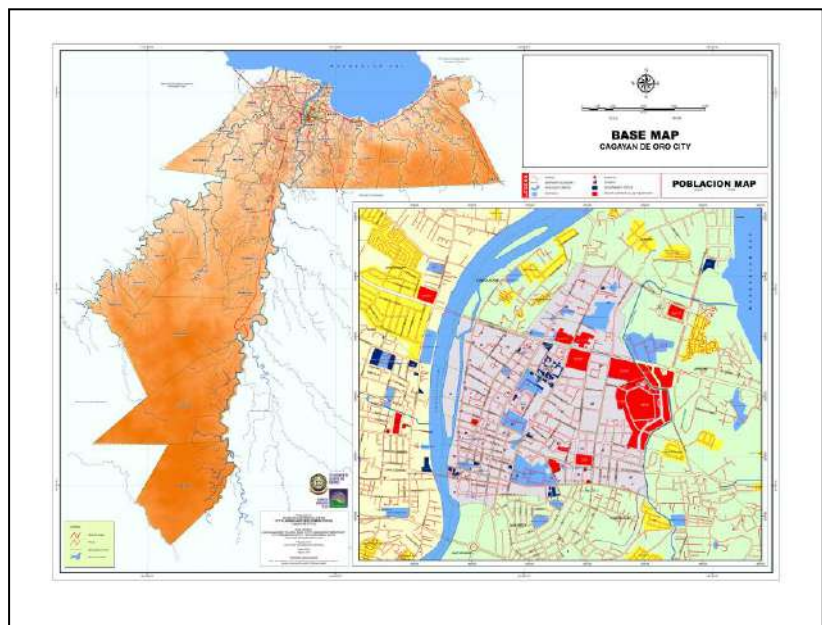


1. Physical Profile

1.1 Geography

1.1.1 Location. Cagayan de Oro City is the gateway to Northern Mindanao. It is geographically nestled between the central coastline of Macajalar Bay to the North and the naturally-rich plateaus and mountains of Bukidnon and Lanao del Norte to the South. The municipality of Opol bounds the City on the west while the municipality of Tagoloan, with its heavy industrial activities, is its immediate neighbor to the east. The City lies between the latitude 8°-14"-00" to 8°-31'-5" north and longitude 124°-27"-00" and 124°-49"-00" east.



1.1.2 Land Area. Cagayan de Oro, which is the largest city in Northern Mindanao (Region X), has an area of 57,851.0000 has. Its territorial size is 3.4% of the region; and 16.20% of Misamis Oriental (3,570.10 sq. km.)

1.1.3 Political Subdivision

- There had been changes in the political subdivision of the city. Cagayan de Oro is divided into two districts by Republic Act No. 9371. The **first District** comprises the 24 barangays; Baikington, Balulang, Bayabas, Bayanga, Besigan, Bonbon, Bulua, Canitoan, Carmen, Dansolihon, Iponan, Kauswagan, Lumbia, Mambuaya, Pagalungan, Pagatpat, Patag, Pigsag-an, San Simon,

Taglimao, Tagpangi Tignapoloan, Tuburan, and Tumpagon while the **second District** is composed of barangays; Agusan, Balubal, Bugo, Camaman-an, Consolacion, Cugman, F.S. Catanico, Gusa, Indahag, Lapasan, Macabalan, Macasandig, Nazareth, Puerto, Puntod, Tablon and all poblacion barangays 1- 40.

1.2 Topography

1.2.1 Cagayan de Oro City is characterized by a narrow coastal plain along the Macajalar Bay and by highland areas separated by steeply inclined escarpment. The lowland is relatively flat and its elevation is not more than 10 meters above the mean sea level. The highlands bound the City in the south from east to west. They consist of plateaus, terraces, gorges.

1.2.2 Creeks and Rivers. Traverse and drain to Macajalar Bay. There are seven rivers namely: Cagayan River, Iponan River, Bigaan River, Cugman River, Umalag River, Agusan river and Alae River. The more notable creeks are Binono-an, Bitan-ag, Indulong, Kolambog, Sapong, and Umalag.

1.2.3 About 13,587 hectares or 28 percent of the City's land area have a slope between 0 and 8 percent, which is appropriate for most land uses (Table 1). Such areas are concentrated on the narrow coastal plain, the flood plain areas of the Cagayan and Iponan Rivers, and in the upland terraces. The remaining 72 percent of the land have slopes that are greater than 8 percent which pose a challenge to development.

1.3 Geology

1.3.1 Geomorphologically, Cagayan de Oro can be classified into three broad landforms: lowlands; level uplands; and hills/ mountains. The lowlands contain five distinct forms, namely:

- Sandbars. These are narrow, elongated strips of sand deposits formed by wave action on some section of the coastline. The extent is insignificant.
- Tidal Flats. These are low coastal areas, subjected to tidal influence found mainly between the mouths of Cagayan River and Iponan River.
- Coastal Alluvial Plain. This is the narrow strip of level area from Puerto in the southeast to the center of the city.
- Broad Alluvial Plain. This is found in a limited patch around a small hill south of the City.

- River Flood Plain. The Iponan and Cagayan Rivers have formed an extensive flood plain that coalesced north of the Cagayan-Iligan Highway. Such areas may be subjected to brief flooding during extraordinary rainfall events.

The uplands are classified into three (3) forms:

- Terrace or Plateau. There are three distinct plateaus that exist within the city limits. The most extensive one occupies the southeastern region. Another plateau is situated west of Cagayan River along the road to Lumbia and Talakag of Bukidnon. The third is in the south-central region just north of Barangay Indahag.
- Piedmont. This is an extensive upland area located along the road to Barangay Indahag and along the road to Malaybalay, Bukidnon.
- Canyon/ Gorge. These are the almost vertical walls along the very deeply incised river channels. The width of the canyon/gorges ranges from 500 to 1000 meters.

The hills/ mountains take five different forms, as follows:

- Escarpment. This is the steep slope separating the lowland plains from the hilly areas. In some sections, the slope is almost vertical.
- Conglomerate Hill. Immediately above the escarpment area is a formation of conglomerate hills.
- Limestone Hill. South of Lumbia are extensive rolling hills made up of limestone. A smaller limestone area is located on the right side of Bigaan River.
- Shale/Sandstone Hill. West of the Lumbia Airport is another sedimentary formation of shale/sandstone hills.
- Volcanic Hill or Mountain. On the farthest end of the City along the Misamis Oriental - Bukidnon boundary are rugged and steep hills and mountains of volcanic origin.

1.4 Soil Types

Cagayan de Oro soils are predominantly clayey. Other soil structures are sand, silty loam, loam, and clayey loam.

Soils which are good for agricultural production are San Manuel Loam and Bantog Clay.

The Matima Clay and Umingan Clay Loam are of lesser quality for agricultural production. Other soil types which do not have any agricultural value are hydrosol, beach sand and stony clay. Some of these soils are in rough mountain regions not suitable for exploitation, others are in lowland which are suitable for resort and urban-related uses.

1.5 Land Use

The city has assumed a role which is larger than its physical boundaries. It is considered the most important center of a growth corridor occurring on the northern coast of Mindanao.

General Land Use The general land use of the city emphasizes on the following districts/areas: agricultural, built-up, forest, mining and quarrying, open land, swamp/marshland, and other areas (roads, rivers and creeks).

Urban Land Use The urban land use of the city is dominantly built-up area stretching from east to west between Macajalar Bay and escarpment areas, as well as in the uptown areas Lumbia, Macasandig and Indahag.

Table 3 & 4 below shows comparative result of the existing General Land Use and Urban Land Use of Cagayan de Oro between CY 2000 and CY 2010.

Table 1 : Existing Land Use, 2015

Land Use Type	Area (has.)	%
Agricultural	18,761.385271	32.43
Non Agricultural:	39,089.614729	67.57
▪ Residential	11,554.846620	19.97
▪ Commercial	322.377819	0.56
▪ Industrial	250.669985	0.43
▪ Special Class	512.970689	0.89
▪ Other Properties	8,965.1700	15.50
▪ Exempt Properties	1,950.498637	3.37
▪ Open Spaces	15,533.080979	26.85
Total	57,851.0000	100

Source : Research Division, City Assessment Department/GIS-CPDO

Table 2 : Land Area by Barangay by District, 2015, Cagayan de Oro City

Barangay	Land Area (has.)	Barangay	Land Area (has.)
Cagayan de Oro City			57,851.00
District 1	43,637.40	16. Tablon	4,381.01
1. Baikingon	675.40	17. Barangay 1	10.60
2. Balulang	880.25	18. Barangay 2	3.67
3. Bayabas	177.17	19. Barangay 3	7.69
4. Bayanga	1,378.22	20. Barangay 4	2.75
5. Besigan	6,159.23	21. Barangay 5	2.57
6. Bonbon	116.28	22. Barangay 6	4.32
7. Bulua	661.21	23. Barangay 7	5.98
8. Canitoan	1,234.86	24. Barangay 8	2.92
9. Carmen	956.65	25. Barangay 9	3.11
10. Dansolihon	7,267.19	26. Barangay 10	4.79
11. Iponan	607.14	27. Barangay 11	3.27
12. Kauswagan	512.53	28. Barangay 12	2.29
13. Lumbia	3,320.31	29. Barangay 13	8.73
14. Mambuaya	1,104.29	30. Barangay 14	4.46
15. Pagalungan	1,075.79	31. Barangay 15	9.79
16. Pagatpat	1,100.07	32. Barangay 16	2.57
17. Patag	299.90	33. Barangay 17	7.71
18. Pigsag-an	1,063.87	34. Barangay 18	4.72
19. San Simon	1,339.50	35. Barangay 19	2.61
20. Taglimao	1,256.36	36. Barangay 20	2.10
21. Tagpangi	2,174.96	37. Barangay 21	4.72
22. Tignapoloan	7,795.12	38. Barangay 22	11.79
23. Tuburan	1,037.51	39. Barangay 23	8.25
24. Tumpagon	1,443.59	40. Barangay 24	11.83
District 2	14,213.60	41. Barangay 25	5.23
1. Agusan	512.69	42. Barangay 26	8.85
2. Balubal	721.32	43. Barangay 27	9.79
3. Bugo	807.31	44. Barangay 28	7.25
4. Camaman-an	731.92	45. Barangay 29	20.21
5. Consolacion	49.45	46. Barangay 30	6.26
6. Cugman	1,747.61	47. Barangay 31	19.67
7. F.S. Catanico	1,101.03	48. Barangay 32	8.92
8. Gusa	696.18	49. Barangay 33	8.35
9. Indahag	1,405.39	50. Barangay 34	4.06
10. Lapasan	227.26	51. Barangay 35	7.51
11. Macabalan	45.15	52. Barangay 36	6.70
12. Macasandig	397.58	53. Barangay 37	2.79
13. Nazareth	68.31	54. Barangay 38	3.74
14. Puerto	887.99	55. Barangay 39	2.32
15. Puntod	164.90	56. Barangay 40	13.61

Source: GIS_CPDO

Table 3 : Comparative General Land Use (2000 and 2012), Cagayan de Oro City

General Land Use	2000		2012	
	Area (has.)	Percent to Total	Area (has.)	Percent to Total
Agricultural	13,704.92	29.63	16,393.39	28.34
Built Up Area	7,714.50	16.68	11,977.09	20.70
Mining and Quarrying	23.35	0.05	31.12	0.05
Open Land	7,037.09	15.22	3,079.18	5.32
Preservation Area				
Forest	17,726.57	38.33	24,652.75	45.41
Swamp/Marshland	39.70	0.09	102.53	0.18
Roads, Rivers and Creeks	-	-	1,614.93	
Total	46,246.13	100.00	57,851.00	100.00

Source: Research Division, City Assessment Department/GIS-CPDO

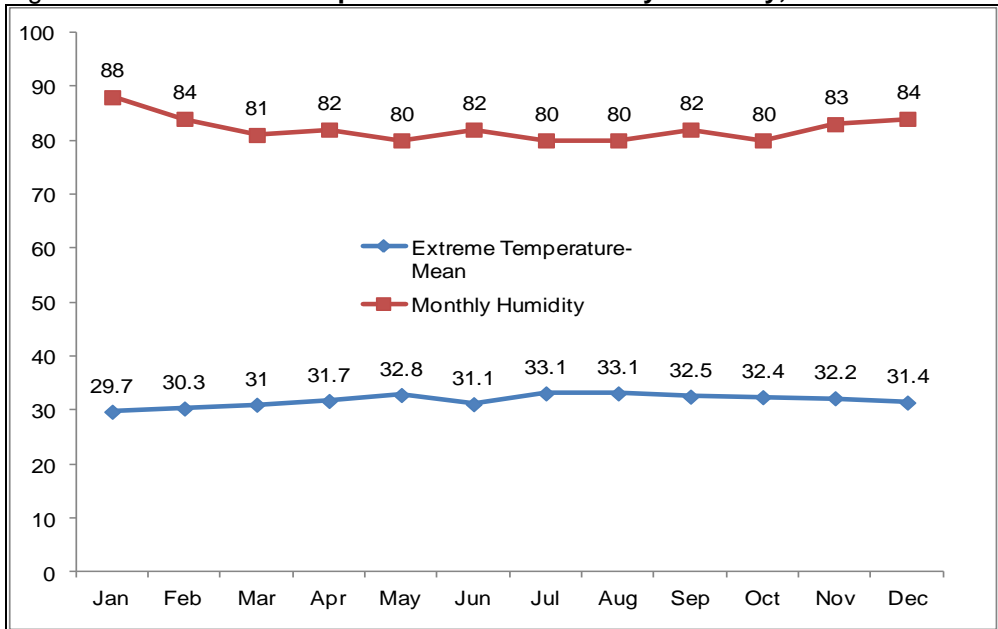
Table 4 : Comparative Urban Land Use (2000 and 2012), Cagayan de Oro City

Urban Land Use	2000		2012	
	Area (has.)	Percent to Total	Area (has.)	Percent to Total
Agricultural	-	-	8,065.10	33.82
Agro-Industrial	-	-	14.07	0.06
Commercial	291.41	3.78	317.31	1.33
Forest	-	-	591.69	2.48
Industrial	88.36	1.15	175.58	0.74
Institutional	287.94	3.73	383.25	1.61
Mining and Quarrying	-	-	31.12	0.13
Open Space/Vacant Land	2,542.43	32.96	3,136.41	13.15
Residential	1,879.83	24.37	10,911.61	45.76
Swamp/Marshland	-	-	102.53	0.43
Utilities	131.97	1.71	118.04	0.49
Planned Unit Development (PUD)	565.79	7.33	-	-
Covered by Road, etc.	1,926.77	24.98	-	-
Total	7,714.50	100.00	23,846.72	100.00

Source: Research Division, City Assessment Department/GIS-CPDO

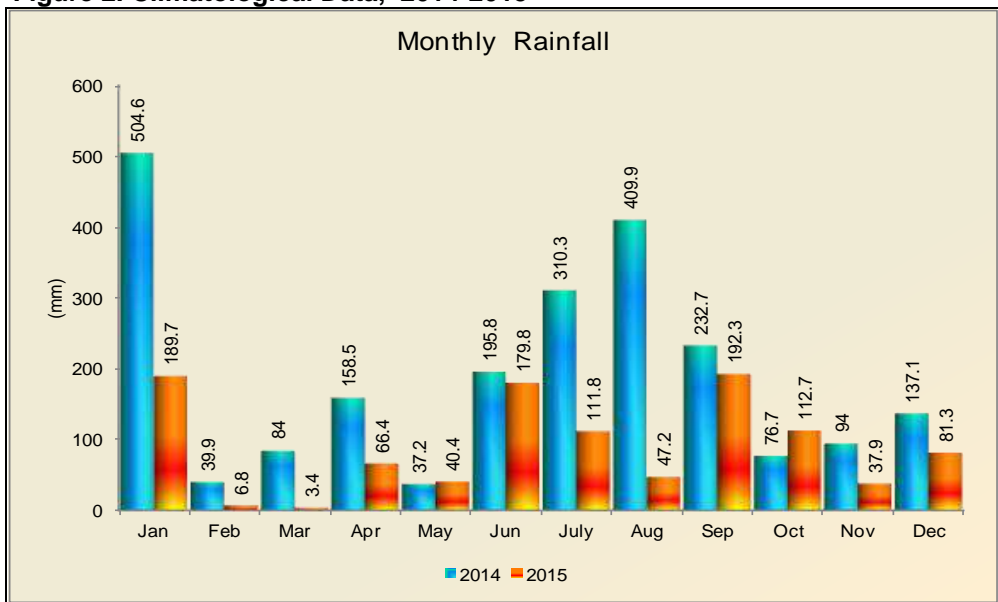
1.6 Climate and Rainfall

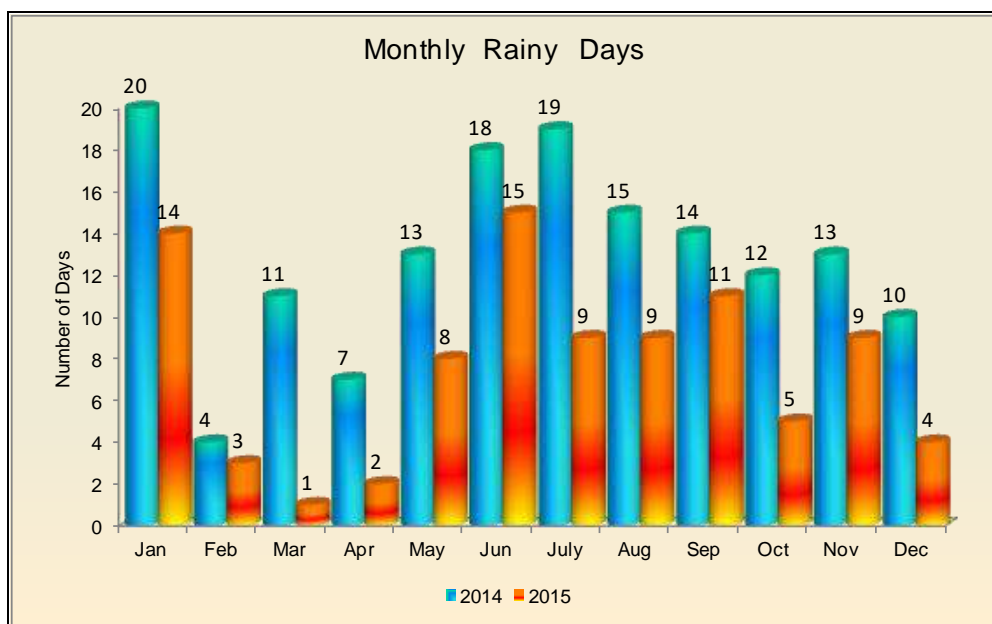
Figure 1 : Extreme Temperature-Mean & Monthly Humidity, 2015



The City has an annual mean temperature of 31.77°C while the average relative humidity is 82.17%. Figure above shows the average temperature-mean and the relative humidity for each month in Cagayan de Oro.

Figure 2. Climatological Data, 2014-2015





Source : *Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) **

Figure 2 above shows that the total annual average rainfall in Cagayan de Oro is 1,069.7 mm with an average number of rainy days per month of 7.5 as of 2015 greater than that of 2014 which is 13 days average per month. PAGASA reveals that month of January, June, and September which is rainy season; the average rainfall per month is 89.14 mm.

Table 5 : Monthly Temperature, 2014-2015

Month	Temperature (degree celsius)					
	Minimum		Maximum		Extreme Temperature Mean	
	2014	2015	2014	2015	2014	2015
January	17.5	21.0	31.8	32.0	31.6	29.7
February	18	18.0	33	31.6	30.1	30.3
March	20	20.0	32	32.8	29.3	31.0
April	21	19.0	32.8	33.0	31.4	31.7
May	20.5	18.0	33.4	33.7	32.5	32.8
June	22	21.2	34.2	34.6	32.8	31.1
July	20	20.0	35.4	35.4	32.5	33.1
August	20.4	21.0	35.2	36.8	32.4	33.1
September	20	19.8	34.4	35.0	31.9	32.5
October	23	19.0	34.8	35.2	32.3	32.4
November	22	21.5	34.4	34.0	31.6	32.2
December	20	20.8	32.8	33.8	31.2	31.4

Source : *Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA)*

Table 5 above shows the minimum and maximum temperature (degree Celsius) for each month in Cagayan de Oro. The hottest months are July and August, while the coldest month was in January.

Table 6 : **Monthly Wind Velocity, 2014-2015**

Month	Wind Velocity (meter per second/degree)			
	Average		Maximum	
	2014	2015	2014	2015
January	002/340	002/330	13/360	13/360
February	002/330	002/330	11/360	14/360
March	002/320	002/330	11/300	11/330
April	002/320	002/330	9/330	10/280
May	002/320	002/330	10/320	10/330
June	002/150	002/330	13.8/330	10/330
July	2.0/150	002/150	13/220	12/270
August	002/150	002/120	13/240	11/240
September	002/150	002/150	13/360	12/270
October	002/150	002/320	18/240	9/330
November	002/330	002/330	11/240	0/0
December	002/330	002/180	15/270	11/360

Source : *Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA)*

Comparatively, the table above shows the difference between two consecutive years in terms of wind velocity. In 2014, the highest average wind speed runs in the city was registered in the month of July while in 2015, the highest wind speed runs was in January, and the lowest in velocity was in November.