000	Ord No. 2014-074	18-Nov-14	Residential
Charlie O. Obsuna	Mabolo	1.4773	Ord. No. 2015-028	9-Jun-15	Residential/ Commercial
Ester D. Loyola	San Felipe	0.1055	Ord No. 2016-022	24-May-16	Residential

Gene M. Jaucian	Tabuco	2.4994	Ord No. 2016-080-A	20-Dec-16	Institutional
Jaime M. Vergara	Cararayan	0.9436	Ord No. 2017-040	13-Jun-17	Residential
Philippines Life Word Mission Church c/o Evangeline A. Alinday	Pacol	0.4935	Ord. No. 2018-046	31-Jul-18	Institutional
Communities Naga Inc.	Del Rosario	3.6787	Ord. No. 2018-045	31-Jul-18	Residential
Communities Naga Inc. c/o Cristina M. Mirasol	Del Rosario	4.0631	Ord No. 2018-051	7-Aug-18	Residential
John L. Clemente (JAH Steward Corporation)	Mabolo	4.4984	Ord No. 2019-016	19-Feb-19	Commercial
Libertad Consumers Corporation c/o Guadalupe C. Espinas	Mabolo	0.7986	Ord No. 2019-17	19-Feb-19	Commercial
Sps. Joel & Zarah Jang Yao	Tabuco	0.1148	Ord No. 2019-094	19-Nov-19	Commercial
City Government of Naga	Concepcion Pequena, Sta. Cruz, Balatas	17.0610	Ord No. 2020-064	July 21, 2020	Institutional
TOTAL		145.4421			

Table 1.25. Inventory of Rezoned Land, As of September 2020

OWNER	LOCATION	AREA (HAS.)	RESOLUTION/ ORDINANCE NO.	DATE	RECLASSIFIED
Metroland Properties & Management Corporation	Sabang	7.0392	Ord No. 2007-017	29-Jun-07	Residential to Commercial
Natanette E. Pardito (Camella)	Del Rosario	13.2219	Ord No. 2008-023	8-Apr-08	Agri-Industrial to Residential
Nelson Nicolas & Lilia Barcela	Carolina	4.0000	Ord No. 2008-071	16-Sep-08	Agro-Ecotourism to Residential
Richard T. Rocha (DECA Homes-Langon Vista)	Cararayan	6.7119	Ord No. 2009-040	21-Apr-09	Agri-Industrial to Residential
Benjie T. Imperial	Balatas	0.5223	Ord No. 2009-031	8-Sep-09	Residential to Commercial
Natanette E. Pardito (Camella)	Cararayan	14.3771	Ord. No. 2010-049	29-Aug-10	Agri-Industrial to Residential
Atty. Victor C. Reyes (Maryville Realty & Development Corporation)	San Felipe	0.3918	Ord No. 2011-004	1-Feb-11	Residential to Commercial
Ernesto Manguiat	Pacol	0.0256	Ord No. 2011-013	22-Mar-11	Residential to Commercial
Purification Zaens Crudo	San Isidro	3.5000	Ord No. 2012-008	14-Feb-12	Agri-Industrial to Industrial

Roberto F. Factora	Liboton	0.1706	Ord. No. 2013-020	23-Apr-13	Residential to Commercial
Engr. Rolando SJ. Campillos	Del Rosario	2.3698	Ord No. 2013-039	22-Oct-13	Agri-Industrial to Residential
Engr. Rolando SJ. Campillos	Bagumbayan Sur	0.6088	Ord No. 2013-040	22-Oct-13	Commercial to Residential
Richard O. Cu	Del Rosario	0.2439	Ord No. 2014-020	8-Apr-14	Residential to Commercial
Marilyn E. Co	Carolina	0.3573	Ord No. 2014-060	7-Oct-14	Residential to Industrial
William P. Ragodon (NIA)	Concepcion Pequena	1.5889	Ord. No. 2015-003	13-Jan-15	Institutional to Residential
Judylen P. Cea	San Felipe	0.1500	Ord No. 2015-020	19-May-15	Residential to Commercial
Engr. Antonio LI. Botor	Tinago	0.4455	Ord No. 2015-036	7-Jul-15	Residential to Commercial
Donald Olivan	Del Rosario	0.2186	Ord No. 2016-023	31-May-16	Residential to Industrial
Engr. Jaime M. Vergara, Jr. (Camella)	Cararayan	2.0306	Ord No. 2016-080	20-Dec-16	Agri-Industrial to Residential
Guada C. Espinas	Abella	0.3924	Ord No. 2017-010	28-Feb-17	Residential to Commercial
Guada C. Espinas	Sabang	0.9249	Ord No. 2017-009	28-Feb-17	Residential to Commercial
Metroland Properties & Management Corporation	Sabang	9.2490	Ord No. 2017-009	28-Feb-17	Residential to Commercial
Arnulfo B. Jardinan	Sta. Cruz	0.0200	Ord. No. 2017-074	2-May-17	Residential to Commercial
Michael G. Go	Balatas	0.1200	Ord. No. 2017-074	18-Oct-17	Cemetery to Commercial
Heirs of Sulpicio A. Roco	Bagumbayan Norte	2.1100	Ord No. 2018-003	16-Jan-18	Residential to Commercial
Irwin G. Baldo, Jr.	Del Rosario	0.1500	Ord No. 2018-009	13-Feb-18	Residential to Commercial
Jesus B. Factora	San Felipe	0.6000	Ord No. 2018-016	8-May-18	Residential to Commercial
Rosita B. Antones	Sta. Cruz	0.0193	Ord No. 2018-070	4-Sep-18	Residential to Commercial
Jonathan U. Lim	Pacol	0.2000	Ord. No. 2020-096	27-Nov-18	Residential to Commercial
Jonathan U. Lim	Pacol	0.0600	Ord. No. 2020-097	27-Nov-18	Residential to Commercial
Julieta F. Tinoy (Church of the Open Door International)	Mabolo	0.0461	Ord No. 2019-007	22-Jan-19	Light Industrial to Institutional
Ma. Elena N. Sta. Clara	Carolina	0.1000	Ord No. 2019-006	22-Jan-19	Agro-Ecotourism to Residential
Rogelio B. Peyra (Bicol Prime Runner, Inc.)	Cararayan	1.0000	Ord No. 2019-014	12-Feb-19	Residential to Commercial

Funeraria Imperial Crematory & Columbarium	Balatas	0.5223	Ord. No. 2009-071	8-Sep-19	Light Industrial to Commercial
Engr. Eric R. Landagan (BRIA Homes Naga)	San Isidro	26.2172	Ord No. 2020-017	10-Mar-20	Agro-Industrial to Residential
Engr. Emeterio L. Aman (Haciendas Cyberpark)	Carolina	16.0000	Ord No. 2020-069	28-Jul-20	Light Industrial to Commercial
Virgilio B. Luansing (MNWD)	Mabolo	0.3343	Ord. No. 2020-076	11-Aug-20	Residential to Industrial
TOTAL		116.0393			

COMPREHENSIVE LAND USE PLAN, 2016-20

In response to the development challenges identified in Chapter 4, this chapter describes Naga City's comprehensive land use plan for 2016-30.

VISION

Naga City's development shall be guided by two complementary vision statements that combine the best of local and national aspirations.

The first, "Maogmang Lugar" which was adopted from previous planning documents, including the city's 10-year Comprehensive Development Plan, describes the "future state" that its citizens and their leaders aspire Naga to become well into the future.

The product of a participative process involving representatives of various sectors of local society, it speaks of a city where good governance and responsible citizenship work together in creating a society that actualizes people-centered development, building on the abiding faith, culture of excellence, social solidarity and religious diversity that have become Naga's hallmarks.

It was reaffirmed as the city's vision statement during a multi-stakeholder visioning workshop on May 24, 2013 at Crown Hotel in Naga City.

'Maogmang Lugar'

By 2030, Naga City shall be a recognized model of

- *Good governance and responsible citizenship, driven by a shared development direction crafted, implemented and continually improved in an inclusive manner; and sustained by a citizenry that asserts their rights and accepts their roles and responsibilities in nation building*
- *People-centered development, anchored on quality and accessible services in health, education and other social services, especially for the marginalized and the vulnerable; that enables the private sector to generate the best value from local talents, technology and resources, and provide gainful jobs and entrepreneurial opportunities for the Nagueño; and*
- *Abiding faith that expresses itself in social solidarity and a culture of excellence flourishing in a city that is peaceful, safe and in accord with nature; where cultural values are nurtured and religious diversity respected; and where technology enables the Nagueño to be part of a global community of people and nations.*

In the process, it shall set the pace in participatory urban development in the Philippines and in Southeast Asia, and inspire others in their own path to development.

From 2011-20 CDP

What makes the vision compelling and relevant even in the current context is its emphasis on the pursuit of happiness, which is recognized as one of the sovereign rights of man. Contemporary development literature has increasingly recognized the need to measure the state of happiness of a society, giving rise to such measures as the "Gross Happiness Index" that seek to complement traditional metrics like the GNP and GNP.

The other vision statement is the “AmBisyon Natin 2040,” a collective long-term vision (LTV) and aspirations of the Filipino people for themselves and for the country in the next 25 years. It describes the kind of life that people want to live, and how the country will be by 2040. As such, it will anchor development planning across at least four administrations, starting with the current one which has adopted it through an executive order.

To realize this vision, according to NEDA which led its crafting, “all sectors of society, whether public or private, should direct their efforts towards creating opportunities for Filipinos to enjoy a *matatag, maginhawa at panatag na buhay*. Government, in particular, must use its tools of fiscal, monetary and regulatory policies to steer the development path towards enabling Filipinos to attain their AmBisyon. This pertains to all dimensions of development: economic, human and physical capital, institutional, social and cultural.”

In many ways, the “Maogmang Lugar” and the “AmBisyon Natin” vision statements are aligned. But a fundamental difference between them lie in the sequencing of their elements. While the former puts good governance and responsible citizenship first, the latter correctly puts the dreams and aspirations of the Filipino front and center, and treats good governance only as a means toward realizing a more important end, which is none other than his pursuit of happiness and its various expressions.

Consequently, there is a need to reconfigure the “Maogmang Lugar” vision statement to align this with the “AmBisyon Natin” LTV. As such, the following is proposed to guide this plan.

‘Naga, An Maogmang Lugar’

By 2030, Naga City shall be a recognized model of

- *People-centered development, anchored on quality and accessible services in health, education and other social services, especially for the vulnerable; that enables the private sector to generate the best value from local talents, technology and resources, and provide gainful jobs and entrepreneurial opportunities for the Nagueño;*
- *Good governance and responsible citizenship, driven by a shared development direction crafted, implemented and continually improved in an inclusive manner; and sustained by a*

The life of all Filipinos in 2040:

Matatag, Maginhawa at Panatag na Buhay

By 2040, Filipinos enjoy a strongly rooted, comfortable, and secure life.

In 2040, we will all enjoy a stable and comfortable lifestyle, secure in the knowledge that we have enough for our daily needs and unexpected expenses, that we can plan and prepare for our own and our children’s future. Our family lives together in a place of our own, and we have the freedom to go where we desire, protected and enabled by a clean, efficient, and fair government.

By 2040, the Philippines is a prosperous middle class society where no one is poor. People live long and healthy lives and are smart and innovative. The country is a high-trust society where families thrive in vibrant, culturally diverse, and resilient communities.

From Ambisyon Natin 2040

citizenry that asserts their rights and accepts their roles and responsibilities in nation building; and

● *Abiding faith that expresses itself in social solidarity and a culture of excellence flourishing in a city that is peaceful, safe, resilient and in accord with nature; where cultural values are nurtured and religious diversity respected; and where technology enables the Nagueño to be part of a global community of people and nations.*

In the process, it shall set the pace in participatory urban development in the Philippines and in Southeast Asia, and inspire others in their own path to development.

MAJOR DEVELOPMENT GOALS AND OBJECTIVES

To help realize the enhanced “Maogmang Lugar” vision, Naga City shall strive to attain the following goals and objectives for the next 15 years:

1. **Well-managed urban growth.** This aims to develop a livable compact city built around the urban core and a network of mixed-use development connected by sustainable transportation options and supported by quality public infrastructure, services and facilities.
2. **Accessible urban basic services.** This aims to develop a hierarchy of self-contained communities with sufficient allocation of land for health, education, recreation and protective facilities and other social services.
3. **Sustainable, equitable economic development and competitiveness.** This aims to identify, develop and promote new economic growth areas for priority investment. At the same time, it will also strive to create quality jobs that will enable the city to further reduce income poverty, especially in least economically resilient communities
4. **Improved productivity and income in agriculture.** This aims to protect prime agriculture areas from conversion to non-agricultural use; improve agricultural productivity by increasing public and private investments in inputs, facilities and services; and improve household income by focusing on value chain opportunities from priority commodities identified for Naga and the Bicol region.
5. **Livable, safe and resilient city and local communities.** This aims promote mixed-use development in its settlement areas, create community-based economic and social activities and services that minimize home-to-work trips, and help lessen the city’s carbon footprint. At the same time, it also seeks to improve Naga’s resilience as an urban community by mitigating hazards; reducing local vulnerabilities, minimizing exposure and improving adaptive capacity of local communities.

Adopting and localizing indicators for the Sustainable Development Goals (SDGs), Annex “A” summarizes the indicators for each goal, which will guide monitoring and evaluation of progress made moving forward.

DEVELOPMENT THRUSTS AND SPATIAL STRATEGY

To attain the goals that embody the city's "Maogmang Lugar" vision of a happy place for happy people, it will focus on the following development thrusts and spatial strategy.

Development Drivers

Based on the situational analysis presented in Chapter 4, the city's five-fold development goals will be anchored on a combination of six development drivers, which are illustrated below using the ridge-to-reef framework. (See Fig. 1.37.)

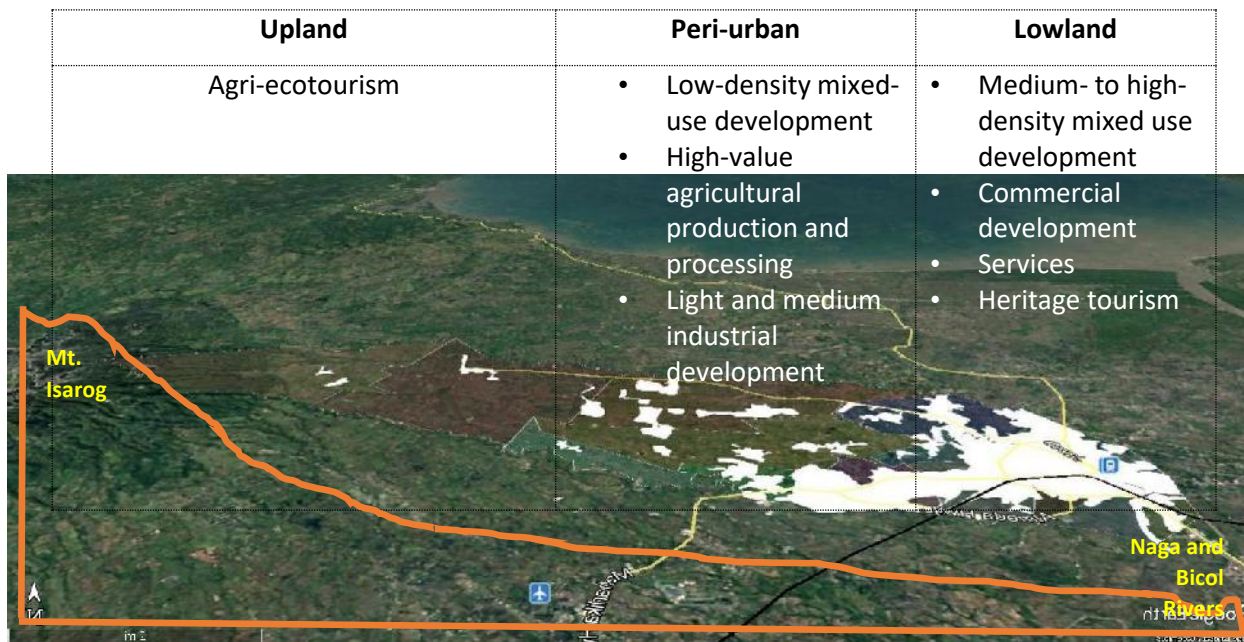


Fig. 1.37. The "ridge-to-reef" framework applied to Naga City.

1. **Commercial development.** For an urban economy where the tertiary sector (built around trade, commerce and services) account for 89% of the total, it is but logical to expect that commercial development will continue to drive Naga's growth over the next 15 years. Trade and commerce represent around half of that number. It therefore stands to reason that the city will allocate land that will support the continued growth of this particular sector.
2. **Services.** The entry of big malls (SM and Robinson's) and business process outsourcing companies (IBM and Concentrix); the continued growth of the financial sector, the development of the Bicol Medical Center, coupled with its traditional health and education base, have further solidified the city's standing as the regional center of services and finance. Its designation as one of the Philippines' Next Wave Cities in the BPO industry is expected to bring in more players, especially as the industry diversifies its portfolio out of Metro Manila in favor of the regions. In serving a regional market, especially the northern Bicol peninsula, there is also value in allocating land in the urban core that will support the needs of this fast-growing sector.

3. **Mixed-use development.** Over the last 15 years, property development, especially in the housing sector, accounted for around 70% of new investments in the city. As pointed out above, the growth of housing construction, at 3.7% annually, has outstripped even the higher end of the city's population growth. And with a significant Overseas Filipino population (17% of total households) and a strong migration and development program (a pioneering initiative among Philippine local governments), the outlook is bright for this sector. The challenge is to further shift residential development from single houses towards medium- to high-density mixed-use development, built around multi-unit housing in the periphery of the urban core.
4. **Light to medium industry.** As pointed out in Chapter 3, the secondary sector, especially manufacturing, did not do well during the last 15 years. Its share in fact contracted from 14% to single-digit levels. But there is logic in maintaining it as a development driver in view of the obvious need to address the structural imbalance in the local economy. The secondary sector, after all is supposed to generate the biggest value-adding and create higher quality jobs, which is a key goal under this plan. Moreover, this is consistent with one of new SDGs that call for the promotion of "inclusive and sustainable industrialization" and significantly raising industry's share of employment and gross domestic product by 2030.
5. **High-value agriculture production and processing.** The same can also be said about Naga's agriculture sector, whose size also contracted, and underperformed spatially, with only 70% of the total area being put to productive use. But in terms of land use, Naga remains a predominantly agricultural city. Thus, for the next 15 years, there is value in promoting agriculture development as a driver of Naga's sustainable development. This needs greater clarity in agriculture policy, especially in land conversion, as well as focus, which should be on greater productivity and household income.

In addition to the usual cash crops and livestock programs, the city's engagement with the Philippine Rural Development Project (PRDP) of the Department of Agriculture has identified pili nut processing, cacao and cutflower as local high-value crops that can be prioritized for development and investments, especially focusing on the value chain gaps and opportunities. After all, the new SDGs are advocating productive and sustainable agriculture so that by 2030, "agricultural productivity and incomes of small-scale food producers through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment" will be doubled.

6. **Tourism.** Last but not least, tourism will continue to drive Naga's growth, anchored on its solid performance over the last 15 years on the strength of double-digit growth in tourist arrivals and accommodation facilities. Moreover, the sector will directly benefit if the three major road, rail and air transportation projects mentioned above are realized, dramatically improving access to the city. Through commercial and property development, various amenities that Naga can offer can only be expected to grow further and diversify. In addition to eco-tourism attractions in the city's east highlands, another promising area would be cultural tourism at the urban core, anchored on the proposed Nueva Caceres Heritage District that leverages Naga's unique legacy as one of the five royal cities established by the Spaniards in the 16th century. This of course calls for preserving and promoting adaptive reuse of historic buildings within the district that are over 50 years old, as mandated by the new Philippine heritage law.

Urban Form and Structural Plan

Preferred urban form. In 2015 and 2016, a two-level mapping exercise participated in by 16 subsector groups¹ for the first round, and the five major sectors for the second round, sought to identify the best location of the city's settlements, production, infrastructure and protection areas; and the different support services and facilities that need to be established to realize the city's "Maogmang Lugar" vision.

Based on consolidated outputs of the subsector mapping workshops -- which highlighted complementation among sectoral outputs across the board, except where to locate Naga's residential development -- the second round sought to define the city's preferred urban form.

The emerging consensus among the five sectors is Naga's return to a compact city urban form, which the previous CLUP also aspired to but did not accomplish. (Fig. 1.38.)

Structural plan. Based on the above, as well as the trends population movement as well as the development challenges described in Chapter 3, the following structural plan was developed. (See Fig. 1.39) It has three outstanding characteristics:

1. **Compact city urban form.** The plan operationalizes a progressive return to the preferred compact city urban form in line with its thrust for a well-managed urban development. This recognizes the fact that Naga's urban core, since the Spanish times up to the present, has been front and center of social, economic and cultural development of the city. Notwithstanding its susceptibility to flooding events due to its location at the confluence of Naga and Bicol Rivers, there is no compelling reason to abandon what has been its dominant urban core, even in the context of climate change. That 11% of the city's population movement over the last 15 years have actually moved into the city is a testament to its continuing vitality and viability. The challenge therefore is to implement adaptation and mitigation measures to cushion the impact of climate change and other geophysical hazards facing the city center.



Fig. 1.38. How the Sectoral Committees voted on Naga's preferred urban form.

¹ These sectors are: **Social Sector:** (1) Children's Council, (2) Women's Council, (3) Health Board, (4) Senior Citizens, (5) Youth Council; **Economic Sector:** (6) Investment Board, (7) Agriculture and Fisheries Council, (8) Tourism, Culture and Arts; **Environment Sector:** (9) Solid Waste Management Board, Airshed and Watershed Councils; **Infrastructure Sector:** (10) Infrastructure and Transport, (11) Utilities, (12) Housing and Urban Poor, **Development Management:** (13) Peace and Order Council, (14) Overseas Filipinos, (15) Association of Barangay Councils; and (16) Disaster Management Council.

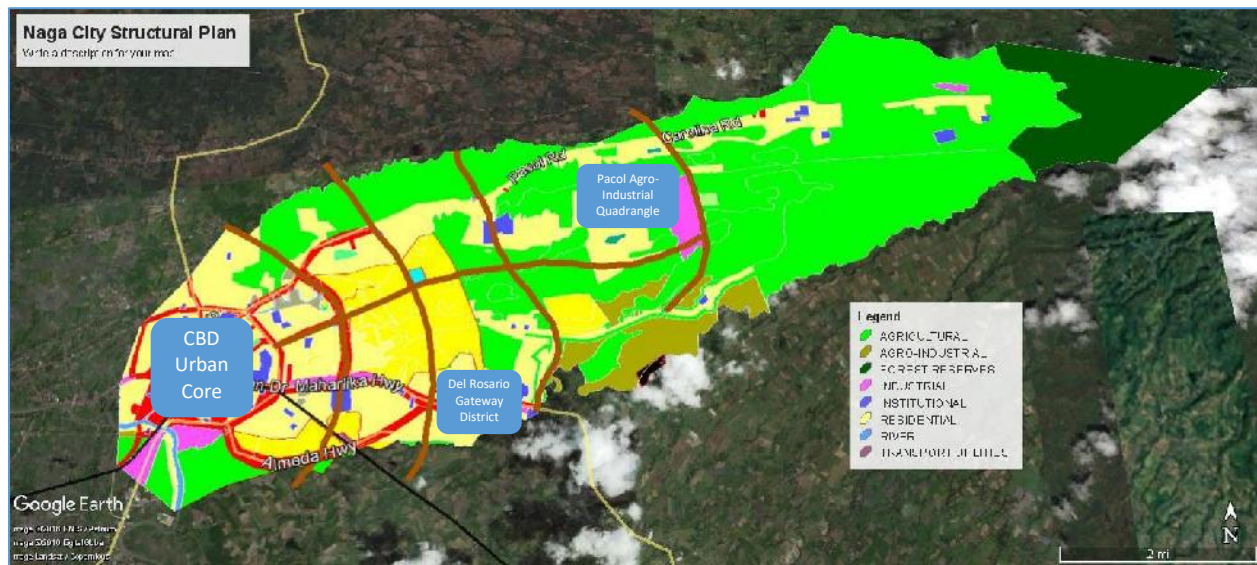


Fig. 1.39. Naga City's structural plan.

2. **Tri-nodal spatial development.** A complementary strategy to compaction is tri-nodal spatial development that will be built around the *CBD urban core* as the central primary anchor, supported by two secondary growth nodes: the *Del Rosario gateway district* to the south, and the *Pacol agri-industrial quadrangle* to the north. Influenced by the dominant strand of population movement within the city over the last 15 years, this tri-nodal spatial development strategy defines the boundaries of Naga's long-term development within the confines of these three nodes, and recognizes the important role of Naga's peri-urban areas in delivering on the major components of its "Maogmang Lugar" vision. As such, the envisioned mixed-use developments in new residential areas identified during the sub-sectoral workshops will be promoted in the context of these three nodes.
3. **Radial-circumferential.** Lastly, paying homage to the city's original town plan, urban development will be enabled and accelerated by two new circumferential and one additional radial road that will be established, as proposed under the 2016-30 City Road Network Development Plan (CRNDP) that was adopted by the Sangguniang Panlungsod in 2016. They form part of the plan's development strategy to "invest on strategic new road projects" that will accelerate mixed-use development by promoting greater connectivity between the city center and key growth nodes, and in the process enable critical private investments in new road networks.

THE 2016-30 LAND USE PLAN

Land Supply for Urban Expansion

Land supply is the land area available within a locality for urban expansion. In the case of Naga City, after deducting the areas considered for protection and conservation (NPAAs, NIPAs etc.) as well as existing built-up areas from its total land area, the land supply for urban expansion is determined at 404.2 hectares, a 23% reduction from the 521.5 hectares available in 1999. (See Table 1.26.)

Table 1.26. Land Use Accounting, Naga City, 2016

PARTICULARS		AREA (Hectares)	PERCENTAGE
I. Total Area of City		8,448.00	100.0
	1. Protection Areas		7.7
	a. NIPAS	611.14	
	b. Forest buffer zone (proposed)	36.85	
	2. Environmentally Critical Areas		1.1
	c. Water Related Hazards	53.67	
	d. Parks	27.00	
	e. Dumpsite	10.00	
3. Strategic Agricultural Fisheries Dev't.Zones (SAFDZ)*		5,709.05	67.6
Gross Potential Supply for Urban Lands		2,078.05	23.7
II. Existing Built-up**		1,213.98	14.4
NET BUILDABLE AREA (TOTAL LAND SUPPLY FOR URBAN USE)		786.31	9.3

Source: CPDO Land Use and Zoning Division, 1999.

*Based on the 2002 Map of the Department of Agriculture (Region V)

**Based on May 2015 Google Earth data

The city's Network of Integrated Protective Areas (NIPAS) remained at 611 hectares or 7.2% of the total. But a Forest Buffer zone is being proposed, adding around 37 hectares, bringing the city's Protection Areas to 7.7% of the total. Environmentally Critical Areas increased from 49.8 to 90.7 hectares (from 0.6 to 1.1%), mainly due to the relocation and expansion of the city's dumpsite from Balatas to San Isidro, the provision of around 17 hectares in new parks, as well as another 10 hectares for water-related hazards due to provision for easement, especially in residential areas in the urban district. The Protected Production Areas or Highly Restricted Agricultural lands remained at 5,709 hectares. When subtracted altogether from the city's total land area, it yielded a Gross Potential Supply for Urban Lands of 2,000 hectares, equivalent to 24% of the city's territory.

Finally, taking out the existing built-up area as of 2015, estimated at 1,214 hectares based on satellite data), would yield a Net Buildable Area of 786.3 hectares. This is equivalent to around 9% of the city's total land area that can supply its development needs for the next 15 years.

Land Use Allocation

With this available land supply, Table 1.27 presents the proposed land use allocation scheme for Naga City over the next 15 years. In all, it will require a net urban expansion of 712 hectares over the 2016 actual land use, and 433 hectares over the 2000 CLUP allocation scheme. This represents an expansion that will take up between 5% to 8% of the city's land area. Using the latter as reference, it is equivalent to a net expansion of 5% which is well within the 9% net buildable area available for the city.

Table 1.27. Proposed Land Use, Naga City, 2016-30

CLASSIFICATION	Proposed Land Use		2016 Actual Land Use		2000 Land Use Plan		Net Urban Expansion Requirement For the Planning Period	
	AREA	%	AREA	%	AREA	%	Vs 2016 Actual Use	Vs 2000 CLUP
Residential	2,096.63	24.8	1,622.93	19.2	1,886.28	22.3	473.70	210.35
Commercial	536.35	6.3	329.80	3.9	340.72	4.0	206.55	195.63
Agricultural	4,351.68	51.5	3,906.64	46.2	3,553.23	42.1		
Industrial	214	2.5	209.93	2.5	214.00	2.5	4.07	0.00

Institutional	218.18	2.6	182.47	2.2	182.47	2.2	35.71	35.71
Forest Reserves	647.99	7.7	611.14	7.2	611.14	7.2	36.85	36.85
Parks	31.00	0.4	9.95	0.1	9.95	0.1	21.05	21.05
Transportation Utilities	58.95	0.7	24.45	0.3	24.45	0.3	34.50	34.50
Dumpsite	10.00	0.1	5.89	0.1	5.89	0.1	4.11	4.11
Cemeteries	48.03	0.6	33.95	0.4	33.95	0.4	14.08	14.08
Water Bodies	43.72	0.5	43.72	0.5	43.72	0.5		
Agro-industrial	191.47	2.3	271.47	3.2	346.43	4.1		
Agro-ecotourism			1,195.66	14.2	1,195.66	14.2		
TOTAL	8,448.00	100.0%	8,448.00	100.00	8,448.00	100.00	711.63	433.28

These new land use allocation scheme is graphically represented in a new land use map that is central to this plan. (See Fig. 1.40.)

In terms of specific uses, it will have the following allocations:

- **Residential.** A total of 2,096 hectares will be allocated for residential use, representing 25% of its land area and a 2 percentage point increase over the 2000 level. This is 474 hectares more than the 2016 actual use, but only 210 hectares higher than the 2000 CLUP allocation. The bulk of new lands that will be released for residential use will be located in areas ringing the urban core, in line with the compact city development strategy described above.

Based on the computations of Naga's housing demand by 2030 (see Annex "B"), the city will need between a low of 298 hectares (1.8% annual growth) to a high of 448 hectares (2.91% annual growth) to meet the existing backlog and its additional household population estimated to range between 18,458 to 27,820 households by 2030. The 464-hectare allocation of available residential land already exceeds the upper end of those requirements. Higher density developments, especially within the urban core, will further give the city more flexibility in terms of residential land supply.

The allocation also supports the goal of the city's Shelter Plan, 2018-32, which aims to develop as much as 225 hectares (roughly 11% of the total residential allocation) of new land for socialized housing over the 15-year planning period to address the city's housing backlog. This is apart from the 95 hectares that currently form part of the city's socialized housing portfolio under the Kaantabay sa Kauswagan project. Around 75 hectares of the requirements for socialized housing is being eyed for land banking under the city's One Time-Big Time resettlement initiative.

- **Commercial.** A total of 536 hectares will be allocated for commercial use, representing 6% of Naga's total land area, which translates to a 3 percentage point increase over the 2000 level. This is equivalent to a 196 hectare net increase over the allocation in the previous planning document, and 207 hectares in all if we consider the 2016 actual land, i.e, where unutilized allocations are carried over.

Located within the urban core, the bulk of the Almeda Bypass Highway and the southern CBD 2 in Tabuco, areas along segments of the Circumferential Road 2 (C-2) in San Felipe and Balatas, as well as key intersections of the Naga-Carolina Road, these additional areas should be more than enough to meet requirements of the city's new commercial, services and tourism development, which are expected to further drive the city's economic growth.

- **Agricultural.** A total of 4,352 hectares will comprise the city's agricultural resource base, representing 52% of the total. This is brought about by a net increase of 917 hectares over the 2000 level, or an 10 percentage point improvement over the sector's 42% share in the previous plan. This is mainly due to the elimination of agri-ecotourism as a separate land use category and integration under agricultural use. Previous agri-ecotourism areas are instead treated a special overlay zone on the new CLUP map.

This allocation gives substance to the thrust to protect the city's prime agricultural areas, especially in the upland barangays, provide clarity in terms of policy and address underperformance due to idling of lands for speculative purposes. At the same, it will support and promote high-value agriculture production and processing aimed at putting these agricultural areas to productive use.

- **Industrial.** A total of 214 hectares is allocated for industrial use, representing 2.2% of the total, maintaining the 2000 level. This will be carried out by compensating for the partial change of use in the original Pacol ecozone, which was developed into a high-end mixed-use housing project (Haciendas de Naga). To promote green growth anchored on light to medium industrial development, this allocation under the plan supports the establishment of an industrial estate in the area.
- **Agro-industrial.** To maintain the industrial use allocation level, agro-industrial use will be reduced. Under this plan, a total of 191 hectares will be allocated, representing 2.3% of the total. This is 155 hectares less than the 2000 level, but should be more than enough as the land allocations were largely unused during the last 15 years.
- **Institutional.** A total of 218 hectares, on the other hand, will be allocated for institutional use, representing 2.6% of the total, and 36 hectares higher than the 2000 level. The additional allotment is intended to cover land requirement for basic urban services, especially in the growth centers and new settlement areas that will be establish to house the city's additional population. This includes a proposed new campus for the Bicol State College for Applied Science and Technology (BISCAST) and three government clusters being proposed by the city government under its Decentralized Services Scheme (DSS).
- **Forest reserves.** As pointed out above, on top of the 611 hectares or 7.2% of the total protected area covering the Mt. Isarog National Park, a 100-meter deep forest buffer zone will be provided, that adds around 37 hectares, bringing the city's Protection Areas to 7.7% of the total.
- **Parks and water bodies.** These land uses, with an aggregate allocation of 75 hectares, will see a 17-hectare increase, mainly due to three new proposed parks: (1) a 10-hectare new park located at the intersection of the proposed C-2 and Balatas Road in Cararayan; (2) the conversion of the Balatas Dumpsite into a 3.5-hectare green enclave; and (3) a 3.5-hectare river park in Tabuco facing the Bicol River. These respond to sectoral consultations which recommended that the city pursue the establishment of new parks at strategic locations around the urban core that the people can enjoy for recreation purposes. During the workshops facilitated by Manila Observatory, it was suggested that these new parks double as water catchment areas, which the MNWD can look at to locate their water impounding facility, over the next 15 years.

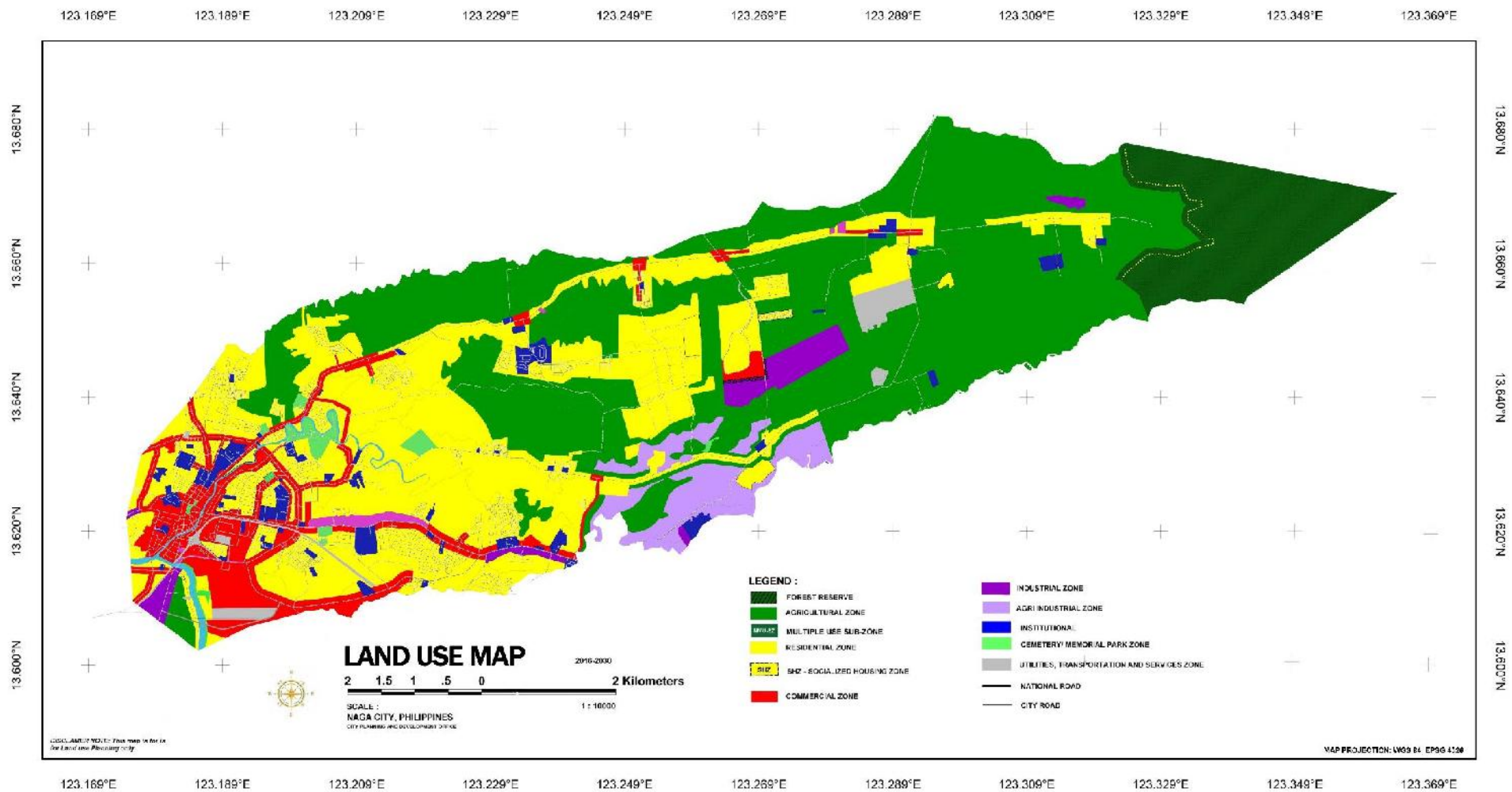


Fig. 1.40. The 2016-30 Land Use Map of Naga City.

- **Other uses.** Allocations for transportation utilities, dumpsite and cemeteries round up the other land uses, and will see an aggregate allocation of 116 hectares, 53 more than the 2000 levels, and equivalent to 1.4% of the total land area. They will all get an increase: Transportation utilities get an additional 35 hectares, bringing the total to 59, for a UVExpress terminal at CBD 2 and a new PNR terminal near Almeda Highway. Allocation for dumpsite increases to 10 hectares located in San Isidro, which will host the city's new SLF-cum-WTE facility, up by 4 hectares. And cemeteries will get a total of 48 hectares, 14 hectares more than the 2000 level, to cover future requirements, including the new public cemetery in Balatas.
- **Planned unit developments (PUDs).** Finally, in addition to the above land uses, two planned unit developments will also be promoted. These are mixed-use developments located in Barangays Triangulo (a 90-hectare riverfront development facing Bicol River) and Carolina (an 85-hectare development along the Carolina-San Isidro Road). The combined 175 hectares of PUDs under the plan do not represent a separate land use but will be deducted from the allocations described above.

Special Overlays

In addition to these regular land use categories, four special overlays also form part of the new land use plan. (See Annex "C.")

- **Hazard Overlay Zones.** Guided by the Climate, Meteo-Hydrological and Geophysical Hazard Maps developed in partnership with the Manila Observatory, two hazard overlay zones will be applied to Naga City. The first would be a Multiple Hazard Zone that will cover parts of the city center (including both CBD I and II), which are susceptible to both flooding and seismic hazards. The other would be a Landslide Susceptibility Zone confined to the Mt. Isarog protected area in Barangay Panicuason and its environs.

In the case of the former, although the risk is manageable, development will be allowed with limitations, especially in highly susceptible areas. In terms of land use, residential, commercial and industrial use will be allowed subject to appropriate density, building design, and environmental restrictions.²

In case of the latter, it will be designated as a No-Build Zone where buildings for human habitation or use as well as critical facilities will not be allowed, except for the following uses: nature reserve; agriculture; parks and outdoor recreation spaces; access roads, pathways, and open parking areas.

² Building design restrictions will include the following: **For Floodplain Zones** - required elevation requirements for the lowest floor line of newly constructed and improved buildings; measures to retrofit existing buildings on Floodplain Zones; wet and dry flood proofing measures; limitations on uses of enclosed spaces below flood elevation; and measures to compensate storm water retention capacity of the building site due to infilling. **For Seismic Hazard Zones** - conduct geo-testing to verify soil suitability; and use of soil mitigation as well as structural mitigation if found necessary.

Environmental restrictions will include the preservation of buffers along water channels; no development on the floodplain without proper drainage design and consideration of possible inundation effects of nearby properties; use of permeable pavement materials and sustainable urban drainage systems; and retention of least 10% of the property for open space.

- **Heritage District.** With an area of around 10.5 hectares, the Heritage District Overlay will encompass CBD I, bounded by Ateneo Avenue to the north, Igualdad (now J. Hernandez Avenue) to the west and Naga River to the east and south.

The identification of Naga's heritage district in the CLUP is a key step towards formalizing its designation as a heritage zone in line with Section 12, Article IV of RA 10066, also known as the "National Heritage Act of 2009." Said law provides that "the National Historical Commission of the Philippines, in consultation with the HLURB or other concerned agencies, shall designate Heritage Zones to protect the historical and cultural integrity of a geographical area."

In addition, the Implementing Rules and Regulations of RA 10066 provide that local government units will have to apply with the NHCP or the National Museum for the designation of a heritage zone within its jurisdiction. Declared heritage zones shall be subject to the environmental impact assessment laws, rules, and regulations of the DENR and shall henceforth be considered a culturally sensitive area. Moreover, a heritage zone shall be maintained by the LGU concerned, in close coordination with the appropriate cultural agency.

- **Agri-Ecotourism Zone.** As pointed out above, this overlay covers the 1,196 hectares of land previously classified as agri-ecotourism in the 2000 CLUP. This new overlay zone, which corresponds to the East Highlands Ecotourism growth area identified under the city's investment code, is aimed at attaining the goals of environmental conservation, agriculture and tourism economic development which form part of this plan's five development thrusts.

In addition to those uses that may be allowed in the base Agricultural areas, the following are uses and activities will be allowed in this special overlay zone: accommodation facilities; boardwalks, dining facilities, water-oriented recreation and sports rental equipment shops; tourism-oriented retail shops; and foreign exchange shops or establishments.

- **Circulation System.** Though technically not a zone, this overlay defines the proposed circulation system that will link the various development areas within city, as well as neighboring municipalities, especially within the Metro Naga area.

The major road projects anchor the City Road Network Development Plan (CRNDP), 2016-30, which seeks to promote equitable and sustainable spatial development in Naga by providing an efficient and responsive road system for easy movement of people, services, goods and information needed for citywide development.

- **Transit-Oriented Development.** Building on the PNR South Long Haul Project's proposed new alignment in Naga City, including the construction of a new Naga City terminal, and the ongoing construction of the P480-million Almeda-Mabulo Bypass road by the DPWH, the city shall implement a TOD strategy which will provide non-motorized transport (NMT) facilities, especially protected bicycle and pedestrian lanes. The bypass road will not only connect Almeda Highway to the Maharlika Highway in Barangay Mabulo, but will also provide an alternate access to the planned Bicol River Esplanade and the 2.3-hectare People's Park and Recreation Center (PPRC). This connection will ensure that the southern CBD 2 will be ringed by NMT facilities, making it ideal to anchor the city's TOD strategy.

The city's draft Local Public Transport Route Plan (LPTRP) has incorporated these key features and strategies in defining both the motorized and non-motorized transportation

services and facilities in Naga. The TOD section of Annex “C” lays out the spatial development arrangement of this planned strategy to promote and support active transport and transit-oriented development in the remaining major greenfield area of the city center.

- **Green growth.** The TOD scheme above actually anchors the city’s green growth strategy, developed with the help of World Bank technical assistance through the League of Cities of the Philippines. Guided by the vision of sustaining Naga as “Maogmang Lugar,” the city seeks to implement a “sponge city” urban water management strategy, based on the following five pillars of green growth: (1) Liveable Communities, (2) Employment Opportunities, (3) Sustainable Development, (4) People and Community Empowerment, and (4) Heritage and natural assets conservation.

As such, this strategy will be anchored on the following key projects:

- Bicol River esplanade, PPRC and mixed-use river front development built around a floodable park
- Strategic city road network development, anchored on the TOD scheme described above
- Socialized low-rise housing projects that will provide accessible housing supply for shorter work-to-home trips for the labor force, and
- Development of (a) urban mini-forests (Forests in our Midst or FOM project) in the urban areas; and (b) mangrove rivers and cascading retention ponds in the peri-urban areas of Naga.

The latter part of Annex “C” visualizes this green growth strategy that manages floodwaters for reuse and resilience.

LAND USE POLICIES

Implementation of the plan will be guided by the following land use policies, including new ones that promotes risk sensitivity in view of the various hazards facing the city. Along this line, the proposed Climate Action Matrix for Naga City (Annex “D”) in the draft Local Climate Change Action Plan (LCCAP) is made an integral part of this plan.

General land use policies

- **Proximity of residential areas to places of work.** The idea is to minimize home-to-work trips, which will contribute to lower carbon footprint considering that transportation accounts for a third of the city’s greenhouse gas emissions. This will reduce the urgency of providing parking spaces in the downtown where scarcity is keenly felt. In the city’s case, it means promoting the development of mixed-use settlements within the urban district and its two major spillover regions, the Midlands or peri-urban barangays and the Southeast Corridor.
- **Green growth anchored on Urban Nexus.** Livability is a primary thrust under this plan, which seeks to improve quality of the human environment, among others. As such, Naga will be maintained as a place conducive for human habitation. Consequently, residents of the city need to be protected from industries discharging wastes hazardous to health. This means that only light to medium industrial activities shall be allowed in the city.

Moreover, guided by Urban Nexus and Eco-town principles, the city will prioritize achieving climate change resilient urban systems that will integrate the nexus of food, energy, land and water.

Among others, it calls for the implementation of cross-sectoral reforms supporting green growth. This includes climate change approaches for flood mitigation (infrastructure); sustainable groundwater management (water); crafting of local green building policies and the adoption of green technologies at the community level (housing); shift from fossil-based to clean fuel-powered vehicles, and the promotion of multi-modal systems (transportation); and promotion of renewable energy and energy efficiency/conservation measures (energy).

- **Distribution of community services along hierarchical arrangement.** Services essential in the day-to-day life of the people, require smaller population threshold, and need fewer people to maintain should be located in residential neighborhoods. On the other hand, more specialized services that require bigger catchment areas shall be located in the downtown, the two other growth nodes, and in places central to a cluster of barangays..
- **Preservation of prime and highly productive agricultural lands and forest areas.** Naga has a fertile soil and substantial portion of its agricultural land falls under Type “A” land capability characterized by very good land that can be cultivated safely and requires only simple but good farming management practices. They need to be protected; otherwise, uncontrolled and unwise encroachment of prime agricultural land will bring about imbalance in the city’s development potentials and threaten its food security.

To promote protection of the Mt. Isarog National Park (MINP) as the city’s major biodiversity area, there is a need to establish a multi-purpose buffer zone ringing the city’s forested area. It will also function as a wildfire buffer, especially in the context of the projected changes in the city’s climate, especially from drought during prolonged dry season.

- **Expansion of commercial and light industrial areas.** To maintain Naga’s competitiveness and respond to the need of its commercial, service and industrial sectors, new areas that will meet their requirements must be allocated in the planned expansion of the urban core and the development of its two secondary growth centers.
- **Recovery of easements.** Last but not least, the city must continue an all-out earnest efforts to recover the mandatory easements and setbacks in the planned expansion of its urban area. Recovering public space, and making these available for public use and enjoyment, will boost its drive to sustain competitiveness as a fast-growing, livable regional center. At the same time, it will also reduce risks from flooding events induced by weather and climate change.

CCA-DRRM policies

More specifically, the general land use policies above are further articulated by the following priority CCA-DRRM policies in the LCCAP, which are adopted in this plan. They include:

- **Land use**
 - Enforce easement and buffer zone regulations
 - Hazard zoning of landslide prone areas and disallowing construction of settlements projects in these areas

- Zoning of exposed areas to high landslide as no-build zone
- Zoning of frequently flooded area to regulate construction of schools, hospitals, water and power plants
- Strict enforcement of road easements and relocation of informal settlers occupying them
- Regulate or disallow urban expansion in frequently deep flooded areas
- Identify and zone safe areas for urban expansion and development of new towns
- Establish green parks and artificial ponds in cities to reduce flood volume
- **Flooding**
 - Relocate residents whose houses are frequently fully submerged to flooding;
 - Relocate informal settlers occupying easement areas
- **Landslides**
 - Relocate residents occupying areas highly vulnerable to landslides
- **Seismic hazards**
 - Strictly enforce building code with safeguards against liquefaction
 - Regulate construction of high rise buildings in high liquefaction prone areas
 - Retrofit buildings located in highly liquefaction prone areas
- **Exposed lifeline facilities**
 - Assess the safety of schools and other lifeline infrastructures from natural hazards and climate change impacts;
 - Retrofit lifeline facilities, roads, bridges, hospitals and schools prone to deep flooding and liquefaction
 - Improve natural drainage and desilt rivers and remove debris obstruction;
 - Construct alternative routes and bridges in areas non-flooded and non-prone to liquefaction;
 - Stabilize river banks with engineering measures upstream of bridges
 - Build permanent multi-purpose evacuation center with complete basic facilities (including water supply and electric generators) in safe locations;
 - Build new schools and other lifeline facilities in sites free from flooding and not prone to liquefaction
- **Agriculture**
 - Cultivate flood tolerant species of crops such as rice
 - Adjust planting season to avoid flood season
 - Improve water supply of communities through conservation and rainfall harvesting technologies
 - Regulate farming and construction activities (road and mining) in landslide prone areas
 - Install small water retention ponds or small water impounding dams for sources of water during drought period
 - Diversity crops for ecological stability and resistance against pests and diseases;
 - Adjust cropping calendar to adapt to changing rainfall patterns
 - Reforestation of public lands in watershed and promotion of agro-forestry among upland farmers.
- **Greenhouse gas emission**
 - Promote use of clean fuels (Euro 4)
 - Adoption of feasible renewable energy (solar, wind, hydro, biomass)

- Develop mass transport system
 - Promote the construction of green buildings (vertical greenery and rooftop gardens) through tax incentives and recognition awards;
 - Establish green parks, artificial ponds and green buildings in the central business district
 - Build walkways in CBD to encourage walking
 - Promote use of electric-driven tricycles and jeepneys
- **Evidence-based policymaking**
 - Develop and institutionalize data reporting system on energy consumption to be used by the city LGU
 - Issue policy requiring industries to submit information for GHG inventory every time they renew their permit to operate
 - Issue ordinances providing economic incentives to private firms, and homeowners to undertake CCA and DRR measures at the community level,

PROPOSED MAJOR SPATIAL PROGRAMS AND PROJECTS

To support the plan, the following major spatial programs and projects are proposed for implementation, with a total funding requirement of around P 4.6 billion. They fall under three major categories: the **city road network development projects** that will require around 1.5 billion, **other sectoral projects** that will require around P1.7 billion; and **climate change adaptation and mitigation projects** that will require around P1.5 billion. The detailed components are provided in Annex “E.”

City road network development projects

Naga’s CRNDP, 2016-30 seeks to promote equitable and sustainable spatial development in the city by providing an efficient and responsive road system for easy movement of people, services, goods and information needed for citywide development over the next 15 years.

To reach that goal, it focuses on attaining four objectives: (1) Improve access between the city center, its other growth nodes, and residential areas; (2) Improve connectivity between Naga and its neighboring towns; (3) Upgrade the quality of the road network by incorporating provision for non-motorized transportation (NMT) options, and (4) Increase the length of the existing road network by at least 50% (100 kms).

Table 1.28 summarizes the priority projects under the CRNDP, which is built around the development of six circumferential roads, a radial road and a connector road.

Table 1.28. Summary of Road Network Development Projects, 2016-30

Particulars	Scope of work	Estimated Project Cost (In Million Pesos)
Circumferential Road 2 (C-2)	Widening, new road sections	163.15
Circumferential Road 3 (C-3)	New	161.9
Circumferential Road 4 (C-4)	Widening, development of new road sections	56.48
Circumferential Road 5 (C-5)	Widening, development of new road sections	110.96
Circumferential Road 6 (C-6)	Widening	265.7
Connector Road 1 (CR-1)	New	174.57
Radial Road 5 (R-5)	Widening	177.51

Almeda Bypass Road	Widening	120.29
Other Key Roadlinks	New road development	233.98
TOTAL		1,464.54

Priority sectoral projects

On December 16, 2016, the City Development Council adopted an updated Local Development Investment Program (LDIP) that the Sangguniang Panlungsod subsequently approved. Although multi-sectoral in nature, the updated investment plan also includes projects with spatial development implications. These are summarized in Table 1.29.

Table 1.29. Summary of Sectoral Projects, 2016-30

Sector/Subsector	Estimated Project Cost (In Million Pesos)
SOCIAL	
Education	47.50
Health and Nutrition	40.00
Housing	458.20
Social Welfare	33.60
Protective Services	86.50
Overseas Filipinos	50.00
Sub-Total	715.80
ECONOMIC	
Agriculture	11.50
Tourism	15.00
Commercial, Industrial	100.25
Sub-Total	126.75
ENVIRONMENT	
Water and Watershed Protection	194.85
Solid Waste Management	180.00
Sub-Total	374.85
INFRASTRUCTURE	
Bridges and Other Public Facilities	328.33
Nationally-Funded Projects	141.75
Sub-Total	470.08
TOTAL	1,687.48

Climate change adaptation and mitigation projects

The final draft of the city's LCCAP, prepared with technical assistance from ADB and SEARCA, took off from the original local development investment program (LDIP) embodied under the city government's Comprehensive Development Plan (CDP), 2011-20. Critical consideration was given to low cost, no regrets technology where operations and maintenance is affordable. Projects ensuring compliance to social safeguards and vulnerability reduction were considered urgent and non-negotiable, and were expanded and made climate change resilient. Moreover, new projects were identified and prioritized based on results of various assessment and studies conducted. Table 1.30 summarizes these climate adaptation projects.

Table 1.30. Summary of Climate Adaptation Projects, 2016-30

Expected Results	LGU	NGAs	Others	Total
C1 Resilient communities through available improve food security and ecosystem ensured				
1.1 Rehabilitate and Protect Mt. Isarog	2.40	6.60		9.00
1.2 Expand buffer zone and protect KBAs	3.25		0.30	3.55
1.3 CC adaptive agricultural extension services expanded		3.70	14.80	18.50
1.4 Innovative partnership support among farmers developed	2.00		9.00	11.00
Sub-Total	7.65	10.30	24.10	42.05
C2 Reduce hard through integrated water resource management practice established				
2.1 Multi-functional rehabilitation of Mt. Isarog River Tributaries implemented	43.13	3.50	388.13	434.75
2.2 Ecological restoration of creeks implemented and sustained	69.00	342.81	273.71	685.52
2.3 CC adaptive management processes of flood reduction and water systems facilitated	0.70	6.30		7.00
2.4 LID technology promoted at community level established	1.08	6.30	9.54	16.92
2.5 Ground water management and practive by various sectors improved	5.80		8.70	14.50
Sub-Total	119.70	358.91	680.07	1,158.68
C3 Reduced risk of men and women to worsening climate change impact and disasters (Human security)				
3.1 Procedures and capacity for CCA-DRRMO for various sectors enhances	23.09	80.00	2.54	105.63
3.2 Management for CCA-DRRM including IER and post disaster rehabilitation improved	0.90			0.90
3.3 System for CC related health emergency and post disaster response updated	0.97		1.62	2.59
3.4 CC proofed rehabilitation and resettlement areas adopted	14.00	22.50	93.42	129.92
3.5 Inclusive and gender responsive relocation and resettlement areas provided	3.00	5.40	9.60	18.00
Sub-Total	41.96	107.90	107.18	257.04
C4 Climate change resilient, eco-efficient entrepreneurs and green growth oriented city promoted				
4.1 MSMEs capacities for eco-efficient production and operations facilitated	0.10		5.00	5.10
4.2 Implement clean fleet program	0.68			0.68
4.3 Multi-mode transport system promoted	6.00		11.65	17.64
4.4 Renewable energy and energy efficiency/conservation promoted	0.23			0.23
Sub-Total	7.00		16.65	23.65
TOTAL	176.31	477.11	828.00	1,481.42

Financing the PPAs

As shown above, full implementation of the plan will cost around P4.6 billion over the next 15 years.

Funding for the **road concreting projects** shall be sourced from the following:

1. **Local funds.** This will particularly focus on the Local Development Fund (LDF) and the Local Disaster Risk Reduction and Management Fund (LDRRMF). In the proposed Executive-Legislative Agenda (ELA), 2016-19, these funds are expected to range between P138-164 million annually.
2. **National funds.** This will include funds from the Road Board, as well as the new Konkreto at Ayos na Lansangan ang Daan Tungo sa Pangkalahatang Kaunlaran (KALSADA) program conceptualized under the Aquino administration. Should it come to fruition, the KALSADA program will allocate P108 million to Naga City.
3. **Road conversion.** For last several decades, the length of national roads in Naga has stood at a virtual standstill. Between 1998 and 2015, for instance, it stood at around 32 kms (representing between 16% to 19% of the total). In the interest of fairness and equity, there should be a corresponding increase in the share of national roads to the overall total road network. This means that if the 15-year target is to add another 100 kms to the existing network, the national government should contribute between 16 to 19 kms to the total. For instance, it can consider the conversion of the Balatas-Carolina Road (13.2 kms) and the Almeda By-pass Highway (4.4 kms) into national roads.
4. **Borrowings.** To address local financing gap, especially for the priority road networks described above, the city government can resort to borrowings. One advantage of borrowings is that they allow for inter-generational equity, i.e. the cost of an infrastructure project is shared across generations of users. Under the 2016-19 ELA, the City Budget Office recommended P200 million as a reasonable and sustainable level that balances present needs with future sectoral demands across the board. Over the next 15 years, under the conservative budgetary assumptions made under this plan, the city government would a much bigger fiscal space to undertake additional borrowings to fund critical road projects.
5. **Landowners' equity.** The city government should also aggressively explore securing landowners' equity for free or at a steep discount, especially for RROWs of the new road projects. This is predicated on the fact that infrastructure tends to increase the value of adjacent land. In all, RROWs account for a low of P241 to a high of P328 million of the total project cost.
6. **Value capture mechanisms.** Relatedly, value capture is a type of public financing that recovers some or all of the value that public infrastructure generates for private landowners. Public investments, such as building transportation or sewer facilities, can increase adjacent land values, generating an unearned profit for private landowners. The unearned value (increases in land value which otherwise profit private landowners cost-free) may be "captured" directly by converting them into public revenue. Thus, value capture internalizes the positive externalities of public investments, allowing public agencies to tax the direct beneficiaries of their investments.³

³ "Value capture," Wikipedia, https://en.wikipedia.org/wiki/Value_capture. Accessed on July 25, 2016.

For the **other sectoral projects**, funding can be explored from two major sources:

1. **Funds under the city government's direct control.** These fall under two major sources:

- a. *The city government's own budget.* This will include such funds as the Local Development Fund (LDF); the Local Disaster Risk Reduction and Management Fund (LDRRMF), more popularly known as "Calamity Fund"; the Special Education Fund (SEF); Capital Outlay; and idle or dormant funds of the city.
- b. *Borrowings.* Subject to the borrowing limits specified by law, loans can be contracted by the city government from either Land Bank or DBP, which are the major government-owned financing institutions.

2. **Funds outside of the city government's control.** These fall under three major categories:

- a. *National transfers other than IRA.* These refer to funds like the Bottom-Up Budgeting (BUB) program, the new Konkreto at Ayos na Lansangan ang Daan Tungo sa Pangkalahatang Kaunlaran (KALSADA) program, as well as other sectoral programs lodged under the respective budgets of national government agencies.
- b. *Funds facilitated by political allies.* These include national government officials at the executive and legislative levels who are supportive of the city's development directions and aspirations.
- c. *International grants.* This leverages Naga's reputation as a good urban governance hub to attract projects that will be implemented locally by international development agencies such as GIZ, UNDP, ICLEI, etc.

Finally, for the **climate change adaptation projects**, the possible financing sources identified above also apply. These would include local funds of the city government, which are expected to cover the required P176.3 million (representing 12% of the total). On the other hand, the national government, especially its climate-related agencies that manage adaptation funds like the People Survival Fund (PSF), are expected to put up P477 million (32%). The remaining 56% is envisioned to come from international development agencies as well as private investors for projects that can be funded through PPP.

CLUP AND ZO IMPLEMENTATION ARRANGEMENTS

Implementation of the Plan and its accompanying Zoning Ordinance (ZO) – the instrument that will carry it out – can be approached at two levels. Internally, it rests on three key agencies of the city government under an institutional arrangement carried over from the previous CLUP. Externally, the city government is looking at partnerships with other government agencies.

Internal implementation mechanisms

Three city government agencies involved in implementing the CLUP and its ZO.

Zoning administration division. Administration and enforcement of the Zoning Ordinance, which will implement the CLUP, will be vested in the City Zoning Administration Division of the City Planning and Development Office. The division will be headed by a Zoning Administrator

who will work directly under the administrative and technical supervision of City Planning and Development Coordinator.

The Zoning Administrator will have the following powers and duties:

- To issue locational clearances
- To serve notice requiring the removal of any use in violation of the zoning ordinance
- To impose appropriate sanctions and penalties as provided by the zoning ordinance
- To call on the City Legal Officer and the City Prosecutor to institute any necessary legal proceedings to enforce the provisions of the zoning ordinance
- To call upon the PNP, DAR, DENR and other concerned authorities to assist in the enforcement of the zoning ordinance
- To report to the City Zoning Review Committee all exceptions and variances granted every quarter (and reflect these in the zoning map upon approval); as well as the progress and problems encountered in the administration and enforcement of the zoning ordinance, and recommendations on how to overcome them; and
- To submit a semestral report on the status of the land uses of the city (including the number, nature and character of permits granted or denied, non-conforming uses, variances, exceptions, innovative techniques, special and temporary uses and conditions imposed thereon) to the City Mayor and the Sangguniang Panlungsod.

Zoning appeals board. To act on complaints regarding the interpretation, administration or enforcement of this Ordinance by the Zoning Administrator, the Local Zoning Board of Appeals (LZBA) will be created.

As a quasi-judicial body, the Board has no power and authority to amend, alter, repeal or legislate a zoning ordinance. Decisions of the Board, however, can be appealed with the HLURB.

The Board will be composed of the City Mayor as Chairman and the SP Land Use Committee chair, City Legal Officer, City Assessor, City Engineer, City ENRO, City Zoning Administrator, City Planning and Development Coordinator, two Private Sector representatives, and two (2) Civil Society Organization (CSO) representatives as members. The City Planning and Development Office will serve as the board's secretariat.

The Board shall, after prior review and recommendation by the City Zoning Administrator have the powers to:

- Hear and decide appealed cases where there are claims of substantial error in any decision, order or determination made by the City Zoning Administrator in the enforcement of the zoning ordinance
- Act on applications for variances, exceptions, temporary use and non-conforming uses provided for in the zoning ordinance
- Act on appeals on the grant or denial of Locational Clearance by the Zoning Administrator, and
- Act on appeals regarding the non-conformity of existing uses, buildings or structures to applicable provisions of the zoning ordinance.

Business One-Stop-Shop (BOSS). Pursuant to Executive Order No. 2012-017 issued by Mayor John G. Bongat, the city government has enhanced the business registration procedures and institutionalized the Naga City Business One-Stop-Shop (BOSS).

The BOSS, which runs for the whole month of January each year, is an arrangement where all concerned agencies or offices involved in processing and issuance of business permits and licenses are organized in a single location to receive and process applications for business registration under a streamlined system. Complementing the BOSS is the Joint Inspection Team established under Executive Order No. 2012-016 mandated to conduct year-round inspection of business establishments to facilitate the BOSS process.

In both entities, the CPDO, represented by the Zoning Administrator, is a key member, anchored on its authority to issue locational clearances required for the processing of a business permit.

External implementation mechanisms

Last but not least, the city government will also explore opportunities to implement the CLUP and its ZO in partnership with the following institutions:

Consistent with its Metro Naga strategy, the CPDO will work with its counterparts in the 17 municipalities that comprise the **Metro Naga Development Council (MNDC)**. The goal is to building on strengths and complementarities, especially with immediate neighbors, to promote balanced growth and development in the program area. This can take the form of better aligned CLUPs by its members LGUs.

At the community level, the city government, through the CPDO, will strive **to localize the CLUP at the barangay level** by working more closely with Naga's 27 barangay councils.

Using the approved CLUP and ZO, the CPDO will organize a technical orientation and briefing of local barangay officials, focusing on the CLUP/ZO and other relevant ordinances and programs of the city that will impact community development. Moreover, using the triennial conduct of CBMS surveys as a platform, this will allow the city government and its component barangays to align their respective development plans and investment programs, guided by the strategic directions and development thrusts laid down under the CLUP.

MONITORING, REVIEW AND EVALUATION SYSTEM

Similarly, three mechanisms shall be established to monitor, review and evaluate the CLUP and ZO's implementation over the next 15 years.

City zoning review committee. First is the Local Zoning Review Committee (LZRC), a mechanism carried over from the previous CLUP. The committee is empowered to review the ZO in the light of the following circumstances:

- Updating/revision of the CLUP
- Introduction of projects of national and/ or local significance
- Force majeure events with citywide land use implications
- Petition for re-zoning/re-classification with citywide implications, and
- Increasing number of applications/issuances invoking variances and exceptions.

The Committee, which convenes quarterly, comprises of the following the chair of the SP Land Use Committee, City Planning and Development Coordinator, City Zoning Administrator, City Health Officer, City Agriculturist, City Assessor, President of the Association of Barangay

Council, City Engineer, PNP Chief of Police, City ENRO, City DRRMO chief, City Agrarian Reform Officer, Schools Division Superintendent, three (3) Private Sector representatives (representing the MNCCI, the housing industry, and the federation of homeowners' associations) and two (2) CSO representatives. The CPDO will likewise serve as its secretariat.

Aside from conducting a review of the ZO in the light of abovementioned circumstances, the Committee will also recommend to the Sangguniang Panlungsod necessary legislative amendments and to the City Development Council needed changes in local plans based on results of the review. It will also provide information to the HLURB that can be useful in the exercise of the latter's functions.

City housing board. The other mechanism is the Naga City Housing and Urban Development Board established by virtue of Ordinance No. 1993-057. The Board uses RA No. 7279, otherwise known as the "Urban Development and Housing Act of 1992," as its basic policy framework. This can be gleaned from the ordinance's policy declaration -- "to undertake, in cooperation with the private sector, a comprehensive and continuing urban development and housing program in implementation of RA7279."

Toward this end, Section 4 of said ordinance, which defines the Board's powers and responsibilities, provides that it has the authority to undertake a review and rationalization of existing city land use plans, housing programs, and all other projects and activities of the city government and the private sector which may substantially affect land use patterns, transportation and public utilities, infrastructure, environment and population movements.

The Board comprises of the following:

- From the government: the chair or any member of the SP committees on human rights, social development and laws & ordinances; the heads of the Housing Settlements Development Office, the City Engineer's Office; the City Planning and Development Office; and the president of the Association of Barangay Councils (ABC)
- From the private sector: three representatives of urban poor organizations in Naga City; and
- From civil society: three representatives of NGOs and POs engaged in community organizing and other activities for the development of urban poor communities in the city.

Multi-sectoral review. Leveraging the city's participative traditions, the third mechanism builds on the sectoral committees established under Executive Order No. 2011-026, which Mayor Bongat issued to strengthen its CDC. (See Annex "F" for a copy of the executive order.) One of functions of these sectoral committees is to coordinate, monitor and evaluate the implementation of the city's development programs and projects. These are the same committees that reviewed outputs from the subsectoral mapping workshops and recommended the return to "compact city" urban form.

Additional sectors will be added to the roster of sectoral committee memberships, like Overseas Filipinos (to be represented by PAMANA) and the Heritage sector (to be represented by the NCHMI), to improve its reach and representation. This will also be a good opportunity to bring in the academe, especially by capitalizing on the strong programs of the three major universities and colleges in Naga, which should further strengthen the city's town-and-gown partnerships.

To standardize work and focus on measurable outcomes, they will use and localize the SDG indicators listed under Annex "A" as core baselines for monitoring and evaluating the city's performance.



COMPREHENSIVE LAND USE PLAN, 2016-30

City Government of Naga

Annexes

Annex “A”

Localized SDG Indicators for Naga’s “Maogmang Lugar” Vision

Vision	Goal/Objective	Indicators
Naga, An Maogmang Lugar (A happy place for happy people)	Well-managed urban growth -- To develop a livable compact city built around the urban core and a network of mixed-use development connected by sustainable transportation options and supported by quality public infrastructure, services and facilities	Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities Presence of urban and regional development plans integrating population projections and resource needs, by size of city Presence of direct participation structure of civil society in urban planning and management that operate regularly and democratically Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group Death rate due to road traffic injuries
	Accessible urban basic services – To develop a hierarchy of self-contained communities with sufficient allocation of land for health, education, recreation and protective facilities and other social services	Proportion of population living in households with access to basic services Proportion of total government spending on essential services (education, health and social protection) Housing. Proportion of urban population living in slums, informal settlements or inadequate housing Proportion of total adult population with secure tenure rights to land, with legally recognized documentation and who perceive their rights to land as secure, by sex and by type of tenure Health. Maternal mortality ratio Proportion of births attended by skilled health personnel Under-five mortality rate Neonatal mortality rate Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease Number of people covered by health insurance per 1,000 population

		<p>Education. Proportion of children and young people: (a) in Grades 3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in reading and mathematics, by sex</p> <p>Participation rate in organized learning (one year before the official primary entry age), by sex</p> <p>Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex</p> <p>Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill</p> <p>Proportion of schools with access to: (a) electricity; (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single-sex basic sanitation facilities; and (g) basic handwashing facilities</p> <p>Water and Sanitation. Proportion of population using safely managed drinking water services</p> <p>Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water</p> <p>Proportion of wastewater safely treated</p>
	<p>Sustainable, equitable economic development and competitiveness – To identify, develop and promote new economic growth areas for priority investment areas¹</p> <p>To create quality jobs that will enable the city to further reduce income poverty in least economically resilient communities</p>	<p>Unemployment rate, by sex, age and persons with disabilities</p> <p>Proportion of youth (aged 15-24 years) not in education, employment or training</p> <p>Number of jobs in tourism industries as a proportion of total jobs and growth rate of jobs, by sex</p> <p>Number of commercial bank branches and automated teller machines (ATMs) per 100,000 adults</p> <p>Manufacturing employment as a proportion of total employment</p>

¹ Health and education; trade and commerce; tourism and leisure; finance and services; and public management and local governance; emerging new technologies and green industries

		<p>Proportion of small-scale industries with a loan or line of credit</p> <p>Proportion of population covered by a mobile network, by technology. Proportion of individuals who own a mobile telephone, by sex</p> <p>Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage; type of expenditure; and type of private funding</p> <p>Number of sustainable tourism strategies or policies and implemented action plans with agreed monitoring and evaluation tools</p> <p>Mainstreaming and implementation of well-managed migration policies</p> <p>Proportion of population living below poverty line, by sex and age</p> <p>Proportion of men, women and children of all ages living in poverty in all its dimensions</p> <p>Proportion of resources allocated by the government directly to poverty reduction programs</p> <p>Proportion of informal employment in non-agriculture employment, by sex</p>
	<p>Improved productivity and income in agriculture – To protect prime agriculture areas from conversion to non-agricultural use</p> <p>To improve agricultural productivity by increasing public and private investments in inputs, facilities and services</p> <p>To improve household income by focusing on value chain opportunities from priority commodities identified for Naga and the Bicol region</p>	<p>Average income of small-scale food producers, by sex</p> <p>Proportion of agricultural area under productive and sustainable agriculture</p> <p>Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex</p> <p>Share of women among owners or rights-bearers of agricultural land, by type of tenure</p>
	<p>Livable, safe and resilient city and local communities – To promote mixed-use development in its</p>	<p>Livability. Proportion of bodies of water with good ambient water quality</p> <p>Proportion of population with access to electricity</p>

	<p>settlement areas, create community-based economic and social activities and services that minimize home-to-work trips, and help lessen the city's carbon footprint</p> <p>To improve Naga's resilience as an urban community by mitigating hazards; reducing local vulnerabilities, minimizing exposure ,and improving adaptive capacity of local communities.</p>	<p>Proportion of population with primary reliance on clean fuels and technology</p> <p>Renewable energy share in the total final energy consumption</p> <p>Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated</p> <p>Recycling rate, tons of material recycled</p> <p>Annual mean levels of fine particulate matter</p> <p>Forest area as a proportion of total land area</p> <p>Proportion of important sites for terrestrial biodiversity that are covered by protected areas, by ecosystem type</p> <p>Progress towards sustainable forest management</p> <p>Safety. Number of victims of intentional homicide per 100,000 population, by sex and age</p> <p>Proportion of population subjected to physical, psychological or sexual violence in the previous 12 months</p> <p>Proportion of population that feel safe walking alone around the area they live</p> <p>Resilience. Number of deaths, missing persons and persons affected by disaster per 100,000 people</p> <p>Adoption and implementation of local disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030</p> <p>Presence of local disaster risk reduction strategies</p>
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Annex “B”

Naga City’s Projected Housing Needs

Based on the 2000 and 2010 census of the Philippine Statistics Authority (PSA), the table below presents Naga’s household population, average family size and occupied housing units. By deducting the occupied housing units from the number of households, the housing backlog for the survey year is derived. For 2010, it is placed at 719 housing units.

Year	Household population	Number of households	Average family size	Occupied housing units	Housing backlog
2000	136,900	26,317	5.20	25,674	643
2010	173,731	35,929	4.84	35,210	719

To determine the **projected housing needs**, the projected housing population by 2030 is computed for each of the three growth scenarios. These are shown in the following table. Together with the housing backlog of 719, Naga’s total projected housing needs would range between a low of 18,458 units to a high of 27,820 units.

Projected population				Projected household population		
Year	1.80%	2.30%	2.91%	1.80%	2.30%	2.91%
2020	214,258	219,615	226,208	44,310	45,418	46,782
2025	234,214	246,072	261,068	48,437	50,890	53,991
2030	256,028	275,715	301,300	52,949	57,020	62,311
Projected housing needs				17,739	21,810	27,101
Projected housing needs + backlog				18,458	22,529	27,820

To determine **the land area** that will meet the city’s projected housing requirements, a high residential density of 300 persons per hectare is assumed, consistent with the thrust towards densification. Based on this assumption, the household density of 62.04 households per hectare can be computed (300 divided by 4.84, the average family size as of 2010). This translates to an average lot size of 161.18 square meters. Applying this value to the three projected household population scenarios above would yield the following table.

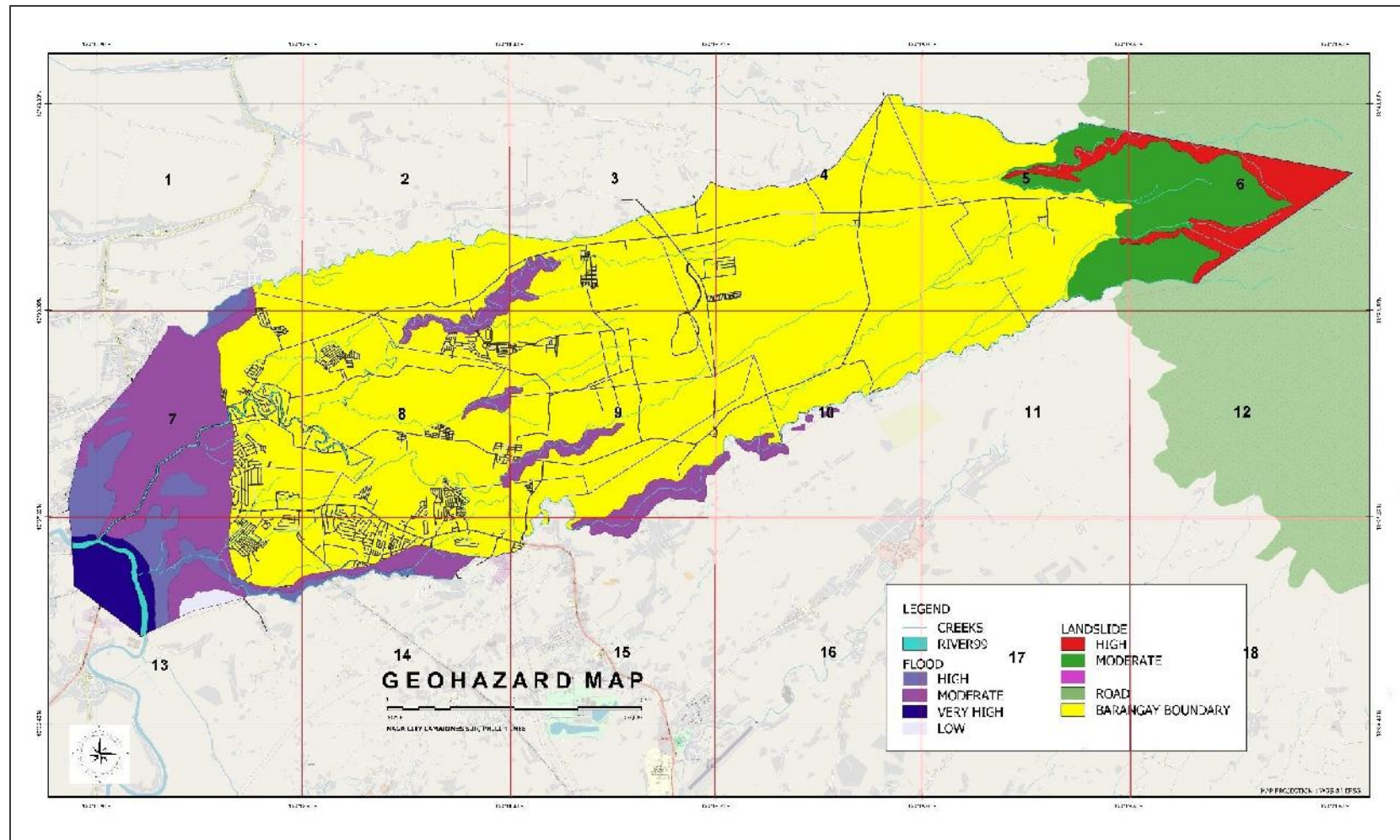
1.80%	2.30%	2.91%
2,975,009 square meters	3,631,254 square meters	4,484,092 square meters
297.50 hectares	363.13 hectares	448.41 hectares

Naga City, therefore, would need a low of 298 hectares and a high of 448 hectares to meet the housing needs of its population by 2030. The 388-hectare allocation of new residential land lies in between the middle and higher end of the city’s requirements.

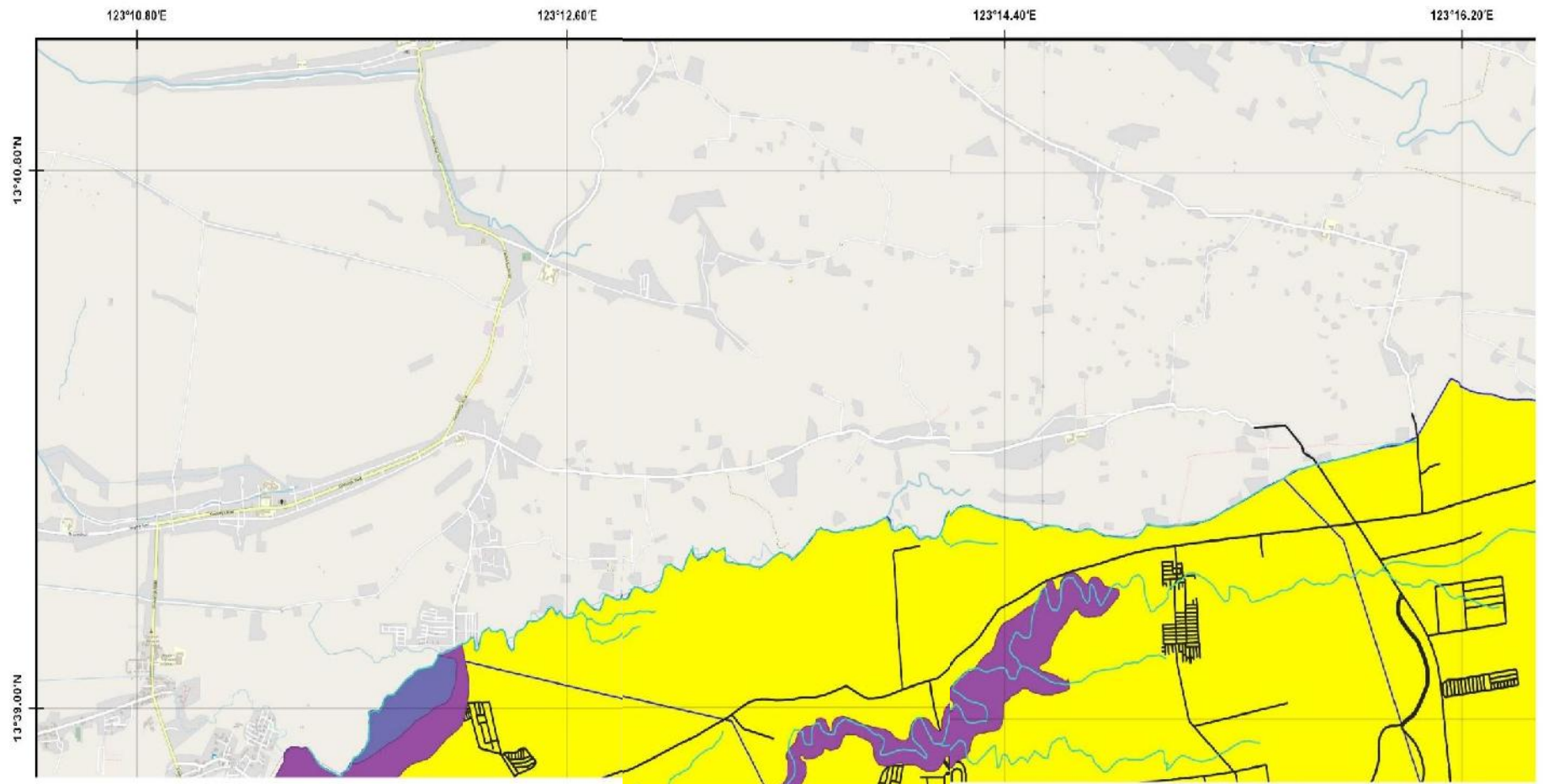
Annex "C"

Special Overlays

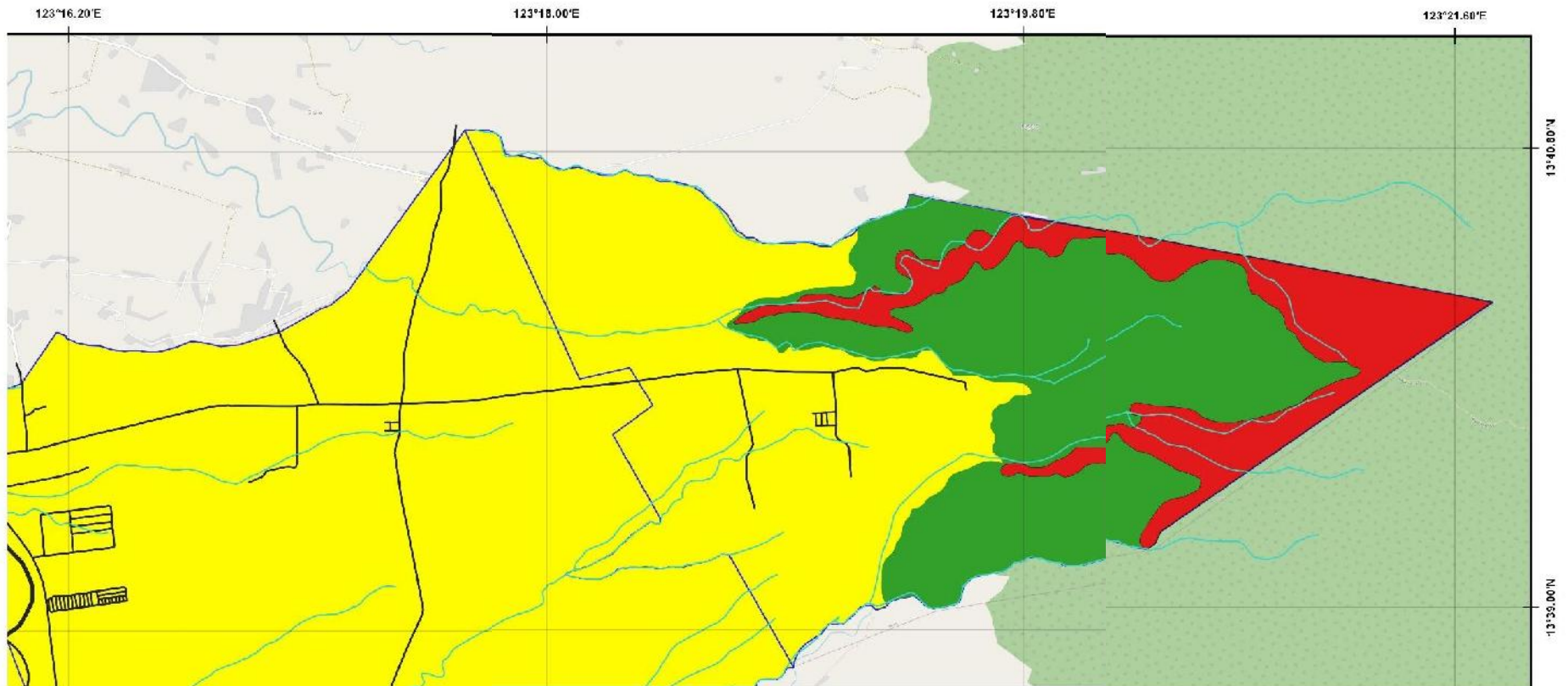
Hazard Overlay Zones



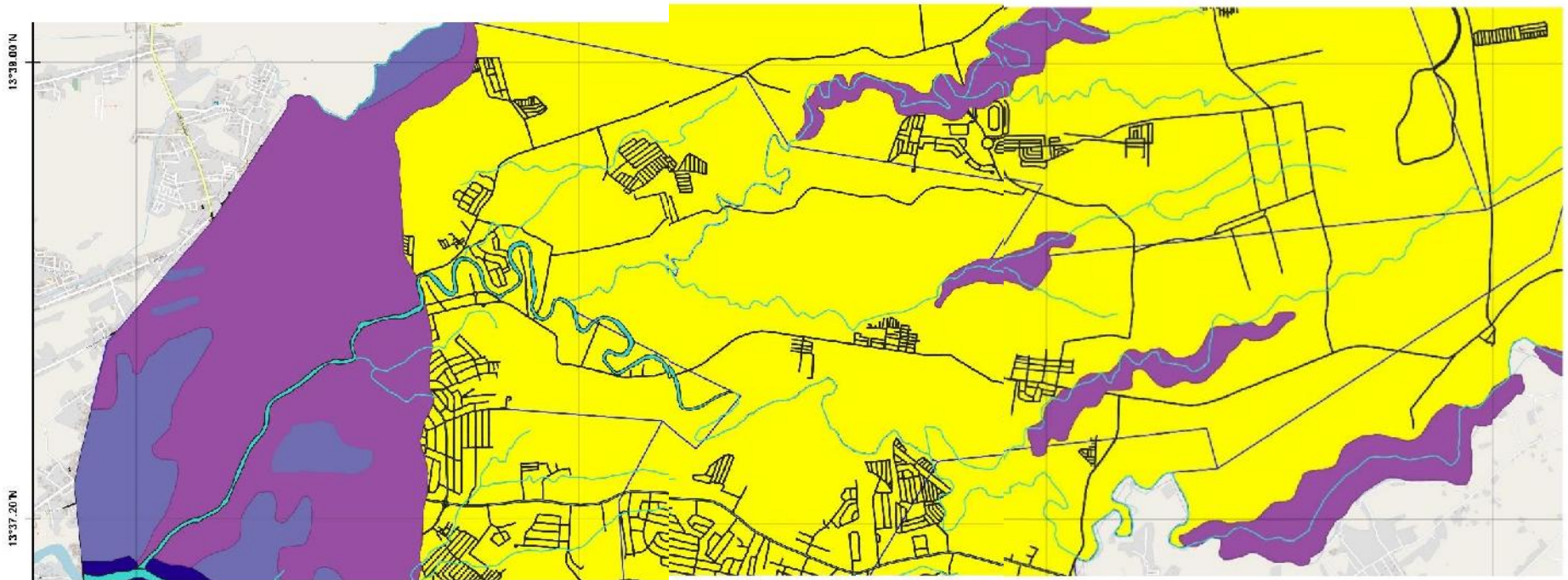
Hazard Overlay Zones: Sections 1-3



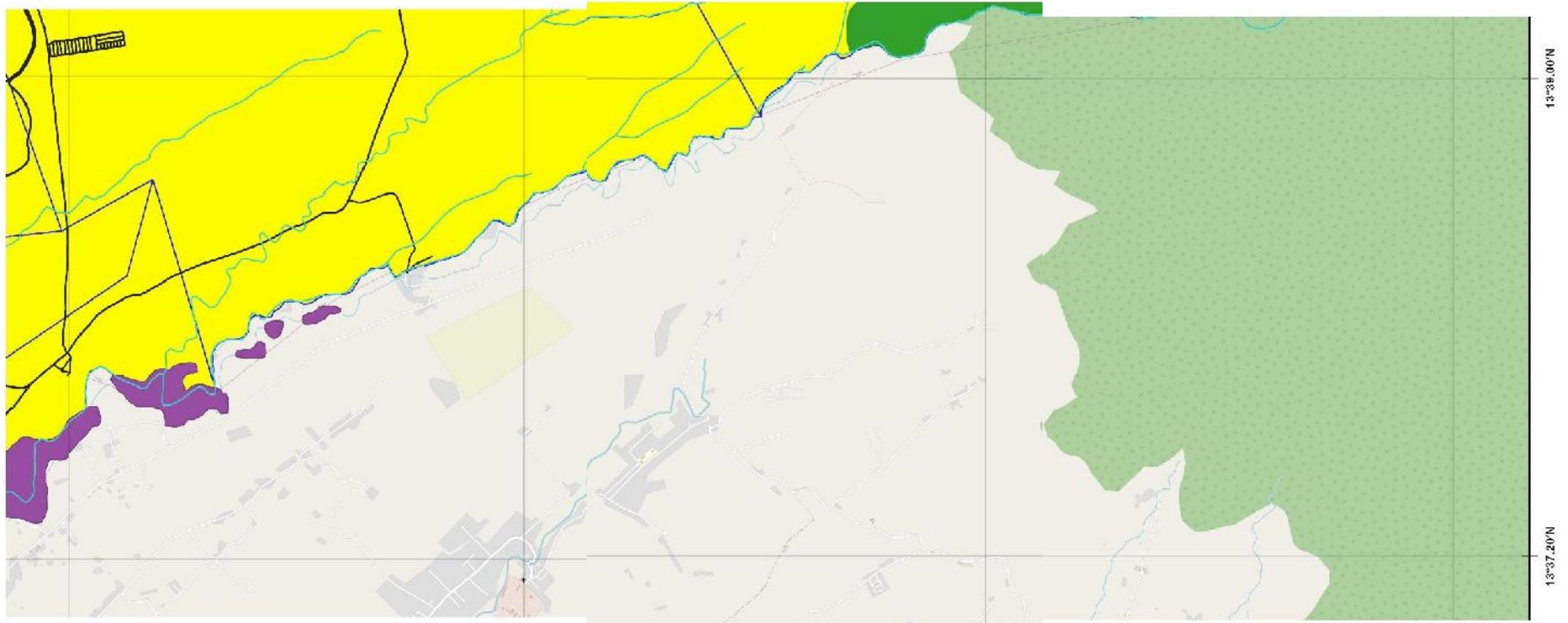
Hazard Overlay Zones: Sections 4-6



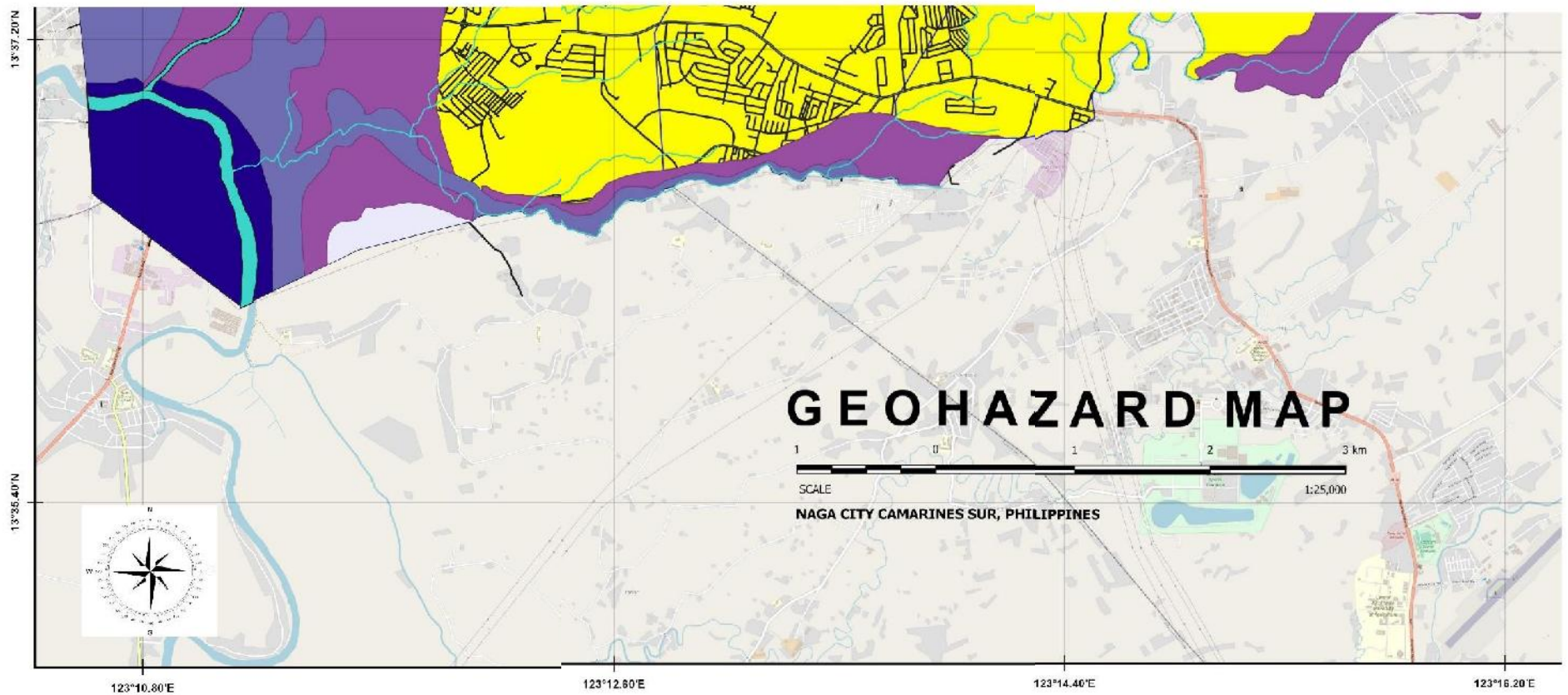
Hazard Overlay Zones: **Sections 7-9**



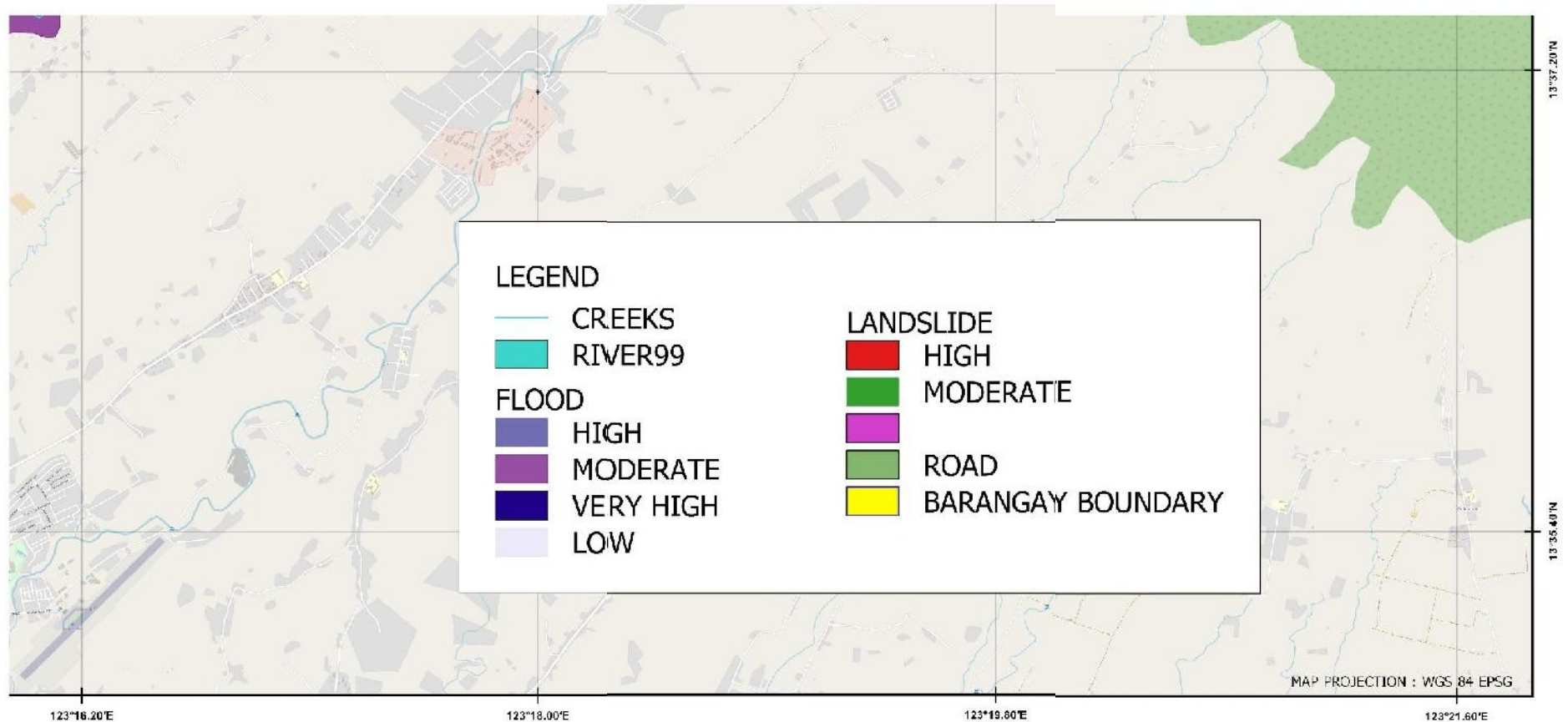
Hazard Overlay Zones: **Sections 10-12**



Hazard Overlay Zones: Sections 13-15



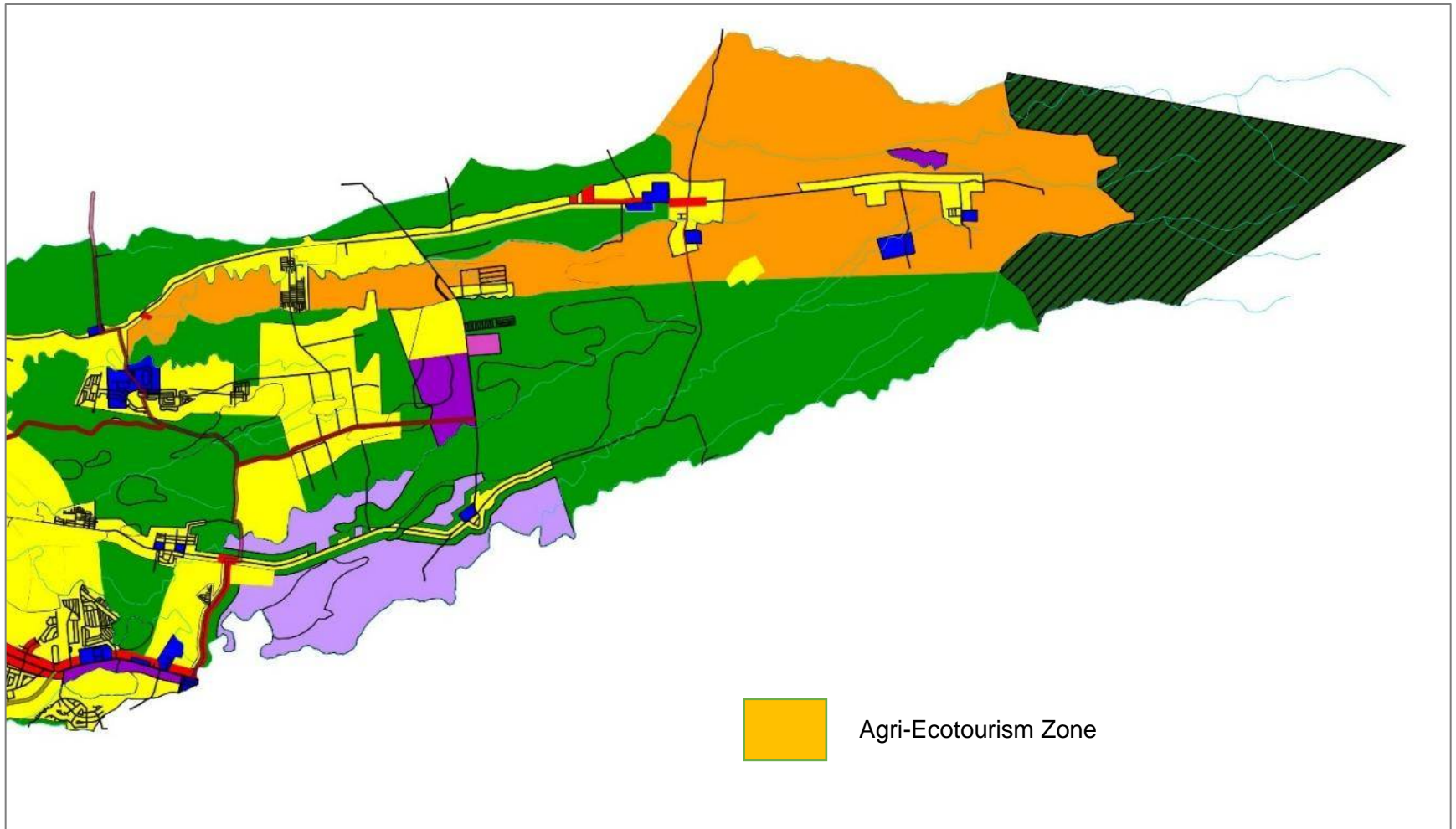
Hazard Overlay Zones: Sections 16-18



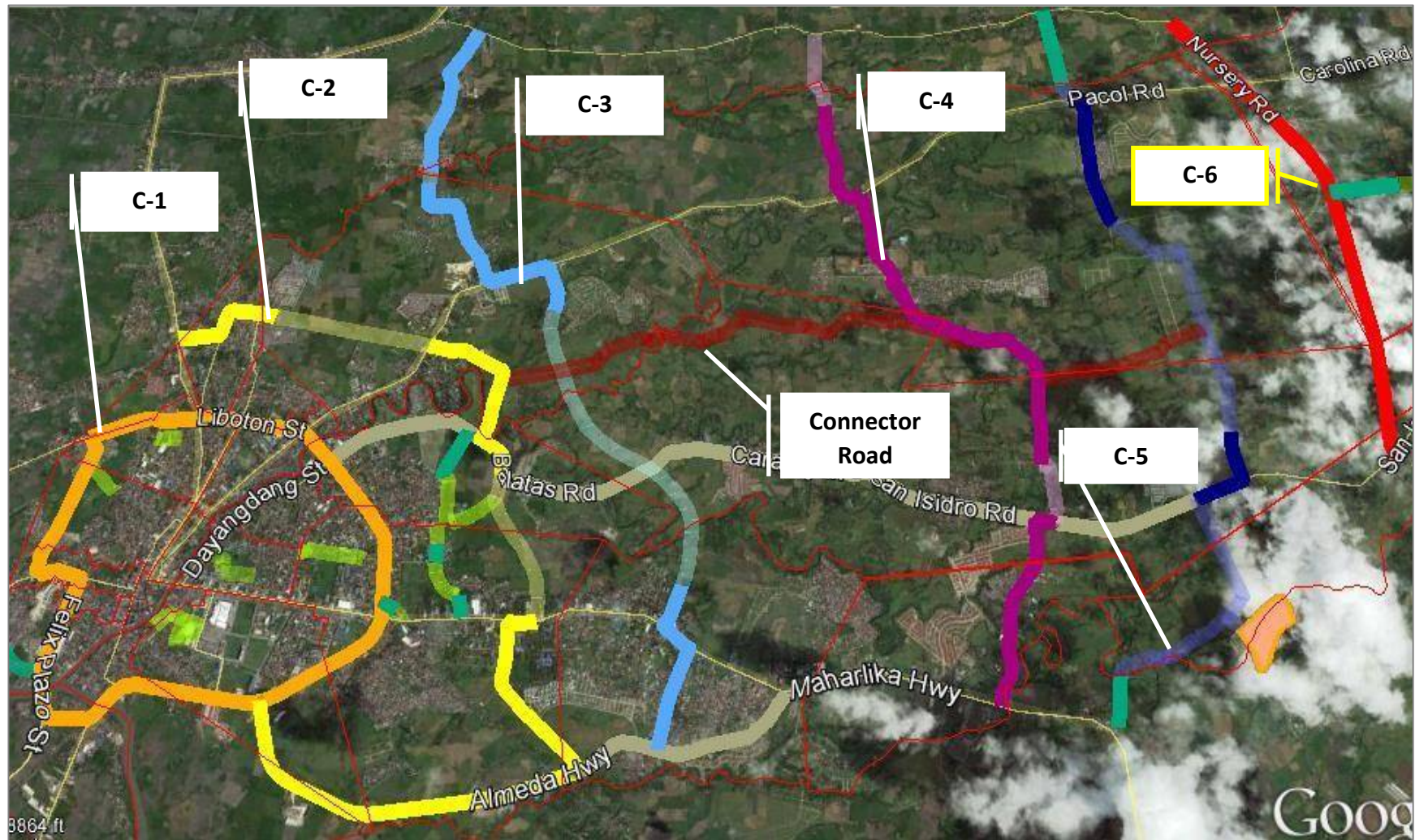
Heritage District



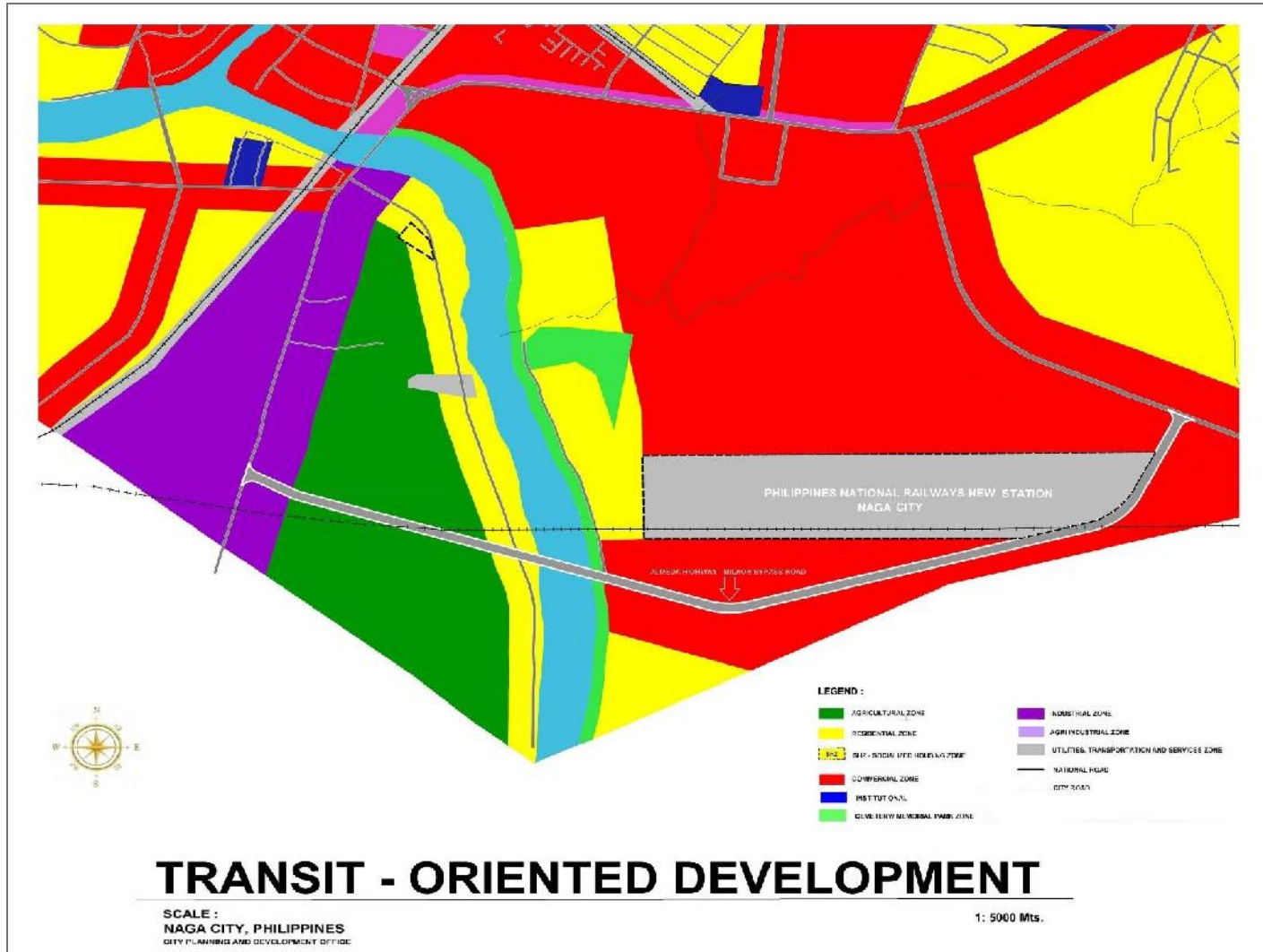
Agri-Ecotourism Zone



Circulation System



Transit-Oriented Development



Green Growth



Catalytic Project Plan



“Sponge City” Urban Water Management

Masterplan: Php 25-30 million

Capital budget:

- 23ha TOD – Php 3.5+ billion
- 50ha Floodable Park – Php 1 billion
- Retention ponds and pocket parks – Php 300 million

Managing floodwaters for reuse and resilience

- 30% increase in flood control capacity
- 100 hectares of new green space
- 1,000 new jobs generated

**all estimates are indicative; detailed study is needed to refine figures*



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Annex “D”

Climate Action Matrix for Naga City

Issues & challenges	Objectives	Proposed CCA and DRRM Measures	Proposed Programs and Projects with Priority Ranking And Priority Barangays			Indicators (Objectively verifiable indicators of success/ performance	Implementing Institutions (Lead + cooperating institutions)	Resources Required & Possible sources
			Short term (1-3 years)	Medium term (4-6 years)	Long term (7 years & above)			
Hazard risk to barangay, population, physical assets, built-up and agriculture areas								
Seventeen or 63% of the total number of barangays in the city have 90-100% of their area exposed to flooding. Total population affected is 61% of the city's total population	<p>To reduce flooding and exposure of population, physical and natural assets.</p> <p>To ensure that people are able to evacuate to safe areas and emergency needs are met during and after floods</p>	<p>-De-clog drainage canals and dredging or desilting of rivers;</p> <p>-Improve drainage system/ construction of storm drainage;</p> <p>-Improve solid waste collection, disposal and treatment;</p> <p>-Construct flood control structures;</p> <p>-Relocate residents whose houses are frequently fully submerged to flooding;</p> <p>-Relocate informal settlers occupying easement areas;</p> <p>-Enforce easement and buffer zone regulations;</p> <p>-Feasibility study of water retention dams in upper watershed of CamSur.</p> <p>-Establish early warning, evacuation, and emergency response systems in flood prone areas.</p> <p>-Prepare Emergency Response Plans (ERP) and Contingency Plan</p>	<p>-Naga River rehabilitation program</p> <p>-Solid waste management program</p> <p>-Easement regulation program</p> <p>-FS project on water retention dam</p> <p>-Early warning, evacuation and emergency response program</p>	<p>-Drainage improvement project</p> <p>-Watershed reforestation project</p> <p>-Sanitary landfill project</p>	<p>-Storm drainage construction project</p> <p>-Flood control project</p> <p>--Shelter program for relocated informal settlers</p>	<p>-Number of barangays with more than 90% of their population flooded</p> <p>-Percent of the city's total population affected by flooding</p> <p>-Number and types of physical and agriculture assets affected by flood</p> <p>-Permanent evacuation center established</p> <p>-Number of fatalities and injuries due to flooding</p>	<p>LGU – City Engineering Office;</p> <p>City ENRO;</p> <p>CPDO; Zoning Administrator Office; City Social Welfare and Development Office;</p> <p>Provincial Engineering Office; DRRMO;</p> <p>Regional DPWH;</p>	<p>To be estimated</p> <p>LGU funds;</p> <p>PSF; Climate Financing;</p> <p>International financing institutions</p>

		<ul style="list-style-type: none"> -Identify safe zones, evacuation areas/ routes -Installation of signage -Install Early Warning System 						
Six or 22% of the barangays are exposed to landslides. The total area exposed to landslides is about 4% of the total area of the city. Population affected is only 1%.	<p>To relocate residents occupying houses and buildings highly exposed to landslides to safe sites</p> <p>To regulate the expansion of settlements in areas at high risk to landslides</p>	<ul style="list-style-type: none"> -Stabilize slopes involving biological and engineering measures and slope protection measures such as use of rip-raps, coco-net, and gabions. -Relocate residents occupying areas highly vulnerable to landslides; -Hazard zoning of landslide prone areas disallowing the construction of settlements projects; -Closely monitor landslide prone areas and establish early warning system; -Zoning of exposed areas to high landslide as no-build zone -Conduct IEC for households exposed to landslides 	<ul style="list-style-type: none"> -Zoning of high landslide prone areas as no build zones -IEC program on landslides prone areas 	-Slope protection and stabilization program	-Shelter program for relocated informal settlers	<ul style="list-style-type: none"> -Number of residents relocated away from high landslide risk areas -Number of fatalities and injuries due to landslide -Number of new houses occupying high landslide risk areas 	<p>LGU – Zoning Administrator Office; City Engineering Office; City Social Welfare and Development Office; Provincial Engineering Office; DRRMO; Regional DPWH;</p>	<p>To be estimated</p> <p>LGU funds; PSF; Climate Financing; International financing institutions; NHA</p>
Eleven percent of the total land area of the city is exposed to liquefaction; Twelve barangays have their whole land area (100%) exposed to liquefaction. Total population affected is 41% of the total city population.	<p>To establish safeguards against potential impacts of liquefaction</p> <p>To encourage construction of earthquake and liquefaction resilient buildings and infrastructure</p>	<ul style="list-style-type: none"> -Strictly enforce building code with safeguards against liquefaction; -Regulate construction of high rise buildings in high liquefaction prone areas; -Retrofit buildings located in highly liquefaction prone areas; - Employ soil mitigation measures such as engineered fill, mat foundation, or piles if found necessary 	<ul style="list-style-type: none"> -Updating of local building code/regulations -Geotechnical testing program in high liquefaction prone areas 	<ul style="list-style-type: none"> -Building Retrofitting Program -Enforcement of local building regulations 	<ul style="list-style-type: none"> -Expansion of Building Retrofitting Program -Wider enforcement of local building regulations 	<ul style="list-style-type: none"> -Number of houses and buildings affected or damaged during earth movement or ground shaking -Number of retrofitted houses and buildings -Number of fatalities and injuries due to liquefaction during ground shaking 	<p>LGU – City Engineering Office; CPDO; Zoning Administrator Office; DRRMO; MGB</p>	<p>To be estimated</p> <p>LGU funds; PSF; Climate Financing; International financing institutions</p>

73 important physical facilities are exposed to flooding. 50 facilities are exposed to liquefaction	To retrofit and install safeguards in physical facilities exposed to deep flooding and liquefaction	-Declog or improve drainage in flood prone areas; -Retrofit lifeline facilities prone to deep flooding and liquefaction -Zone frequently flooded area to regulate construction of schools, hospitals, water and power plants	-Retrofitting program for schools and hospitals -Zoning of deeply flooded areas	-Drainage improvement program -Retrofitting program for schools and hospitals	Storm drainage construction project	-Number of physical facilities affected or damaged by floods -Number of physical facilities affected or damaged by liquefaction during ground shaking	LGU – City Engineering Office; CPDO; Zoning Administrator Office; DRRMO; Regional DPWH; MGB	To be estimated LGU funds; DepEd; DOH; PSF; Climate Financing; International financing institutions
Four bridges in the city are exposed to flooding and liquefaction.	To retrofit bridges exposed to flooding and liquefaction or build alternative ones in safer sites	-Retrofit bridges located in frequently flooded areas and high liquefaction zone -Improve natural drainage and desilt rivers and remove debris obstruction; -Construct alternative routes and bridges in areas non-flooded and non-prone to liquefaction; -Stabilize river banks with engineering measures upstream of bridges	-Retrofitting program for bridges	-River clean- up program -River banks protection and stabilization project	-New bridge construction project	-Number of existing bridges damaged by flooding or liquefaction -Number of new bridges constructed in flood and liquefaction safe areas	LGU – City Engineering Office; City ENRO; Provincial Engineering Office; DRRMO; Regional DPWH;	To be estimated LGU funds; PSF; Climate Financing; International financing institutions
46 schools are exposed to flooding; and 24 schools to liquefaction	To retrofit schools exposed to deep flooding or build new ones on safer grounds	-Retrofit schools that are frequently flooded or highly prone to liquefaction -Build permanent multi-purpose evacuation center with complete basic facilities (including water supply and electric generators)) in safe locations; -Build new schools and other lifeline facilities in sites free from flooding and not prone to liquefaction - Organize School-Based Disaster Risk Reduction and Management Councils	-Retrofitting program for schools - School-Based Disaster Risk Reduction and Management Councils -Regular disaster drills and emergency evacuation program	-Logistic support program for disaster response and evacuation	-New safe school construction program -Multi-purpose evacuation center project	-Number of existing schools damaged by floods or liquefaction -Number of new schools built in flood and liquefaction safe areas	LGU – City Engineering Office; City Social Welfare and Development Office; DRRMO; DepEd	To be estimated LGU funds; DepEd; PSF; Climate Financing; International financing institutions

27% of total road length is exposed to flooding; and 7% to liquefaction	<p>To improve road drainage</p> <p>To identify and construct alternative routes if flooding cannot be controlled</p> <p>To strictly enforce road easement and relocate informal settlers</p>	<p>-Improve drainage or construct flood control structures in flooded areas;</p> <p>-Regular cleaning and maintenance of culverts and open drainage and ditch canals in roads;</p> <p>-Retrofit road to improve resiliency;</p> <p>-Find alternate routes that are non-flood prone and build new roads;</p> <p>-Strictly enforce road easements and relocate informal settlers occupying them;</p>	<p>-Drainage maintenance program</p> <p>-Road retrofitting program</p>	-Road drainage improvement project	<p>-Alternate roads project</p> <p>-Relocation and shelter program for informal settlers occupying easement zones</p>	<p>-Length of roads damaged by floods and liquefaction</p> <p>-Length of new roads constructed in alternate routes safe from flooding and liquefaction</p> <p>-Number of families of informal settlers relocated from road easement</p>	<p>LGU – City Engineering Office;</p> <p>City Social Welfare and Development Office;</p> <p>Provincial Engineering Office; DRRMO;</p> <p>Regional DPWH;</p>	<p>To be estimated LGU funds; PSF; Climate Financing; International financing institutions</p>
Roads in 2 barangays are exposed to landslide	<p>To stabilize slopes prone to landslides and build alternate routes</p>	<p>-Stabilize slopes highly prone to landslides with engineering structures and vegetation</p> <p>-Construct alternative routes in areas not prone to landslides</p> <p>-Put up signages and early warning system to safeguards commuters and vehicles passing along landslide prone areas</p>	-IEC program on high landslide prone areas	-Slope protection and stabilization program	-Shelter program for relocated informal settlers	<p>-Length of roads damaged by landslides</p> <p>-Length of new roads constructed in alternate routes safe from flooding and liquefaction</p> <p>--Number of families of informal settlers relocated from road easement</p>	<p>LGU – City Engineering Office;</p> <p>City Social Welfare and Development Office;</p> <p>Provincial Engineering Office; DRRMO;</p> <p>Regional DPWH;</p>	<p>To be estimated LGU funds; NHA; PSF; Climate Financing; International financing institutions</p>
8% of the city's total built-up areas are exposed to various flooding depths. About 8% of the flooded areas are exposed to deep floods of more than 1.5m depth. Three barangays have more than 75% of their total built-up areas susceptible to deep flooding.	<p>To reduce flooding in deeply flooded areas through flood control and drainage infrastructures</p> <p>To zone new safe areas for urban expansion and development</p>	<p>-Desilt and improve drainage structures or build new drainage facilities with large flood absorbing capacity</p> <p>-Construct flood control facilities;</p> <p>-Regulate or disallow urban expansion if frequently deep flooded areas</p> <p>-Identify and zone safe areas for urban expansion and development of new towns</p>	<p>-Zoning of areas for urban expansion</p> <p>-City Greening program</p>	-Drainage improvement program	<p>-Storm drainage construction project</p> <p>-Flood control project</p>	<p>-Number of barangays with more than 75% of their total built-up areas affected by deep flooding of >1.5m</p> <p>-Total built-up areas in the municipality affected by deep flooding</p> <p>-Total area identified for urban expansion that are safe from flooding</p>	<p>LGU – City Engineering Office;</p> <p>City ENRO;</p> <p>CPDO; Zoning Administrator Office; Provincial Engineering Office; DRRMO;</p> <p>Regional DPWH;</p>	<p>To be estimated LGU funds; DPWH; PSF; Climate Financing; International financing institutions</p>

		-Establish green parks and artificial ponds in cities to reduce flood volume						
15% of the total agriculture areas exposed to flooding are affected by deep floods of more than 1.5m depth. Two barangays have more than 74% of their total agricultural areas exposed to deep flooding.	To reduce flooding in agriculture areas To plant crop varieties tolerant to floods or adjust cropping calendar in deeply flooded areas.	-Improve natural and artificial drainage facilities in agriculture areas -Construct new drainage and flood control projects; -Cultivate flood tolerant species of crops such as rice; -Adjust planting season to avoid flood season	-Cropping calendar assistance program -Flood tolerant rice species program	-Drainage improvement program	-Small water impounding project	-Total agriculture area exposed to deep flooding of >1.5m -Number of barangays with more than 75% of their agriculture areas affected by deep flooding -Percent reduction in crop production in croplands affected by flood	LGU – City Agriculture Office; City Engineering Office; DRRMO; DA-BSWM;	To be estimated LGU funds; PSF; Climate Financing; International financing institutions
Issues & challenges	Objectives	Proposed CCA and DRRM Measures	Proposed Programs and Projects with Priority Ranking And Priority Barangays			Indicators (Objectively verifiable indicators of success/ performance)	Implementing Institutions (Lead + cooperating institutions)	Resources Required & Possible sources
			Short term (1-3 years)	Medium term (4-6 years)	Long term (7 years & above)			
Climate change vulnerability of development sectors								
Health								
Twelve of the 27 barangays have moderate vulnerability to a diarrhea outbreak	To reduce factors triggering diarrheal diseases	-Improve water supply and sanitation -Provide access to health clinics and pharmacies -Closely monitor and report by barangay health workers of diarrheal outbreak -IEC on climate-related diseases prevention and treatment	-Barangay pharmacy project -Disease surveillance and reporting program -IEC program on climate-related diseases	-Water supply and sanitation project		-Number of barangays with high morbidity and mortality rates from diarrheal outbreak -Percent of population with adequate water supply and sanitary toilets -Percent of population availing of treatment from clinics and hospitals	LGU – City & Barangay Health Offices; District Water Office; Provincial Health Office; Regional DOH	To be estimated LGU funds; DOH; PSF; Climate Financing; International financing institutions
23 barangays have moderate vulnerability to an outbreak of dengue fever / dengue hemorrhagic fever	To reduce factors causing dengue fever and to improve access to medical services	-IEC on dengue fever symptoms, prevention and treatment -Maintain sanitation of environment	-IEC campaign program on dengue fever -Disease surveillance and reporting program	-Water supply and sanitation project	-Expansion project on medical facilities for dengue patients	-Number of barangays with high morbidity and mortality rates from dengue fever outbreak -Percent of population with adequate water	LGU – City & Barangay Health Offices; District Water Office; Provincial Health Office; Regional DOH	To be estimated LGU funds; DOH; PSF; Climate Financing; International

		<ul style="list-style-type: none"> -Drain stagnant water and avoid creation of stagnant water -Provide access to health clinics and pharmacies and dengue vaccines -Closely monitor and report by barangay health workers of dengue outbreak -Eradicate breeding grounds of mosquitoes; 	<ul style="list-style-type: none"> -Vector control and eradication program -Health support program for dengue treatment 			<ul style="list-style-type: none"> supply and sanitary toilets -Percent of population availing of treatment from clinics and hospitals 		financing institutions
Two barangays have moderate vulnerability to a leptospirosis outbreak: Mabolo and Tabuco	To reduce factors causing leptospirosis and to improve access to medical services	<ul style="list-style-type: none"> -IEC on leptospirosis exposure, infection, symptoms, prevention and treatment; -Rodent control and eradication -Improve drainage and flood control in leptospirosis prevalent areas -Provide access to health clinics, diagnostic laboratories and medicines -Closely monitor and report by barangay health workers of leptospirosis outbreak 	<ul style="list-style-type: none"> -IEC campaign program on leptospirosis -Disease surveillance and reporting program -Rat control and eradication program -Health support program for leptospirosis treatment 	-Water supply and sanitation project	-Storm drainage project	<ul style="list-style-type: none"> -Number of barangays with high morbidity and mortality rates from leptospirosis outbreak -Percent of population with adequate water supply and sanitary toilets -Percent of population availing of treatment from clinics and hospitals 	LGU – City & Barangay Health Offices; District Water Office; Provincial Health Office; Regional DOH	To be estimated LGU funds; DOF; PSF; Climate Financing; International financing institutions
Water resources								
All barangays are moderately vulnerable to drought	To identify and develop water conservation and harvesting technologies	<ul style="list-style-type: none"> -Improve water supply of communities through conservation and rainfall harvesting technologies; -Construct new water supply system; -Construct small scale irrigation system or small water impounding system; -Install deep wells and water distribution system 	<ul style="list-style-type: none"> -Community water supply development project -IEC campaign on water supply conservation 	<ul style="list-style-type: none"> -Water supply development program -Small water impounding project 	-Water supply expansion development program	<ul style="list-style-type: none"> -Number of barangays with adequate water supply from various sources -Available volume of water per capita during dry season 	LGU – City Engineering Office; DRRMO; District Water Office; DA-BSWM	To be estimated LGU funds; DA; PSF; Climate Financing; International financing institutions
Two barangays are highly vulnerable to flood: Mabolo and Triangulo	To undertake measures to reduce exposure of	<ul style="list-style-type: none"> -Construct new water supply sources in areas non-susceptible to flood 	<ul style="list-style-type: none"> -Emergency water rationing program -IEC campaign on water supply 	-Water supply development program	-Community drainage improvement project	<ul style="list-style-type: none"> -Number of barangays whose water supply is affected or contaminated by floods 	LGU – City Engineering Office; Water District Office;	To be estimated LGU funds; PSF; Climate

	water supply resources to flood	within or outside the flooded barangays. -Establish system of water rationing during times of emergency due to deep flooding or extreme drought -Undertake flood reduction measures such as drainage improvement or installation of flood control structures	conservation and harvesting			-Number of new water supply sources located in flood-safe areas	DRRMO;	Financing; International financing institutions
Transportation								
Roads in 7 barangays have high vulnerability to floods: Cararayan; Carolina; Mabulo; Pacol; San isidro; San Felipe; and Triangulo	To undertake measures to reduce flooding in roads	-Improve drainage or construct drainage if inadequate to absorb large volume of flood waters; -Regularly clean and maintain culverts, canals and open drainage system; -Construct flood control structures -Retrofit road bed to be more resilient to abrasive flood waters -Build alternate roads to sustain movement of people and goods during deep floods	-Drainage maintenance program	-Road drainage project -Road bed retrofitting project	-New alternate road project -Flood control project	-Length of roads per barangay submerged to floods -Length of new roads constructed in flood-safe areas	LGU – City Engineering Office; DRRMO;	To be estimated LGU funds; PSF; Climate Financing; International financing institutions
Road segments in 5 barangays are highly vulnerable to landslides: Cararayan; Carolina; Pacol; Panicuson; and San Isidro	To undertake measures to stabilize landslide prone areas To identify alternate routes for road construction	-Stabilize highly landslide prone slopes above roads; -Construct new roads in safe alternate routes; -Stabilize road banks highly prone to landslides with engineering (rip-rap) and vegetative measures; -Improve road drainage capable of conveying large run-off volumes	-Road drainage improvement project	-Slope and road banks stabilization project	-New alternate road project	-Length of roads by barangay affected by landslides --Length of new roads constructed in landslide-safe areas	LGU – City Engineering Office; DRRMO;	To be estimated LGU funds; PSF; Climate Financing; International financing institutions
Forestry								
Forests in 4 barangays are moderately vulnerable	To identify and undertake measures to	-Reforest critically denuded slopes in CamSur watershed	-Agro-forestry support project	-Reforestation project	-Watershed rehabilitation project	-Total area reforested in 4 barangays with forestlands	LGU – City ENRO; City Agriculture	To be estimated

to soil erosion: Carolina, Pacol, Panicason and San Isidro	conserve soil and control soil erosion. To provide alternative livelihood to upland farmers	-Undertake massive IEC and technology transfer in agro-forestry areas and small farm areas of soil conservation farming practices and soil erosion control measures -Use of SALT technology and soil and water conservation farming practices (i.e. terracing) -Support off-farm and non-farm livelihood for affected farmers	-Soil conservation program -Livelihood support program for upland farmers	-Soil erosion control structures' project		-Total area in forest lands with soil conservation and soil erosion control projects -Total number of upland farming families provided alternative off-farm and non-farm livelihood projects	Office; Social Welfare and Development Office; DENR CENRO; DA-BSWM	LGU funds; DENR Greening Program Funds; PSF; Climate Financing; International financing institutions
Forests in 3 barangays are moderately vulnerable to flood: Carolina, Pacol, and San Isidro	To identify and undertake measures to reduce flooding in forest areas	-Improve natural drainage system (stream and river flow through dredging and debris removal) -Reforest riparian areas and disallow occupation of informal settlers -Waste recycling, reuse and proper disposal in upland communities -Install small water impounding dams in suitable sites to absorb and moderate flood waters -River bank stabilization	-River rehabilitation program -Solid waste management program for upland communities	-Riparian Reforestation project -Riverbank stabilization project	-Small water impounding project -Water retention dam project	-Extent of flooding in 3 barangays with forests -Total area reforested in 3 barangays with denuded forests	LGU – City ENRO; City Engineering Office; Social Welfare and Development Office; DRRMO; DENR CENRO; DA-BSWM	To be estimated LGU funds; DENR Greening Program Funds; PSF; Climate Financing; International financing institutions
Forest lands in Carolina are highly vulnerable to landslide	To undertake measures to stabilize landslide prone areas in critical forest slopes	-Stabilize high landslide prone slopes through revegetation and mechanical means; -Conduct IEC for households exposed to landslides -Regulate farming and construction activities (road and mining) in landslide prone areas -Improve natural drainage system to avoid rain-induced landslides -Relocate settlements exposed to landslides	-IEC program on high landslide prone areas -Hazard zoning of high landslide prone areas and regulation of development projects	-Slope stabilization project	-Shelter program for relocated informal settlers	-Incidence of landslide in forest land of barangay Carolina -Number of families or households in landslide prone areas in barangay Carolina that were relocated -Number of new houses constructed within landslide prone areas in barangay Carolina	LGU – City ENRO; City Engineering Office; CPDO; Zoning Administration Office; Social Welfare and Development Office; DRRMO; DENR CENRO; MGB	To be estimated LGU funds; DENR Greening Program Funds; PSF; Climate Financing; International financing institutions

Forest lands in 4 barangays are highly vulnerable to drought: Carolina, Pacol, Panicason and San Isidro	To identify and undertake measures to improve water retention in forest watersheds	-Reforest denuded portions of watersheds including grasslands to improve soil percolation, infiltration and groundwater storage; -Install small water retention ponds or small water impounding dams for sources of water during drought period -Water conservation and rainwater harvesting by upland households	-Forest protection and reforestation program -Water conservation and rainwater harvesting project	-Small water retention pond project -Forest protection and reforestation program	Small water impounding project	-Extent of flooding in 4 forest barangays -Total area reforested in 4 barangays with denuded forests	LGU – City ENRO; City Engineering Office; Social Welfare and Development Office; DENR CENRO; DA-BSWM	To be estimated LGU funds; DENR Greening Program Funds; PSF; Climate Financing; International financing institutions
Forests in 2 barangays are moderately vulnerable to wildfire: Carolina and Pacol	To institute measures to prevent wildfires in droughty forest areas	-Establish firebreaks in strategic areas -Closely monitor and regulate kaingin activities by upland organizations themselves -Revegetate grasslands with droughty conditions with trees of low ignitability or flammability -Institute emergency measures involving local communities in fighting brush fires	-Firebreaks and fire lines project -Kaingin monitoring and control program -Forest fire protection and reforestation of grasslands program	-Forest fire protection and reforestation of grasslands program	-Forest fire protection and reforestation of grasslands program	-Incidence of fires and wildfires in two barangays with forests -Extent of grasslands reforested	LGU – City ENRO; DENR CENRO and PENRO	To be estimated LGU funds; DENR Greening Program Funds; PSF; Climate Financing; International financing institutions
Agriculture								
All eleven 11 agriculture crop areas are moderately vulnerable to flood, drought, typhoon, soil erosion and pests and diseases:	To reduce crop vulnerability to various climate change impacts through improve farming practices and adoption of appropriate technologies.	-Develop farmers' technology packages on soil conservation, water management, and cropping calendar adjustments. -Use of SALT technology and soil and water	-Soil conservation and erosion control program -IEC campaign program on soil conservation -Crop diversification extension program	-Demonstration project on soil conservation and erosion control -Integrated pest management program -Climate resilient crops project	-Weather monitoring stations project -Crop insurance program	-Crop damages (area affected and volume of production) due to flood, drought and typhoon -Crop yield reduction due to soil erosion	LGU – City Agriculture Office; Social Welfare and Development Office; DA Provincial Agriculture Office; DA - BSWM	To be estimated LGU funds; DENR Greening Program Funds; PSF; Climate Financing; International financing institutions

Carolina (Upland/Hilly), San Isidro (Upland/Hilly), Cararayan, Pacol (Upland/Hilly), Panicason (Upland/Hilly), San Felipe, Mabolo, Balatas, Concepcion Grande, Del Rosario, and Concepcion Pequeña.		conservation farming practices (i.e. terracing) -Conduct IEC and training to farmers in the use of conservation technology packages. -Adopt climate resilient crops (flood, and drought resistant) -Adopt integrated pest management -Diversity crops for ecological stability and resistance against pests and diseases; -Provide extension services and access to crop insurance system -Establish weather monitoring stations for accurate weather agro-forecasting; Adjust cropping calendar to adapt to changing rainfall patterns -Enforce laws against land conversion of prime agricultural lands -Provide off-farm and non-farm livelihood activities in times of floods	-Cropping calendar dissemination program -Enforcement of land conversion regulations	-Alternative non-farm and off-farm livelihood program		and pests and diseases -Farmers income level per capita per annum		
Issues & challenges	Objectives	Proposed CCA and DRRM Measures	Proposed Programs and Projects with Priority Ranking And Priority Barangays			Indicators (Objectively verifiable indicators of success/ performance	Implementing Institutions (Lead + cooperating institutions)	Resources Required & Possible sources
			Short term (1-3 years)	Medium term (4-6 years)	Long term (7 years & above)			
GHG emission levels								

Energy and Transportation sectors contributed the highest GHG emissions	To identify and undertake measures to reduce GHG emissions and improve sequestration	<ul style="list-style-type: none"> -Use of clean fuels (Euro 4) -Adoption of feasible renewable energy (solar, wind, hydro, biomass) -Develop mass transport system -Reforest denuded watershed in CamSur - Promote the construction of green buildings (vertical greenery and rooftop gardens) through tax incentives and recognition awards; -Establish green parks, artificial ponds and green buildings in the central business district -Build walkways in CBD to encourage walking -Promote use of electric-driven tricycles and jeepneys 	<ul style="list-style-type: none"> Pedestrianization project -Clean fuel and biodiesel program -Green parks project 	<ul style="list-style-type: none"> -Green urbanism and green architecture program -Demonstration project on model buildings to showcase vertical greenery or roof top gardens -Reforestation or greening program 	<ul style="list-style-type: none"> -Sustainable transport incentive program -Renewable energy project -Electric-driven jeeps and tricycle project 	<ul style="list-style-type: none"> -GHG emission volume from energy and transportation -Level of GHG sequestration from greening programs 	<ul style="list-style-type: none"> LGU – City ENRO; CPDO; City Engineering Office; DOE – Renewable Energy Development Office; DOTC 	To be estimated LGU funds; PSF; Climate Financing; International financing institutions; DOE Renewable Energy Development Program
Lack of access to data on the petroleum sales, and coal consumption of the industries' boilers, fuel consumption of transportation, industries, commercial, and residential establishments	To develop and institutionalize a data reporting system on energy consumption by industries, transportation, commercial and residential establishments	<ul style="list-style-type: none"> -Install and institutionalize a data reporting system on energy consumption to be used by the city LGU -Issue policy requiring industries to submit information for GHG inventory every time they renew their permit to operate 	<ul style="list-style-type: none"> -Energy and industry data reporting system program -MOA with EMB on the sharing of monitoring data submitted by industries 	<ul style="list-style-type: none"> -GHG data base project -GHG training program 	<ul style="list-style-type: none"> -GHG data base updating project 	<ul style="list-style-type: none"> -Data reporting system in place for energy consumption by industries, transportation, commercial and residential establishments 	<ul style="list-style-type: none"> LGU – City ENRO; DRRMO; Gasoline stations; Regional EMB 	To be estimated LGU funds; PSF; Climate Financing; International financing institutions;
Lack of information on the chemical processes adopted	To generate research information on the chemical	<ul style="list-style-type: none"> -Conduct of research on the chemical processes adopted by some IPPU industries 	<ul style="list-style-type: none"> -Chemical processes GHG information program 	<ul style="list-style-type: none"> -GHG data base project -GHG training program 	<ul style="list-style-type: none"> -GHG data base updating project 	<ul style="list-style-type: none"> -GHG emission estimates for chemical processes 	<ul style="list-style-type: none"> LGU – City ENRO; DRRMO; Private industry association; 	To be estimated LGU funds; PSF; Climate Financing; International

by some IPPU industries. <i>The chemical processes of some industries are not known; hence the GHG emission resulting from the process cannot be calculated.</i>	<p>processes adopted by IPPU industries</p> <p>To calculate GHG inventory based on reliable and complete data, especially from the Industries.</p> <p>To develop and institutional-ize a data reporting system on energy consumption by industries, transport-ation, commercial and residential establishments</p>	<p>-Coordination and agreement with data suppliers on reliable and complete data submission.</p> <p>-Install and institutionalize a data reporting system on energy consumption to be used by the city LGU</p> <p>-Estimate GHG emission by industries based on their self-monitoring report</p>	<p>-Industry data reporting program</p> <p>-Forge MOA with EMB for the sharing of monitoring data submitted by industries</p>			<p>-GHG industrial emission data base and module for computation</p>	<p>Regional EMB; Regional DTI</p>	<p>financing institutions;</p>
Need to implement action programs that promote sequestration of GHGs	<p>To enhance the city's natural environment's capacity to absorb GHGs</p>	<p>-Promote the construction of green buildings (vertical greenery and rooftop gardens) through tax incentives and recognition awards;</p> <p>-Establish green parks and encourage the greening of roadsides, parking spaces and vacant lots</p> <p>-Reforestation of public lands in watershed and promotion of agro-forestry among upland farmers.</p> <p>-Reforestation of mangrove areas.</p> <p>-Encourage upland farmers to adopt agroforestry through provision of technical assistance and tree</p>	<p>-Tax incentive mechanism and audit project for green buildings</p> <p>-Pilot green park project in CBD</p> <p>-Tree planting project along the main roads in the city</p> <p>-Demonstration sites project for green parking lots</p> <p>-Nursery project for tree and quality seedling for crops</p> <p>-Technical assistance program to farmers who will adopt agro-forestry farming system in the uplands</p>	<p>-Green urbanism and green architecture program</p> <p>-Demonstration project on model buildings to showcase vertical greenery or roof top gardens</p>	<p>-Reforestation project of denuded forestlands</p>	<p>-GHG sequestration level in the city</p> <p>-Area of vegetation in the city</p> <p>-Area of urban and watershed reforestation in the city</p>	<p>LGU – City ENRO; CPDO; DRRMO; DENR – CENRO/PENRO</p>	<p>To be estimated LGU funds; DENR Greening Program; PSF; Climate Financing; International financing institutions;</p>

		nursery and high quality crop seeds						
Issues & challenges	Objectives	Proposed CCA and DRRM Measures	Proposed Programs and Projects with Priority Ranking And Priority Barangays			Indicators (Objectively verifiable indicators of success/ performance	Implementing Institutions (Lead + cooperating institutions)	Resources Required & Possible sources
			Short term (1-3 years)	Medium term (4-6 years)	Long term (7 years & above)			
Capacity building needs								
Lack of incentives for homeowners, low-income families, communities, businesses and public sector to invest in DRR activities	To institute enabling conditions to encourage investments in DRR and CCA activities at the local level	-Issue ordinances providing economic incentives to private firms, and homeowners to undertake CCA and DRR measures at the community level, -Provide IEC and training to local organizations on disaster preparedness, emergency response and rehabilitation	-Amend city revenue code ordinance providing for incentives to local businesses/ industries/institutions adopting and investing in sustainable CC/DRR mitigating facilities/ programs.	-IEC and training on disaster preparedness, emergency response and rehabilitation for local organizations and private sector	-Disaster preparedness, emergency response and rehabilitation program implementation by private sector in collaboration with LGU	-Ordinance providing incentives to CCA and DRR investments by private sector and local community organizations	LGU – City DRRMO; Sangguniang Bayan; Homeowners Association; Private Sector Organizations	To be estimated LGU funds; PSF; Climate Financing; International financing institutions
Lack of data base on sex-disaggregated data on hazards, risks and vulnerabilities.	To develop gender disaggregated data for planning, monitoring and project implementation	-Develop sex-disaggregated data base on DRR and CCA; -Involve women in DRR, CCA planning, project implementation and impact monitoring and evaluation; -Conduct training on CCA and DRR for women's organizations	-Data base project on sex-disaggregated information -Training program on CCA and DRR for women's organizations	-Women's program on CCA and DRR project monitoring and evaluation	-M&E program implementation	-Data base on sex-disaggregated data on hazards, risks and vulnerabilities available and regularly updated -M&E system on climate change and disaster impacts operational	LGU- City DRRMO; CPDO; Social Welfare and Development Office; Women's Organizations	To be estimated LGU funds; PSF; Climate Financing; International financing institutions

Need to conduct safety assessment of all schools and health facilities and upgrade these as necessary	To conduct safety assessment of schools and other lifeline infrastructures such as hospital and clinics	-Assess the safety of schools and other lifeline infrastructures from natural hazards and climate change impacts; -Retrofit vulnerable schools, hospitals and other lifeline infrastructures	-Safety audit project for schools and hospitals/medical clinics	-Retrofitting program for vulnerable schools and hospitals	-New schools and hospitals building program in safe sites	-Safety assessment reports on vulnerable schools, health facilities and other lifeline infrastructures -Extent of damage to schools and hospitals caused by natural disasters and climate change	LGU- City DRRMO; City Health Office; CPDO; Social Welfare and Development Office; DepEd; Provincial Health Office; Regional DOH	To be estimated LGU funds; DepEd; DOH; PSF; Climate Financing; International financing institutions
Need for design and implementation of responses, including rebuilding homes and livelihoods of affected families	To prepare climate change resilient design of houses and buildings in vulnerable areas	-Promote green building design for residential and commercial uses; -Develop resilient buildings and houses in disaster vulnerable areas; -Provide alternative livelihoods to families affected by natural disasters	-Green homes and buildings project -Alternative livelihood financing project	-Build back better project -Retrofitting project	-Expansion program for green homes and buildings	-Number of newly constructed climate change resilient buildings -Number of vulnerable houses and building retrofitted	LGU- City DRRMO; CPDO; Social Welfare and Development Office; City Engineering Office; HUDCC/NHA	To be estimated LGU funds; NHA; PSF; Climate Financing; International financing institutions
Ensure the participation of women in crafting the LCCAP	To issue policy and undertake actions to ensure the participation of women in LCCAP preparation	-Pass special order by local executives mandating the equal participation of women in the formulation of the LCCAP -Conduct training and mentoring to women organizations involved in CCA and DRR planning and project implementation and monitoring.	-Policy issuance on women's participation in CCA and DRR planning and project implementation and monitoring -Training of women's organizations in CCA and DRR planning, project implementation, and M&E	-Gender Sensitive LCCAP Planning	-LCCAP Updating	-Percent of women planners involved in LCCAP preparation -Gender concerns integrated in LCCAP	LGU- Local Chief Executive & Sangguniang Bayan; City DRRMO; CPDO; Social Welfare and Development Office; Women's Organizations	To be estimated LGU funds; PSF; Climate Financing; International financing institutions
Need for training on Local CCA Planning and Mainstreaming; Comprehensive Land Use Planning/LUP;	To prepare training modules and undertake training courses on various aspects of CCA and DRRM	-Prepare a training package on DRR and CCA covering all courses needed by Naga city staff; -Prepare training modules, materials	-Training design and module preparation project -Trainors' training program	-Training project	-Training program expansion project	-Number of training courses conducted and number of participants trained on Local CCA Planning and Mainstreaming;	LGU- City DRRMO; City ENRO; CPDO; Social Welfare and Development Office; Academic institutions	To be estimated LGU funds; PSF; Climate Financing; International financing institutions

Urban and Regional Planning; GIS Spatial Mapping; ENRA; CCVA; and GHG inventory	To sustain the training program initiated by TA 8493	and manuals needed in CCA and DRR planning, project formulation and monitoring and evaluation system; -Conduct trainors training on the CCA/DRR courses and support the training of other LGU staff of Naga city and neighboring localities.				Comprehensive Land Use Planning/LUP; Urban and Regional Planning; GIS Spatial Mapping; ENRA; CCVA; and GHG inventory		
No formal and organized system and structure on M&E system for CCA and DRR	To institutionalize an M&E system for CCA and DRRM involving various offices of the city	-Prepare an M&E system for CCA and DRR; -Conduct training of staff implementing the M&E system; -Establish the data base on M&E system	-M&E system development project -Training program on M&E -Data base development on M&E	-Data base updating and maintenance project	-M&E operations maintenance project	-M&E system for CCA and DRR operational -Data base on M&E for CCA and DRR	LGU- City DRRMO; City ENRO; CPDO; Social Welfare and Development Office	To be estimated LGU funds; PSF; Climate Financing; International financing institutions
Lack of gender mainstreaming in climate change (CC) response and disaster risk reduction (DRR) programs	To mainstream gender concerns in the planning and project implementation of CCA and DRRM	-Develop a system for mainstreaming gender in CCA and DRR programs; -Train Naga city staff on gender mainstreaming -Establish gender-disaggregated data base for the city	-Guidelines and procedures manual for gender mainstreaming -Gender data base development	-Gender mainstreaming training project -Gender mainstreaming on LCCAP program	-Updating of Gender-sensitive CCA/DRR programs	-Gender concerns integrated in LCCAP and Risk-responsive CLUP and CDP	LGU- CPDO; City DRRMO; Social Welfare and Development Office; Women's Organizations	To be estimated LGU funds; PSF; Climate Financing; International financing institutions
Lack of early warning and alert communication system	To institute early warning system and reliable alert communication system	-Establish heat stress early warning and alert system for the young and elderly -Install flood gage in rivers and flood early warning and evacuation system -Capability building for Barangay Disaster Volunteers	-Early warning and alert system development project for heat stress -Flood gage installation project -Early warning and evacuation system project	-Capability building program on early warning and emergency response for Barangay volunteers	-Maintenance of early warning and emergency response project at the barangay level	-Number and types of functional EWS and ACS -Number of barangay personnel trained on EWS and ACS	LGU- City DRRMO; City Engineering Office; CPDO; Social Welfare and Development Office; Barangay Chairpersons	To be estimated LGU funds; PSF; Climate Financing; International financing institutions

		and Volunteer Groups						
Weak capacity on GHG inventory	To develop GHG data base and form trained GHG management team	<ul style="list-style-type: none"> - Form a GHG management team to implement the GHG inventory and assessment - Undertake capacity building of the GHG team on GHG inventory, assessment and implementation of mitigation measures 	<ul style="list-style-type: none"> -GHG data base development project -Formal organization of GHG management team project -Adoption of community-based GHG inventory method -Training program on GHG 	<ul style="list-style-type: none"> -GHG data base updating project -GHG training project for barangay LGUs on data gathering and reporting 	<ul style="list-style-type: none"> -GHG data base updating and maintenance project 	<ul style="list-style-type: none"> -GHG data base installed and updated regularly -Trained GHG personnel conducting GHG inventory 	<ul style="list-style-type: none"> LGU- City ENRO; City DRRMO; CPDO; Social Welfare and Development Office 	To be estimated LGU funds; PSF; Climate Financing; International financing institutions

Annex “E”

Major Spatial Development Projects

I. ROAD NETWORK DEVELOPMENT PROJECTS

Component	Length (meters)	RROW	Road Concreting	Total
Circumferential Road 2 (C-2)				163.15
- Capilihan Road Widening (4-lane)	157		1.68	1.68
- CLUPA-Matiway Road (4-lane)	1,213	14.3	69.3	83.6
- Balatas-Concepcion Pequeña (4-lane)	1,160	4.64	66.27	77.87
Circumferential Road 3 (C-3)				161.9
- Magarao Boundary-Employees Housing	96	0.19	1.03	1.51
- Ecopark-Concepcion Pequeña	2,536	10.14	70.03	95.39
- Bridges (Naga River, Sagop Creek)				65
Circumferential Road 4 (C-4)				56.48
- Sitio Tiripon-Magarao Boundary	241	0.48	6.42	7.62
- Pacol-Sitio Tiripon Road Widening	1,001	2	26.65	31.65
- Salanguigui-Cararayan Bypass Road	497	0.99	14.72	17.2
Circumferential Road 5 (C-5)				110.96
- Pacol Bgy Hall-Magarao	135	0.86	1.44	2.31
- Grandview-Langon Road	2,113	13.53	22.59	36.12
- Langon-SLF Site	1,044	6.68	30.91	37.6
- SLF Site-Palestina Boundary	970	6.21	28.72	34.93
Circumferential Road 6 (C-6)				265.7
- San Isidro-Del Rosario Road Widening (4-lane)	6,996	72.5	193.2	265.7
Connector Road 1 (CR-1)				174.57
- Matiway-Sitio Almeda Road	3,980	15.92	105.95	145.75
- C-4 to C-5 Roadlink	1,393	5.57	14.89	28.82
Radial Road 5 (R-5)				177.51
- Balatas-San Isidro Road Widening (4-lane)	6,428		177.51	177.51
Almeda Bypass Road				120.29
- Almeda Highway Widening (4-lane)	4,356		120.29	120.29
Other Key Roadlinks				233.98
Camaligan Bypass Road	25	0.63	0.67	1.54
Queborac-Sta. Cruz Road	261	3.08	14.91	17.99
Magnolia-Abcede Road	184	4.6	4.9	11.34
Abella Bypass Road (via Bayawas)	460	11.5	12.25	28.35
JMR Coliseum Roadlinks	716	13	23.1	36.1
Misericordia-Isarog Bypass	435	10.88	11.58	26.81
Mayon-Mayflower	499	12.48	5.33	22.8
Villa Virginia-Jimenez Subdivision	334	2.5	3.57	7.07
Jimenez Subd-Leon Aureus	152	3.8	1.62	6.94
Leon Aureus-Maogma Village	366	9.15	3.91	16.72

Leon Aureus-Balatas	379	9.48	10.09	23.35
Buenavida-Morada Ramos	529	3.39	15.66	19.05
Yabo-Panicuason Road Section	1,083		11.58	11.58
Reno Street Bypass	95	2.38	1.02	4.34
Totals	39,834	240.87	1,071.80	1,464.55

II. PRIORITY SECTORAL PROJECTS, 2016-20

SOCIAL SECTOR

Desired Outcome	Program/Project/Activity	Lead Agency/Accountable Office	Resources Required (In Million PHP)
EDUCATION			
Improved public education services	Establishment of Del Rosario National High School	ESSO	30.00
	Conversion of Carolina National High School to Carolina Agro-Industrial High School (including the donation of 2.5 hectares of lot from City of Naga to Carolina NHS)	ESSO	10.00
	Establishment of Yabo Elementary School	ESSO	7.50
HEALTH AND NUTRITION			
Improved public health services	Construction of new City College of Naga (CCN) building along Almeda Highway	City College of Naga (CCN)	40.00
HOUSING			
Sustainable approach to poverty reduction	Ginhawang Nagueno community development - 90 shelter units under usufruct agreement	HSDO, Ginawang Nagueno Project Office	13.00 (90 units @ 150k each) Land from HSDO
More livable KsK communities	Land, infrastructure development in KsK sites: - Palmera, Isarog Heights, St. Clare, Uswag Balatas, Golden Roseville, Mabulo Homes Subd (Siy Cong Jui), Liberty Village, Maogma Village	HSDO, CEO, CPDO	25.00
Reduced housing backlog in the urban poor sector	One-time Big-time Socialized Housing Project (with an area of 11.5 hectares)	SP, HSDO, CPDO, CEO, Local Finance Committee (LFC), CBO, CLO	70.00

	Land acquisition for socialized housing (A total of 13.80 hectares that will cover between 1,932 to 2,415 households)	SP, HSDO, CLO	55.20
	Landbanking for 4,167 urban poor households with unmet needs	Housing Board, HSDO, SP, CLO, CBO, LFC	295.00
SOCIAL WELFARE			
Improved CICL services. Improved quality of learning foundation of Nagueno children	Construction of Bahay Pag-Asa for Children in Conflict with the Law (CICL). Hiring of personnel	CSWDO	20.00
	Construction of Playgrounds for 35 Educare Centers, public schools and Civic Center	CSWDO	5.00
	Construction of seven EduCare centers	CSWDO	5.60
Improved quality of life for senior citizens	Home for the Aged	CEO	3.00
PROTECTIVE SERVICES			
Improved delivery of protective services	Construction of new central Police HQ, Almeda Highway (City Property)	PNP, PSO	3.50
Improve traffic management services, minimize congestion, educate drivers and riding public	Establishment of permanent traffic lights, pedestrians lanes, parking areas and traffic signs at CBD I	SP, LCE, PSO Barangay Tanods	2.00
Promote gender responsiveness in DRRM	Construction of gender sensitive evacuation centers		81.00
OVERSEAS FILIPINOS			
Investment opportunity for OFs in/from Naga	PAMANA Village – a self-contained community of overseas Filipinos in Naga	MRC, Metro PESO, CPDO, PAMANA	50.00
SUB-TOTAL			715.80

ECONOMIC SECTOR

Desired Outcome	Program/Project/Activity	Lead Agency/Accountable Office	Resources Required
AGRICULTURE			
Enhance market access of upland farmers	Weekend Food Market/Terminal at Carolina	CAGO	0.50

TOURISM			
Increase income of low-income farmers. More vibrant local tourism industry	Establishment of a demo farm with low-income farmers at the city nursery	ACTO/CAGO	3.00
	Redevelopment of Ecopark into Naga City Botanical, Zoological and Recreational Center	ACTO/	12.00 (tentative)
COMMERCIAL, INDUSTRIAL			
Promote high-value manufacturing in ecozones	Establish ecozone in Naga City	NCIB/ITPO/private partner	100.00
	Advocate completion of Naga Airport Development Project	CMO/SP/RDC	0.25
SUB-TOTAL			115.75

ENVIRONMENT SECTOR

Desired Outcome	Program/Project/ Activity	Lead Agency/ Accountable Office	Resources Required
WATER AND WATERSHED PROTECTION			
More clean, sustainable and vibrant waterways in Naga	Integrated Naga River Revitalization 1. Riverbank beautification and maintenance 2. Bokashi Balls production and dispersal 3. Garbage trap, collection and monitoring 4. Dredging of Naga River 5. Naga river transport development	ENRO, CEO, SWMO	9.85
	Waste water treatment plants (Abattoir, People's Mall, Bicol Central Station)	ENRO, CEO, SWMO	25.00
	Sagop Creek rehabilitation and maintenance	ENRO, CEO, SWMO	150.00
More attractive, accessible and sustainable Malabsay falls area	Malabsay Falls development	ENRO, ACTO, CEO	10.00
SOLID WASTE MANAGEMENT			
A cleaner Naga with integrated sustainable solid waste management system	Balatas dumpsite closure project	SWMO, ENRO, CEO	63.00
	Development of Sanitary Landfill-cum-		104.50

	Waste to Energy Facility at San Isidro		
	Establishment and operationalization of Healthcare and Electronic Waste Management Facility at San Isidro		12.50
SUB-TOTAL			374.85

INFRASTRUCTURE SECTOR

INFRASTRUCTURE SECTION			
Desired Outcome	Program/Project/Activity	Lead Agency/Accountable Officer	Resources Required
BRIDGES AND OTHER PUBLIC FACILITIES			
More durable, sustainable bridges in Naga City	1. Retrofitting of Colgante Bridge		9.30
	2. Retrofitting of Balatas-Cararayan Bridge	City Engineers Office	9.30
Additional public facilities that will improve services	1. New Naga City Public Cemetery, Balatas	Naga City Cemetery Task Force	210.00
	2. Eastbound UVExpress and Jeepney Terminal		40.00
Well-lighted and safe streets	1,279 units of streetlight pedestals:plus lighting equipment	City Engineers Office, General Services Office	9.89 (pedestals) 49.84 (street lights)
NATIONALLY-FUNDED PROJECTS			
Improved access and infrastructure services within Naga City	Construction/upgrading/rehabilitation of drainage along national roads (Carolina-Panicuason)	DPWH (2 nd DEO)	47.25
	Improvement/ widening of national roads (Carolina-Panicuason)		49.50
	Construction/ Rehabilitation/ Improvement of Bitaoagan, Sagop and Concepcion Creek		45.00
SUB-TOTAL			470.08

III. PRIORITY CCA PROJECTS, 2016-20

C1. Resilient communities through improved food security & ecosystem ensured

EXPECTED RESULTS	TimeFrame			Performance Indicators	Offices Involved	Budgetary Requirement				
	ST	MT	LT			UM	Qty	Unit Cost	LGU	NGAs
1.1 Rehabilitate and protect Mt. Isarog										
1.1.1 Implement rehabilitation and conversation project including wildfire buffer zones	X			200 hectares reforested	CeNRO	1	200	30,000.00	2,400,000.00	3,600,000.00
1.1.2 Coordinate with MNDC to expand forest fire break (Calabanga & Pili)	X			100 hectares reforested	CeNRO with MNDC, DRRMO	1	100	30,000.00		3,000,000.00
1.1.3 Linkage with MNDC on Mt. Isarog wider protection		X		No. of LGUs strengthened	CeNRO with PAMB					
1.1.4 Naga City with MNDC to lobby for Mt. Isarog Wide CBRMP through PES		X		1 Watershed rehabilitation Plan for Mt. Isarog, 1 CADT provided	CeNRO, MNDC, DENR					
Subtotal									2,400,000.00	6,600,000.00
1.2 Expand buffer zone and protect KBAs										
1.2.1 Identify and delineate CC adoptive ecological management zones	X			Ecological management zone delineated	DENR					
1.2.3 Develop framework plan for low density development in upland barangays	X			At least 2 barangays designated as eco-barangays	CeNRO, CPDO, ACTO, CAgO, DENR	10	30	1,000.00		300,000.00
1.2.4 Develop Info-graphics on bio-diversity and promote in eco-tours	X			No. of studies/trainings conducted	AcTO, CeNRO					
1.2.5 Promote experiential tourism by establishing hiking trails (Nabontolan, Malabsay, Baby, Secret)	X	X		Km of eco-trails established	CACTO, CEO, CENRO	1	1	3,250,000.00	3,250,000.00	
Subtotal									3,250,000.00	300,000.00

EXPECTED RESULTS	TimeFrame			Performance Indicators	Offices Involved	Budgetary Requirement							
	ST	MT	LT			UM	Qty	Unit Cost	LGU	NGAs	Others		
1.3 CC adaptive agricultural extension services expanded													
1.3.1 Improve farm plan by integration of CCA & DRR by farmers	X			# of adjusted farms plans/new technologies	CagO with DA								
1.3.2 Adopt reduced tillage in agriculture sector	X			200 hectares of CCAA	CagO with DA	1	400	15,000.00		1,200,000.00	4,800,000.00		
1.3.3 Promote SALT (1 to 4) in farm diversication	X			No. of farmers adopting CCA farming practice per	CagO with DA	1	20	350,000.00		1,400,000.00	5,600,000.00		
1.3.4 Adopt greenhouse reducing emission from rice production practice - SRI, RI AWD	X			type of technology(segregated by gender)	CagO with DA	1	200	15,000.00		600,000.00	2,400,000.00		
1.3.5 Promote organic farming with high value crops - flowers, herbs, vegetables	X			100 hectares converted to organic farming	CagO with DA & MFI	1	100	25,000.00		500,000.00	2,000,000.00		
					Subtotal						3,700,000.00	14,800,000.00	
1.4 Innovative partnership support among farmers developed													
1.4.1 Implement expansion of the existing demo-farm cum agri-tourism site	X			No. of farmers trained on adaptation best practices	CagO, ACTO with DA	1	1	2,000,000.00	2,000,000.00				
1.4.2 Promote small-farm agro & eco-tourism	X			10 small farms supported	CagO, ACTO w/ DA	1	10	400,000.00			4,000,000.00		
1.4.3 Review current credit products and develop Green Value Chain Finance with MFIs	X			Quality and diversity of the financial services offered	CAGo, Peso, MF	1	200	25,000.00			5,000,000.00		
1.4.3 Facilitate partnership options with MFIs and conduct orientation with accredited MFIs	X			No. of Micro-finance institutions providing a range of services	CAGo, Peso, MFIs								
					Subtotal						2,000,000.00	-	9,000,000.00
					Total						7,650,000.00	10,300,000.00	24,100,000.00
						Grand Total					(PhP)		42,050,000.00

C2. Reduced hazard through integrated water resource management practices

EXPECTED RESULTS		TimeFrame		Performance Indicators	Offices Involved	Budgetary Requirement					
		ST	MT			LT	UM	Qty	Unit Cost	LGU	NGAs
2.1 Multi-functional rehabilitation of Mt. Isarog River tributaries implemented											
2.1.1	Conduct of ESS to design DED	X		ECC clearance provided	CeO, CeNRO, DRRMO, CagO,	1	1	3,500,000.00		3,500,000.00	
2.1.2	Establish bio-retention basin in selected sites: Seventh Day Adventist, Animas Rive, Langon River and Naga Ecology park	X		100000 m3 of bio-rentension basin built	Assesors, HSDO	2	50000	3,200.00	32,000,000.00		288,000,000.00
2.1.3	Rehabilitate Inarihan river, Panicuason River, Yabo River, Animas River, Langon River Stabilization using bio-engineering and gaia dam	X		50000 liner meters of river tributaries with ecological rehabilitation		1	50000	2,225.00	11,125,000.00		100,125,000.00
2.1.4	Implement Susog Salog w/ CSOs, private & academe sector	X		No. of campaigns strategy per sector conducted	CeNRO, CEO, SWMO, CPDO						
					Subtotal				43,125,000.00	3,500,000.00	388,125,000.00
2.2 Ecological restoration of creeks implemented and sustained											
2.2.1	Establish extended storm water retention basin in downtown Naga as flood control	X		10000 sq. m of storm water constructed wetland	CeNRO, CEO, SWMO, CPDO, Assesors	2	50000	4,800.00	48,000,000.00	240,000,000.00	192,000,000.00
2.2.2	Implement slope & easement rehabilitation of Sagop Creek (Pili boundary) up to Mabulo; Dancanan creek	X		79000 lm rehabilitated (hard and soft engineering)	Office	1	79000	2,189.00	17,293,100.00	86,465,500.00	69,172,400.00
2.2.3	Strictly implement easement regulations and drainage program	X		15000 linear meters of canals rehabilited/established		1	15000	2,089.00	3,133,500.00	15,667,500.00	12,534,000.00
2.2.4	Promote & implement eco-cultural awareness (murals & kayaking - San Franscisco to Danluga-Eurotel area)	X	X	1000 LM of eco-cultral, 3 river kayaks	Acto,CeNRO	1	1000	500.00	500,000.00		
2.2.5	Provide equipment support to eco-police	X	X	Equipment support provide	Acto,CeNRO	1	1	750,000.00	75,000.00	675,000.00	
					Subtotal				69,001,600.00	342,808,000.00	273,706,400.00

EXPECTED RESULTS		TimeFrame			Performance Indicators	Offices Involved	Budgetary Requirement					
		ST	MT	LT			UM	Qty	Unit Cost	LGU	NGAs	Others
2.3 CC adaptive management pocesses of flood reduction and water systems facilitated												
2.3.1	Guidelines for water conservation, allocation, recycling and reuse		X		IEC for WCARR conducted	CeNRO, NaWASA, DENR						
2.3.2	Coordinate with NAWASA and identify alternative water resources		X		No. of	CeNRO, NaWASA, DENR						
2.3.3	Monitor hydrologic trend analysis, forecasting, and detecting shifts in trends of precipitation and streamflow.			X	LCCAP of Nawasa integrated in CLUP	DENR and DRRMO						
2.3.4	Design a CC proof integrated flood management master plan		x		1 integration flood management plan developed	CeO, CeNRO, DRRMO	1	1	7,000,000.00	700,000.00	6,300,000.00	
Subtotal										700,000.00	6,300,000.00	
2.4 LID technology promoted at community level established												
2.4.1	Technical support in the enactment of local green building code		X		1 policy drafted	CeO, CPDO, CenRO						
2.4.2	Promote LID guidelines/toolkits partnership with UAP, PICE and the academe sector		X		No. of LID guidelines/toolkits developed;	CeO, CPDO, CenRO	1	4	150,000.00	60,000.00		540,000.00
2.4.3	Orientation to HH/commercial establishment requesting permits on green architecture			X	1000 HH/CE adopted LID at varying degree	CEO						
2.4.4	Orient LID (green infra) among Brokers, developers and institutional groups (PICE, UAP, IEEE, PSME, Master Plumbers, Foremen)			X	No. of green infrastructure training conducted	CEO, CPDO	1	1000	150.00	15,000.00		
2.4.5	Establish LID info café & demo-center in partnership with the private sector groups		X		1 LID info cafe established, 2 demo-site established	CeO	1	1	10,000,000.00	1,000,000.00		9,000,000.00
Subtotal										1,075,000.00	6,300,000.00	9,540,000.00

EXPECTED RESULTS			TimeFrame			Performance Indicators	Offices Involved	Budgetary Requirement					
			ST	MT	LT			UM	Qty	Unit Cost	LGU	NGAs	Others
2.5 Ground water management and practice by various sectors improved													
2.5.1	Establish monitoring stations to include water discharges, water level and water quality (WQMA)		X		No. of monitoring water quality conducted	CENRO,	1	1	4,500,000.00				4,500,000.00
2.5.2	Strengthen Naga City Waterways Management Council and BSWM Council		X		Hydrolic Monitoring Station Established	CENRO, SWMO							
2.5.3	Pilot test 3 waste water treatement (DEWATS) for LGU facilities (abattoir, market, NC hospital)		X		No. of waste water treatement facilities established	CeNRO, CEO, SWMO	1	1	8,000,000.00	5,600,000.00			2,400,000.00
2.5.4	Implement waste segregation at source and CC compliant disposal faciities*		X		No. of facilities installed, no. of households & ICI segregating waste	CeNRO, CEO, SWMO							
2.5.5	Enhance biological treatment and phyto-remediation activities to improve water quality	X	X		Km of water ways treated with bokashi ballls, #/type of bio-enzyme treatment	CENRO, SWMC	1	1	2,000,000.00	200,000.00			1,800,000.00
Subtotal							5,800,000.00				8,700,000.00		
* included in SWMO plan							Total	119,701,600.00				358,908,000.00	680,071,400.00
Grand Total							(PhP)				1,158,681,000.00		

* included in SWMO plan

C3. Reduced risk to men and women of worsening climate change impact and disasters (human security)

EXPECTED RESULTS	TimeFrame			Performance Indicators	Offices Involved	Budgetary Requirement					
	ST	MT	LT			UM	Qty	Unit Cost	LGU	NGAs	Others
3.1 Procedures and capacity on CCA-DRRMO for various sectors enhanced											
3.1.1 IEC & info-graphics on CC & DRR in Naga City	X			% HH aware CC-DRR protocols,	DRRMO-PSO, Liga ng Barangay	1	142500	3.00	427,500.00		
3.1.2 Develop safety Initiatives for various sectors based on local knowledge (institutions, CE, PWD & etc)	X			# of drills conducted							
3.1.3 Improve equipments for disaster rehabilitation	X			# of equipments brought (including for fire/ disaster SWMO)	DRRMO	1	1	5,080,000.00	2,540,000.00		2,540,000.00
3.1.4 Retrofit existing vehicles and rescue boat for Inclusive emergency response (IER)	X			# of IER equipments brought/retrofit	SWMO, PDAO	1	5	24,000.00	120,000.00		
3.1.5 Implement CC resilient storm drainage program	X			No. of CC ready drainage established	SWMO, CEO, CeNRO	1	1	100,000,000.00	20,000,000.00	80,000,000.00	
Subtotal									23,087,500.00	80,000,000.00	2,540,000.00
3.2 Management for CCA-DRRM including IER and post disaster rehabilitation											
3.2.1 Improved systems, procedures and protocols of Barangay Contingency and Recovery Plan	X			No. of protocols developed for barangay use.	CHO, CSSWD, SWMO	1	1	100,000.00	100,000.00		
3.2.2 Enhanced existing protocols on households with PWDs and special needs	X			No. of protocols developed for IER		3	81	200.00	48,600.00		
3.2.3 Improved support implementation of guidelines on climate proofing of lifeline infrastructure	X			No. of assessment on building code compliance conducted	DRRMO with TWG	1	1	750,000.00	750,000.00		
3.2.4 Revisit institutional mechanisms from the design up to monitoring of recovery programmes	X			PDNA plans developed, VRA plans updated,	DRRMO, Brgy. PEsO, CAGO, CeO, CHO						
3.2.5 Determine implementation capacity and identify surge capacity needs and potential sources	X			# of assessment conducted	DRRMO, Brgy. PEsO, CAGO, CeO, CHO						
Subtotal									898,600.00		

EXPECTED RESULTS	TimeFrame			Performance Indicators	Offices Involved	Budgetary Requirement					
	ST	MT	LT			UM	Qty	Unit Cost	LGU	NGAs	Others
3.5 Inclusive and gender responsive relocation and resettlement areas provided											
3.5.1 Install accessibility signage on critical areas	X			% compliance to accesibility law	HSDO, Liga ng Brgy, NCPD, PesO, PDAO	3	5	15,000.00	225,000.00		
3.5.2 Assess and mainstream gender and PWD-friendly resettlement for climate change refugees	X			# of assessment conducted							
3.5.3 Gender retro-fit sanitary & water harvesting facilities (JMR, Pacol Sports Center, Triangulo, Sabang, Tinago, Dayandang)	X			# of gender retrofit	DRRMO, CEO, Education Board	1	6	2,000,000.00	2,400,000.00		9,600,000.00
3.5.4 PWDs and other special needs: Children's Home, Tinago, R.V. Maramba, Julian Meliton)	X			# of evacuation center retrofitted for PWDs & others		1	4	1,500,000.00	600,000.00	5,400,000.00	
Subtotal									3,000,000.00	5,400,000.00	9,600,000.00
Total									41,956,100.00	107,900,000.00	107,180,000.00
						Grand Total			(PhP)	257,036,100.00	

C4. Climate change-resilient, eco-efficient entrepreneurs and green growth-oriented city promoted

EXPECTED RESULTS	TimeFrame			Performance Indicators	Offices Involved	Budgetary Requirement					
	ST	MT	LT			UM	Qty	Unit Cost	LGU	NGAs	Others
4.1 MSMEs' capacities for eco-efficient production and operations facilitated											
4.1.1 Implement assessment for eco-efficient production and operations and provide subsidized loans	X			100 Commercial establishment assessed	Led by DTI	1	20	50,000.00			1,000,000.00
4.1.2 Awards system: Eco-Label award, sustainable tourism award, Green Seal developed and implemented	X			No. of livelihood opportunities and productive employment created	DTI and Metro Peso						
4.1.3 Provide markers on accredited establishment (green key, etc) including marketing support	X			No. of establishment with green key	DTI, DOT, Metro Peso, Acto	1	200	500.00	100,000.00		
4.1.4 Pilot test disaster insurance among MSMEs in partnership with an MFI	X			200 of MSMEs covered	DTI, Metro Peso	1	200	20,000.00			4,000,000.00
Subtotal									100,000.00		5,000,000.00
4.2 Implement clean fleet program											
4.2.1 Conduct IEC & capacity building program on clean fleet for public mass transport	X			No. of instiitutions oriented	CeNRO, GSD	1	1000	150.00	150,000.00		
4.2.2 Implement a clean fleet management program in the LGU, NGAs and private companies	X			No. of fleets passing smoke belching test	CeNRO						
4.2.3 Train volunteers on air quality monitoring	X			No. of vehicles monitored	CeNRO						
4.2.4 Set up air quality monitoring station	X			No. of monitoring equipment		1	1	525,000.00	525,000.00		
Subtotal									675,000.00		

EXPECTED RESULTS	TimeFrame			Performance Indicators	Offices Involved	Budgetary Requirement					
	ST	MT	LT			UM	Qty	Unit Cost	LGU	NGAs	Others
4.3 Multi-mode transport system promoted											
4.3.1 Retrofit Bicol Terminal Station, JMR Coliseum, Panganiban up to Mayon Avenue (LiD and Walk chain)			X	KM of streetscape improvements (quality of walkways improved)		1	1	10,000,000.00	5,000,000.00		5,000,000.00
4.3.2 Expand implementation of E-trikes and new route			X	% increase of e-trikes, New routes identified							
4.3.3 Pilot test green waiting sheds and parking space for bike lanes			X	Non-motorize parking area established		1	3	100,000.00	300,000.00		
4.3.4 Facilitate study on Metro Naga wide multi-mode transport System based on existing infrastructure network			X	No. of study conducted		1	1	7,000,000.00	350,000.00		6,300,000.00
4.3.5 Implement Naga river and bike transport schemes			X	No. of passengers		1	15	46,000.00	345,000.00		345,000.00
Subtotal									5,995,000.00	11,645,000.00	
4.4 Renewable renewable energy and energy efficiency/conservation promoted											
4.4.1 Develop multi-media IEC materials on EEC measures and technologies			X	# of ICIs provided with IECS		1	3300	10.00	33,000.00		
4.4.2 Pilot test conduct of assessment in ICIs			X	500 CE assessed		1	2000	100.00	200,000.00		
4.4.3 Promote incentives on market driven demand-side management - residential, commercial, industrial, transport			X	5000 HH & CE's adopting the design for environment concept							
4.4.4 Conduct business matching with MFI, RE service providers and service users			X	1000 residents using offgrid RE							
Subtotal									233,000.00		
Total									7,003,000.00	16,645,000.00	
						Grand Total			(PhP)	23,648,000.00	
						Indicative Additional Funding Required			(PhP)	1,481,415,100.00	

E.O. on Strengthening the City Development Council

Executive Order No. 2011-026

STRENGTHENING THE NAGA CITY DEVELOPMENT COUNCIL BY CREATING ITS EXECUTIVE AND SECTORAL COMMITTEES

WHEREAS, the City Development Council (CDC) is one of the mandated local special bodies pursuant to Section 106 of the Local Government Code (LGC) of 1991;

WHEREAS, the CDC was reconstituted through Executive Order No. 2010-033 on December 30, 2010;

WHEREAS, there is a need to create Executive and Sectoral Committees to streamline processes and on the whole strengthen the Naga CDC as an institution;

NOW THEREFORE, I, John G. Bongat, Mayor of the City of Naga, by virtue of the powers vested in me by law, do hereby ordain the following:

Section 1. Executive Committee. The Executive Committee (ExeCom) of the Naga CDC is hereby created, comprising of the following:

Chairperson: Hon. John G. Bongat, City Mayor

Vice Chairperson: Hon. Gabriel H. Bordado, Jr.

Members: Hon. Cecilia Veluz-de Asis, Chairperson, SP Committee on Appropriations

Hon. Alex Nero, ABC President

Mr. Ramiro Samar, Chairperson, Naga City People's Council

Section 2. Functions of the ExeCom. Pursuant to Section 111 of the LGC, the ExeCom shall represent the Naga CDC and act in its behalf when the council is not in session and perform the following functions:

- To ensure that the decision of the council are faithfully carried out and implemented;
- To act on matters requiring immediate attention or action by the council;
- To formulate policies, plans and programs based on the general principles laid down by the council; and
- To act on matters that may be authorized by the council.

Section 3. Sectoral Committees. The following sectoral committees (SecCom) are hereby created:

SOCIAL DEVELOPMENT COMMITTEE

Hon. Nelson Legacion – City Councilor

Hon. Joaquin Perez – City Councilor

Christopher Molin – PWD, Naga City Peoples Council (NCPC)

Gemma Pacis – Urban Poor (NCPC)

Marie Hazel Lavitoria – Women (NCPC)

Servillano Intia, Jr. – Senior Citizens (NCPC)

Delfin Bondad – Education (NCPC)

Ric Reyes – Punong Barangay (PB), Bagumbayan Norte

Jorge Salva, Jr. – PB, Bagumbayan Sur

Pedro San Juan, Jr. – PB, Balatas

Aida Balindan – PB, Cararayan
 Jose Penas III – PB, Del Rosario
 Diosdado San Antonio – OIC, Office of the Schools Division Superintendent
 Marion Legacion – Parents-Teachers Association (PTA) Federation President
 Wilfredo Prilles, Jr. – City Planning and Development Coordinator
 Jaime Reblando – City Social Welfare and Development Officer
 Vito Borja II – City Health Officer
 Rolando Campillos, Jr. – Housing Settlements and Development Officer
 Teresita del Castillo – City Population and Nutrition Officer
 Ruel Barrios – Lingkod Barangay Office
 Alex Cayetano – City Civil Registrar
 Nestor Villanea – Bicol Science and Technology Centrum (BSTC), OIC
 Rico Vinluan – Acting Librarian, Raul S. Roco Library
 Ernani Suron – Education, Sports and Scholarships Office (ESSO), OIC
 Arthur Abonal – General Services Officer
 Junius Elad, Jr. – City Veterinarian
 Luningning Luciano – Naga City Hospital, Chief
 Fatima Penino – DILG, City Director
 The Director, Naga City Police Office
 The Fire Marshall, Naga City Fire Station
 The President, Camarines Sur Medical Society

ECONOMIC DEVELOPMENT COMMITTEE

Hon. Salvador del Castillo – City Councilor
 Hon. Ma. Elizabeth Lavadia – City Councilor
 Hon. Ray-An Cydrick Rentoy – City Councilor
 Romulo Caceres – Cooperative (NCPC)
 Salud Boragay – Peasant (NCPC)
 Alberto Bercasio – Business (NCPC)
 Philip Imperial, President, Metro Naga Chamber of Commerce and Industry
 Josue Perez, Sr. – PB, Pacol
 Julian C. Lavadia, Jr. – PB, Tabuco
 Lalaine Alforte – PB, Lerma
 Tomas Ramon Sanchez, Jr. – PB, San Francisco
 Joshua Calleja – PB, Dayangdang
 Reuel Oliver – Investment and Trade Promotions Office and Metro PESO, OIC
 Frank Mendoza – Acting City Agriculturist
 Alec Santos – Arts, Culture and Tourism Officer, OIC
 Ramon Florendo – Market Enterprise Promotions Office (MEPO), OIC
 Wilfredo Prilles, Jr. – City Planning and Development Coordinator
 Fatima Penino – DILG, City Director
 The Director, Department of Trade and Industry – Camarines Sur
 The City Director, Department of Agrarian Reform
 The Provincial Head, Technical Education and Skills Development Authority

ENVIRONMENT MANAGEMENT COMMITTEE

Hon. Dan Paolo Morales – City Councilor
 Hon. David Casper Nathan Sergio – City Councilor
 Ramiro Samar – Labor (NCPC)
 Salve Cadag – NGO (NCPC)
 Raymund Lawrence Villadares – Youth (NCPC)

Alicia Saba – PB, Carolina
Raymund Arevalo – PB, Triangulo
Felipe Braga – PB, Panicuason
Jorge Jornales – PB, San Isidro
Edgardo de la Cruz – PB, Sabang
Jeffrey Moralde – PB, Penafrancia
Oscar Orozco – City Environment and Natural Resources Officer
Joel Martin – Solid Waste Management Officer
Wilfredo B. Prilles, Jr. – City Planning and Development Coordinator
Fatima Penino – DILG, City Director

INFRASTRUCTURE DEVELOPMENT COMMITTEE

Hon. Jose Tuason – City Councilor
Hon. Raoul Rosales – City Councilor
Alberto Darilay – Transport (NCPC)
Raffy Duque – Transport (NCPC)
Vidal Castillo – PB, Calauag
Andres Panis – PB, Concepcion Pequena
Domingo Alamer – PB, Igualdad
Emerita Castillo – PB, San Felipe
Magno Reyes – PB, Mabolo
Apolinario Malana, Sr. – PB, Abella
Leon Palmiano IV – City Engineer
Wilfredo Prilles, Jr. – City Planning and Development Coordinator
Lito del Rosario – Public Safety Officer
Fatima Penino – DILG, City Director
The District Engineer, 3rd Engineering District, Department of Public Works and Highways
The Manager, Philippine National Railways
The City Director, Land Transportation Office
The General Manager, Metro Naga Water District
The General Manager, Camarines Sur II Electric Cooperative

DEVELOPMENT ADMINISTRATION COMMITTEE

Mayor John G. Bongat
Vice Mayor Gabriel H. Bordado, Jr.
Hon. Cecilia Veluz-de Asis – City Councilor
Hon. Esteban Abonal – City Councilor
Hon. Alex Nero – ABC President
Representative of the Congressman, 3rd Congressional District of Camarines Sur
Nelia Sapalicio – BPC (NCPC)
Augusto Nieves – Civic (NCPC)
Lorenzo Narvaez – PB, Sta. Cruz
Alex Nero – PB, Liboton
Jose Importante – PB, Tinago
Elmer Baldemoro – PB, Concepcion Grande
Gemma Joy Antonio – PB, Dinaga
Florencio Mongoso, Jr. – Acting City Administrator
Wilfredo Prilles, Jr. – City Planning and Development Coordinator
Gil de la Torre – SP Secretary
Frank Mendoza – City Budget Office
Helen Rosales – City Treasurer

Paciencia Tabinas – City Accountant
Ramon Albeus – City Assessor
Perfecto Bragais III – City Legal Officer
Teresita Zapata – City Human Resource Management Officer
Reuel Oliver – Information Technology Office, OIC
Fatima Penino – DILG, City Director

Section 4. Functions of the SecComs. Pursuant to Section 112 of the LGC, the SecComs shall assist the Naga CDC in the performance of its functions with respect to their sector, to wit:
To formulate long-term, medium-term and annual social-economic development plans and policies;

- To formulate the medium-term and annual public investment programs;
- To appraise and prioritize socio-economic development programs and projects
- To formulate local investment incentives to promote the inflow and direction of private investment capital;
- To coordinate, monitor and evaluate the implementation of development programs and projects; and
- To perform such other functions as may be provided by law or competent authority.

This Executive Order shall be effective immediately.

Issued this 8th day of August, 2011 at Naga City, Philippines.

(Sgd.) JOHN G. BONGAT
City Mayor

Attested by:

(Sgd.) FLORENCIO T. MONGOSO, JR. CSEE
Department Head II and Acting City Administrator