




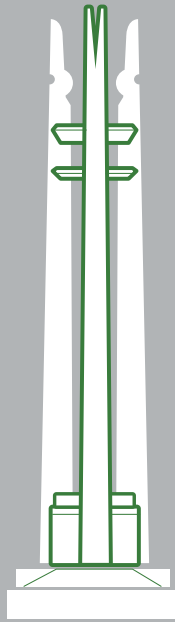
QUEZON CITY

Ecological Profile 2015



A place where home and business meets perfectly.





QUEZON CITY ECOLOGICAL PROFILE | 2015

**A place where home and
business meets perfectly.**

Geophysical Profile
Demographic Profile and Social Development
Economic Profile and Development
Environmental Management Profile
Institutional Profile and Development
Risk Profile

PREFACE

This edition of the Quezon City Ecological Profile (variously called “Socio-Economic Profile”, “Socio-Economic and Physical Profile”, or “Socio-Ecological Profile”) presents a number of important updates. For one, the year 2015 is a national population census year and it is possible to make a direct correlation between the number of inhabitants and the actual conditions of their social, economic and physical environment at the time they were counted. This reality has tremendous significance for planning and policy making. For another, a new Chapter on Risk Profile details various meteorological, geological, anthropogenic industrial and other hazards that cut across various sectors. This will serve as a vital resource for the city climate change and disaster risk reduction efforts. Third, the year 2016 is an election year and it marks another term for this administration at all levels of political jurisdiction except at the barangay level. In a very real sense, the data compiled in this Ecological Profile represent to a significant degree the accomplishments of this administration from the previous terms and the effects and outcomes of said accomplishments. The current administration may also use the updated data to continuously craft programs that will have the effect of building and improving on the record from previous terms. This will ensure both continuity and progress.

The obvious objective of such an undertaking is to document the accomplishments of the six-year stewardship of the Bautista administration on one hand, and to generate updated socio-ecological information for the last term of office and the succeeding administration, on the other. This updated Profile, from its predecessor published in 2010, served as the main data base for the crafting of the Comprehensive Development Plan which is another major undertaking of the Bautista administration.

While the Profile was prepared principally for use in planning and policy making by responsible officials, staff, and department of the city government, it can likewise be used by other readers for their own purposes. The compilation of data contains minimal analysis and interpretation to allow different users to apply their own analytical frameworks to extract the desired interpretations and conclusions from the same data sets. High school and undergraduate college students will find the Profile a rich resource for school reports and term papers. To graduate students the Profile can be an aide to identifying areas for in-depth investigations towards the production of theses and dissertations.

The Ecological Profile is a comprehensive collection of information about practically every aspect of Quezon City. As such it should be open to a wide range of readership. Even casual visitors who happened to pick up a copy may find a wealth of detail between covers interesting enough to make them want to take a second look. Movers and migrants who, by chance or by choice, have taken up residence in the city may find in the Profile enough advantages of staying in Quezon City to make them decide to become permanent residents. Old-time residents may yet find new and unique features of their city and rekindle their sense of loyalty and pride of place.

The production of this document owes in large part to the painstaking efforts of the different sectoral committees anchored by the respective technical staff members of the Quezon City Planning and Development Office. That this latter office had to play a key role owes to the current practice among local governments to prepare or update the Profile in conjunction with the larger project of preparing their mandated plans. This explains why the Profile contents are organized under the five development sectors. However, this need not be so for long if the Profile is envisioned to reach a wide range of readership. While the traditional sectors are mandated to maintain and update their respective data holdings as basic inputs in comprehensive development planning other topical headings are expected to be added in future editions of the Profile. This opens the door for other elements of the city’s constituencies to contribute to its contents, take part in its production and maintenance and, utilize the data sets for a variety of purposes. In terms of form and style, too, a book of facts such as the Profile need not be one of hard and dry reading. This 2015 edition of the Ecological Profile of Quezon City, finally, aspires to set another good practice, after the benchmark provided by the 2010 edition, among local governments in the Philippines.

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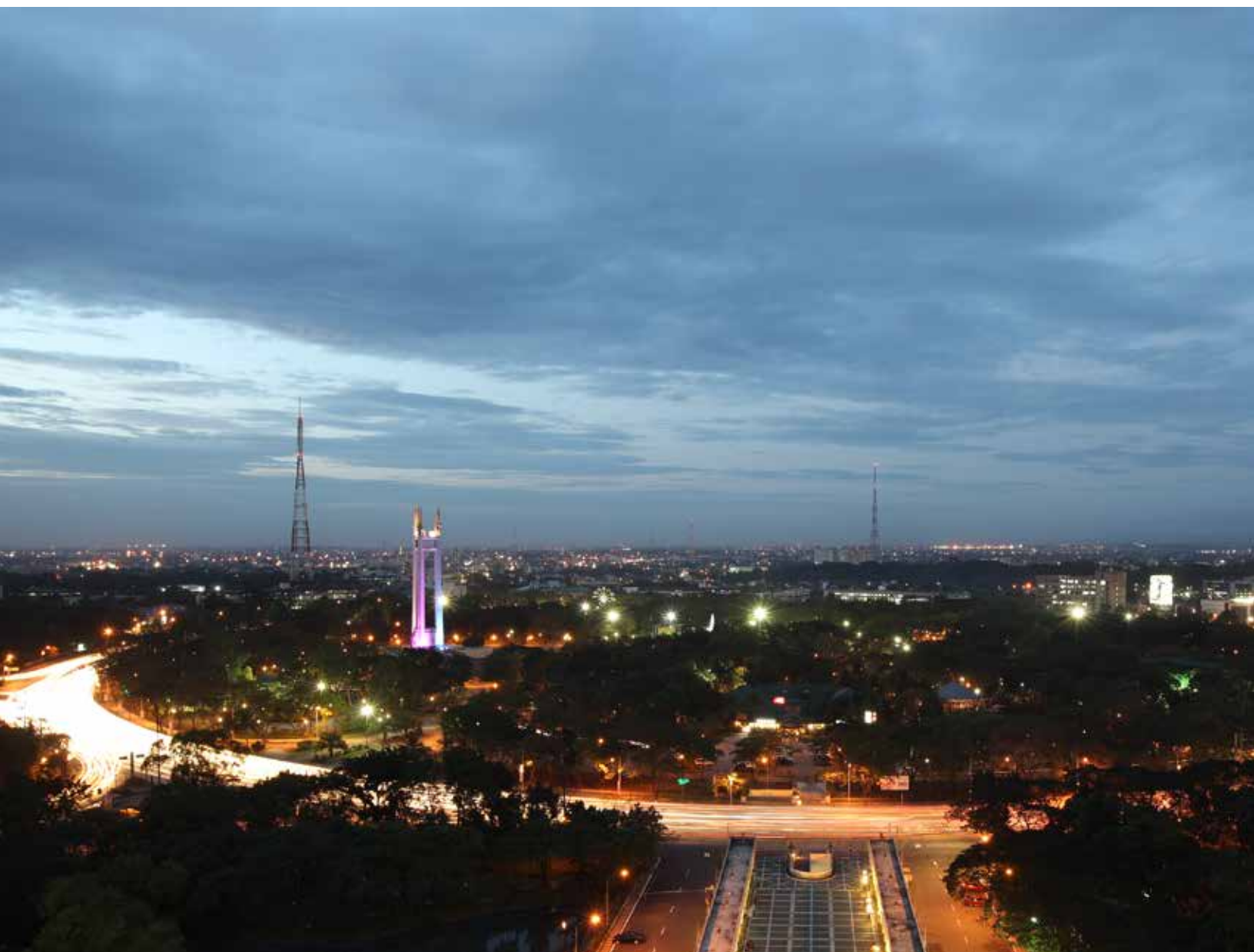
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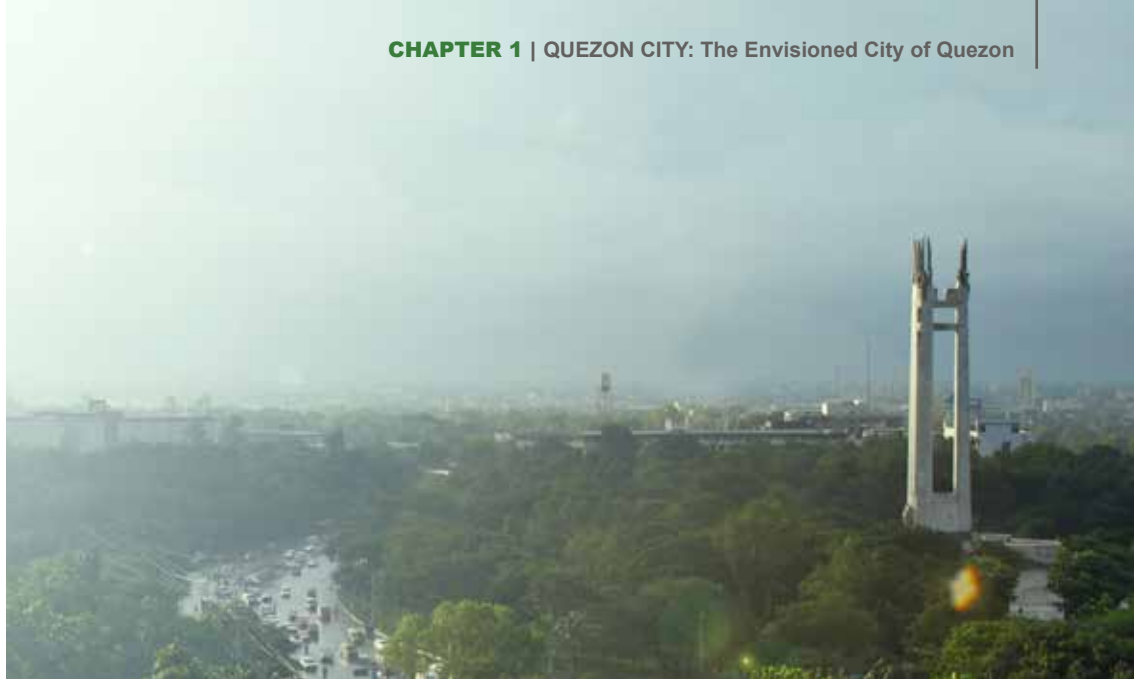
QUEZON CITY

ECOLOGICAL PROFILE



CHAPTER I

The Envisioned City of Quezon



1.1 | The Envisioned City of Quezon

Quezon City was conceived in a vision of a man incomparable - the late President Manuel Luis Quezon – who dreamt of a central place that will house the country’s highest governing body and will provide low-cost and decent housing for the less privileged sector of the society. He envisioned the growth and development of a city where the common man can live with dignity.

“I dream of a capital city that, politically shall be the seat of the national government; aesthetically the showplace of the nation--- a place that thousands of people will come and visit as the epitome of culture and spirit of the country; socially a dignified concentration of human life, aspirations and endeavors and achievements; and economically as a productive, self-contained community.”

--- President Manuel L. Quezon

Equally inspired by this noble quest for a new metropolis, the National Assembly moved for the creation of this new city. The first bill was filed by Assemblyman Ramon P. Mitra with the new city proposed to be named as “Balintawak City”. The proposed name was later amended on the motion of Assemblymen Narciso Ramos and Eugenio Perez, both of Pangasinan to “Quezon City”.

1.2 | The Creation of Quezon City

On September 28, 1939 the National Assembly approved Bill No. 1206 as Commonwealth Act No. 502, otherwise known as the Charter of Quezon City. Signed by President Quezon on October 12, 1939, the law defined the boundaries of the city and gave it an area of 7,000 hectares carved out of the towns of Caloocan, San Juan, Marikina, Pasig, and Mandaluyong, all in Rizal Province. The law likewise specified the manner in which the city was to be governed. All the city officials were to be appointed by the President with President Quezon himself being the first acting Mayor. He served from October 12 to November 4, 1939, after which Tomas Morato, then Mayor of Calauag, Tayabas, was appointed as his successor.

The original physical plan of the City, which was prepared in 1940 by Harry T. Frost, architectural adviser of the Commonwealth, reflect a big quadrangle in the heart of the City from which four (4) avenues radiate toward the outskirts with rotundas placed on the four (4) corners, the largest being the 26–hectare elliptical center, now known as the Quezon Memorial Circle.

Progress in Quezon City continued until the outbreak of World War II on December 8, 1941. Just before the Japanese occupied the city, President Quezon issued Executive Order No. 400, dated January 1, 1942, incorporating Quezon City with Greater Manila for synchronized and coordinated activity in such time of emergency. Under the order, the Mayors of Quezon City, San Juan, Mandaluyong, Parañaque, Caloocan and Makati became the assistants to the Mayor of Greater Manila, who at that time was Jorge Vargas. However, when Mayor Morato was arrested by the Japanese in mid-1942, Dr. Florencio Cruz then City Health Officer was installed as Chief of the City (being a district of Greater Manila) until liberation.

As soon as the war was over, in April 1945, the Secretary of Interior Tomas Confesor designated Oscar Castelo, who was then an Assistant Fiscal of Manila, as Acting Mayor of Quezon City, and therefore, Assistant to the Mayor of Manila Juan Nolasco. The house of President Quezon on Gilmore Avenue was used by Castelo as temporary office of the city government.

Capt. Sabino de Leon, former Quezon City Police Chief, was designated as Acting Assistant Mayor of Quezon City on October 1, 1945 while Castelo returned to his job as Assistant City Fiscal of Manila. Capt. De Leon moved the city government offices to a market site along South 9th Street near Sampaloc Avenue (now the site of Roces High School). Quezon City regained its separate political existence from Greater Manila on January 2, 1947 by virtue of Republic Act No. 45. Ponciano A. Bernardo was appointed City Mayor.

1.3 | Quezon City as the Capital City

Upon assumption of office of President Manuel A. Roxas as the first president of the second Philippine Republic in 1946, he announced his intention to restore Quezon City as a regular chartered city. Various sectors declared their protests by citing the city's economic and financial bankruptcy, dismal health and sanitary conditions, and high rate of criminality during the post-war period.

On July 25, 1946, President Roxas, created a committee that would study the selection of the official capital of the Philippines. By virtue of Administrative Order No. 5, the Selection Committee was given the task of "selection of the most suitable site on which to build the capital city of the Philippines and the capitol building/s". Then Senator Melecio Arranz, who was appointed committee head, declared that Manila, although inevitably a key point in the selection of the capital city site, has "become undesirable as a national capital" due to post-war damages, congestion of commercial activities, and government and military requirements, among others. On the other hand, the city of Quezon had worked on the reparation of post-war vestiges.

The selection process underwent series of extensive studies, researches, discussions, and public hearings which primarily focused on the following considerations: "general sanitation, public works development, strategic considerations, scenic beauty, and administrative coordination." Out of the sixteen (16) nominated sites, three sites emerged as the top choices: Ipo-Novaliches area; Baguio; and, Quezon City-Novaliches. The contiguous areas of Ipo-Quezon City-Novaliches proved to be the ideal choice for the nation's capital and still garnered the highest composite average rating over the second placer Baguio. Thus, the Arranz Selection Committee concluded: "...the area now covered by Quezon City extending northward along Marikina River to the upper limits of Novaliches reservoir watershed, [and] West to the boundary line...comprising an approximate total area of 16,200 hectares...one-fourth of which is owned by the Government, is the best...[site] to be made as the Capital City of the Republic."

The committee also cited the following advantages of the City as the choice nation's capital:

1. "[The City's] proximity to Manila, the best port of entry from foreign countries and the commercial and financial center of the country...;
2. Its accessibility from all the important inhabited areas in the Philippines either by land, air, sea;
3. Its already available conveniences from the standpoint of a municipal entity...[-as an organized and partially developed chartered city];
4. Its public works facilities with regard to the provision of water supply, easy drainage, availability of power and proximity to commercial, industrial, and manufacturing establishments engaged in the sale, production, and distribution of construction materials and equipment;
5. Its geological qualities, which provide a satisfactory foundation for buildings and other structures, at the same time allowing the construction of underground structures;
6. Its larger area of government-owned land right in its central zone which will permit a substantial economy in the development of public improvements as well as more freedom and liberal assignments for streets, parks, and playground areas;
7. Its healthfulness due to its elevation (it averages about 250feet above sea level) together with the availability of an abundant and wholesome water supply and excellent drainage which are the most important requirements for the development of modern cities; and,
8. Its historical background; consideration of public expenditures already made; administrative commitments and evident public support."

THE CAPITAL CITY BILL

AN ACT TO ESTABLISH THE CAPITAL OF THE PHILIPPINES AND THE PERMANENT SEAT OF THE NATIONAL GOVERNMENT, TO CREATE A CAPITAL CITY PLANNING COMMISSION, TO APPROPRIATE FUNDS FOR THE ACQUISITION OF PRIVATE ESTATES WITHIN THE BOUNDARY LIMITS OF SAID CITY, AND TO AUTHORIZE THE ISSUANCE OF BONDS OF THE NATIONAL GOVERNMENT FOR THE ACQUISITION OF PRIVATE ESTATES, FOR THE SUBDIVISION THEREOF, AND FOR THE CONSTRUCTION OF STREETS, BRIDGES, WATERWORKS, SEWERAGE AND OTHER MUNICIPAL IMPROVEMENTS IN THE CAPITAL CITY.

Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled.

SECTION 1. Section two of Commonwealth Act Numbered Five hundred two, as amended, is hereby further amended to read as follows:

"SEC. 2. *Powers.*—The territory within the boundaries described in the next succeeding section is to be known as QUEZON CITY which shall be the CAPITAL of the Philippines and the permanent seat of the national government;

"SEC. 3. *Boundaries.*—The boundaries and limits of the territory of said city, containing the total areas of fifteen thousand six hundred sixty hectares, more or less, are established and prescribed.

SEC. 3. There is hereby created and established a Capital City Planning Commission composed of seven Members three of whom shall not be government officials to be appointed by the President of the Philippines with the consent of the Commission on Appointments of the Congress of the Philippines.

SEC. 7. The Capital City Planning Commission shall submit to the President within one year after its organization the master plan of the Capital City of the Philippines for his approval.

SEC. 9 The President of the Philippines is authorized to issue, in the name and behalf of the Republic of the Philippines, bonds in an amount of twenty million pesos, the proceeds of which shall be used as a revolving fund for the acquisition of private estates, the subdivision of the area, and the construction of streets, bridges, waterworks, sewerage and other municipal improvements in the Capital City of the Philippines.

SEC. 12. The Capital City Planning Commission shall have the supervision of all the work to be done and improvements to be made with the proceeds of the sale of the bonds authorized by this Act.

SEC. 13. All acts and executive orders or regulations or parts thereof, inconsistent with the provisions of this Act, are hereby repealed.

SEC. 14. This Act shall take effect upon its approval.

Approved,

Finally passed by the Senate on June 26, 1948.

This Act, which originated in the House of Representatives, was finally passed by the same on June 25, 1948.

Approved and Signed by His Excellency, the President of the Philippines, Elpidio Quirino.

However, before the selection was made, President Roxas died of heart attack in Clark Field, Pampanga. It was President Elpidio R. Quirino, his successor, who signed Republic Act No. 333 on July 17, 1948, which made Quezon City the capital of the Philippines. The Act created the Capital City Planning Commission to prepare the general development plan and supervise the improvements to be done in the Capital City. Archt. Juan Arellano headed the architectural division of the Commission while Mayor Bernardo handled public relations. After almost one year, on April 8, 1949, the Master Plan was signed by President Quirino. It further stipulated “the appropriation of funds for the acquisition of private estates within the boundary limits of the city, and authorized the issuance of bonds... for the construction of streets, bridges, waterworks, sewerage...” and other city improvements.

In July 1947, the City Hall building was constructed along Highway 54 (now Epifanio delos Santos Avenue or EDSA) on what used to be the site of the pre-war public market. It was occupied in February 1948, housing all the city government’s offices and departments with the exception of the police department.

Quezon City was formally inaugurated as the national capital of the Philippines on October 12, 1949. President Quirino laid the cornerstone of the proposed Capitol Building at Constitution Hills. The Welcome Arch (now Mabuhay Rotunda) at the boundary of Manila and Quezon City was built; the construction of Roxas Homesite by the Philippine Homesite and Housing Corporation, consisting of 1,104 housing units on an area of 40 hectares, started.

The City’s territorial boundaries were revised four times since its creation on October 12, 1939. Originally, Quezon City had only about 7,000 hectares extending from La Loma to Marikina River and from Pasong Tamo River down to (and including) Wack Wack Golf Club in Mandaluyong. It was first amended in 1941 by Commonwealth Act 659 which returned the portions west of Marikina River to Marikina, a reduction of about 500 hectares. After the war, Republic Act 333 dated July 17, 1948 which declared the City as the National Capital, incorporated the areas of Novaliches and Payatas thereby greatly increasing the territory by more than double: from 6,500 hectares to 15,660. A third revision which decreased the City’s area by about 300 hectares was made in 1950 by RA 537 when parts of the territory east of Marikina River were given back to Montalban and San Mateo, as well as Wack Wack and Camp Crame to Mandaluyong and San Juan, respectively.

The final amendment was made on June 16, 1956 by virtue of RA 1575 which again reduced the City’s area by 260 hectares from 15,359 to 15,106 hectares, when areas west of Marikina River were again reverted to Montalban and San Mateo even as Camp Crame was reintegrated to the City. This is the present official territorial boundary of Quezon City. However, graphical plots made on this present boundary of the city gave an area of 16,112 hectares, about 1,000 hectares more than the officially declared land area.

Table H-1 | Changes in Land Area of Quezon City

	Commonwealth Act 502	Commonwealth Act 659	Republic Act 333	Republic Act 537	Republic Act 537
Date Approved	October 12, 1939	June 21, 1941	June 17, 1948	June 16, 1950	June 16, 1956
Land Area	7,006 Has.*	6,497 Has.*	15,660 Has.*	15,359 Has*	15,106 Has.* 16,112 Has*

(* Figures obtained thru graphical computations only)
(** Based on 1995 GIS graphical plot)

1.4 | Changing Fortunes of Quezon City

For twenty-seven (27) years, Quezon City held the distinct status of being the nation's capital. However, two Presidential Decrees issued by President Ferdinand E. Marcos would have substantially changed the political stature and landscape of the city.

Presidential Decree 824 authorized the creation of the Metropolitan Manila and Metropolitan Manila Commission which would exercise territorial and political jurisdiction over seventeen (17) municipalities and cities, including Quezon City. The Decree was deemed necessary due to "rapid growth of population and...of social and economic requirements in the contiguous communities". Too, the Decree served to address the imperative for integrated development, service delivery, and management in terms of peace and order and eradication of social and economic ills which were considered then as among the reform measures under Martial Law.

It was around this period and under the leadership of appointed mayor Norberto S. Amoranto, that the city attained an impressive performance record in terms of financial standing, delivery of services, particularly that of medical and health services, establishment of buildings, and community beautification projects which were also supported by then First Lady Imelda R. Marcos.

On June 24, 1976, then President Marcos issued Presidential Decree (PD) 940, which effectively conferred back the role of the nation's capital to the City of Manila and mandated the area prescribed under PD 824 as Metropolitan Manila, now known as the National Capital Region (NCR), to be the permanent seat of national government.

Three months prior to this declaration, Quezon City set another record by having the first lady chief executive appointed to office after Mayor Amoranto resigned from his post. Mayor Adelina S. Rodriguez then led the city during the transition towards the period when it was no longer the nation's capital. During her first year in office, Mayor Rodriguez formulated the now-famous City Development Program, which functioned as basis for integrating problem solution. She underscored the importance of the city's mandate in terms of employment generation and delivery of basic services despite limited resources. With the successful implementation of the city's Seven-Point Management Program that would bring about "community awareness and consciousness of maintaining ecological balance", the city also recorded significant improvements in terms of income generation and crime reduction.

A Letter of Instruction (LOI) No. 473 was issued by President Marcos and under which the Constitution Hills and Reclamation Areas, both situated in Quezon City, were designated as the site of the country's parliamentary building or the Batasang Bayan and other government offices, such as Department of Education and Culture (DEC) and the Civil Service Commission (CSC).

Indeed, even as Quezon City was no longer the capital city, it proved to be a vast and teeming city which by then attained a steadily increasing income and occupied one-third of Metro Manila's total land area. It has implemented its development plan and served as the government center with the national legislature and other important government offices located in its area.

All of these are reminiscent of the same noble dream that brought forth the creation of the City.

1.5 | Capitalizing on the “Quezon City” Vision

The original vision of President Quezon for the City became the thread that weaved and will continue to weave a very vibrant and rich past, present, and future for the city.

Important people, places, and events that shaped the course of history in the struggle for freedom and sovereignty including the “Cry of Pugad Lawin” led by the Great Plebeian and revolutionary hero Andres Bonifacio, the People Power Revolution in EDSA that toppled the regime of President Marcos and the installation of President Corazon Aquino under the restored democracy took place in areas that now comprise the city.

Currently, Quezon City is the largest among the Metropolitan Manila’s cities in terms of population and land area. The “Quezon dream-vision” continues to guide efforts for the attainment of a progressive and peaceful, clean and orderly place conducive and hospitable to living, employment, and business, “A Quality Community that is Quezon City”.

Effective fiscal management, aggressive tax management strategies, increasing efficiency and growing discipline in the management and use of resources as well as participatory governance have made Quezon City one of the most competitive cities in the Philippines today. In particular, the city recorded the highest net income in the Philippines, produced an annual budget surplus averaging P307 million for seven consecutive years from 2002 thru 2008, and earned an income of P8.02 billion in 2008. The City

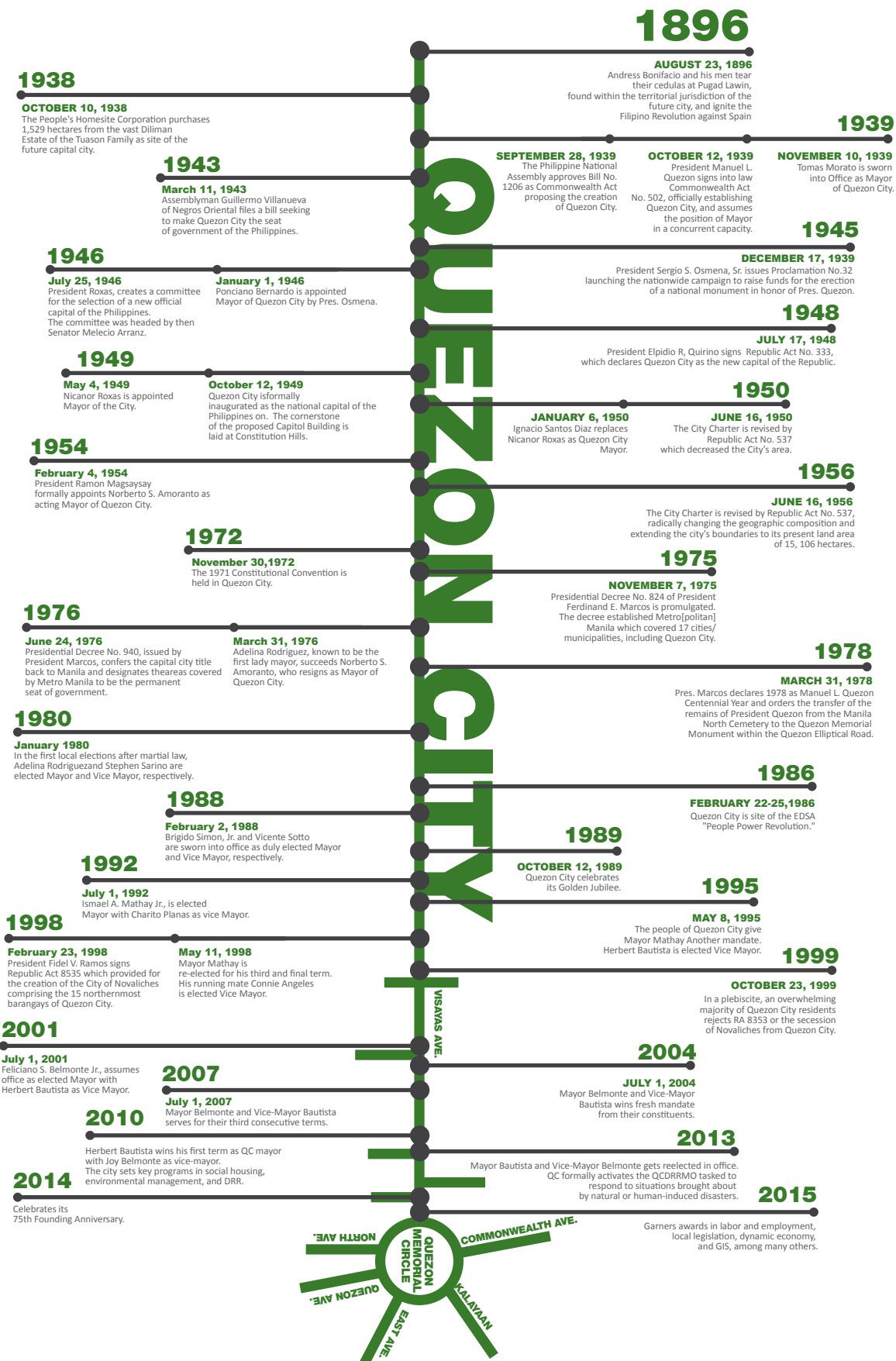
takes pride in its strong economic viability and financial standing, rational development of systems to curb graft, rigid budgeting process that considers the city’s development planning strategies and priorities and the most pressing needs of its constituents.

The city has also achieved various firsts in many areas such as computerized revenue collection and assessment system, fiscal control and capability building in the barangay level, various environmental and solid waste management programs, women and children protection, and institutionalization of citizen participation in governance thru the City Development Council.

Due to its achievements and innovations, Quezon City was recognized and cited for the dynamism of its local economy, the quality of life of its residents and the responsiveness of the local government in addressing business needs, among others. In 2007, Quezon City took the 7th place in the “Asian City of the Future” survey commissioned by the London Financial Times. In a 2008 Tholons Global Outsourcing and Investments special report, the city ranked as the number 21 emerging global outsourcing city, the highest among all nine new entrants.

The city manifests the same criteria for the nation’s capital being at the center of trade, commerce, education and culture, seat of the national government, modern transportation, communication and accommodation facilities and other physical attributes of a modern city.

HISTORICAL HIGHLIGHTS | 1938 - 2015



QUEZON CITY

ECOLOGICAL PROFILE



CHAPTER 2

Geophysical Profile

The Land Use/Infrastructure Sector has six areas of concern namely: geography, topography, climate, land use patterns, service utilities, and transportation.

2.1 Geography

Quezon City is situated on the northeast portion of Metro Manila. It is bounded on the north by Caloocan City and San Jose del Monte City in Bulacan Province, on the east by San Mateo and Marikina, on the south by Pasig and Mandaluyong, San Juan and Manila, and on the west by Valenzuela, Caloocan and Manila. Its northeastern and eastern boundaries are defined by the Novaliches Watershed and the Marikina River.

It is close to the region's major activity centers like Binondo, Ayala, Monumento, Ortigas, the Ninoy Aquino International Airport (NAIA), the North and South Harbor as well as the newly developed Fort Bonifacio Global City. With an area of 16,112.58 hectares (based on 1995 GIS graphical plot), it is the largest among the sixteen (16) cities and one (1) municipality in the region and is almost one-fourth the size of Metro Manila.

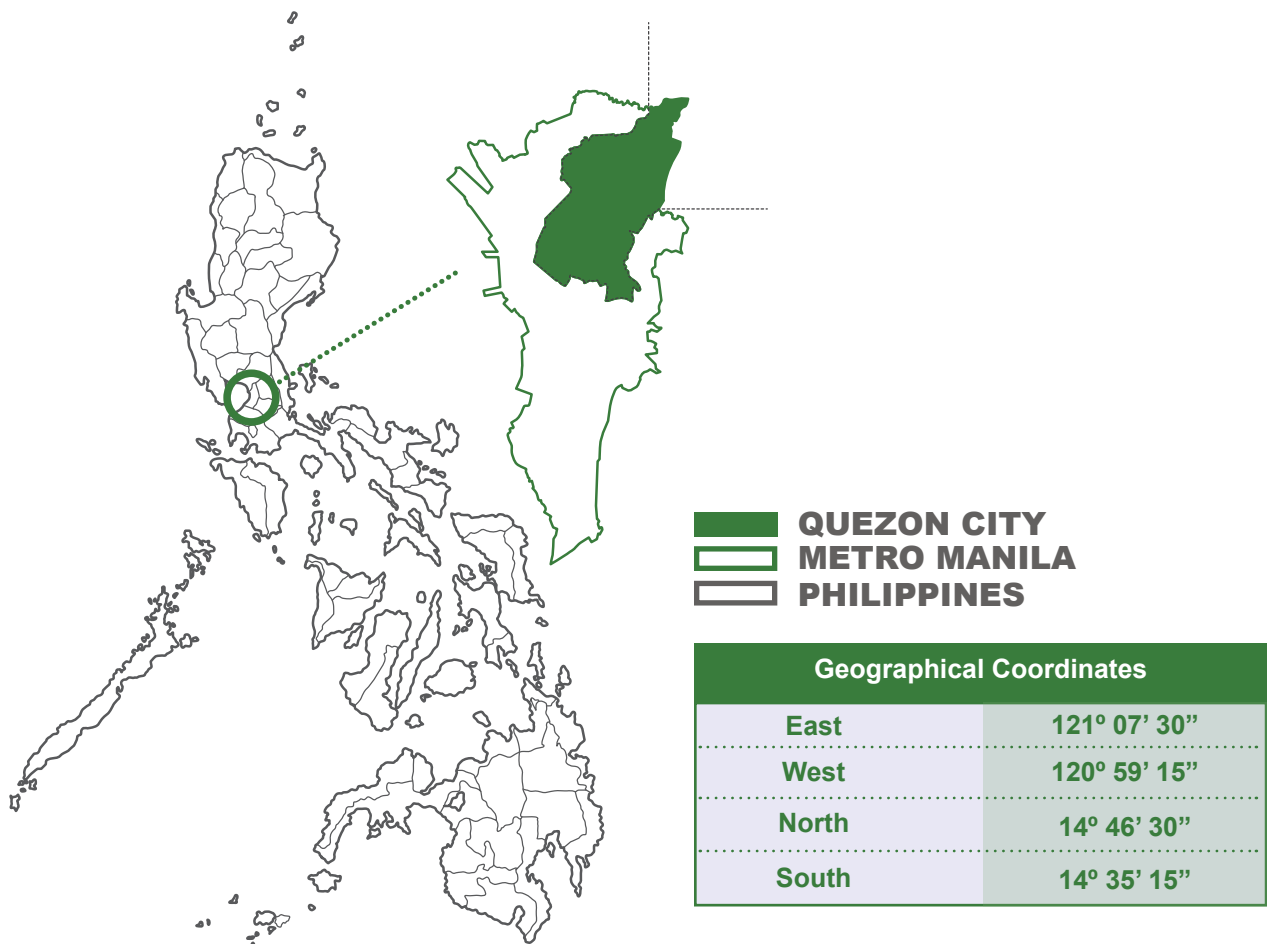


Figure GP-1 | Location Map 1

2.2 Topography

The City's slope is generally manageable ranging from less than 8% to 15%. A small, scattered area has a very steep slope which can be utilized for parks and green area development.

2.2.1 | Slope

The City’s slope is generally manageable ranging from less than 8% to 15%. A small, scattered area has a very steep slope which can be utilized for parks and green area development.

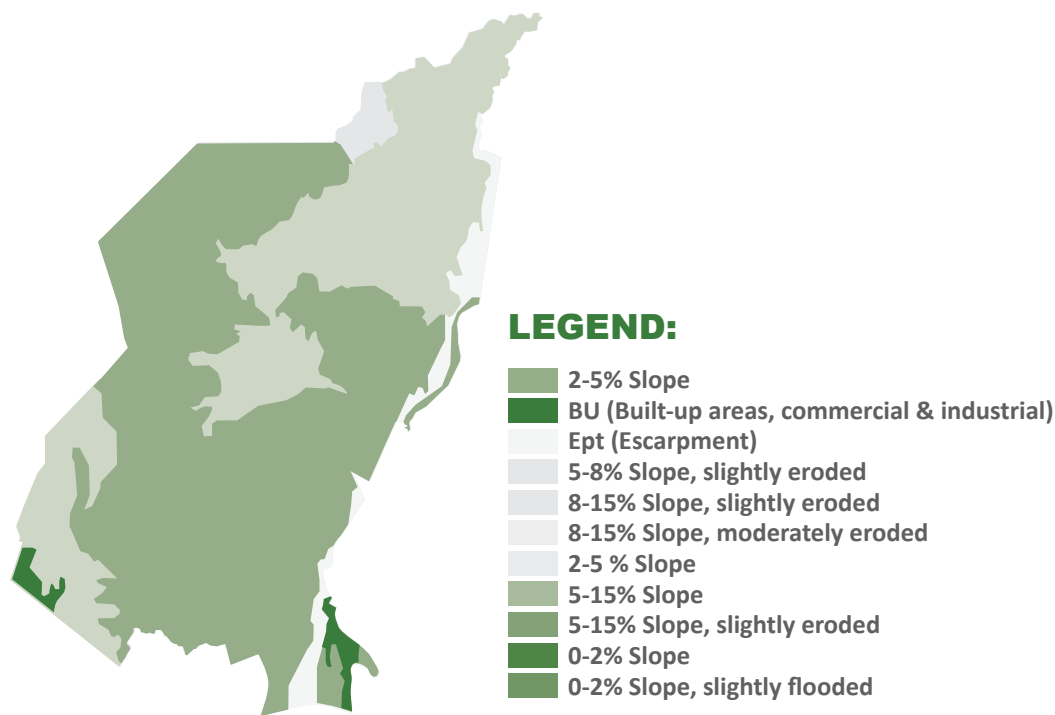


Figure GP-2 | Slope Map

2.2.2 | Soil

A survey by the Bureau of Soils and Water Management (BSWM) showed that the predominant soil type in the City is of the Novaliches Loam series, commonly called “adobe” and mainly characterized as hard and compact. The quality of the soil varies as the depth increases. (See Table GP-1.)

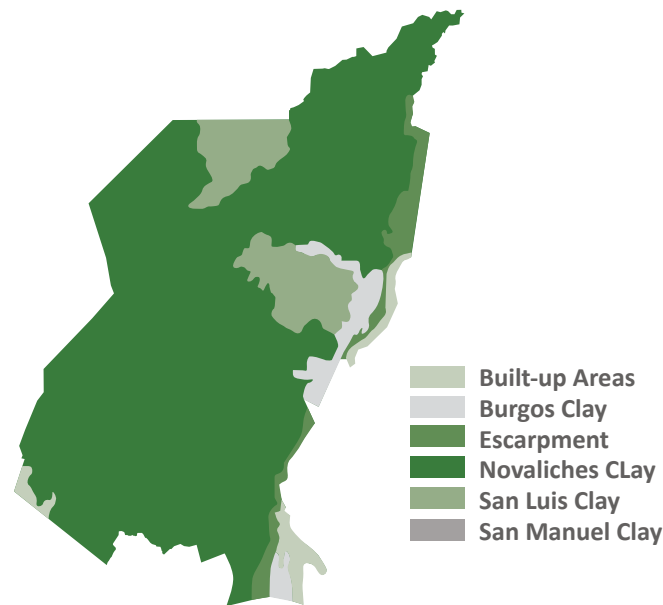


Figure GP-3 | Soil Map

Table GP-1 | Relation of Soil to Depth

Depth of Soil (in ms)	Description
0-5	Brown, loose and friable loam to clay loam
6-20	Dark brown granular clay loam with gravel and concretion
20-35	Adobe clay loam with concretion and gravel, highly weather stuff
35-60	Weathered adobe rock, slightly compact
60- plus	Compact and massive adobe rock

Source: Bureau of Soils

2.2.3 | Drainage

The City is drained thru four (4) principal river basins namely: the San Juan-San Francisco River, Marikina River, Tullahan River and Meycauayan River. The San Juan River which traverses the central and southern sections of the city, as well as the Marikina River which traverses along the eastern boundary discharge to the Pasig River. The Tullahan River traversing the Novaliches area discharges to Tenejeros River in Malabon. The creeks at the northwestern most portion drain to the Meycauayan River. The ultimate drainage outfall of these river systems is the Manila Bay.

The San Juan-San Francisco River Basin covers the largest area of 80 sq. km. extending from the city's southern limits up to San Bartolome in Novaliches and from Quirino Highway towards Marikina Valley ridge in the east, except for La Loma and Galas which slope down directly to the Pasig River. Meanwhile, the Marikina River Basin, comprising 26 sq. km, is the outfall of marginal areas east of Marikina Ridge from Don Jose Subdivision near Fairview down to Corinthian Gardens at Ortigas Avenue. The Tullahan River basin with an approximate drainage area of 28.94 sq. km. serves most of the Novaliches District from Batasan at the east towards Caloocan City at the west, including Fairview and Lagro and across Novaliches proper up to Damong Maliit Road in Nagkaisang Nayan. The remaining areas at the northwestern peripheries drain to Meycauayan River. The Novaliches Watershed with an area of 2,574 hectares serves exclusively the La Mesa Reservation Area.

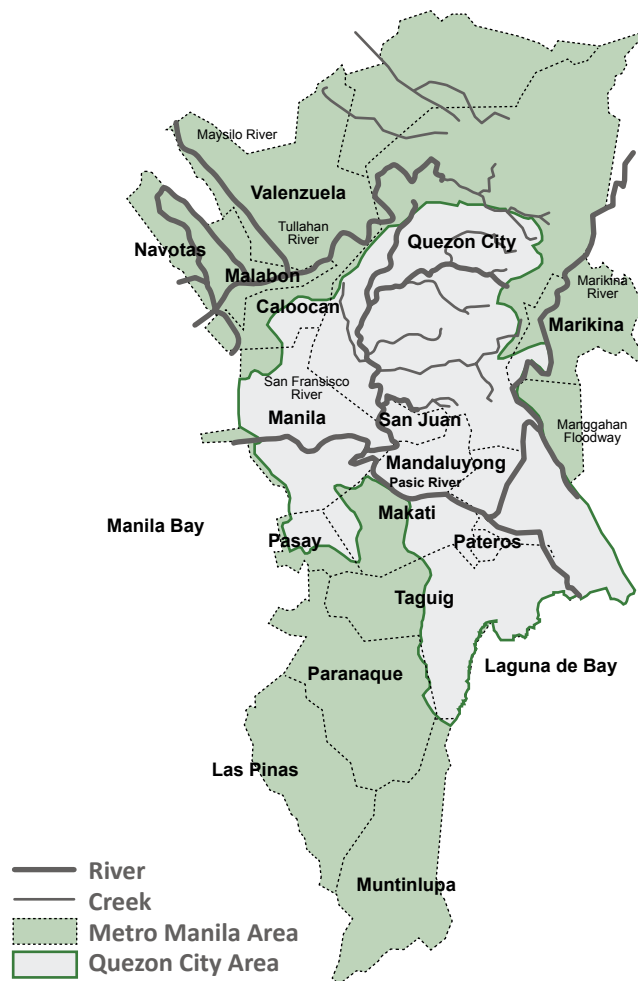


Figure GP-4 | QC River System Map

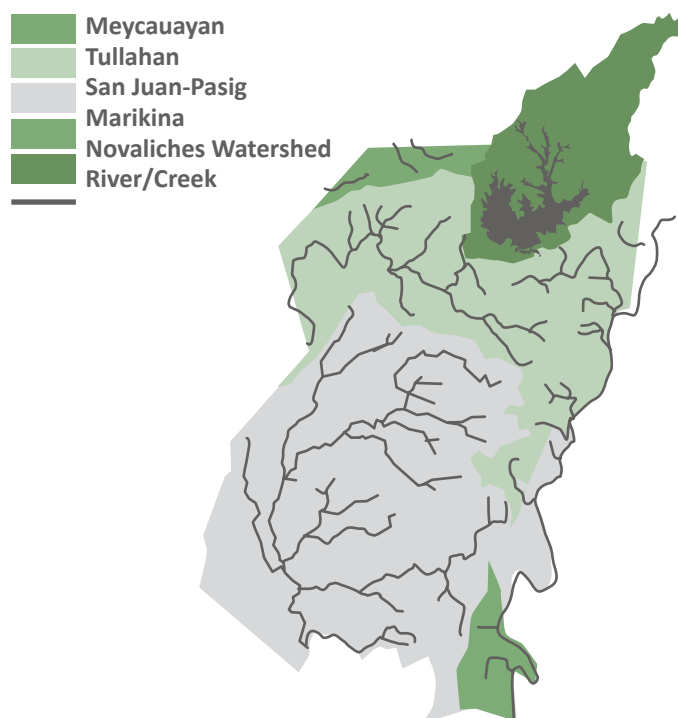


Figure GP-5 | QC Drainage Surface Map

2.2.4 | Groundwater Levels

The 1955 piezometric map indicates that in the northern part near Novaliches reservoir and at +60 meter contour in the groundwater divide, two separating groundwater flow directions exist. One towards southeast direction to Marikina Valley and the other towards southwest direction to Pasig River near the sea.

Since 1955, the groundwater flow pattern has been significantly altered due to excessive withdrawal of groundwater. The adversely affected parts of the aquifer created cones of depression. The 2004 groundwater level proved the worsened situation as increased groundwater abstraction resulted in deeper cones of depressions.

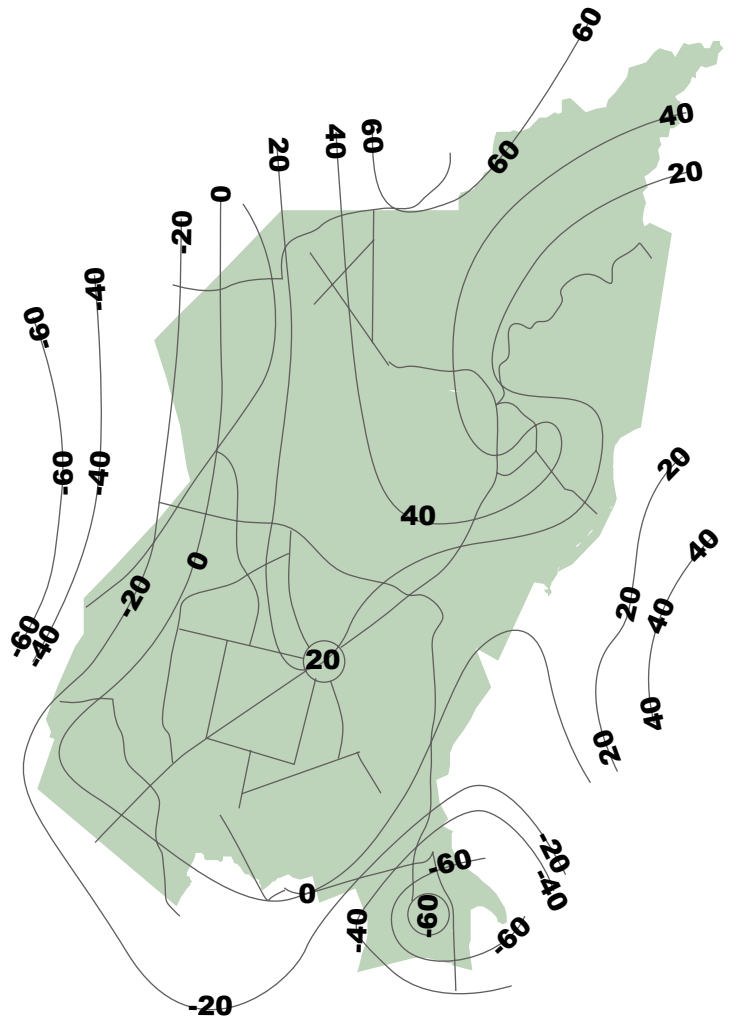


Figure GP-6 | Piezometric

2.3 Climate

The climate in Quezon City is typical of Metro Manila's, which has a distinct dry season from December to April and wet season from May to November. From 2001 – 2013, climatological values measured at the PAGASA Station 430 Science Garden showed that Quezon City had a total amount of rainfall of 35,983.50 mm. Maximum amount of rainfall was experienced in August 2012 with a record of 1,387.20 mm of which 1,007.4 mm of rain was recorded on a 3-day period. The heavy downpour was brought by the southwest

monsoon, locally known as Habagat, which was enhanced by typhoon Gener. The minimum amount of rainfall were recorded in March, April and February of 2004, 2006 and 2010, respectively where no rainy day was recorded. The maximum number of 29-rainy days occurred in July 2013. Over the 13-year period, highest temperature is experienced during the month of April averaging at 34.9 while lowest temperature is recorded during the month of January with an average of 21.2. [Appendix En-1]

Table GP-2

Month	Rainfall		Temperature						Vapor Pre	Rel. Rel. Hum %%	MSLP	Wind		Cloud Amount (okta)	No. of Days w/	
	Amount (mm)	No. RD	Max (°C)	Min (°C)	Mean (°C)	Dry Bulb (°C)	Wet Bulb	Dw Pt.				DIR	SPD		TSTM	LTNG
JAN	19.5	4	30.4	20.4	25.4	25.1	22.0	22.7	24.3	76	1012.2	NE	1	5	0	0
FEB	8.9	2	31.6	20.6	26.1	25.9	22.0	20.4	23.8	71	1012.0	NE	1	4	0	0
MAR	22.9	3	33.3	21.6	27.4	27.4	22.7	20.8	24.3	67	1011.5	SE	2	4	1	1
APR	35.1	4	34.9	23.3	29.1	29.1	23.9	21.9	26.1	65	1009.9	SE	2	4	4	4
MAY	160.4	12	34.6	24.4	29.5	29.3	25.1	23.6	29.0	71	1008.5	SE	2	5	14	13
JUN	311.6	18	32.9	24.3	28.6	28.2	25.3	24.3	30.2	79	1007.9	SW	2	6	17	13
JUL	504.1	22	31.6	23.9	27.8	27.3	25.0	24.2	30.1	83	1007.3	SW	2	6	19	13
AUG	526.8	24	31.1	23.9	27.5	27.1	25.0	24.3	30.2	84	1007.2	SW	2	7	17	9
SEP	391.7	22	31.5	23.7	27.6	27.1	24.9	24.1	30.0	84	1008.2	SW	1	6	18	12
OCT	312.0	19	31.3	23.2	27.3	26.8	24.6	23.8	29.4	83	1008.6	N	1	6	11	9
NOV	155.5	14	31.1	22.4	26.7	26.3	23.8	22.9	27.7	81	1010.0	N	1	5	5	2
DEC	83.9	9	30.3	21.3	25.8	25.4	22.7	21.6	25.7	79	1011.6	N	1	5	1	0
ANNUAL	2532.3	153	32.7	22.7	27.4	27.1	23.9	22.7	27.6	77	1009.6	SW	2	5	107	76

Source: PAGASA Station 430, Science Garden, QC
Latitude : 14°39' N
Longitude : 121°03' E



Figure GP-7 | Fault System Map

2.4 Fault System

The west Marikina Fault of the Marikina Valley Fault System (MVFS) affects Quezon City. It runs along the City's eastern boundary from the down slope area east of Violago Parkwoods in the northeast to Bagong Silangan to Northview; Capitol Park Homes; Loyola Grand Villas; Industrial Valley Subdivision; St. Ignatius to Green Meadows Subdivision in Ugong Norte in the southeast.

2.5 Land Use Patterns

Historically, the development of Quezon City was based on two master plans: the 1940 Frost Plan named after its principal architect, Harry Frost; and the 1949 master plan prepared by the City Planning Commission in accordance with the vision of Pres. Manuel Luis Quezon. The 1940 Frost Plan was only partially implemented owing to the occurrence of World War II. Hence, it was the succeeding Master Plan prepared in 1949 that directed the development of the city from the destruction brought about by the war.

This was followed by the Revised Charter of QC in 1950 which retained the residential character of the city including other major land use allocations, such as road/public/utility terminals, parks/playground and agricultural. The development was then succeeded by the City Zoning Plan of 1963 in which residential land use still had the highest allocation with no significant changes in other major land uses.

In the succeeding years, the increase in the city's population and its urbanization resulted in the deviation from these Master Plans. Land use patterns then were observed with an interval of 10-13 years from 1972 to 1985 and 1995. One of significant changes that contributed to land use change was the development of new roads leading to the northern part of the city. It paved the way to inward growth pattern of the residential communities in these areas or districts. Also, the city's vast area of vacant spaces became the prospective area for in-migration of residents displaced from the inner core of the metropolitan areas resulting in the proliferation of informal settlers in the city.

From the year 2000 onwards, additional land use allocations were noted such as institutional, special urban development and cemetery. However, all the land use allocations indicated unstable changes except for the industrial and institutional use that showed a remarkable decrease in area. The observed decrease in area may be the result of the conversion of these land uses into mixed use development and also due to the national policy to disperse industries outside Metro Manila

2.5.1 | Residential Development

It was observed that, since 1972, residential development continuously dominates the land area of the city. In the year 2000, residential communities covered an approximate land area of 7,791.19 hectares or equivalent to 48.36% of the city's land area and these are mostly in District I, II & IV which are extensively occupied by residential buildings. Residential growth continued its northward spread with the development of new subdivisions and road networks particularly in Districts II & V. Although Districts I, III and IV are already built up areas, residential lots in these districts were further subdivided into smaller lot sizes to develop townhouses and high rise residential condominiums that eventually had started to boom.

In 2009, residential developments decreased by 10% which comprises 35.33% of the city's urban area. The decrease was attributed to the number of informal

settlers relocated through off site resettlement scheme of the city as well as to the high-density residential areas that were slowly converted to mix residential/commercial uses or even to purely commercial uses.

Quezon City being a highly urbanized city and a potential hub for huge developments, investors and developers continued to develop high rise residential condominium in Districts I, III and IV in the year 2011, thus residential development again increased by 6% comprising about 41.57% of the city's urban area. The developers opted to convert some industrial land uses in District V & VI along with the commercial land uses within the core of the city and converted into residential uses.

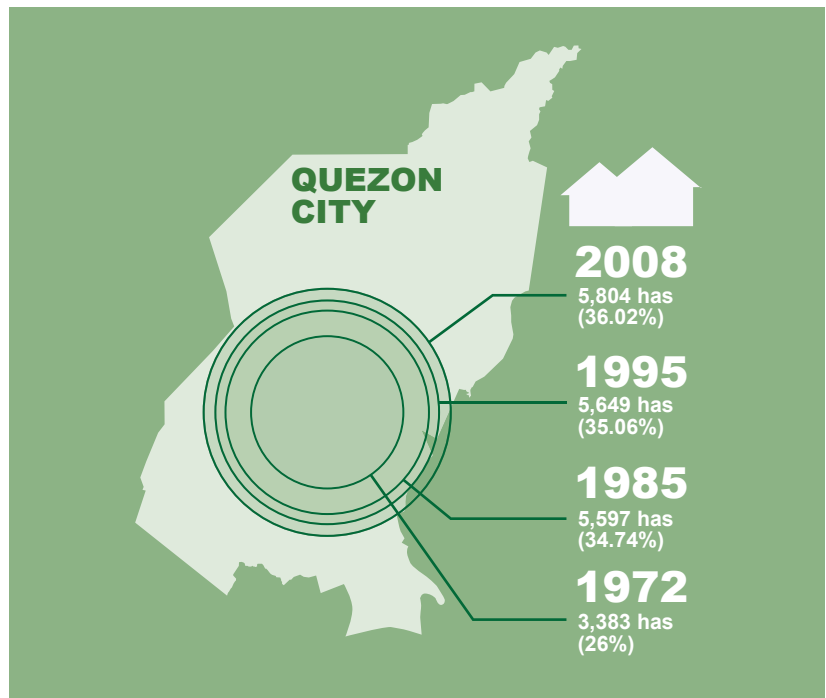


Figure GP-8 | Growth of Residential Areas, Quezon City; 1972-2008

2.5.2 | Commercial Development

Generally, commercial development in the city was concentrated along its major roads reflecting a ribbon type and from clusters of small to medium commercial shops and stores in residential communities to smaller commercial nodes in some prominent commercial areas in the city.

Major commercial developments emerged at the beginning of the year 2000 with the establishments of SM city and Robinson's in Fairview, the Triangle North of Manila (Trinoma) and Eastwood Cyberpark. These developments covered huge land areas in the city that caused significant increase in the city's commercial area. The area coverage of the commercial use is approximately 8.23% equivalent to 1,326.61 hectares.

By the end of 2009, only small strip of commercial developments contributed to the commercial land use of the city. These commercial developments were

mostly eating establishments, shops and other retail stores that slowly proliferated the side streets of a major thoroughfare. These occurrences were seen in the area of Banawe Street, D. Tuazon Street, G. Araneta Avenue, Regalado Avenue, and T. Morato.

The conversion of the industrial areas in Balintawak (Robinsons, Golden ABC) and Novaliches (SM Novaliches) and the UP Property into a Science and Technology Park (UP-Ayala Techno-hub) paved the increase of commercial use in 2011 of about 8.13% or an equivalent land area of 1,310.23 hectares.

To date current major land development are still taking place in the Central Business District and at the Neopolitan/Lagro Area in District V. The transformations of several residential zones into special urban development areas (Maginghawa and Malingap Streets and Katipunan Avenue) are also increasing.

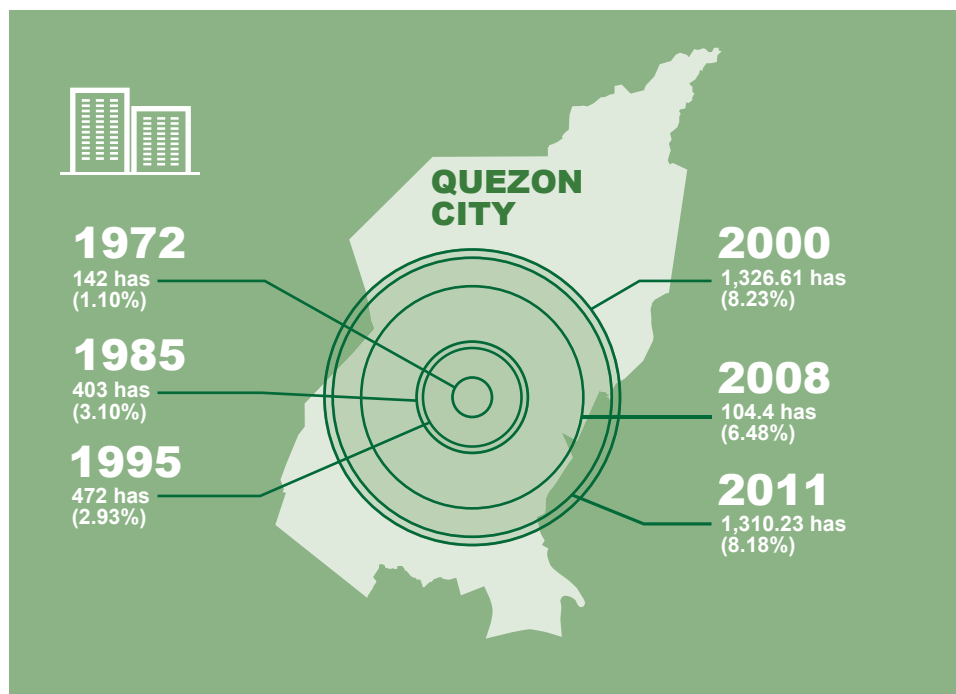


Figure GP-9 | Growth of Commercial Areas, Quezon City; 1972-2011

2.5.3 | Industrial Development

Industrial development continues to be confined at the city's industrial zones such as Balintawak, Novaliches and Libis. These are the traditional industrial district of the city owing to the large land parcels and proximity to industrialized areas and adjoining towns and cities (Caloocan, Malabon, Valenzuela and Pasig), and accessibility to international and domestic sea and airports (via A. Bonifacio-Quirino Highway).

In the year 2000, the growth in this sector constitutes only 6.36% or 1,024.60 hectares of the city's land area and tends to decrease in 2011 to 5.53% or an area of 891.68 hectares. The decrease was the result of the Presidential Memo Circular of March 17, 1973, a national policy that bans the establishment of additional medium and heavy industries in Metro Manila within a radius of 50 kilometers from the Rizal Monument. This ban somehow contributed to the location of industries to the fast growing industrial parks of Laguna and Cavite. Another factor for the decrease is the conversion of some industrial zones to residential or commercial use in Bgy. Bagumbayan (Novu City, Metropoli Residences & Circulo Verde) in Balintawak (Robinsons, Golden ABC) and in Novaliches (SM Novaliches). With this conversion trend, it is perceived that share of industrial use would continue to decrease.

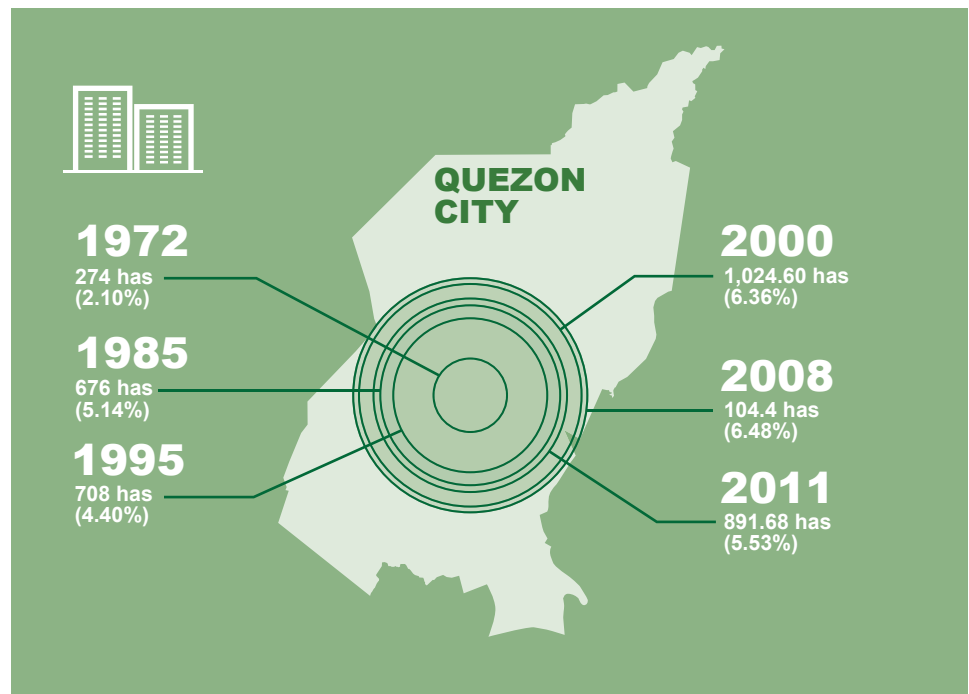


Figure GP-10 | Growth of Industrial Areas, Quezon City: 1972-2011

2.5.4 | Institutional Development

Institutional areas are confined mostly in District I, II & IV where most of national agencies and Philippine's specialized hospitals are situated. Also, well-known universities and colleges like University of the Philippines, Ateneo de Manila University and Miriam College occupied enormous tracks of land that form part of the traditional institutional zones.

Due to the rapid increase of the city's population resulting in growth of residential communities, more institutional buildings such as primary and secondary schools, both public and private, and health facilities emerged, specifically in District II or in the northern portion of the city.

Institutional uses in the year 2000 comprised about 8.17% of the city's urban area, This showed a slightly decrease from 2009 until 2011 comprising 7.16% and 6.90% respectively. This is seen to have been brought about by the declaration of National Government Center (NGC) area in Batasan Hills as a socialized housing and mixed use development.

Adding to the inventory of institutional areas are those occupied by at least 590 public and private schools offering different levels of education (preparatory, elementary and secondary levels) 107 college/universities including vocational and technical schools, 66 public and private hospitals, 65 health centers, 125 churches and chapels and about 91 government offices/agencies.

2.5.5 | Parks and Open Spaces

Currently, the city has a total of 583 parks comprising of developed, partially developed and undeveloped parks. These are primarily subdivision open spaces intended for park functions which have been turned over to the City Government by subdivision developers or homeowners' associations. As to major parks, the city boasts of the Quezon Memorial Circle and the Ninoy Aquino Parks and Wild Life which covers a total area of 42.29 hectares. Too, there are "Special" Parks which include the La Mesa Watershed (2,569.41 has.), the UP Arboretum (3.57 has.), and the recreational greens like the Capitol Golf and Country Club (check name) and the QC Sports Complex and the Veteran Memorial Hospital and the Aguinaldo Golf Course. Though these may be added to the physical inventory, these cannot be fully considered as City Parks due to their limited accessibility to the general public.

In terms of land area the trend is slightly decreasing from 16.51% or 2,659.57 in 2010 and .25% or 2,818.30 in 2011. It has been observed that many of the city's open spaces are converted into residential uses, generally as a socialized housing site and location of various community facilities.

Table GP-3 | Land Use Distribution, Quezon City: 2000-2011

Land Use Category	2000		2009		2011	
	Area in Has	%	Area in Has	%	Area in Has	%
Residential	7,791.19	48.36	5,691.67	35.33	6,697.49	41.57
Commercial	1,326.61	8.23	1,026.58	6.37	1,310.23	8.13
Industrial	1,024.60	6.36	642.57	3.99	891.68	5.53
Institutional	1,315.81	8.17	1,154.10	7.16	1,112.05	6.90
Special Urban Devt	-	-	-	-	649.49	4.03
Utility	215.53	1.34	484.67	3.01	227.58	1.41
Parks/Recreational	2,659.67	16.51	2,228.06	13.83	2,618.30	16.25
Cemetery	74.57	0.46	101.83	0.63	85.13	0.53
Roads/Rivers/Creeks	1,704.12	10.58	4,783.10	29.69	2,520.62	15.64
Total	16,112.10	100	16,112.58	100	16,112.57	100

Source: Quezon City Actual Land Use Survey

2.6 Service Utilities

2.6.1 | Water Supply

Like the rest of Metro Manila, Quezon City gets its water from the Metropolitan Waterworks and Sewerage System (MWSS) through its private distribution concessionaires: Maynilad Water Services, Inc. (MWSI) and Manila Water Company, Inc. (MWCI). The west half of the city is served by MWSI and the east by MWCI. (Refer to Figure-11)

In terms of service connections, data from MWSI and MWCI show a total of 356,794 households served as of December 2008. MWSI shares a total of water service connection of 218,817 or 61.33% while MWCI has water service connection of about 137,977 or 38.67%. Total Domestic users account for 319,733 or 89.61% connections, semi commercial consumers at 13,748 or 3.85 %, commercial users are 20,440 or 5.73 % and industrial users at 2,873 or 0.81% water service connections. (Refer to Table GP-4)



Figure GP-11 | Water Supply Map

Table GP-4 | Water Service Connection, Quezon City; 2008

Consumer Type	No. of Customer		Total	Percentage
	MWSI	MWCI		
Domestic	199,093	120,640	319,733	89.61
Semi-Business	8,304	5,444	13,748	3.85
Commercial	9,066	11,374	20,440	5.73
Industrial	2,354	519	2,873	0.81
Total	218,817	137,977	356,794	100

Source: Maynilad Water Services, Inc./Manila Water Company, Inc.

A total amount of 15,600,219 cu. meters of water is sold per month in the city, of which 10,613,015 or 68% are billed volume of residential users followed by commercial users at 3,692,092 or 24%, semi business at 951,174 or 6% and industrial users at 343,938 or 2%. Amount of water sold by MWSI per month is 6,685,289 cubic meters or 42.85% while MWCI has a total of 8,914,930 cubic meters or 57.15%. (Refer to Table GP-7).

Table GP-5 | Billed Volume, Quezon City: 2008
(Amt. of Water Sold per month, in cu. meters)

Consumer Type	MWSI	MWCI	Total	Percentage
Domestic	5,321,155	5,291,860	10,613,015	68
Semi-Business	415,854	535,320	951,174	6
Commercial	715,162	110,820	3,692,092	24
Industrial	233,118	8,914,930	343,938	2
Total	6,685,289	8,914,930	15,600,219	100

Source: Maynilad Water Services, Inc./Manila Water Company, Inc.

The data also showed that the city consumed an average of 43.7 cu. meters per service connection per month. Commercial users were the biggest consumers at 180.6 cu. Meters followed by industrial with 119.7 cu. meters, semi business at 69.2 cu. meters and domestic users 33.2 cu. meters. (Refer to Table GP- 6).

Table GP-6 | Monthly Average Consumption per Service Connection*, Quezon City: 2008

Consumer Type	MWSI (in cu. m.)	MWCI (in cu. m.)	Total
Residential	26.7	43.9	33.2
Commercial	50.1	98.3	69.2
Industrial	78.9	261.7	180.6
Streetlight	99.0	213.5	119.7
Total	30.6	64.6	43.7

*computed as Billed Volume /Water Service Connection

Source: Maynilad Water Services, Inc./Manila Water Company, Inc.

2.6.2 | Power Supply

As of 2015, the total number of MERALCO customers is 614,251 of which 558,603 metered connections or 90.94% are residential, 54,309 or 8.84% are commercial, 994 or 0.16% are industrial and 345 or 0.06% are for streetlights. (Refer to Table GP- 7).

Table GP-7 | MERALCO Customers by Use, Quezon City; 2008

Consumer Type	Number of Customers	Percentage
Residential	558,603	90.94
Commercial	54,309	8.84
Industrial	994	0.16
Streetlight	345	0.06
Total	614,251	100

Source: MERALCO

For the same year, the City recorded a total monthly average consumption of 370,025,611 kwh, of which 130,337,952 or 35.22% are for residential, 196,717,982 kwh or 53.16% are for commercial, 41,508,783 kwh or 11.22 % are for industrial and 1,460,894 kwh or 0.39 % are for streetlights. (Refer to Table GP-8)

Table GP-8 | Monthly Average Kilowatt Hour Consumption by Use, Quezon City; 2007

Consumer Type	Kilowatt Hour Consumption	Percentage
Residential	130,337,952	35.22
Commercial	196,717,952	53.16
Industrial	41,508,783	11.22
Streetlight	1,460,894	0.39
Total	370,025,611	100

Source: MERALCO

2.7 Transportation and Communication

2.7.1 | Road Network

The City has a total road kilometerage of 2,297.59 kilometers. There has been a 202.07 kilometers increase from 2007 to 2016 total road kilometerage. The present road-to-land area ratio is 16.81 km/100 hectares. There has been an 8.10% increase from the 2007 road-to-land area ratio of 15.55 km/100 hectares. This is most significant in District II (became District II, V and VI last July 2, 2012) where much of the new land development activities had taken place. A total of 138.97 km. new roads have been added in District II during the 9-year period compared to only 63.10 km. of total new roads in the already developed Districts I, III and IV. (Refer to Table GP-9)

Of the total new roads constructed from 2007 to 2016, only 3.59 km. (1.78%) were primary arterial roads. These were the extension of Mindanao Avenue and Katipunan Avenue Extension at Bgy. Nagkaisang Nayan and the rest 198.51 km. (98.22%) were secondary, collector, tertiary and service roads. Tertiary or distributor roads are basically used as access to properties.

Table GP-9 | Road Kilometerage and Road-to-Land Area Ratio Per District, Quezon City: 2007 and 2016

District	Area (Has.)	2007		Area* (Has.)	2007		Increase/Decrease (2007-2015)	
		Km	Ratio (per 10 has.)		Km	Ratio (per 10 has.)	Km	Ratio
1	1,955.00	317.30	16.23	1,959.39	323.78	16.52	6.48	0.33
2	6,917.00	1,144.82	16.55	2,182.37	373.61	17.12	771.21	35.34
3	2,237.00	301.65	13.48	2,184.82	339.31	15.53	37.66	1.72
4	2,364.00	331.75	14.03	2,341.89	350.71	14.98	18.96	0.81
5				2,802.57	552.10	19.70	552.10	19.70
6				2,197.39	358.08	16.30	358.08	16.30
Total	13,473.00	2,095.52	15.55	13,668.43	2,297.59	16.81	202.07	1.48

Source: City Planning & Development Office

*Corrected city boundary map based on 2009 orthophoto

Table GP-10 | Road Category, Quezon City: 2007 and 2016

Category	2007		2016		Increase/Decrease (2007-2016)	
	Km	Percentage	Km	Percentage	Km	Percentage
Primary	156.52	7.47	160.11	6.97	3.59	1.78
Secondary	431.4	20.59	160.74	7.00	270.66	133.92
Alternate	-	-	68.22	2.97	68.22	33.76
Collector	-	-	426.74	18.57	426.74	211.15
Tertiary	1,299.12	62	1,285.47	55.95	13.65	6.75
Service	208.47	9.95	196.33	8.54	12.14	6.01
Total	2,095.51	100	2,297.61	100	202.10	100

Source: City Planning & Development Office

More significantly, the increase in road to land ratio opened roughly 440 hectares of once idle lands for various urban functions, mostly residential. From about 640 hectares of inaccessible land in 1995, the area of idle lands has been reduced to 200 hectares at present. (Refer to Figure GP-10).

In terms of road-to-land ratios, it is seen that Districts 2 and 5 has a deficit in primary road kilometerage. The deficit translates to 0.36 km. of new roads to attain the minimum 1 km. per 100 hectares for Districts 2 and 5. (Refer to Table GP-11).

Figure GP-12 | Road Network Development

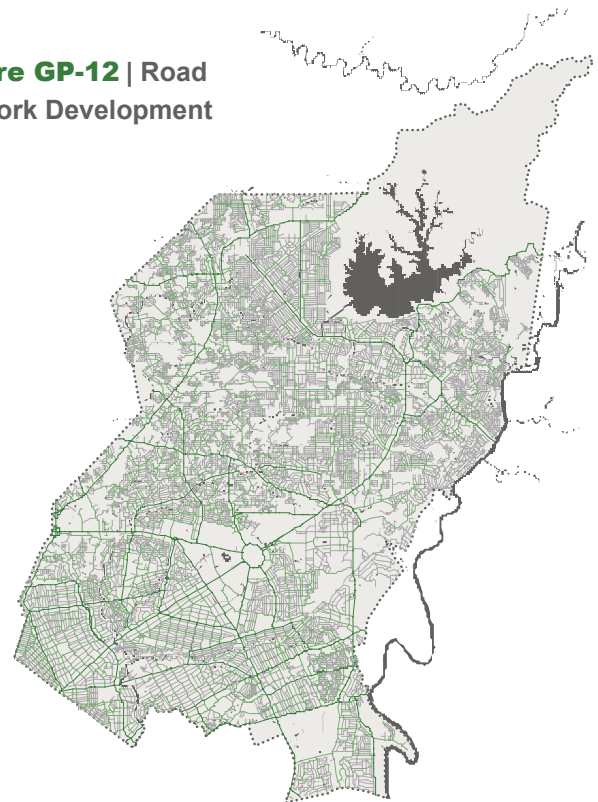
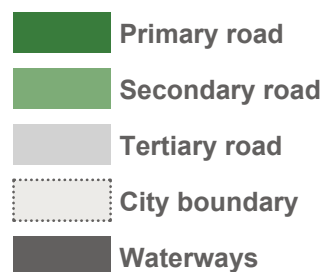


Table GP-11 | Road-to-Land Area Ratio Per Category Per District, Quezon City: 2015

District	Area (Has.)	Primary			Secondary		
		Km	Ratio (Std. 1km/100 Has.)		Km	Ratio (Std. 2km/100 Has.)	
			Actual	Excess/ Deficit		Actual	Excess/ Deficit
1	1,959.39	32.95	1.68	0.68	128.24	6.54	4.54
2	2,182.37	16.01	0.73	-0.27	82.18	3.77	1.77
3	2,184.82	26.44	1.21	0.21	74.41	3.41	1.41
4	2,341.89	35.19	1.50	0.50	112.71	4.81	2.81
5	2,802.57	25.64	0.91	-0.09	144.22	5.15	3.15
6	2,197.39	25.29	1.15	0.15	102.28	4.65	2.65
Total	13,668.43	161.52	1.18	0.18	644.03	4.71	2.71

Source: City Planning & Development Office

Of the total kilometerage of 2,297.59 km., 213.69 km. or 9.30% are classified as national roads, 935.80 km. or 40.73% are city roads, 965.63 km. or 42.03% are privately-owned roads and 182.47 km. or 7.94% are barangay roads. The DPWH maintains the national roads while the City Engineer's Office takes care of city roads. Maintenance and improvement of private roads are the responsibility of their respective owners, developers or homeowners associations.

Table GP-12 | Road Classification (in km) per District, Quezon City: 2016

District	National Road	City Road	Private Road	Barangay Road	Total Per District
1	47.92	232.98	40.26	2.62	323.78
2	19.80	74.01	158.23	121.57	373.61
3	37.32	155.74	142.41	3.84	339.31
4	63.30	206.92	72.77	7.72	350.71
5	19.81	186.98	331.34	13.97	552.10
6	25.54	79.17	220.62	32.75	358.08
Total	213.69	935.80	965.63	182.47	2,297.59

*computed as Billed Volume /Water Service Connection
Source: Maynilad Water Services/Manila Water Company

Table GP-13 | Road Classification (in km) per Category, Quezon City: 2016

Category	Classification				Total
	National Road	City Road	Private Road	Barangay Road	
1	47.92	232.98	40.26	2.62	323.78
2	19.80	74.01	158.23	121.57	373.61
3	37.32	155.74	142.41	3.84	339.31
4	63.30	206.92	72.77	7.72	350.71
5	19.81	186.98	331.34	13.97	552.10
6	25.54	79.17	220.62	32.75	358.08
Total	213.69	935.80	965.63	182.47	2,297.59

2.7.2 | Traffic Volume

Based on the traffic count of Metro Manila Development Authority Traffic Operations Center (MMDA-TOC) in 2016, EDSA is the most traveled thoroughfare in the city with an average of 192,226 vehicles per day (vpd) volume. Elliptical Road registered second with an average of 156,790 (vpd) while Quezon Avenue is recorded at third with 156,488 (vpd). Another highly traveled section is Commonwealth Avenue which registered fourth where the reading is at 151,487 (vpd) and the fifth is Aurora Boulevard with a reading of 52,176 (vpd).

2.7.3 | Traffic Volume Prone Areas

The deficiency in primary and secondary roads in several parts of the city is evident with the prevalent heavy traffic along the few existing thoroughfares and the frequent occurrence of congestion at major intersections.

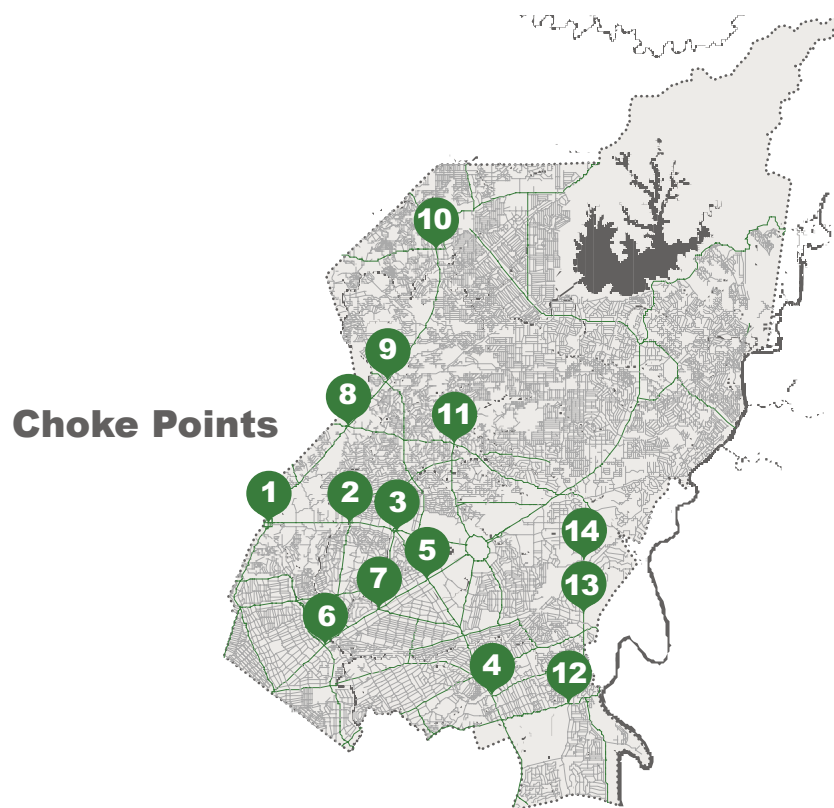


Figure GP-13 | Traffic Prone Areas

Table GP-14 | Traffic Prone Areas, Quezon City: 2007

Traffic Prone Areas	Identified Causes
Along EDSA	Heavy traffic volume from Caloocan and North Expressway;
Balintawak Cloverleaf	obstruction of sidewalk vendors
	Public Utility vehicles loading/unloading
At corner Roosevelt and Congressional	Commercial establishment; public utility vehicles loading/unloading
At corner North and West Avenue	Commercial activities, high traffic volume; vehicles loading/unloading
Cubao Area Along Quezon Avenue	Heavy traffic volume; public utility vehicles loading/unloading area; no diversion route
At corner EDSA	Heavy traffic volume
At corner G. Araneta Avenue	Heavy traffic volume; public utility vehicles loading/unloading
At corner Roosevelt Avenue	Narrow carriage-way of Tandang Sora Ave.; route of industrial transport
Along Quirino Highway	
At corner Tandang Sora	Commercial establishment; high traffic volume carriageway
At corner Old Sauyo Road	Narrow carriageway; heavy traffic
At corner Gen. Luis St.	Commercial activities; narrow volume; no diversion route
Along Tandang Sora Avenue	Heavy traffic volume; narrow carriage-way; public utility vehicles loading/unloading
Along Boni Serrano Avenue	
Along Mindanao Avenue	Heavy Traffic volume from Quirino Highway to North Avenue
	Route of industrial transport, Public Utility vehicles route
Along Commonwealth Avenue	Heavy Traffic volume from Dona Carmen to Regalado Avenue
	Public Utility vehicles route loading / unloading
	Heavy Traffic volume from Tandang Sora to Elliptical Road
	Public Utility vehicles route loading / unloading
Along Katipunan Avenue	Heavy Traffic volume from Tandang Sora to E. Rodriguez Jr Ave
	Commercial and school activities in the area of UP,Ateneo & Merriam
	Route of industrial transport & Public Utility Vehicles
Along Aurora Blvd.	Heavy Traffic volume from Katipunan Avenue to EDSA
	Public Utility vehicles route loading / unloading
Along East Avenue	Institutional activities of Govt offices & hospitals, SSS, , EAMC ,Heart Center,
	City Hall, LTO, LRA,LTRFB, Route of Public Utility vehicles and loading / unloading
Along Kamuning Avenue	Commercial activities and establishments
	Route of Public utility vehicles loading /unloading
Along Tomas Morato	Commercial activities and obstruction of sidewalk parking of vehicles
	Route of Public utility vehicles
Along G. Araneta Avenue	Commercial activities and establishments
	Route of Public utility vehicles loading /unloading
	On-going construction of Skyway 3 project
Along 15th Avenue	Commercial and sidewalk vendors activities and establishments
	Route of Public utility vehicles loading /unloading, Narrow carriageway of road
Along P. Tuazon Avenue	Commercial activities and establishments
	Route of Public utility vehicles loading /unloading
Along E. Rodriguez Avenue	Commercial activities and establishments
	Route of Public utility vehicles loading /unloading

Source: City Planning & Development Office

2.7.4 | Mode of Transport

Available modes of transport in Quezon City are purely land-based. The 2006 data of the MMDA-Traffic Operations Center revealed that private transport dominates the city with 82.49% of the total volume while public utility vehicles (i.e., buses, jeepneys and taxis) comprise 13.72% and industrial/commercial vehicles (i.e., trucks, vans) at 3.79%.

In terms of passenger volume however, public transport modes (buses, jeepneys, taxis) were estimated to carry as much as 71% while only 29% are on private conveyances. Furthermore, 57% of public commuters ride jeepneys, 38% are in buses, and 5% use the taxi. The Light Rail Transit (LRT) Line 3 (EDSA), on the other hand, carries as many as 800,000 passengers per day while the LRT Line 2 (Aurora) carries 30,000 passengers per day.

Public buses ply the city's six (6) major thoroughfares namely: EDSA, Commonwealth Avenue, Quirino Highway, General Luis Avenue, Quezon Avenue, and Aurora Boulevard while jeepneys service most other main roads as well as some 50 registered bus routes. Tricycles, on the other hand, are confined to the inner areas and communities. Data from the Land Transportation Franchising and Regulatory (LTFRB) show that, as of 2016, there are 9,320 units of public utility buses and 23,740 public utility jeeps. Meanwhile, data from Tricycle Regulatory Unit (TRU) as of April 2016 recorded 24,713 registered tricycle units plying the 150 Tricycle Operators and Drivers Association (TODA) areas in the city.

Table GP-15 | Transport Programs and Projects, QC

Program/Project Title	Description/objective	Lead Agency
Metro Manila Skyway Stage 3 Section 4 on-going construction	Elevated viaduct from skyway at SLEX in Makati to Balintawak. Segments are G. Araneta to Sgt. Rivera Ave. then via A. Bonifacio. 4.8 kms.	DOTr-TRB Citra Corp.
On-going construction MRT 7 Project	Will traverse center line of North Ave-Commonwealth Ave-Regalado Ave-Quirino Highway-Ciudad Real Road, 11 stations, 23 Kms	DOTr, Universal LRT Corp.
Southeast Metro Manila Expressway Project (C-6)	QC segments are San Mateo Marikina River to South side of Batasan towards IBP Road in Commonwealth Ave., with 70 kms, 3 lanes.	DPWH , Citra
Visayas Avenue Ext. On-going construction	Tandang Sora Ave. to Republic Ave. (C-6), 2.46 kms, 26 meters wide ROW, 3 lanes each	DPWH
Metro Manila Bus Rapid Transit (BRT) System	Alternate mass transit system segregated busway on center (inner-most) lanes of road. Pilot Route at Phase I (Espana – Quezon Avenue) Manila city hall to QMC, 12.3 kms 16 stations segregated lane with 280 buses.	DOTr, Pre-Feasibility study by UP-NCTS



CHAPTER 3 | Demographic Profile and Social Development

The Demographic and Social Development Profile discusses sub-sectors on Population, the Status of Well-Being which includes Health, Education, Social Welfare Services, Housing, Sports and Recreation and Protective Services.

3.1 Population

3.1.1 | Population Size and Growth Rate

Population Size

The 2015 official census of the Philippine Statistics Authority (PSA) formerly National Statistics Office (NSO) shows that the city has a population of 2,936,116, an increase of 174,396 persons or 6.31% more over the 2010 population of 2,761,720. Quezon City's population

is the largest comprising 22.80% or almost ¼ of the NCR's population of 12.88M and 2.91% of the 100.98M Philippine population (See Figure DS-1). Of the 33 highly urbanized cities (HUC) in the country, the city also ranks first with the largest population.

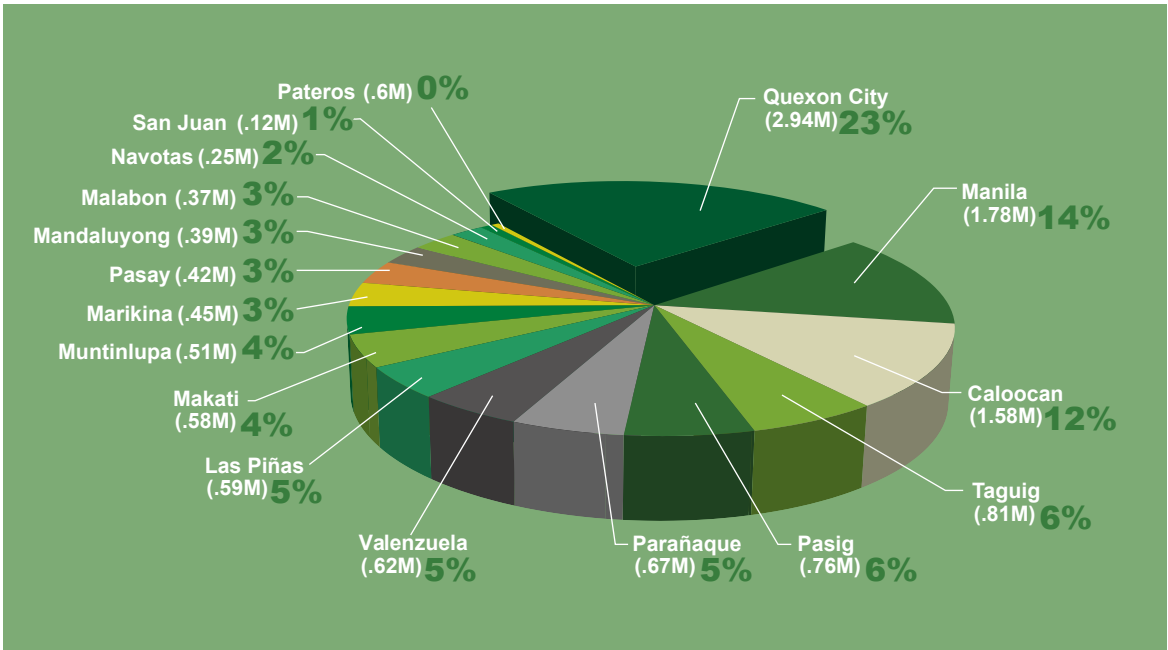


Figure DS-1 | Distribution of Population; Metro Manila: 2015

Records in various census years showed that the population of the city has increased tremendously over the past years. The city's population in 1939 was barely 39,013 persons only, however, it surpassed the one million population mark in 1980 with 1,165,865, hitting the two million population of 2,173,931 in 2000 census year and reaching almost three million population in the latest PSA census of 2,936,116 in 2015. (See Table DS-1)

Growth Rate

In terms of the city's annual population growth rate, it was highest between census year 1939-1948 at 12.20%, decreasing to 11.32% in census year 1948-1960 and decreasing further to 6.60% between the year 1960-1970. From thereon, the annual population growth rate gradually decreased to 4.87% in 1970-1975; 4.03% in 1975-1980; 3.64% in 1980-1990; and 3.60% in 1990-1995. There was a significant decrease between census year 1995-2000 at 1.92% but then again the growth rate increased in 2000-2007 at 2.92% and slightly decreased to 2.42% in period 2007-2010. It however, registered the lowest decreased in the latest census in 2015 showing a 1.17% growth rate. (Refer to Table DS-1)

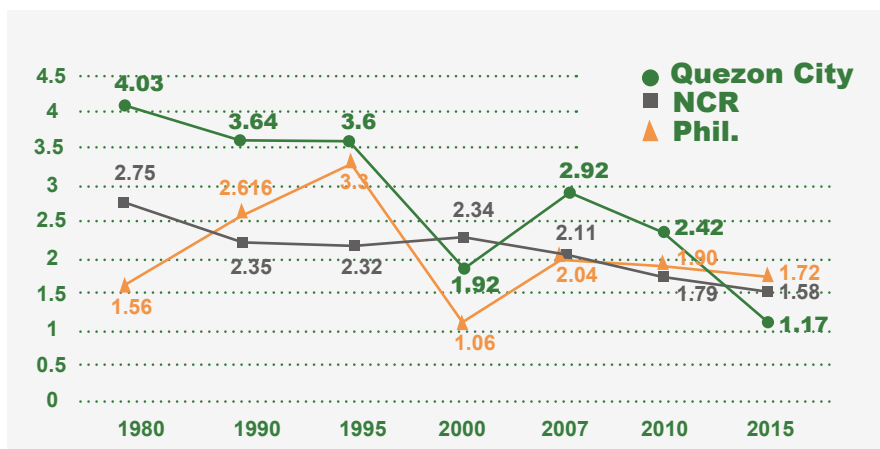
Table DS-1 | Total Population and Growth Rate by Census Year, Quezon City: 1939-2015

Census Year	Total Population	Annual Growth
1939	39,013	
1948	107,977	12.20
1960	397,990	11.32
1970	754,452	6.60
1975	956,864	4.87
1980	1,165,865	4.03
1990	1,666,766	3.64
1995	1,989,419	3.60
2000	2,173,931	1.92
2007	2,679,450	2.92
2010	2,761,720	2.42
2015	2,936,116	1.17

Source: Philippine Statistics Authority

Viewing it in a larger geographical scale, the city's latest annual population growth rate of 1.17% is lower compared than the National Capital Region's (NCR) rate of 1.58% as well as the national growth rate of 1.72% (See Figure DS-2). It was noted however, that for the past years, generally the city's population growth rate was consistently higher than that of the NCR and Philippine population growth rate and only in 2015 that Quezon City had a lower growth rate.

At the current growth rate, the city's population doubling time is 59 years, which is 30 more years longer compared to only 29 years in the 2010 census.



Source: Philippine Statistics Authority

Figure DS-2 | Annual Population Growth Rate in Various Census Periods, Quezon City: 1980-2010

Population Size and Growth Rate by District

The redistricting of the city into the six (6) Legislative Districts affected the population size of the former District II which, in 2010 represented more than half (58%) of the city's total population, but was reapportioned in 2012 under Republic Act 10170 into the additional Districts V and VI.

Among the city's six (6) Districts, however, District II remains to have the largest population with 688,773 or 23.46% of the total population. But as to population growth rate, District V has the fastest with 1.79% which is even higher than the city's growth rate of 1.17%. District I had a negative growth rate of 0.23. (See Table DS-2)

Table DS-2 | Population Distribution and Growth Rate by District, Quezon City: 2010, 2015

District	2010		2015		2010-2015
	Population	Percent	Population	Percent	Growth Rate
I	414,039	14.99	409,162	13.94	(0.23)
II	635,967	23.03	688,773	23.46	1.53
III	307,638	11.14	324,669	11.06	1.03
IV	428,555	15.52	446,122	15.19	0.77
V	488,172	17.68	535,798	18.25	1.79
VI	487,349	17.65	531,592	18.10	1.67
TOTAL	2,761,720	100.00	2,936,116	100.00	1.17

Source: Philippine Statistics Authority

Barangay Population and Growth Rate

At the barangay level, Bgy. Commonwealth in District II remains to be the most populated barangay with 198,285 or 6.29% increase from 186,543 persons in the 2010 census. Bgy. Quirino 3-A in District III is the least populated barangay with 1,140 or 3.31% decrease from 1,180 persons in 2010.

fastest growth rate of 14.26%. It has a population of only 6,638 in 2010, but grew to 13,365 which doubled in a span of only 5 years. Majority (71.83%) or 102 barangays have increased growth rate ranging from 0.01 to 14.16 mostly in Districts II, V & VI. Meanwhile, forty (40) barangays have negative growth rate particularly those in District I, III & IV.

Barangay New Era in District VI was noted to have the

3.1.2 | Population Density

The city's population density increased from 17,140 persons per km² in 2010 to 18,222 persons per km² in 2015. This is lower compared with Metro Manila's 20,247 persons per km².

**Table DS-3 | Population Density (person per km²),
Quezon City, NCR and the Philippines: 2010 and 2015**

Area	Land Area (km ²)	2010		2015	
		Population	Density	Population	Density
Quezon City	161.125	2,761,720	17,140	2,936,116	18,222
NCR	636.000	11,855,975	18,641	12,877,253	20,247
Philippines	300,000.000	92,337,852	308	100,981,437	337

Source: Philippine Statistics Authority

District II is the most densely populated with 31,566 per km² followed by District VI with 24,196 and District I with 20,886 persons per km². The least dense district is District III at 14,865 persons per km² which is attributed to the presence of first class residential subdivisions in the area such as the La Vista, White Plains, Corinthians, Blue Ridge, Green Meadows, St. Ignatius, etc.

Table DS-4 | Population Size and Density per District, Quezon City: 2010 and 2015

District	Land Area (km ²)	2010		2015	
		Population	Density	Population	Density
I	19.59	414,039	21,135	409,162	20,886
II	21.82	635,961	29,146	688,773	31,566
III	21.84	307,638	14,086	324,669	14,865
IV	23.42	428,555	18,299	446,122	19,057
V	28.03	488,172	17,416	535,798	19,115
VI	21.97	487,349	22,182	531,592	24,196
Reservoir	24.44				
Total	161.125	2,761,720	17,140	2,936,116	18,223

Source: Philippine Statistics Authority

3.1.3 | Natural Increase in Population

Increase in population is attributed to net natural increase and in-migration. Natural increase is computed as total live births less total deaths. The natural increase in the population for the period 2010-2015 constitutes 129,826 or 74.44% of the 174,396 population increase. The remaining 25.56% or 44,570 people are presumed to be brought about by migration. (Refer to Table DS-5). It was observed that the assumed migration rate in the city is now lower compared with the 47.73% in 2010.

The migration data from the PSA 2010 Census of Population has validated the said observation noting it is Region IVA or CALABARZON that continues to be the

most preferred area of migrants with 28.00% of long distance movers followed by Metro Manila with only 20.00% and Region III has 13.00% of the long distance movers. Some cited reasons or factors for migration include; lack of employment and livelihood opportunities in their locality; the mismatch of educational attainment and available economic activities in the area of origin pushes migrants to the cities; migration decisions are also facilitated by existing social support and network like having relatives or friends in the area of destination.

Table DS-5 | Yearly Natural Increase of Population; Quezon City: 2007-2015

Year	Population	Total Yearly Population Increase	Total		Yearly Natural Increase (Births-Deaths)
			Births	Deaths	
2010	2,761,720				
2011	2,836,875	75,155	41,822	12,982	28,840
2012	2,915,774	78,899	42,380	20,353	22,027
2013	2,998,658	82,884	43,038	21,570	21,468
2014	3,085,786	87,128	56,958	21,934	35,024
2015	2,936,116	-149,670	43,617	21,150	22,467
Total		174,396	227,815	97,989	129,826
Percent of Total Increase		100.00			74.44

Source: Philippine Statistical Authority; Quezon City Health Department

3.1.4 | Household Size

The average household size in the city in 2010 is 4.3 members which is lower than the average household size of 4.50 in year 2000. This comprises more or less a couple with 2 or 3 children or other members of the household. Both Quezon City and Metro Manila have the same average household size of 4.3 members.

At the district level, District II remains to have the highest household size of 4.6 members. District III and V have same average household size of 4.4 while District VI has same as the city's average household size of 4.3 members. The two(2) other districts are below the city's average household size namely; District I with 4.2 members and District 4 with 4.1 members.

3.1.5 | Age and Sex Composition

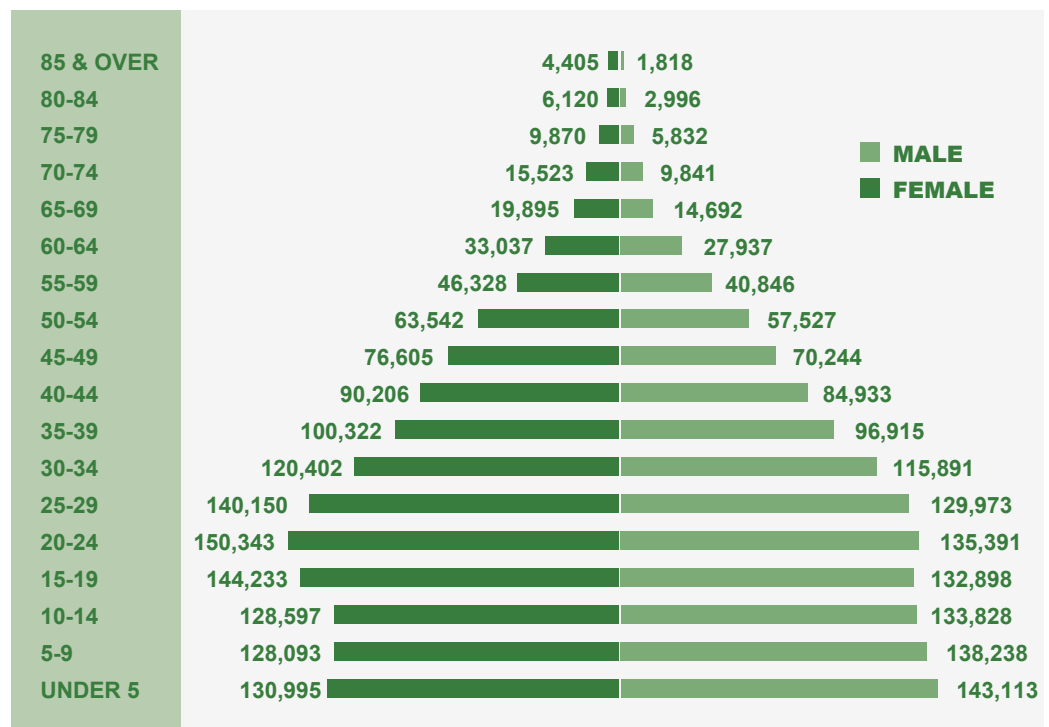
The population of the city as of 2010 is generally young with an average age of 27 years. Females comprise 51.19% (1,408,666) males comprise 48.81% (1,342,413).

Based on the 2010 disaggregated data by PSA, the child and youth population alone (0-24 years old) constituted nearly half (49.63% or 1,365,729) of the total population. About 54,822 or 1.99% belong to 0-11 mos. or infant population, 219,286 (7.97%) 1-4 yr. old or child population and 380,640 (13.83%) 0-6 yr. old population. A young population is viewed both as an asset because it implies more human resources and a liability because

more services will be needed to serve this sector.

Total labor force or working age population 15-64 yrs. old and above in 2010 is 1,948,715 or 70.82% of the total population, 47.61% of whom are male and 52.39% are female.

There are 151,966 or 5.52% persons comprising the 60 years old and over population, with the elderly female population making up 58.47% higher than 41.53% elderly male population.



Source: Philippine Statistical Authority

Figure DS-3 | Population by Sex and Age Classification; Quezon City: 2010

Dependency ratio in 2010 was computed to be 48 dependents per 100 persons in the working age population 15-64 years old. As to sex dependency ratio it shows that out of the 48 dependents, both male and female dependents are equally distributed (24 male and 24 female dependents). Young dependency ratio is higher (43 dependents) than the elderly (5 dependents).

Female populace in 2010 was 1,408,666 of which 58.37% or 822,261 are of reproductive ages (15-49 years old). The number of women in the reproductive age is an important population indicator since it signifies increased birth rates in the future. The 2009-2013 average annual fertility rate or the number of births per 1,000 women of childbearing age was registered at 80 per 1,000.

3.1.6 | Population Distribution by Marital Status, Religion, Language Spoken, and Ethnicity

In 2010, out of the total of 2,211,140 household population aged 10 years old and over, single population constituted 46.14% and married comprised 41.59%. The rest of the population were categorized as follows; common-law and live-in marital arrangement (6.73%), widowed (3.64%) and divorced/separated (1.84%). In all of the categories for marital status, females outnumbered the males (Refer to Table DS-6).

Table DS-6 | Household Population 10 Years Old and Over by Civil Status and Sex, Quezon City: 2010

Civil Status	Total	Percent	Male	Percent	Female	Percent
Single	1,020,156	46.14	507,583	49.76	512,573	50.24
Married	919,572	41.59	453,518	49.32	466,054	50.68
Common Law / Live-in	148,720	6.73	73,524	49.44	75,196	50.56
Widowed	80,468	3.64	14,361	17.85	66,109	82.15
Divorced / Separated	40,784	1.84	12,029	29.49	28,755	70.51
Unknown	1,440	0.06	547	37.99	893	62.01
Total	2,211,140	100	1,061,562	48.01	1,149,578	51.99

Source: Source: Philippine Statistical Authority

The predominant religion in the city is Roman Catholic including Catholic Charismatic (88.13%) followed by Iglesia Ni Cristo (4.19%), Protestants/Methodist/Baptist/Pentecost/Adventist (3.31%), Born Again Christians (1.46%) and others (see Table DS-7).

Table DS-7 | Household Population by Sex and by Religion, Quezon City: 2010

Religious Affiliation	Total	Percent	Male	Percent	Female	Percent
Roman Catholic including Catholic	2,425,015	88.13	1,188,001	48.99	1,237,014	51.01
Iglesia Ni Cristo	115,407	4.19	57,082	49.46	58,325	50.54
Protestants / Methodist / Baptist / Pentecost / Adventist	90,996	3.31	39,614	43.53	51,382	56.47
Born Again Christian	40,125	1.46	19,129	47.67	20,996	52.33
Islam	21,600	0.78	10,944	50.67	10,656	49.33
Other Religious Affiliations	57,771	2.10	27,765	48.06	30,006	51.94
Not Stated	183	0.01	89	48.63	94	51.37
None	482	0.02	289	59.96	193	40.04
Total	2,751,579	100	1,342,913	48.81	1,408,666	51.19

Source: Source: Philippine Statistical Authority

Tagalog is the most commonly used language spoken by 46.78% of the population. The rest are Bisaya/Binisaya (13.47%) Bicolanos (9.03%), Ilocanos (8.13%) and others (Refer to Table DS-8).

Table DS-8 | Household Population by Ethnicity and Sex, Quezon City: 2010

Ethnicity	Total	Percent	Male	Percent	Female	Percent
Tagalog	1,287,154	46.78	622,768	46.38	664,386	47.16
Bisaya / Binisaya	370,580	13.47	177,341	13.21	193,239	13.72
Bicolano	248,588	9.03	124,947	9.30	123,641	8.78
Ilocano	223,692	8.13	111,095	8.27	112,597	7.99
Hiligaynon / Ilonggo	119,473	4.34	56,769	4.23	62,704	4.45
Pangasinan / Panggalatok	72,582	2.64	36,658	2.73	35,924	2.55
Cebuano	70,090	2.55	33,898	2.52	36,192	2.57
Kapampangan	47,437	1.72	23,815	1.77	23,622	1.68
Masbateño / Masbateñon	15,763	0.57	7,915	0.59	7,848	0.56
Boholano	14,156	0.51	7,182	0.53	6,974	0.49
Others	281,399	10.23	140,167	10.44	141,232	10.03
None	482	0.02	288	0.02	194	0.01
Not reported	183	0.01	70	0.01	113	0.01
Total	2,751,579	100	1,342,913	100	1,408,666	100

Source: Source: Philippine Statistical Authority

3.2 Health

3.2.1 | Health Status

Table DS-9 | Summary of Vital Health Statistics, Quezon City: 2010-2015

	2010		2011		2012		2013		2014		2015	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Live Birth	74,195	25.10	69,650	23	73,223	25.11	76,180	25.40	76,100	24.66	76,495	24
Death	15,844	5.35	12,982	4.23	20,353	6.98	21,570	7.19	21,934	7.11	21,150	6.66
Neo-Natal Death	455	10.41	499	7.16	622	8.49	1,187	15.58	595	7.82	639	8.35
Infant Death	908	21	789	18.81	1,201	16.44	1,580	20.74	1,095	15	1,165	15.23
Maternal Death	33	75.51	46	66.04	47	96.96	68	89.26	59	77.53	42	54.91
Fertility Rate		59.28		75.00		101		102.00		96.00		96.68
Child Death	361	1.12	267	1.02	458	1.45	423	1.31	414	1.2	412	1.20

Source: Quezon City Health Department

3.2.2 | Maternal Health

Ensuring good health of the mother and child starts from conception and sustained after birth delivery. Maternal care for safe motherhood should thus, be observed and this can be gauged by the quality of pre-natal, natal and post natal care and services given to mothers.

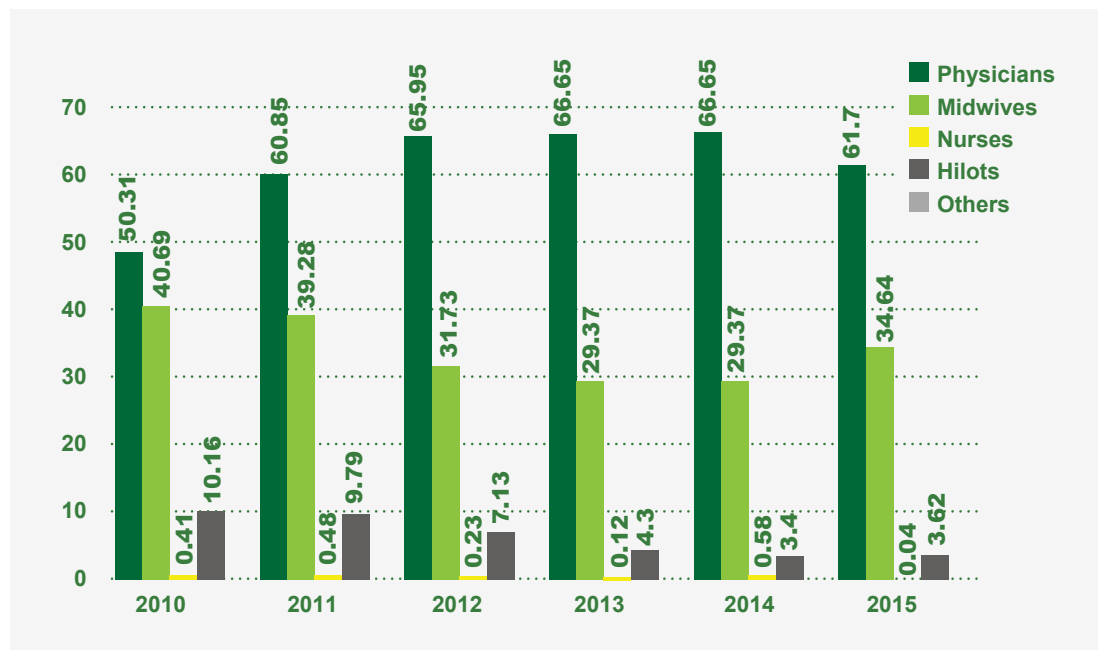
Pre-natal check-up of 97,498 pregnant women in 2015 exceeds by 11,707 or 13.65% more of the 85,791 target pregnant women, of which 49.91% had early pre-natal check-up or first trimester check-up which is higher than the 42.25% early pre-natal coverage in 2010. However, only 19.47% of the 97,498 pregnant women were given complete iron supplementation, to prevent or treat iron deficiency anemia.

On the other hand, the provision of at least 2 doses of tetanus toxoid immunization (TT2) was accorded to 46.86% of the target pregnant women seen which is

higher compared to Metro Manila's 33.72% coverage. Tetanus toxoid is given to pregnant women to prevent tetanus in newborn babies.

Birth rate decreased from 25.10 per 1,000 population in 2010 to 24.07 per 1,000 population in 2015. There are more (51.95%) male births than female (48.05%) births.

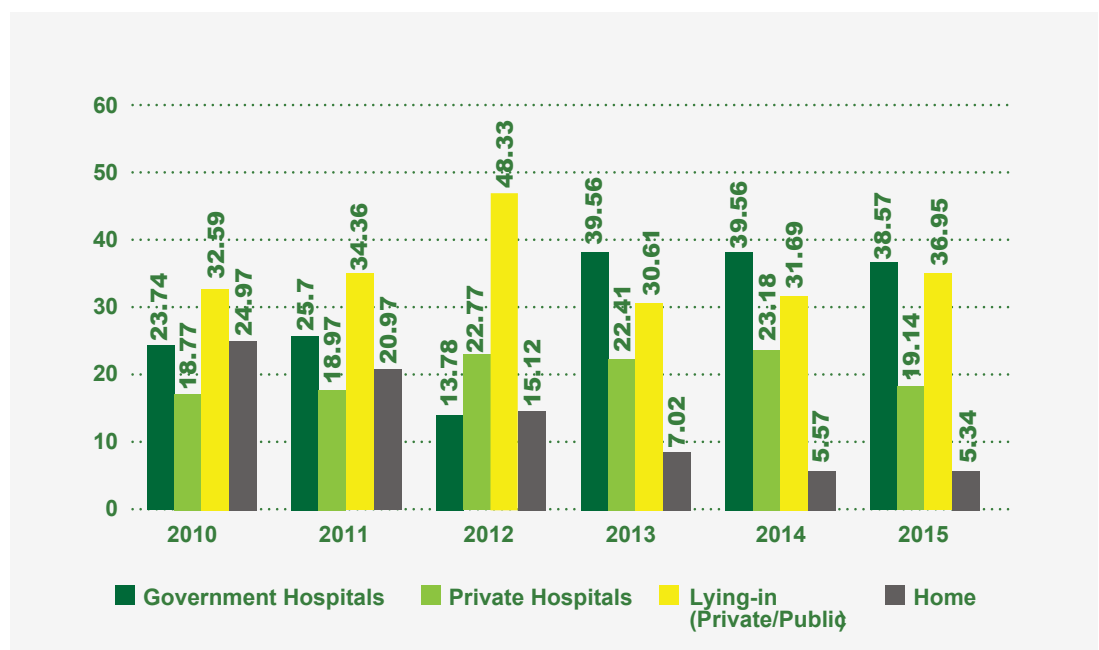
Most of birth deliveries were attended by physicians (61.70%), midwives (34.64%) and nurses (0.04%) or 96.38% attended by skilled health personnel which is higher compared to only 89.61% attended by skilled health personnel in 2010. Noted is the significant decrease of birth deliveries attended by "hilots", from 10.16% or 4,443 deliveries in 2010 to 3.62% or 1,581 deliveries in 2015 (See Figure DS-4).



Source: Quezon City Health Department

Figure DS-4 | Births Attended by Health Personnel, Quezon City: 2010-2015

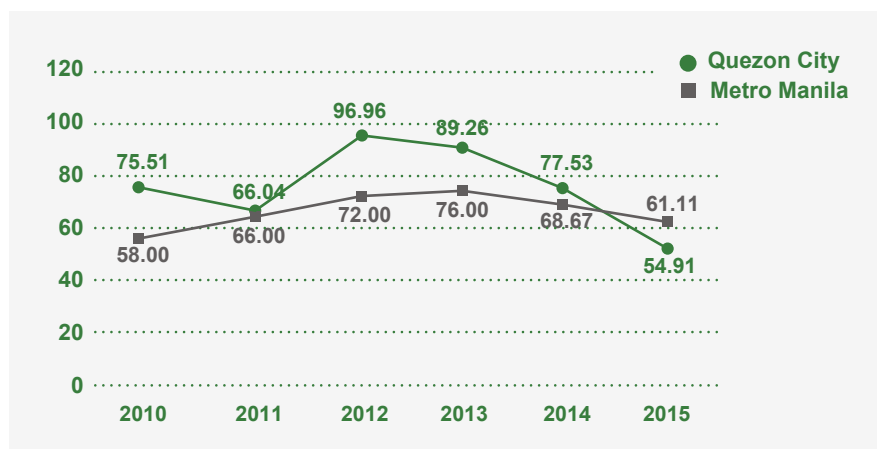
The figures on the deliveries attended by skilled personnel may be associated with the place of delivery. Figure DS-10 shows that 94.66% are facility-based deliveries (38.57% in government hospitals, 36.95% in private hospitals and 19.14% in public/private lying-in-clinics) or 19.56% increase from the 75.10% deliveries in public and private facilities in 2010. On the other hand, deliveries done at home was only 5.34% compared to 24.9% in 2010 or an average decrease of 4.86% yearly. (Refer to Figure DS-5)



Source: Quezon City Health Department

Figure DS-5 | Births by Place of Delivery, Quezon City: 2010-2015

Maternal mortality rate in 2010 decreased from 75.51 or 33 maternal deaths to 66.04 or 46 maternal deaths in 2011 but had the highest increased to 96.96 per 100,000 live births or 71 maternal deaths in 2012. However, from 2013 to 2015 it already had a decreasing trend and recorded to only have 54.91 per 100,000 live births or 42 maternal deaths in 2015. If compared with the Metro Manila's maternal mortality rate, the graph below also shows that for the last five (5) years, the city's rate is consistently higher from 2010 to 2014 and only in 2015 that it was noted to be lower against 61.11 per 100,000 live births or 146 maternal deaths in the National Capital Region. (See Figure DS-6)



Source: Quezon City Health Department & Center for Health & Development. DOH-NCR

Figure DS-6 | Trends of Maternal Mortality Rate (Per 100,000 Live Births), Quezon City & Metro Manila: 2010-2015

Maternal deaths may be attributed to the number of mothers who still deliver their babies through “Hilots”. Pre-Eclampsia/Eclampsia, Uterine Atony/Postpartum Hemorrhage, and Infection/Sepsis Partum Cardiomyopathy were the first 3 primary causes of maternal deaths.

3.2.3 | Child Health

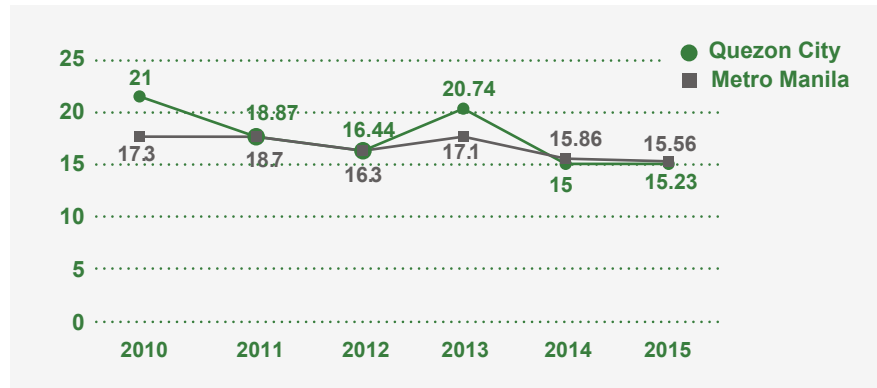
The growth and development of a child depends largely on sustainable and good health condition. Children are more susceptible to the risk of dying if not given enough care and food supplements at the early stage of their lives. Infants 0-11 months should have completed their vaccination against preventable diseases such as Diphtheria, Polio, Tuberculosis, Measles and Hepatitis B.

In 2015, fully immunized children (0-11 mos.) covered a total of 83,169 children or 96.94% of the 85,791 target children. While the percentage coverage may be considered as high this is lower compared with the 104.36% or 83,425 children in 2010 exceeding the 79,937 target children. Data also showed that given the same number of covered children in 2015, 67.66% or 58,053 infants were exclusively breastfed up to 6

months, which is higher compared to 46.93% or 32,125 of the 68,446 covered in 2010.

The infant mortality rate of 21.00 per 1,000 live births in 2010 decreased to 16.44 in 2012. However, in 2013, this increased to 20.74 per 1,000 live births but decreased again to 15.23 in 2015. This is slightly higher compared to NCR's infant mortality rate of 15.56 per 1,000 live births. The graph below (Figure DS-7) also shows that for two (2) consecutive years (2014 and 2015), infant mortality rate in the city is lower than the NCR.

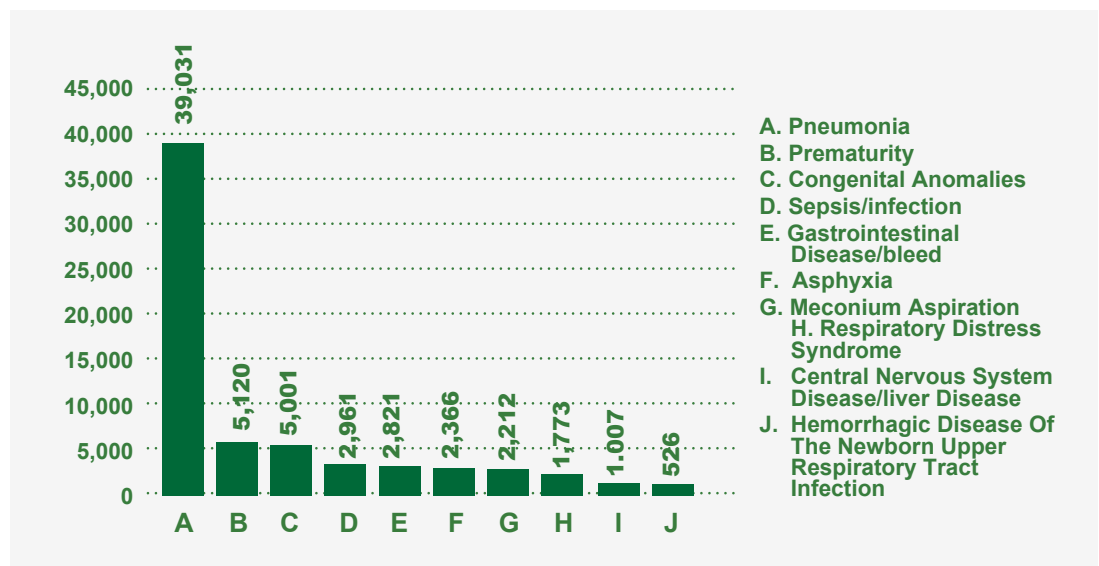
There are more (55.12%) male infant deaths than female (44.88%) infant deaths out of the 1,165 cases of infant deaths in 2015.



Source: Quezon City Health Department & Center for Health & Development. DOH-NCR

Figure DS-7 | Trends of Infant Mortality Rate (Per 1,000 Live Births), Quezon City and National Capital Region: 2010-2015

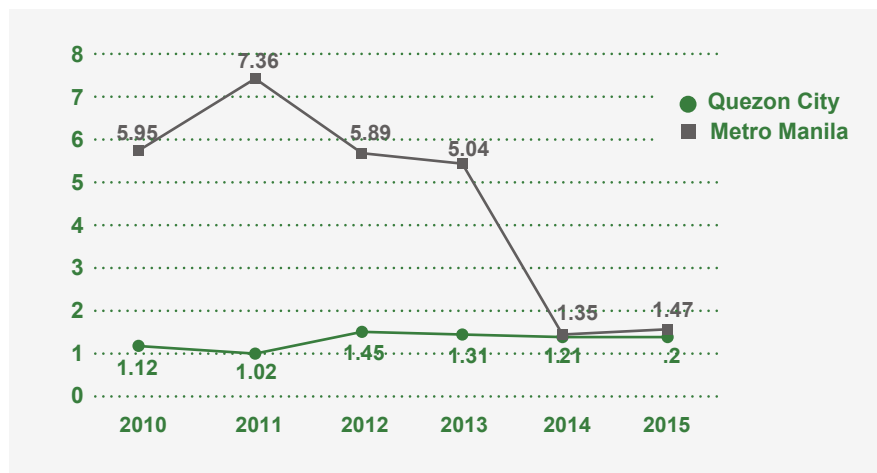
Pneumonia, Prematurity and Congenital Anomalies are the 3 leading causes of death among infants. Prematurity has always been among the top 3 causes of deaths in the last five years. Other causes of infant deaths include Sepsis/Infection, Gastrointestinal Disease/Bleed, Asphyxia, Meconium Aspiration, Respiratory Disease Syndrome, Central Nervous System Disease/Liver Disease, Hemorrhagic Disease of the Newborn Upper Respiratory Tract Infection. (Refer to Figure DS-8)



Source: Quezon City Health Department

Figure DS-8 | Number of Infant Death by Type of Causes (Per 1,000 Live Births), Quezon City: 2015

On the other hand, deaths among children 1-4 years old for the last 6 years showed that although there was a slight increase from 1.12 per 1,000 population aged 1-4 years old or 361 cases in 2010 to 1.20 or 412 cases in 2015 consistently, the child mortality rate in the city is lower compared to Metro Manila's child mortality rate of 1.47 per 1,000 population of children 1-4 years old. (Refer to Figure DS-9)



Source: Quezon City Health Department & Center for Health & Development, DOH

Figure DS-9 | Trend of Child Mortality Rate (Per 1,000 Population 1-4 Years Old), Quezon City and National Capital Region: 2010-2015

3.2.4 | Nutrition

The Operation Timbang conducted in 2015 covered 482,844 or 93.73% of children aged 0-6 years old. Of this, 473,638 children or 98.09% are normal, 3,108 or 0.64% are overweight, 4,708 or 0.98% are underweight and 1,390 or 0.29% are severely underweight children. The underweight and severely underweight constitutes the incidence of malnutrition of 1.27% or a total 6,098 cases

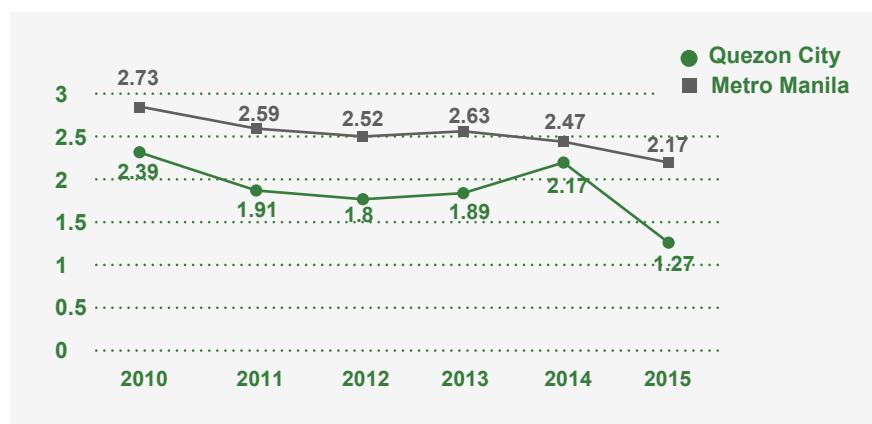
of malnourished children in the city. This was however, noted to have decreased from the 2.39% malnutrition rate in 2010 or 11,383 malnourished children. The identified underweight and severely underweight children in 2015 were all given iron supplementation. (Refer to Table DS-9)

Table DS-9 | Percent and Total Distribution of Children Weighed (0-6 Years Old), Quezon City: 2010-2015

Classification	2010		2011		2012		2013		2014		2015	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Severely Underweight	2,154	0.45	1,842	0.38	1,591	0.32	1,682	0.36	1,683	0.36	1,390	0.29
Underweight	9,229	1.94	7,292	1.55	7,653	1.53	7,143	1.53	8,498	1.81	4,708	0.98
Normal	459,736	96.79	465,226	97.33	481,964	9297.4	453,313	97.37	455,230	96.85	4,708	98.09
Overweight	3,905	0.83	3,625	0.80	3,024	0.60	3,435	0.74	4,628	.98	3,108	0.64
	Actual		Actual		Actual		Actual		Actual		Actual	
Operation Timbang	475,024	99.00	477,985	96.00	494,232	105.00	465,573	96.00	470,039	94.02	482,844	93.73

Source: Quezon City Health Department

Comparing the city's prevalence of malnutrition with that of Metro Manila, the data gathered showed that the city's 2015 rate of 1.27% is lower against the Metro Manila's 2.17%. The graph below also showed that for the last six (6) years (2010-2015), Quezon City has consistently maintained lower malnutrition rate than Metro Manila. (Refer to Figure DS-10)



Source: National Nutrition Council-NCR

Figure DS-9 | Prevalence of Malnutrition among Children (0-71 mos. old), Quezon City and National Capital Region: 2010-2015

Looking into the malnutrition rates among the 16 cities and one municipality in the National Capital Region (NCR), Quezon City has improved from ranked 10th in 2014 to ranked 13th in 2015. Caloocan City had the highest prevalence of malnutrition at 4.59%, followed by Malabon with 3.90% and Manila at 3.19%. (See Table DS-10)

Figure DS-10 | Prevalence of Malnutrition of Cities and Municipalities Ranked Accordingly, National Capital Region: 2014-2015

2014			2015		
Rank	Cities/ Municipality	%	Rank	Cities/ Municipality	%
1	Muntinlupa	5.07	1	Caloocan	4.59
2	Malabon	4.83	2	Malabon	3.90
3	Manila	3.91	3	Manila	3.19
4	Navotas	3.19	4	Pasay	3.17
5	Caloocan	3.12	5	Las Pinas	2.91
6	San Juan	3.06	6	Muntinlupa	2.87
7	Las Pinas	2.93	7	Navotas	2.19
8	Pasay	2.91	8	Paranaque	1.99
9	Pateros	2.22	9	San Juan	1.81
10	Quezon City	2.17	10	Valenzuela	1.54
11	Paranaque	2.15	11	Pasig	1.51
12	Pasig	1.90	12	Pateros	1.44
13	Valenzuela	1.80	13	Quezon City	1.26
14	Marikina	1.32	14	Marikina	1.16
15	Mandaluyong	1.09	15	Mandaluyong	0.86
16	Taguig	0.88	16	Makati	0.57
17	Makati	0.64	17	Taguig	0.55

At the district level, District V had the highest prevalence of malnutrition at 1.80%. Other districts got lower prevalence malnutrition rates of 1.44 % in District III; 1.28% in District VI; 1.13% in District II; 0.95% in District I and; .93% in District IV.

In managing birth rate, family planning methods and contraceptives were used. The city's current users increased from 187,407 in 2010 to 325,323 or 73.51% in 2015. As for the family planning contraceptive prevalence rate for 2015, this was registered at 83.1%, higher compared to only 43.68% in 2010. The increase in

the number of family planning users may be attributed to massive information and education campaign (TV, radio, mass media, Internet, health events) and personal contact with non-users (Community Health Team field operations and Family Planning-Maternal and Child Health integration at point service).

Pills remain to be the most commonly used contraceptive with 110,411 or 33.94% of the total current users followed by Condom 63,959 or 19.66% and Injectable (DPMA) with 49,326 users or 15.16% of the family planning current users. (Refer to Table DS-11)

Table DS-11 | Family Planning Users by Methods, Quezon City: 2010-2015

Methods	Current Users					
	2010	2011	2012	2013	2014	2015
BTL	25,810	25,770	28,071	30,144	30,888	31,631
Vasectomy	515	434	448	4,410	401	380
Pills	50,255	73,369	88,260	100,177	101,917	110,411
IUD	14,066	16,178	19,911	22,133	24,091	26,179
Injectable (DMPA)	37,125	31,922	35,356	40,775	43,490	49,326
Condom	28,497	43,704	50,027	60,467	62,761	63,959
Implant				106	4,192	7,938
NFP						
LAM	29,789	33,464	33,821	33,240	31,014	33,572
CM	497	413	472	343	273	106
Mercedes Wilson	0	0	0	0	0	0
BBT	7	7	14	24	3	3
2 Day Method	0	0	0	0	0	0
STM	3	0	0	0	0	0
SDM	963	1,141	1,398	1,542	1,775	1,818
Total (NFP)	31,259	35,025	35,705	35,129	33,065	35,499
Current Users	187,497	226,402	257,778	289,341	300,805	325,323
Eligible Population	429,290	377,958	359,368	369,585	380,323	391,619
Contraceptive Prevalence Rate	43.68	59.90	71.73	78.28	79.1	83.10

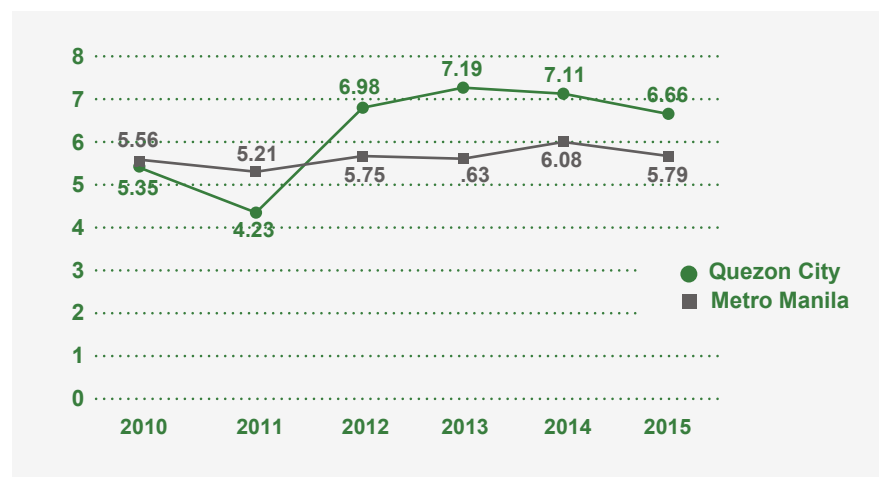
Source: Quezon City Health Department

The 2015 estimated future couples (19 yrs. old and below) was 1,152,426 representing 39.25% of the 2015 household population of 2,936,116. It increased by 72,431 persons or 6.71% from the 1,079,995 population 19 yrs. old and below in 2010. The increasing number of future couples therefore has great impact on the growth of population.

3.2.5 | Mortality

The primary indicator of mortality is the crude death rate. This indicator refers to the number of deaths per 1,000 population in a given year. Mortality rate for all ages between 2010 and 2011 decrease from 5.35 per 1,000 population in 2010 to 4.23 in 2011 but increased to 6.98 in 2012 and increased further to 7.19 in 2013, until it gradually decreased to 7.11 in 2014 and 6.66 in 2015 respectively. There are more female deaths (51.19%) than male deaths (48.81%).

The 2015 city's mortality rate for all ages of 6.66 was also noted to be higher than Metro Manila's rate of 5.79 per 1,000 population as well as in three (3) previous years from 2012 to 2014. It is only in 2010 and 2011 that it got a lower mortality rate than Metro Manila (Refer to Figure DS-11).



Source: Quezon City Health Department, Center for Health and Development, DOH

**Figure DS-11 | Trends of Mortality Rate (All Ages),
Quezon City & Metro Manila: 2009-2013**

From the 10 leading causes of death for all ages in the city, Pneumonia, Cancer (all forms) and Myocardial Infarction are the top 3 leading causes of death in 2015. The Table below shows that for the year 2010, 2013 and 2015, Pneumonia and Cancer were consistently recorded as the top 3 leading causes of death while Hypertension which was 2nd and 1st in 2010 and 2013 went down to number 7 in 2015. Myocardial Infarction was ranked 4th in 2010 going down to number 8 in 2013 but soared to number 3 in 2015. Pulmonary Tuberculosis on the other hand has maintained its position as number 7 in the leading causes of death in 2010 and 2013 and noted to be only number 8 in 2015.

Table DS-12 | Leading Causes of Death (All Ages), Quezon City: 2015

Rank	Leading Causes of Death					
	2010	2011	2012	2013	2014	2015
1	Broncho Pneumonia	Hypertension	HPN/ HCVD/ HASCVD	Hypertension	Myocardial Infarction	Pneumonia
2	Hypertension/ HCVD	PneumoniaP	neumoniaP	neumoniaP	neumonia	Cancer (All forms)
3	Cancer (All forms)	Cancer (All forms)	Cancer (All forms)	Cancer (All forms)	Cancer (All forms)	Myocardial Infarction
4	MI/IHD/CHD	MI/IHD/CHD	CAD/ASH/ Atherosclerosis	CAD/IHD/CHD	CVA/Bleed/ Infarction	CVA/Bleed/ Infarction
5	CAD/ASH/ Atherosclerosis	CAD/ASH/ Atherosclerosis	MI/IHD/CHD	Diabetes Mellitus/ Diabetes Mellitus II	Diabetes Mellitus	CAD/IHD/ CHD
6	CVA/Bleed/ Infarction	PTB	PTB	HPN/ HCVD/ HASCVD/ Atherosclerosis	PTB	Diabetes Mellitus
7	PTB	Diabetes Mellitus/ Diabetes Mellitus/ Diabetes Mellitus II	PTB	PTB	Hypertension HPN	Hypertension HPN
8	Diabetes Mellitus	Sepsis/ Sepsis Neonatorum	COPD	Acute Myocardial Infarction	CAD/IHD/ CHD	PTB
9	Sepsis/ Sepsis Neonatorum	CVA/Bleed/ Infarction	Bronchial Asthma	CVA/Bleed/ Infarction	Injuries/ Accidents	Other Lung Disease
10	Bronchial Asthma/ Status Asthmaticus	Chronic Obstructive Pulmonary Disease	CVA/Bleed/ Infarction	COPD	Sepsis/ Infection	HCVD/HASCVD/ ASHD/ Atherosclerosis

Source: Quezon City Health Department

3.2.6 | Morbidity

In 2015, cases of illness reported were 127,089, a decrease of 75.21% or 385,652 cases over the 512,741 record in 2010. This is a good indication of an improved health status of the populace.

Upper Respiratory Tract Infection (Upper and Lower) remains to be the number one cause of morbidity in 2015, followed by Skin Diseases and Urinary Tract Infection. Pulmonary Tuberculosis (PTB) was ranked

6th in 2010, went up as number 3 in 2013 and back to ranked 6th in 2015.

It was observed that for both mortality and morbidity cases, the disease of the respiratory system was noted as the leading cause of mortality and morbidity in the city, an indicator of a deteriorating environment characterized by climate change, pollution, congested living conditions and uncollected garbage.

Table DS-13 | Top Ten Leading Causes of Morbidity, Quezon City: 2010 - 2015

Rank	Leading Causes of Death					
	2010	2011	2012	2013	2014	2015
1	Upper Respiratory Tract Infection	Upper Respiratory Tract Infection	Upper Respiratory Tract Infection	Upper Respiratory Tract Infection	Upper Respiratory Tract Infection	Upper Respiratory Tract Infection
2	Pneumonia	Acute Tonsillopharyngitis	Urinary Tract Infection	Pneumonia	Urinary Tract Infection	Skin Disease
3	Urinary Tract Infection	Pneumonia	Hypertension	Pulmonary Tuberculosis	Tuberculosis	Urinary Tract Infection
4	Acute Bronchitis	Urinary Tract Infection	Pneumonia	Hypertension	Hypertension	Hypertension
5	Acute Gastroenteritis	Intestinal Parasitism	Acute Bronchitis	Urinary Tract Infection	Acute Gastroenteritis	Intestinal Parasitism
6	Pulmonary Tuberculosis	Acute Bronchitis	Pulmonary Tuberculosis	Meningitis	Systemic Viral Infection	Tuberculosis
7	Hypertension	Pulmonary Tuberculosis	Acute Gastroenteritis	Bronchitis	All Forms of Allergy	Acute Gastroenteritis
8	Abscess	Hypertension	Abscess	Acute Viral Infection	Injuries/Accidents	Viral Infection
9	Bronchial Asthma	Acute Gastroenteritis	Systemic Viral Infection	Gastroenteritis	Musculoskeletal Disorder	Conjunctivitis
10	Abrasions/Laceration	Skin Abscess	Other Skin Problem	Impetigo	Asthma	Asthma

Source: Quezon City Health Department

3.2.7 | Disease Prevention and Control

Pulmonary Tuberculosis Cases

The 2015 ten (10) leading causes of deaths for all ages include Pulmonary Tuberculosis (TB all forms) and ranked 8th. TB case detection rate on same year shows that it increased from 59.00% in 2010 to 108% in 2015. While the percentage coverage from the target increased, this is lower against Metro Manila's TB Case detection rate of 115.44%. Among the city's six (6) districts, District IV and VI got the low case detection rates of 61.00% and 66.00% respectively. District V had 73.00 %, District II had 89.00% and District III had 90.00% while District I has the highest TB case detection rate of 91.00%.

TB Cure Rate now called the Treatment Success Rate (TSR) on the other hand increased from 83.00% in 2010 to 93.00% in 2015 higher than the Metro Manila's TSR of 89.58%. District III had the highest TSR of 95.00%, District VI had 94%, Districts I, II, & IV had 93.00% respectively while District V had the lowest Treatment Success rate of 92%.

Dengue Cases

Dengue deaths reported in 2015 is 39 or 0.60% of the 6,473 reported dengue cases in the city. There is a significant decrease of 27 cases of deaths from 66 cases or 1.24% dengue fatality rate in 2010. The decrease may be brought about by massive educational and media campaign on the prevention of dengue and regular conduct of fumigation, the massive clean-up drive campaign and pre-clinic lecture activities by the city government in schools and communities.

Of the 39 dengue deaths in 2015, twenty two (21) were children ages 1-10 years old. The dengue deaths were reported more in District II with 1.16% fatality rate and lowest in District V of only 0.21%.(See Table DS-14)

Table DS-14 | Dengue Case Fatality Rate per District, Quezon City: 2010 & 2015

	Dengue Case Fatality Rate	
	2010	2015
Quezon City	1.24	0.60
District I	1.21	0.53
District II	1.03	1.16
District II-A	2.00	
District III	1.29	1.08
District IV	0.67	0.25
District V		0.21
District VI		0.60

Source: Quezon City Health Department

3.2.8 | Access to Safe Water

Households with access to safe water slightly decreased from 99.75% in 2010 to 98.06% in 2015. The slight decrease may be attributed in the prevailing high installation cost of water system and high cost of water rates specifically those in the informal settler families. These figures, however, are lower compared with NCR's 113.15% households with access to potable water. District I and IV have 100% access to safe water while Districts II, III and VI have 99% access and District V has 97% access to potable water.

3.2.9 | Access to Sanitary Toilets

Record showed that household with access to sanitary toilets in both 2010 and 2015 was 99.00%. The rates are lower than Metro Manila's 110.32% households with sanitary toilets in 2015. At the district level, Districts II, III and V have 99% access to sanitary toilet facilities, District IV has 98% access to sanitary toilets facilities and District I with 97%. (Refer to Table DS-15)

Table DS-15 | Percentage of Households with Access to Safe Water and Sanitary Toilets per District, Quezon City and National Capital Region: 2010, 2015

	Access to Safe Water		Access to Sanitary Toilets	
	2010	2015	2010	2015
NCR		113.15		110.32
Quezon City	96.00	98.06	99.00	99.00
District I	97.00	99.00	99.00	100.00
District II	93.00	96.00	96.00	97.00
District III	98.00	99.80	99.80	99.90
District IV	98.00	99.00	99.50	100.0
District V	95.00	98.00	97.00	99.00
District VI	96.00	98.00	98.00	99.00

Source: Quezon City Health Department & DOH-NCR

3.2.10 | Health Facilities/Services

Improved health condition of the city populace depends largely on the effective delivery of basic health services and existence of adequate health facilities and personnel.

Health Centers/Super Health Centers

The city has a total of sixty-five (65) health centers, seven (7) of which are super health centers with lying-in clinics and fifty-eight (58) are classified as regular health centers. There are also ten (10) sub-health stations. Majority of the health center/super health centers are certified Sentrong Sigla which means that these facilities have met the standards set by the Department of Health (DOH) in promoting availability of good quality health services to the city's constituents.

The distribution of these facilities by district shows that thirteen (13) are in District 1 with 12 regular health centers and one super health center (San Francisco Super Health Center). District II has 10 regular health centers and 2 super health centers (Batasan and Betty Go Belmonte SHCs), District III with 8 regular health center and one super health center (Murphy SHC), District IV has 10 regular and one super health center (Kamuning SHC), District V has 9 regular health center and two (2) super health center (Novaliches and Sta. Lucia SHCs). District VI has no super health center but with 9 regular health centers.

Integrated or within the city's health centers compound are three (3) Social Hygiene Clinic (Proj. 7, Batasan and P. Bernardo), three (3) Male Sundown clinics (Klinika Bernardo, Klinika Novaliches and Klinika Proj. 7), five (5) dialysis/x-ray clinics, three (3) adolescent teen health quarters (Cubao, Commonwealth and NGC) and twenty five (25) microscopy centers performing TB-DOTS and other laboratory procedures.

In addition, the city has one (1) employee's clinic, two (2) upgraded Public Health Laboratory located at the Quezon City Health Department and Novaliches District Center (NDC) and one (1) Quality Assurance Laboratory Center performing external quality assessment of all TB microscopy laboratories situated at Bgy. Bagong Pagasa.

Hospitals

The city is host to a total of sixty-four (64) hospitals, 18 of which are government-owned and 46 are privately-owned hospitals. Of the total number of hospitals located in the city, 26 are classified as tertiary hospitals or hospitals with metro wide and nationwide service areas and usually have complete service facilities. Twenty (20) other hospitals are classified as secondary and 18 are primary hospitals.

The tertiary types of hospitals are mostly found in District IV. Some of these are offering highly specialized services, among which are the Philippine Heart Center for Asia, National Kidney and Transplant Institute, Lung Center of the Philippines and the ultra-modern St. Luke's Medical Center.

The two (2) city-owned hospitals, the Quezon City General Hospital (QCGH) and Novaliches District Hospital (NDH) serve as referral centers for the different health centers and other hospitals and clinics. Since the creation of said hospitals, both have pursued the objective of providing the people, particularly the low-income residents of the city the best medical care that the city government can afford. The QCGH provides patient treatment, ambulatory and domiciliary care and preventive services and serves as center for training of health workers and allied professions and for advancement of medical services through research.

Hospital Bed Capacity

The city's combined total bed capacity is 10,000 (public and private) with an over-all bed-population ratio of 1:294 in 2015. This is way above the standard bed population ratio of 1:2,000. District IV where most of the tertiary and specialized hospitals are found, recorded the most number of hospitals with 5,181 bed capacity.

About 56.06% or 5,606 beds belong to government hospitals while 43.94% or 4,394 beds from the private hospitals. District VI recorded the lowest bed capacity with 173 beds in the 3 hospitals. District IV, on the other hand, registered 5,181 beds of the combined 23 hospitals. District I has combined bed capacity of 3,055

in 14 hospitals and those located in District V which are classified mostly as secondary health institutions have 849 bed capacity while District III has 742 beds in 6 hospitals. QCGH in District I and NDH in District V are the two (2) city run public hospitals that cater mostly to urban poor residents particularly, the northeastern portion of the district while East Avenue Medical Center and Quirino Memorial Medical Center both found in District IV are national government operated hospitals with regional service area.

Considering that public hospitals specifically cater to the low income families numbering about 837,364 persons in 2015, the bed population ratio for public hospitals alone is 1 bed per 654 persons which is way above the standard bed-population ratio of 1:2000. The hospital bed requirement for this number of low income families is computed to be 418 beds. The city therefore, has no shortage of hospital beds considering that the existing number of beds for public hospitals (QCGH, NDH, EAMC, and QMMC) is 1,280.

Bed occupancy rates for the 2 city operated hospitals for the year 2015 is 85.68 % for the Quezon City General Hospital and 239 % for the Novaliches District Hospital.

Other Health Facilities

There are 1,168 various health and wellness facilities like: medical clinics (93), Lying-in Clinic/Birthing Home/Maternity Clinics (176) optical clinics (76), dental clinics (153), dental laboratory (18), dermatology clinics (66), skin care clinics (89), diagnostic centers (46), dialysis centers/clinics (9), veterinary (110), psychological clinic (12), surgical clinic (2), psychiatric rehabilitation centers (6), medical laboratory (3), therapeutic clinics (20), medical health care services (31), x-ray diagnostic clinics (22), combined various health and wellness facilities (236)

Responsible for the treatment and rehabilitation of drug dependents is the City's Drug Treatment and Rehabilitation Center popularly known as "TAHANAN" which occupies an approximately 3,000 sq.m. lot situated at Diamond Hills, Bgy. Payatas.

Funeral and burial needs of the populace are being taken care of by three (3) public cemeteries and three (3) private Memorial Parks. There are seventy six (76) funeral parlors in the city, including eleven (11) private crematoriums/columbarium/ossuary.

Health Personnel

In 2015, the city's total health personnel was 1,642. The Quezon City Health Department has 882 medical staff, the Quezon City General Hospital has 554 and the Novaliches District Hospital has 206. The current number of the city's medical personnel decreased by 680 from 2,322 in 2013. Of the city's total health staff, 364 are physicians, 482 are nurses, 80 are dentists, 233 midwives and the remaining 483 belong to the non-paramedical staffs, which include Medical dental & Laboratory support, (Dental aide, Nutritionists-Dietician, Food-Drug regulation, Medical Technologist, Radiologic Technologists, Laboratory Aide and Dialysis Technician, HIV/AIDS Lecturer, THQ Health Educator and administrative staff and barangay health workers (BHWs).

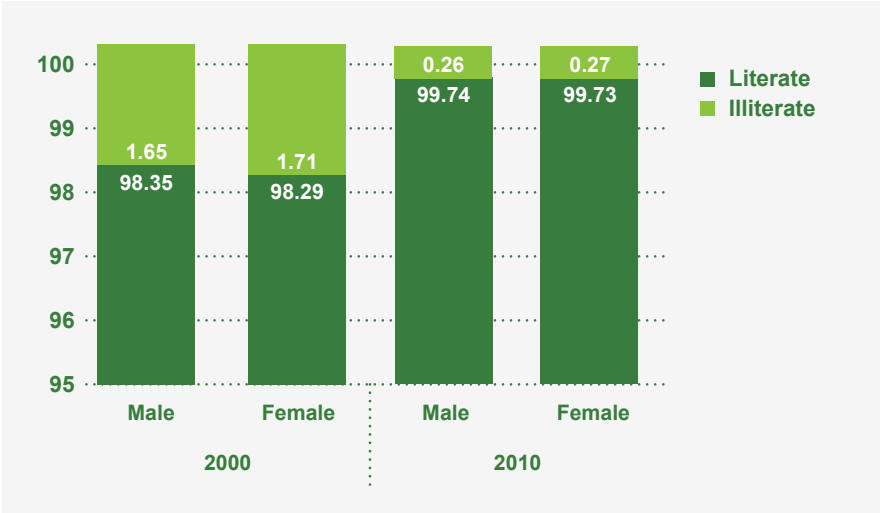
The 2015 government physician-population ratio and dentist-population ratio is 1:8,066, and 1:36,701 respectively. The physician population ratio is way above the standard ratio of 1:20,000 while that of the dentist-population is below the standard of 1:20,000. This means that there is no shortage of physicians but the city is in need of more dentists. On the other hand, the government nurse-population ratio is 1:6,092 against the standard ratio of 1:15,000 and the government midwife-population ratio is 1:12,001, which is way below the standard ratio of 1:5,000. It shows that the city is no longer in need of additional nurses but is short of 354 midwives.

3.3 Education

3.3.1 | Literacy and Highest Grade Completed

The city has a high literacy rate of 99.74% based on the 2010 PSA official census. It increased by 1.42% from the 2000 literacy rate of 98.32%. For both census years, male and female literacy rate in the city is almost equal (99.74% male and 99.73% female) for 2010 and (98.35% male and 98.29% female) for census year 2000. (See Figure DS-12)

Comparing the city’s literacy rate in 2000 with the NCR, it was noted that this is lower than NCR’s 99.00%. However, with the latest literacy rate in 2010, the city was recorded as slightly higher compared with NCR’s 99.20%. For both census years, the city’s literacy rate is higher than the national literacy rate of 93.4% per 2008 Functional Literacy Education and Mass Media Survey (FLEMMS).



Source: Philippine Statistics Authority

Figure DS-12 | Literacy Rate by Sex; Quezon City: 2000 and 2010

Of the 2,199,056 literate population 10 years old and over, 39.81% are ages 35 years old and over, 37.23% belong to 10-24 years old, 12.25% are ages 25-29 and 10.71% are 30-34 years old.

On the other hand, the 5,767 illiterate population 10 years old and over, shows that less than half (45.15%) are in the ages 10-24 years old which is the age group that should have been in school. About 12.54% are ages 25-34 years old, while 2,440 (42.31%) are in the ages 35 and over. Illiteracy among females is slightly higher (0.27%) than among males (0.26%). (See Table DS-16)

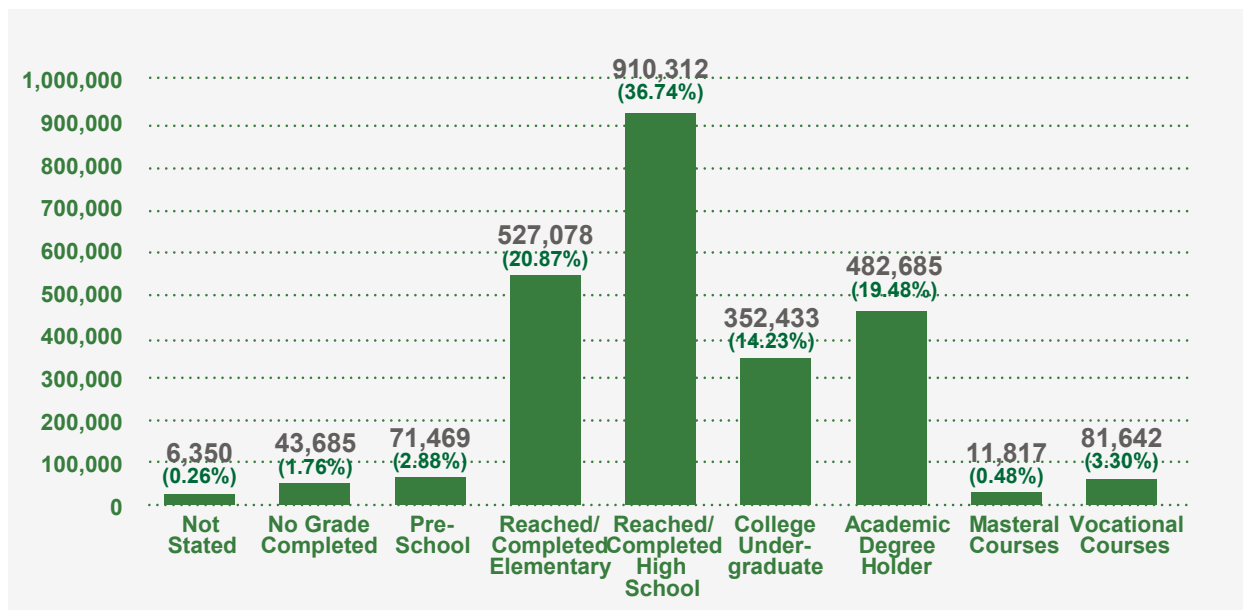
Table DS-16 | Literacy of Households Population 10 Years Old and Over by Age Group and Sex, Quezon City: 2010

Age Group	Literate				Total		Illiterate				Total		Overall	
	Male		Female		No.	%	Male		Female		No.	%	No.	%
	No.	%	No.	%			No.	%	No.	%				
10-24	398,735	37.76	420,023	36.74	818,758	37.23	1,487	54.61	1,117	36.70	2,604	45.15	821,362	37.25
25-29	129,562	12.27	139,736	12.22	269,298	12.25	218	8.00	162	5.32	380	6.59	269,678	12.23
30-34	115,542	10.94	119,967	10.49	235,509	10.71	177	6.50	166	5.45	343	5.95	235,852	10.70
35 & Over	412,072	39.03	463,419	40.54	875,491	39.81	841	30.89	1,599	52.53	2,440	42.31	877,931	39.82
Total	1,055,911	100	1,143,146	100	2,199,057	100	2,723	100	3,044	100	5,767	100	2,204,823	100
Literacy Rate	99.749		99.73		99.740		.260		.270		.261		.00	

Source: Philippine Statistics Authority

Of the 2,477,471 population aged 5 years old and over 517,078 (20.87%) completed elementary, 910,312 (36.74%) were able to reach or complete high school, 352,433 (14.23%) were college undergraduates while 482,685 (19.48%) were academic degree holders.

Those who took up vocational courses was 81,642 (3.30%) and 11,817 (0.48%) have masters degrees. Only 1.76% or 43,685 have no grade completed at all. (See Figure DS-13)

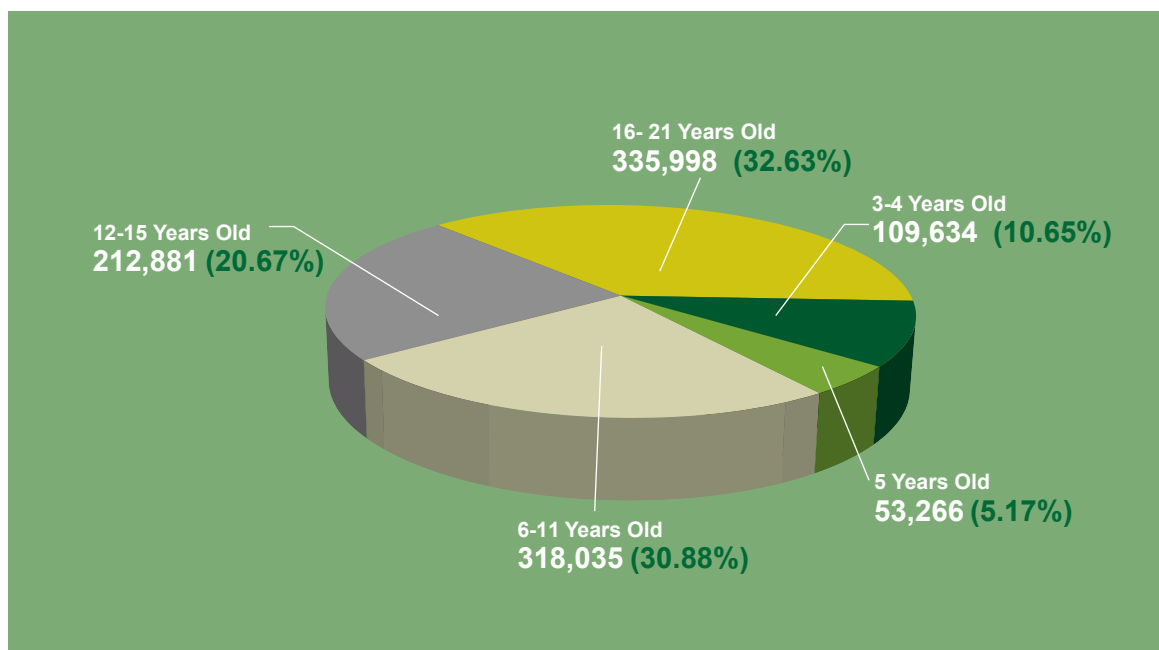


Source: Philippine Statistics Authority

Figure DS-13 | Population Distribution by Educational Attainment 5 Years Old and Above, Quezon City: 2010

School-age population (3-21 yrs. old) in 2010 was 1,029,823 or 37.43% of the total population. In terms of sex distribution, 516,366 are males representing 50.14% and 513,458 are females comprising 49.86%.

There is almost equal distribution of school-age population in the elementary level ages 6-11 yrs. old (30.88%) and tertiary level (32.63%) ages 16-21 yrs. old while those in the secondary level ages 12-15 yrs. old represent 20.67%. Pre-school children 3-5 yrs. old constitute 15.82%. Those in kindergarten ages 5 yrs. old (5.17%) and day care children 3-4 yrs. old (10.65%). Male school-age population comprised 50.14% and female 49.86%. (See Figure DS-14)

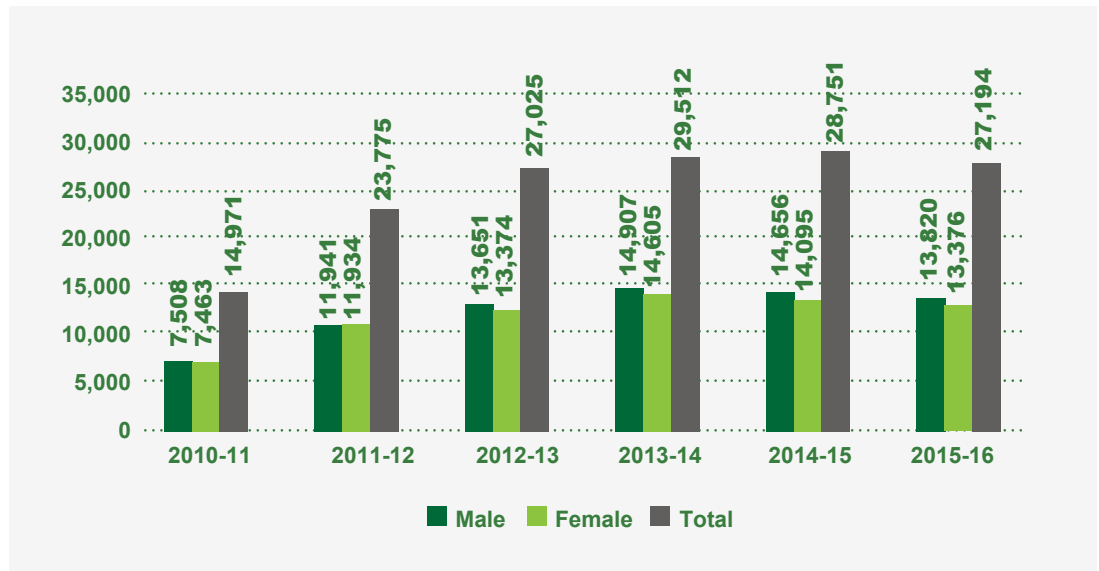


Source: Philippine Statistics Authority

Figure DS-14 | Percent Distribution of School Age Population by School Level, Quezon City: SY 2010

3.3.2 | Enrollment Performance Indicators

For SY 2015-2016, the total enrollment in public kindergarten school is 27,196, an increase of 12,225 or 81.66% from the 14,971 enrollment in SY 2010-2011. There are more males (13,820 or 50.82%) enrolled than females (13,376 or 49.18%). The increasing enrollment trend in kindergarten was brought about by the enactment of Republic Act 10533 also known as the K-to-12 Program and RA 10157 or the Kindergarten Education Act of 2011 compelling all 5 year old children to avail kindergarten education as the first stage of compulsory and mandatory formal education. (Refer to Figure DS-15)

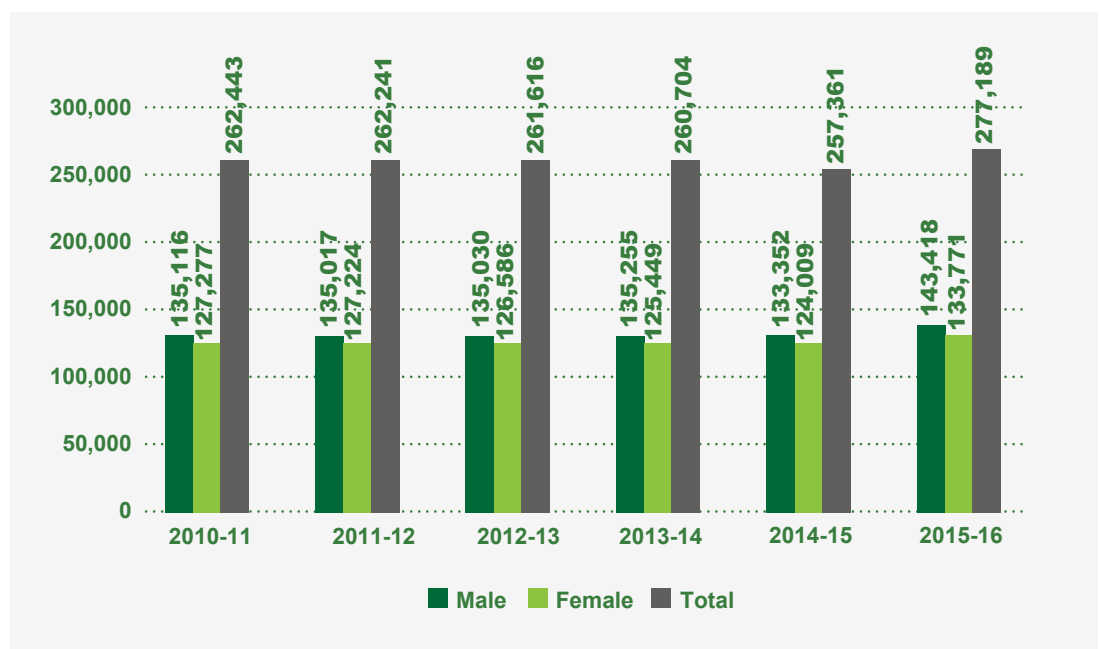


Source: Schools Division Office

Figure DS-15 | Enrollment in Public Kindergarten Schools, Quezon City: SY 2010-2011 to SY 2015-2016

The total enrollment in public elementary and secondary schools as of SY 2015-2016 reached 421,578, an increase of 1.38% from the 415,827 enrollment in SY 2010-2011.

Of the total enrollment, 277,189 or 65.75% were enrollees in the elementary level. There were more male enrollees (143,418 or 51.74%) than females (133,771 or 48.26%). It was observed that while there was an increase of 14,746 students from the 262,443 elementary students in SY 2010-2011, enrollment decreased by 7,044 students between SY2014-2015 and SY2015-2016. (See Figure DS-16)

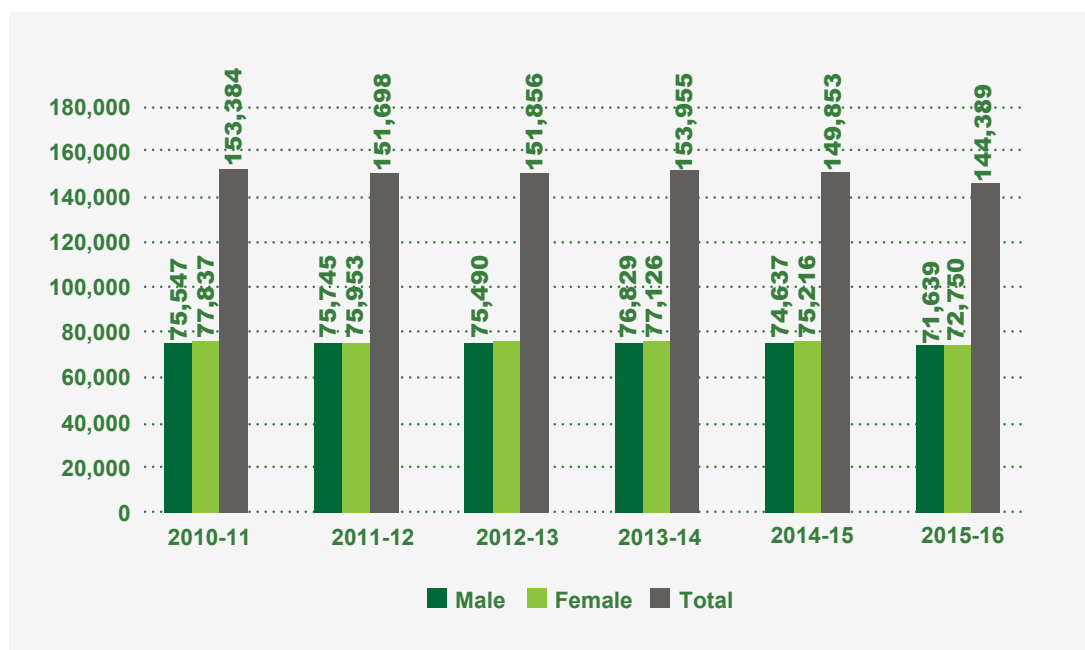


Source: Schools Division Office

Figure DS-16 | Enrollment in Public Elementary Schools, Quezon City: SY 2010-2011 to SY 2015-2016

On the other hand, enrollees at the high school level constitute 34.25% or 144,389 students of the total enrolled students in SY 2015-2016, a decrease of 8,995 students from the 153,384 enrollees in SY 2010-2011. More female are enrolled in high school than male. (Refer to Figure DS-17)

The decreasing trend of enrollment for both levels in the last five (5) years may be attributed mainly to poverty and the massive relocation/demolition of families or informal settlers occupying and/or residing in areas classified as danger areas such as creek easements, transmission lines and those affected by various national and local government infrastructure projects.



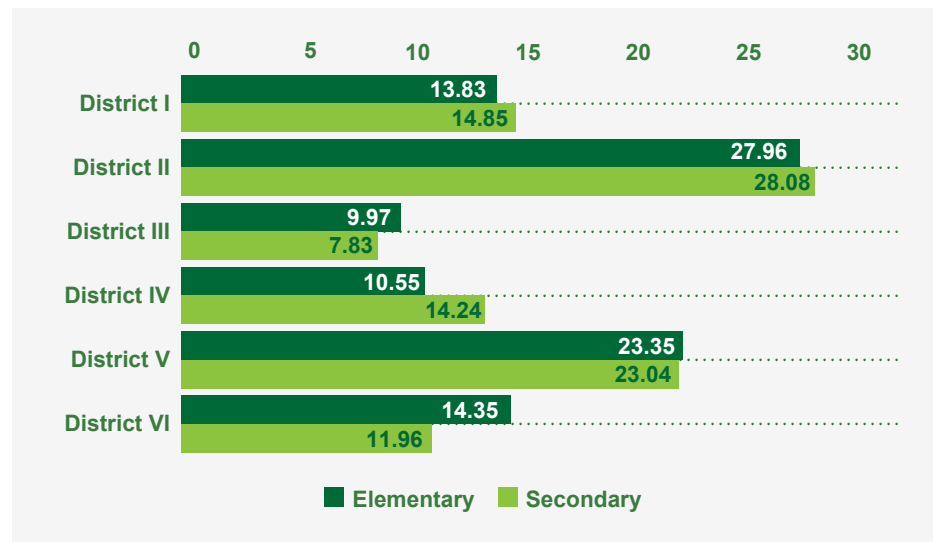
Source: Schools Division Office

Figure DS-17 | Enrollment in Public Secondary Schools, Quezon City: SY 2010-2011 to SY 2015-2016

Of the total enrollees for both levels, 3,966 or 0.94% are special children, a decrease of about 328 or 7.64% from only 4,294 enrolled in SY2014-2015. Special children are those with mental retardation, giftedness and talent, learning disabilities, deafness, blindness and low vision, physical disabilities, health impairments and severe disabilities who experience difficulties in learning the basic educational curriculum. These children need a modified or functional curriculum, as well as those whose performance is do superior that they need a differentiated special education curriculum to help them attain their full potential.

Majority (3,616 or 91.17%) of the enrolled special children are in the public elementary schools while 350 or 8.83% are in the public secondary schools. As of 2015, there are 44 public elementary schools and 13 secondary schools including National Orthopedic Hospital (NOH) offering Special Education Classes (SPED).

Enrollment at the district level shows that District II had the highest number of students (118,053 or 28.00%) for both public elementary and secondary schools which comprise 27.96% and 28.08% respectively of the total enrolment and the least is District III. (See Figure DS-18)



Source: Schools Division Office

Figure DS-18 | Percent Distribution of Elementary and Secondary Schools Enrollment by District, Quezon City: SY 2015-2016

The combined Enrollment Participation rate (EPR) in public and private elementary and secondary levels both decreased from 97.22 and 93.49 in SY 2012-2013 to 95.43 and 85.90 in SY 2015-2016.

In details, the EPR for private in both elementary and secondary schools slightly decreased from 23.71 and 25.72 in SY 2012-2013 to 23.48 and 23.91 in SY 2015-2016 respectively. Likewise, the EPR in public elementary and secondary levels also decreased from 73.51 and 67.76 in SY 2012-2013 to 71.94 and 61.99 in SY 2015-2016. (Refer to Table DS-17)

Table DS-17 | Participation Rate in Public and Private Elementary and Secondary Schools, Quezon City: SY 2012-2013 to SY 2015-2016

	Elementary				Secondary			
	SY 2012-2013	SY 2013-2014	SY 2014-2015	SY 2015-2016	SY 2012-2013	SY 2013-2014	SY 2014-2015	SY 2015-2016
Public & Private	97.22	95.95	98.80	95.43	93.49	94.18	90.06	85.90
Private	23.71	23.28	23.85	23.48	25.72	25.63	24.70	23.91
Public	73.51	72.67	74.95	71.94	67.76	68.55	65.36	61.99

Source: Schools Division Office

At the pre-school level, out of the 188,123 estimated 2015 population ages 3-5 years old, 92,595 or 49.22% are enrolled in public or private kindergarten schools and day care centers in SY 2015-2016. The pre-school enrollment participation rate of increased by 14.29% from 34.93% EPR in SY 2010-2011.

For children ages 3-4 years old, 53,041 or 41.89% of the 2015 estimated 126,613 children are enrolled in private kindergarten schools, public day care centers/supervised neighborhood play and learning centers operated or managed by NGOs and POs in SY 2015-2016 while 39,554 or 64.30% of the 59,736 estimated 5-year old children in the same year were enrolled in public and private kindergarten schools.

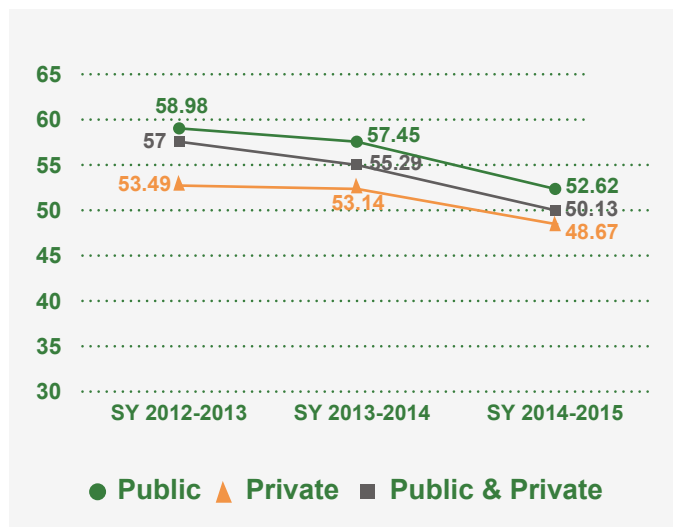
3.3.3 | Academic Performance Indicator

The National Achievement Test is an examination given to assess the competency of students' knowledge and skills in five (5) major subjects (Mathematics, English, Science, Filipino and Hekasi for elementary and Mathematics, English, Science, Filipino and Araling Panlipunan for secondary). The test is administered by the Department of Education's (DepEd) National Testing and Research Center and the results are intended to guide the efforts towards the improvement of the quality of education and to provide appropriate intervention for the students.

Achievement rates for both elementary and secondary levels in public and private schools had a decreasing trend. At the elementary level, the line graph below

shows that from the achievement rate of 57.00 in SY2012-2013 it decreased to 55.29 in SY2013-2014 and decreased further to only 50.13 in SY2014-2015. On the secondary level it was recorded to be 54.12 in SY2012-2013 a slight increase in SY2013-2014 at 55.35 then lowering it again to 48.83 in SY 2014-2015.

It was observed however, that while there is a decreasing trend in the achievement rates for public and private schools, the performance in public schools may be considered as better than the private schools since for the past 3 school years achievement rates in public schools is consistently higher than in the private schools. (See Figure DS-19A & B)



Source: Schools Division Office

Figure DS-19A | Achievement Rate in Public and Private Elementary Schools, Quezon City: SY 2012-2013 to SY 2014-2015

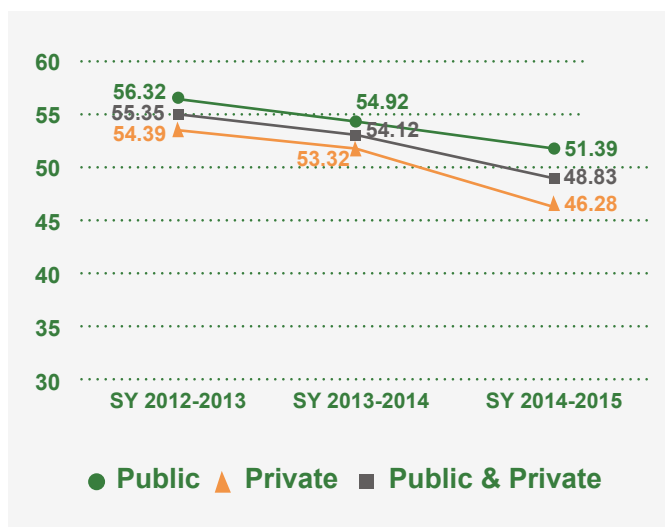


Figure DS-19B | Achievement Rate in Public and Private Secondary Schools, Quezon City: SY 2012-2013 to SY 2014-2015

For the past 3 years, the city's academic performance among the 16 cities and 1 municipality in Metro Manila may be considered as low. As of SY2014-2015, the achievement test results showed that Quezon City was ranked 15th in the elementary level and 10th in the secondary level. It also ranked 15th in the elementary level and 7th in the secondary in SY2013-2014 and ranked 11th and 8th in SY2012-2013 respectively. The City of Taguig/Pateros were noted to be on the lead or ranked 1st in both elementary and secondary level per SY 2014-2015 achievement test results followed by Makati City as ranked 2nd for both levels. (Refer to Figure DS-20)

Figure DS-20A | Academic Performance in Public and Private Elementary Schools, Quezon City & Other Metro Manila Cities/Municipality: SY 2012-2013 to SY 2014-2015

City/ Municipality	Elementary					
	SY 2012-2013		SY 2013-2014		SY 2014-2015	
	Rank	Rate	Rank	Rate	Rank	Rate
Caloocan City	5	63.50	7	63.86	9	60.74
Las Piñas City	13	55.47	6	63.86	5	64.06
Makati City	2	64.78	2	68.80	2	67.60
Malabon City	4	63.66	4	66.08	3	64.79
Mandaluyong City	15	54.51	10	60.84	8	60.88
Manila	9	60.75	8	63.85	10	59.52
Marikina City	14	55.09	16	54.26	14	52.42
Muntinlupa City	3	64.40	13	58.88	13	54.79
Navotas City	16	54.36	5	65.48	6	63.37
Parañaque City	1	70.56	1	69.16	4	64.52
Pasay City	6	63.24	9	62.35	7	62.79
Pasig City	12	56.58	14	57.09	16	49.86
Quezon City	11	57.00	15	55.29	15	50.13
San Juan City	10	58.86	11	59.46	11	59.51
Taguig / Pateros	7	62.91	3	67.30	1	68.32
Valenzuela City	8	60.80	12	58.94	12	56.59

Source: Schools Division Office

Figure DS-20B | Academic Performance in Public and Private Secondary Schools, Quezon City & Other Metro Manila Cities/Municipality: SY 2012-2013 to SY 2014-2015

City/ Municipality	Secondary					
	SY 2012-2013		SY 2013-2014		SY 2014-2015	
	Rank	Rate	Rank	Rate	Rank	Rate
Caloocan City	16	50.69	16	50.56	16	44.53
Las Piñas City	14	52.66	5	50.56	11	48.82
Makati City	1	60.45	2	59.63	2	52.90
Malabon City	15	51.33	9	55.14	13	48.38
Mandaluyong City	12	53.05	7	55.35	12	48.55
Manila	4	55.08	4	56.13	4	51.37
Marikina City	13	52.73	15	53.15	5	49.75
Muntinlupa City	7	54.13	14	53.18	8	49.06
Navotas City	3	56.23	12	53.78	14	46.84
Parañaque City	5	54.74	3	56.24	9	48.86
Pasay City	9	54.11	6	55.56	6	49.56
Pasig City	11	53.55	13	53.61	7	49.39
Quezon City	8	54.12	8	55.35	10	48.83
San Juan City	6	54.29	11	55.06	3	51.82
Taguig / Pateros	2	59.96	1	60.61	1	57.11
Valenzuela City	10	53.69	10	55.08	15	46.57

Source: Schools Division Office

Another academic performance indicator is Cohort survival rate. This is the percentage of those who in the beginning grade reached the final grade of the required number of years for the elementary and high school level.

The cohort survival rate for public and private elementary and secondary levels have decreased from 86.49% and 83.86% in SY 2014-2015 to 85.59% and 82.32% respectively, in SY 2015-016.

In public elementary and secondary schools, cohort survival rate are lowest at 82.90% and 78.10% than in private schools with 94.22% and 95.11% (Refer to Table DS-18).

Table DS-18 | Cohort Survival Rate, Drop-Out Rate and Completion Rate in Public and Private Elementary and Secondary Schools; Quezon City: SY 2014-2015 and SY 2015-2016

Indicator	Elementary						Secondary					
	SY 2014-2015			SY 2015-2016			SY 2014-2015			SY 2015-2016		
	Public	Private	Public & Private	Public	Private	Public & Private	Public	Private	Public & Private	Public	Private	Public & Private
Cohort Survival Rate	86.63	86.35	86.49	82.90	94.22	85.59	76.34	91.38	83.86	78.10	95.11	82.32
Drop-out Rate	3.16	0.23	1.69	2.05	0.66	1.71	1.81	0.41	1.11	2.48	1.83	2.31
Completion Rate	78.85	85.64	82.25	81.62	60.11	76.65	72.81	91.31	81.99	76.11	59.93	71.86

Source: Schools Division Office

Drop-out rate which is another performance indicator is defined as the proportion of pupils who left school during a school year. For SY 2015-2016, the combined drop-out rate in public and private schools shows that elementary is lower at 1.71% compared to secondary at 2.31%. This means that for every 100 elementary students enrolled, 2 eventually leave school while for every 100 high school students enrolled, 2 will most likely leave school. Some of the possible causes of dropping out are financial problems, lack of personal interest, illness/disability, and inability to cope with school work, teenage pregnancy, and transfer of residence or employment.

The drop-out rate in public elementary schools decreased from 3.16% in SY 2014-2015 to 2.05% in SY 2015-2016 while in the secondary level it increased from 1.81% in SY 2014-2015 to 2.48% in SY 2015-2016. The drop-out rate in public elementary and secondary level however, was noted high compared to private schools (See Table DS-18).

Completion rate is defined as the ratio of the number of graduates in a given school year to the number enrolled in the grade one level in the elementary or first year in the secondary level. The table below shows that the combined completion rate in public and private elementary decreased from 82.25% in SY 2014 to 76.65% in SY 2015-2016. Likewise, in the secondary level it also decreased from 81.99% in SY 2014-2015 to 71.86% in SY 2015-2016.

However, based on the figures gathered completion rate in both public elementary and secondary schools were reported highest at 81.62% and 76.11% respectively than in private schools with only a completion rate of 60.11% in the elementary and 59.93 % in the secondary level.

3.3.4 | Classroom-Student Ratio

The over-all classroom-student ratio based on 2 shifts per standard classroom-student ratio of 1:50 is 1:38 in public elementary schools and 1:36 in secondary schools.

However, the present classroom-student ratio varies for each district and for each school level. The figures indicate that for the elementary and secondary school levels, there is deficiency in the existing number of classrooms. This inadequacy exists only in District II where the classroom-student ratio is computed to be 1:52 for elementary and 1:57 in the secondary level. This means that a single classroom accommodates as many as 57 students in each session compared with the ideal ratio of 1:50. The classroom deficiency is made even more significant considering that both public

elementary and high schools hold two shifts or sessions each day. Fortunately, the situation is better in other Districts such as in District III where the ratio is 1:28, District IV with a ratio of 1:30, District I having a ratio of 1:30, District V 1:40 and District VI 1:39. This is further substantiated with the observation that there are excess classrooms in the other Districts. The over-all actual or existing number of classrooms of 5,835 (3,681 in the elementary and 2,154 in the secondary) is more than the required number of classrooms of only 4,214 (2,770 in the elementary and 1,444 in secondary schools) except in District II. To address the deficiency in District II, the city needs to construct about 79 more classrooms (31 for elementary and 48 for secondary) to meet the present demand. (See Table DS-19)

Table DS-19 | Elementary and Secondary School Classroom-Student Ratio by District, Quezon City: SY 2015-2016

District	Elementary						Secondary					
	No. of School	SY 2015-2016	No. of Classroom				No. of School	SY 2015-2016	No. of Classroom			
			Actual	Required	Needs	Classroom Student Ratio			Actual	Required	Needs	Classroom Student Ratio
I	21	38,334	644	383	0	1:30	11	21,435	450	214	0	1:24
II	13	77,506	744	775	31	1:52	6	40,547	357	405	48	1:57
III	17	27,636	490	276	0	1:28	7	11,303	269	113	0	1:21
IV	14	29,234	494	292	0	1:30	10	20,568	465	206	0	1:22
V	18	64,735	802	647	0	1:40	7	33,271	402	333	0	1:41
VI	12	39,744	507	397	0	1:39	5	17,265	211	173	0	1:41
Total	95	277,189	3,681	2,770	31	1:38	46	144,389	2,154	1,444	48	1:39

Source: Schools Division Office

3.3.5 | Teacher-Student Ratio

Based on the total enrollment and the actual number of teachers, the over-all teacher-student ratio is 1:37 in public elementary schools and 1:24 in public secondary schools. This is within the standard teacher-student ratio of 1:50 in all school districts.

Table DS-20 | Elementary and Secondary School Teacher-Student Ratio by District, Quezon City: SY 2015-2016

District	Elementary						Secondary					
	No. of School	SY 2015-2016	No. of Teachers			Teacher Student Ratio	No. of School	SY 2015-2016	No. of Teachers			Teacher Student Ratio
			Actual	Needs					Actual	Needs		
I	21	38,334	1,084	0		1:35	11	21,435	924	0		1:23
II	13	77,506	1,991	0		1:39	6	40,547	1,564	0		1:26
III	17	27,636	829	0		1:33	7	11,303	524	0		1:22
IV	14	29,234	803	0		1:36	10	20,568	913	0		1:23
V	18	64,735	1,674	0		1:39	7	33,271	1,315	0		1:25
VI	12	39,744	1,042	0		1:38	5	17,265	660	0		1:26
Total	95	277,189	7,423	0		1:37	46	144,389	5,900	0		1:24

Source: Schools Division Office

3.3.6 | Teacher-Student Ratio

Data given by the Division of City Schools show that the textbook-student ratio for both elementary and secondary levels is 1:1 which means that each student has one (1) textbook per basic subject (Mathematics, Science, Hekasi, Filipino and English). Of the total 1,991,951 textbooks provided by the city and national government in 2013, only about 65.71% or 1,308,813 are for the elementary level and 34.29% or 683,138 textbooks are for the secondary schools.

3.3.7 | Educational Programs

Educational programs for both public and private schools in elementary and secondary levels are in accordance with the curricula prescribed by Republic Act 10533 or the Enhanced Basic Education Act of 2013, known as the K-to-12 Program which covers kindergarten and 12 years of basic education (six years of primary education, four years of junior high school and two years of senior high school).

Senior High School is a specialized upper-secondary education composed of Core Subjects and Track Subjects. Both have 15 and 16 subjects respectively. Each track will have strands (specialization within a track such as Accountancy, Business and Management (ABM), Science, Technology, Engineering and Mathematics (STEM), Humanities, Education, Social Sciences (HUMSS) and Liberal Arts for ACADEMIC TRACK, Safety and First Aid for SPORT TRACK, Arts assessment and Guidance for ARTS AND DESIGN and lastly, TESDA training Regulations-Based Specialization for TECH-VOC TRACK.

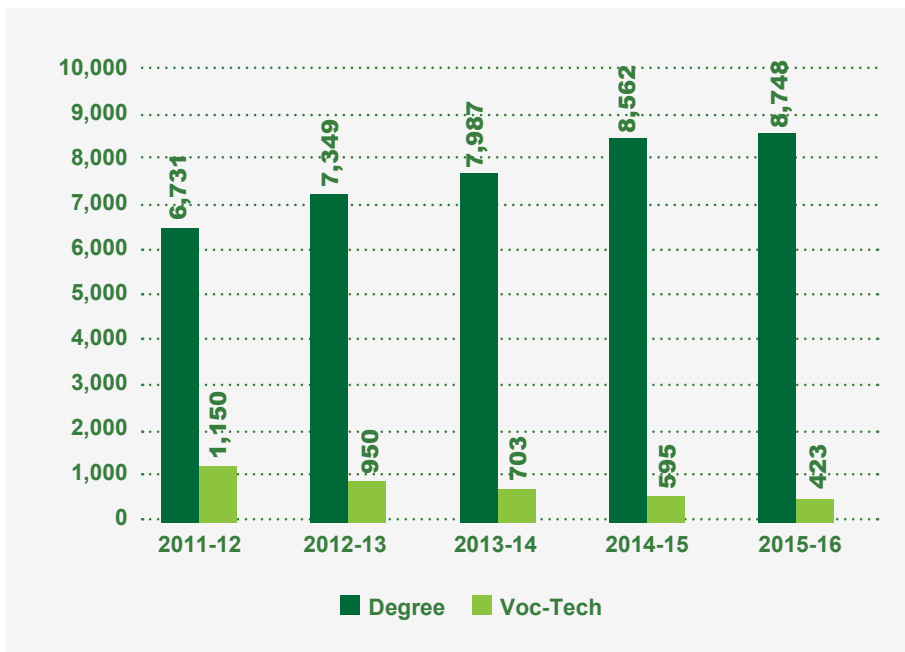
Services like the Alternative Learning System (ALS) are being offered to the people who have not finished the elementary or secondary education. ALS is an alternative or substitute, a parallel learning system that provides a particular option to the existing formal education when one does not have or cannot access formal education in school. It includes both non-formal and informal sources of knowledge and skills. For SY 2014-2015, total ALS enrollees was 10,088, consisting of “Kasambahays” or household helps and out of school youth and adults. Majority, 5,593 or 55.44% are male and 4,495 or 44.56% are female ALS enrollees. There are 140 Community Learning Centers (CLSs), 91 are public school-based and 49 are barangay-based including the twenty-five (25) CLCs run by Non-Government Organizations (NGOs).

Madrasah education program to Muslim students is also being offered in nineteen (19) public schools (16 ES and 3 HS). It offers basic education in Islamic values and Arabic language conducted every Saturday and Sunday.

There are about 3,572 enrolled students with 45 Muslim teachers or “Azatids”. The program aims to harmonize the traditional Philippine Education curriculum with the Madrasah system thereby ensuring educational parity across regions and cultures.

Further educational support is provided by the Quezon City Polytechnic University (QCPU). It was established in 1994 under City Council Ordinance No. SP-171, S-1994 as Skills Training Center and this was converted into the Quezon City Polytechnic University through Ordinance No. SP-544, Series of 1997 and later on provided with the University Charter by SP-1030, Series of 2001. The institution was created to undertake the training of skilled workers in response to the manpower requirement by industry and business establishments within the city. The organization of the Polytechnic as local government educational institution included the old skills and training center.

The QCPU Main Campus is at Bgy. San Bartolome. It offers technical-vocational and BS Information Technology (1 year course) and baccalaureate courses or 4 year courses such as General Education, BS Information Technology, BS Entrepreneurship, BS Industrial Engineering and BS Electronics Engineering. The university satellites are located at San Francisco High School compound at Bgy. Sto. Cristo and Bgy. Batasan Hills along IBP Road and both offer degree courses only. The university enrollment trend is increasing in baccalaureate courses from 6,731 in SY 2011-2012 to 8,748 students in SY 2015-2016 or an increase of 2,017 or 29.97% enrollees. The number of students taking up Vocational/Technical Courses on the other hand has been decreasing from 1,150 in SY 2011-2012 to 423 students in SY 2015-2016. The total number of graduates for SY 2015-2016 was 1,670 of which 581 are BS Entrepreneurial Management graduates, 218 for BS Industrial Engineering, 36 for BS Electronics Engineering, 537 for BS Information Technology and 298 for Technical / Vocational Courses. (See Figure DS-21)

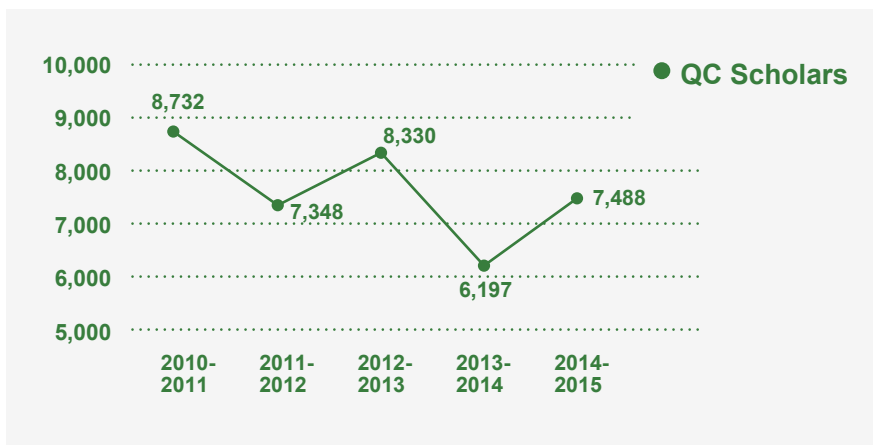


Source: Quezon City Polytechnic University

Figure DS-21 | Enrollment in Quezon City Polytechnic University, Quezon City: SY 2011-2012 to SY 2015-2016

Added to this, the city government is also extending scholarship assistance to the city's under privileged college students or those belonging to low income/indigent families. The scholarship grant includes subsidy for regular scholars majority of which are enrolled at QCPU and some in State University with tuition fees amounting to P4,000.00 and stipend of P1,500.00 including HB Centrex scholars and SK elected officials scholars as well. The honor students in public schools (valedictorians and salutatorians) are also extended

scholarship assistance at P40,000.00 for tuition fees and P10,000.00 stipend while 1st to 5th honorable mention are given P15,000.00 tuition fees and P5,000.00 stipend per semester charged under the General Fund and Legislative Fund from selected Councilors. The beneficiaries of this category of scholars may enroll in any university of their choice. A total of 7,488 in SY 2014-2015 benefited in the city's scholarship assistance, a decrease of 14.25% from 8,732 scholars in SY 2010-2011.



Source: Scholarship and Youth Development Program (SYDP)

Figure DS-22 | Number of Quezon City Government Scholars, Quezon City: SY 2010-2011 to SY 2014-2015

3.3.8 | Educational Facilities

The number of public schools decreased from 142 in 2010 to 141 in 2015. The decrease of one elementary school is due to the merging of Old Balara Elementary School (Main) with Old Balara Villa Beatriz Annex, as this was affected by road widening. Of these, 46 are public secondary schools and 95 are elementary schools (93 main and 2 school annexes). All public elementary schools are offering pre-school classes. Also existing are 4 public schools offering vocational and technical courses namely; QCPU main at San Bartolome and 2 QCPU satellites (Sto. Cristo and Batasan) including HB Negotech.

About 435 private schools offer different levels of education such as preparatory, elementary, and secondary or a combination of two or more levels. There are also 105 colleges and universities and, the more prominent ones found in the city include Miriam College, Ateneo de Manila and the state-run University of the Philippines. Public libraries in the city number nineteen (19), an increase of two (2) branches from the 2010 count of 17 libraries.

3.3.9 | Special Education Fund (SEF) Utilization

The Special Education Fund is the proceeds of the additional one percent tax on real property tax which is automatically released to the Local School Boards.

Records gathered from the Local School Board and City Budget Department show that for the last five (5) years, the city's annual approved amount under SEF is more than P1 Billion a year, the highest allocation was in 2014 with P1,520,000,000.00. The SEF average utilization rate for the 5 year period is 84.69% (See Table DS-21). Joint Memorandum Circular No. 1; Series of 1998 issued by the DepEd, DBM and DILG dated April 14, 1998 prescribed the rules and regulation to be observed by the Local School Boards in the utilization of this fund. Among the priority expenses chargeable against SEF include operation and maintenance of public schools, including organization of extension classes, non-formal, remedial and summer classes, as well as payment of existing allowances of teachers granted by local government unit, subject to existing budgeting rules and regulations; construction and repairs of school buildings, facilities and equipment including the acquisition, titling and improvement of school sites; educational research; acquisition/procurement of books, instructional materials, periodicals and equipment including information technology resources and expenses for school sports activities at the national, regional, division, district, municipality and barangay levels as well for other DEC's related activities including co-curricular activities.

Table DS-21 | Approved and Actual Utilization of Special Education Fund, Quezon City: 2011-2015

Calendar Year	Approved Amount (P)	Actual Expenditure	Utilization Rate
2011	1,226,750,979.20	₱1,095,680,068.57	89.32
2012	1,380,000,000.00	1,258,167,101.51	91.17
2013	1,322,000,000.00	1,220,321,473.62	92.31
2014	1,520,000,000.00	1,289,599,156.66	84.84
2015	1,216,000,000.00	800,299,194.51	65.81

Source: Local School Board Secretariat; City Budget Department

3.4 SOCIAL WELFARE SERVICES

Social Welfare Services are provided by the City to its residents through the Social Services and Development Department (SSDD). Beneficiaries are mostly the city's indigent families which include the children, youth, elderly, disabled/special groups, mendicants, women and distressed or displaced groups. Various welfare programs and services that are being extended are as follows;

Community Welfare Program is a comprehensive social welfare service to uplift the living conditions of the distressed and disadvantaged families and individuals to enable them to become self-reliant, improve quality of life and actively participate in national development.

Welfare and Relief Program is a program for the city's constituents who are in crises situation brought about by illness, loss of jobs, victim of natural and man-made calamities and other economic problems.

Residential and Rehabilitation Program caters to the needy and disadvantaged clients that provide custodial care and temporary shelter. These facilities are Molave Youth Home (MYH), a detention home for children in conflict with the law (CICL) and the Reception and Action Center (RAC) that caters to the needy and disadvantaged clients such as street children, abandoned youth and

adults, neglected, abused and victims of exploitation including mendicants, vagrants and stranded.

Vocational and Skills Training Program is an integrated package of assistance to target beneficiaries that provides livelihood opportunities with Skills trainings, and other pro-poor projects to sustain the basic needs.

In 2015, the SSDD extended welfare services to 177,554 (79,102 male & 98,452 female) clients either individually, group or as families, a decrease of 26,534 clients or 13.0% from 204,088 served in 2011. The recorded figure on the number of actual beneficiaries in 2015 however, represents 93.17% of the 190,566 target clientele for the year.

For both 2011 and 2015 total number of clients served, majority have availed of the Community Welfare Program. The 2015 data shows that the number of clients served on Community Welfare Program constitute 64.18% or 113,950 clients of the total clients served, followed by Welfare and Relief Rehabilitation Program with 29.55% or 52,473 clients. Vocational and Skills Training Program had 5.21% and the least is Residential and Rehabilitation Program with 1,879 clients or 1.06% of the total clients served (See Table DS-22).

Table DS-22 | Number of Clients Served by Type of Welfare Services, Quezon City : 2011- 2015

Programs/Projects	2011			2015		
	M	F	T	M	F	T
Community Welfare Program						
Child Welfare Program	10,827	10,803	21,630	11,864	12,109	23,973
Youth Welfare Program	4,593	2,910	7,503	4,585	3,177	7,762
Family Welfare Program	50,356	37,585	87,941	29,882	30,907	60,789
Women Welfare Program	-	10,170	10,170	-	4,837	4,837
Disabled Welfare Program	4,396	4,054	8,450	5,633	4,633	10,266
Elderly Welfare Program	1,162	4,151	5,313	5,633	5,914	6,323
Sub-Total	71,334	69,673	141,007	52,373	61,577	113,950
Welfare & Relief Program						
Financial Assistance Program	459	400	859	6,364	6,967	13,331
Disaster Relief Program	18,441	14,104	32,545	11,170	11,159	22,329
Food for Work Program	323	391	714	91	200	291
Social Case Study Report Provided	3,952	1,151	5,103	-	-	-
Referrals	949	853	1,802	2,070	3,655	5,725
Special Cases	-	-	-	46	53	99
Volunteer and Auxiliary Program	549	1,264	1,813	329	718	1,047
Other Collaborative Project	1,085	10,347	11,432	4,368	5,283	9,651
Sub-Total	25,758	28,510	54,268	24,438	28,035	52,473
Residential and Rehabilitation Program						
Molave Youth Home	1,213	118	1,331	1,137	178	1,315
Reception & Action Center	1,213	224	508	336	228	564
Sub-Total	1,497	342	1,839	1,473	406	1,879
Vocational & Skills Training Program						
Skills Training Program	1,245	2,713	3,958	454	6,364	6,818
Labor & Employment Services	705	1,606	2,311	-	-	-
Small Income Generating Assistance	58	374	432	454	6,364	337
Other Special Projects	58	217	273	335	1,762	2,097
Sub-Total	2,064	4,910	6,974	818	8,434	9,252
Grand Total	100,653	103,435	204,088	79,102	98,452	177,554

Source: Social Services Development Department (SSDD)

3.4.1 | Early Childhood Development (ECD) Services

Under the Child Welfare Program of SSDD are two (2) major projects namely; Supplemental Feeding and Day Care Services. Pre-school children are ages 3-5 yrs. old, enrolled in day care Centers (DCCs), supervised neighborhood play (SNP), public and private pre-schools and Non-Government Organizations and Peoples Organizations (NGOs/POs). For SY 2015-2016 a total of 92,595 pre-school children were enrolled representing 49.22% of the estimated 2015 pre-school age population of 188,123. This is higher compared to 34.93% EPR in SY 2010-2011.

At the district level, District II has the highest number of pre-school children enrolled with 17,332 or 27.44.70%. This was followed by District V with 11,609 (18.38%), next was District I with 10,035 (15.89%), District IV with 8,638 (13.67%), District III has 8,234 (13.04%) and the least is District VI with 7,318 (11.58%).

Of the 92,595 pre-school enrollees, 53,041 are day care children ages 3-4 years old enrolled in various facilities. The figure represents 41.89% of the 126,613 estimated 3-4 yrs. old children in 2015 which has increased

tremendously over the 21,405 enrolled day care children in 2011. The significant increase may be attributed to the intensified tracking made by SSDD which considers not only enrollees in the city's DCCs and SNPs but also those from existing learning centers operated or managed by NGOs and POs which was not available in the previous years. It appears that there are still 73,572 unserved 3-4 yrs. old children for day care services and if computed based on the ideal day care center-pupil ratio of 1:25 the requirement for DCCs is computed to be 1,472 DCCs and 915 DCCs at 1:40 in two (2) shifts.

Enrollees in the city's day care centers alone gradually increased through the years from 21,405 in SY 2010-2011 to 23,615 (11,720 male and 11,895) in SY 2015-2016. The gradual increase in DCC enrollees can be attributed to the SSDD's policy of limiting enrollees to a maximum of 40 pupils per class in order for the day care teachers to individually supervise the children with the help of day care parents. The city is adopting the day care center classroom-pupil ratio of 1:40 in two (2) shifts/session per day, which is below the standard ratio of 1:25 (See Table DS-23).

**Table DS-23 | Pre-School Enrolment by Sex, by District,
Quezon City: SY 2010-2011 to SY-2015-2016**

Day Care Enrollees (3-4 Years Old)	SY 2010-2011			SY 2015-2016		
	M	F	T	M	F	T
City DCCS/SNPs						
I	1,816	1,784	3,600	1,879	1,919	3,790
II	5,547	5,370	10,917	2,183	2,247	4,430
III	1,745	1,668	3,413	1,854	1,856	3,710
IV	1,766	1,709	3,475	1,834	1,871	3,705
V	-	-	-	2,454	2,456	4,910
VI	-	-	-	1,516	1,554	3,070
Sub-Total	10,874	10,531	21,405	11,720	11,895	23,615
Private Pre-Schools	-	-	-	-	-	5,236
NGOs/POs	-	-	-	-	-	24,190
Total	10,874	10,531	21,405			53,041
Kinder Enrollees (5 Years Old)						
Public Elementary Schools						
I	1,498	1,482	2,980	2,127	2,027	4,154
II	4,042	4,004	8,046	3,429	3,384	6,813
III	1,055	1,105	2,160	1,400	1,405	2,805
IV	913	872	1,785	1,491	1,435	2,926
V	-	-	-	3,293	3,166	6,459
VI	-	-	-	2,080	1,959	4,039
Sub-Total	7,508	7,463	14,971	13,820	13,376	27,196
Private Pre-Schools						
I	1,825	1,854	3,679	941	1,150	2,091
II	5,208	5,283	10,491	3,029	3,060	6,089
III	1,637	1,311	2,948	841	878	1,719
IV	1,549	1,854	3,403	928	1,079	2,007
V	-	-	-	135	108	243
VI	-	-	-	100	109	209
Sub-Total	10,219	10,302	20,521	5,974	6,384	12,358
Total	17,727	17,765	35,492	19,794	19,760	39,551
Over-All Total	28,601	28,296	56,897	31,514	31,136	92,595

Source: Social Services Development Department, Division of City Schools

3.4.2 | Children In Need of Special Protection (CNSP)

In 2015, the number of Children in Need of Special Protection (CNSP) served was 358 (144 male and 214 female). Services rendered are in the form of Rescue/ Temporary Shelter, Protective Services/After Care and Follow ups or Monitoring.

Cases of Child Abuse

Reported victim of abuse children in 2015 was 296, lower by 168 cases from the 464 figure in 2011. There are more (155) female abused children than male (141) in both years. Most of the reported cases in 2015 were sexually abused children while in 2011 the majority of the reported cases were neglected children. The improved level of awareness of the populace on the consequences of inflicting abuse on children as provided for under Republic Acts 7610 and 9262 otherwise known as Anti-Child Abuse Act and Violence against Women and Children Act encourages people to report, thus contributes in the increase and decrease of reported cases (See Table DS-24).

Table DS-24 | Reported Cases of Child Abuse by Sex, Quezon City: 2011-2015

Cases	2011			2015		
	M	F	T	M	F	T
Sexual Abuse	6	106	112	29	70	99
Physical Abuse	51	25	76	33	29	62
Neglected	115	102	218	40	41	81
Abandoned	31	28	59	10	3	13
Verbal Abuse	-	-	-	15	6	21
Psychologicval	-	-	-	14	6	20
Child Trafficking	36	18	54	-	-	-
Total	203	261	464	141	155	96

Source: Social Services Development Department

Unregistered births/Registered late

The United Nations Convention on the Rights of the Child which the Philippines signed and ratified recognizes that all children have the right to Survival, Development, Protection, and Participation. Every child has the inherent right to life and to the needs that are most basic to existence, the right to a name and nationality. Among the Child-Friendly Commitments of every barangay is that all children should be registered at birth.

To support this, City Council Ordinance No. SP-1610, S-2005 was passed and approved which "Provides

exemption from payment of registration fees by parents or guardians whose gross income does not exceed Sixty Thousand pesos (P60,000.00) annually in the registration of live birth of a child with the City Civil Registry recognizing the right of the child to bear a name and status for a lifetime and providing further penalties for the violation thereof." The massive campaign on "Operation Birth Right" of the City Civil Registry Department (CCRD) has encouraged every families of the barangay to register for free the newly QC born child and unregistered children ages 31 days above and below 18 years old.

Total birth registered for 2015 was 76,495 of which, 61,108 or 79.88% were registered on time and 15,387 or 20.12% were late birth registration. The late registrant shows that based on the records of the CCRD, they comprised 84.65% of the 18,176 applicants for delayed birth registration and 2,789 or 15.35% were unregistered births. Some of the reasons for not registering the child would be the inability to comply with the requirements and limited resources of parents to pursue birth registration of their children. Other reasons for unregistered births is the lack of awareness on the importance of registering the child's birth not only on time but a must, to establish identity of the child and avoid the hassle of securing birth certificates when the child start schooling.

Cases of Child Labor

Child Labor refers to any work or economic activity performed by a child that subjects him/her to any form of exploitation or is harmful to his/her health and safety or physical, mental or psychosocial development. These children are below 17 years old often worked to help support their families, deprive of their childhood and forced to forgo an education. In accordance and in support of Republic Act No. 9231, or the Elimination of the Worst Forms of Child Labor, the city government has passed Ordinance No.SP-784 which penalizes the owner or operators of any business and/or entertainment establishment in Quezon City for hiring/employing children and minors. Likewise, Ordinance No.SP-1594,S-2005 which prohibits the employment of minors below fifteen (15) years of age in public and private undertakings within the territorial jurisdiction of Quezon City.

In 2012, the city's Public Employment and Service Office (PESO), thru the Program Implementation Committee on Child Labor (PIC) conducted a survey of Child Laborer cases in the 142 barangays. However, only three (3) barangays responded and passed the screening process namely; Bgys Pasong Putik, Sangandaan and Paltok have. Of the 3 cited barangays, Bgy. Pasong Putik has the most number of child labor with 100 identified cases consisting of 66 families. These children are involved

in selling sampaguita, pandesal, slippers, cigarette, kakanin, barbecue, sign board and sim card while some are housemaid and helper. Said barangay is the only barangay that complied with the requirements of Department of Labor and Employment (DOLE) thus, Quezon City was recommended as one of the pilot city to benefit in their program on "Child Labor Free Barangay" (CLFB).

PESO in collaboration with DOLE initially provided Livelihood Assistance to the said 66 families in Bgy. Pasong Putik tagged as "Kabuhayan Showcase, and Negocarts" and Tulong Pangkabuhayan sa mga Displaced at Disadvantaged workers Program (TUPAD)-an emergency employment for parents of child laborers for 15 days. Educational assistance was also extended to their children either in formal schooling or enrolled in Alternative Learning System (ALS) of the Dep-Ed. Other programs and activities rendered to these families are Lakbay Aral, involvement of children to sports related activities and conduct of value formation. To determine the success and/or effectiveness of the said program, PESO monitored the growth of Child Labor cases and evaluated the status of child labor beneficiaries.

In the 2014 survey conducted by DOLE in the National Capital Region (NCR), result shows that there were 1,075 child laborers exclusive those at risk victims or in hazardous workplace from the city's 26 barangays. The PIC reclassified these child laborers into two types such as; Formal and Informal employment. Formal employment includes; the batang kasambahay, factory worker, gasoline boy, carwash boy and construction workers while those in the Informal employment are the vendors, scavengers, parking boys, barkers, kargador and freelance sex workers.

The same programs and projects were extended to 335 or 31.16% of the 1,075 child laborer in 2015. Priority was given to 9 barangays with high incidence of child laborers namely; Holy Spirit (88), Bagong Silangan (68), Batasan Hills (67), Capri (20), Culiati (20), Manresa (20), Payatas (19), E. Rodriguez (18) and Paltok (15).

3.4.3 | Youth Welfare Services

In 2015, there were 2,851 youth ages 6-17 years old (1,956 male & 895 female) that availed the services under Youth Welfare Program. The figure is very low compared to 7,589 in 2011. The huge decrease maybe attributed due to the city's constant advocacy campaign on the existing national and local laws pertaining to children.

Under RA 9344 otherwise known as the Juvenile Justice and Welfare Act, Youth Offenders below 15 years of age are released to the custody of parents or guardians or to a responsible welfare agency and given proper interventions. The detention facility is the Molave Youth Home (MYH) which serves as a residential and rehabilitation center or a halfway house for children in conflict with the law (CICL), for both male and female ages 15 to 17 years old who committed crimes and arrested within the vicinity of QC regardless of their residence. It aims to provide temporary secure custody and care for youth offenders while undergoing trial.

For 2015, there were 1,147 reported cases of youth offenders under RA 9344, an increase of 4.08% from 1,102 cases in 2011. Majority, (1,008) are male and 139 are female. Programs and services rendered to CICL clients include social/treatment, homelife, medical, values and spiritual formation, vocational/skills training, non-formal education and various recreational and cultural services.

Other youth served by the SSDD includes; seventy three (73) youth with behavioral problems (49 males and 24 females), street children served were 262 (192 male and 70 female) a decrease of 140 from 402 served in 2011 and abused youth were 125, a significant decreased from the 573 served in 2011 (See Table DS-25).

Table DS-25 | Number of Youth (6-17 Years Old) Served by Type, Quezon City: 2011-2015

Type Children/ Youth	2011				2015			
	M	F	T	%	M	F	T	%
Street Children	279	123	402	5.30	192	70	262	9.19
Out-of-School Youth	3,282	1,982	5,264	69.36	633	611	1,244	43.63
Youth Offenders under RA 93aa/CICL	632	470	1,102	14.52	1,008	139	1,147	40.23
Youth with Behavioral Problems	160	88	248	3.27	49	24	73	2.56
Abused Youth	295	278	573	7.55	74	51	125	4.39
Total	4,648	2,941	7,589	100	1,956	895	2,851	100

Source: Social Services Development Department

3.4.4 | Women in Especially Difficult Circumstances (WEDC)

A total of 4,837 women were served under the Women Welfare Program in the form of rescue, provision of temporary shelter, case management and capability building services. A total of 2,400 women were given capability services and 635 are reported incidence of WEDC.

The 635 reported incidence of WEDC in 2015, showed significant increase of 125 cases from the 510 reported cases in 2011. The increase may also be partially brought about by an intensive information dissemination on RA 9262 (Violence against Women and Children Act), RA 9208 (Anti-Trafficking in Persons Act), RA 7877 (Anti-Sexual Harassment Act) and others. The reported number of WEDC cases also showed that most of these women (260 or 41.00%) are physically or verbally abused, 143 or 22.51% are emotionally and psychologically abused, 94 women cases are economically abused and 60 are victims of trafficking. The rest are victims of prostitution, sexually abused women, abused “kasambahays”, victims of illegal recruitment and unwed pregnant women. (See Table DS-26)

Table DS-26 | Reported Number and Incidence of Women in Especially Difficult Circumstances, Quezon City: 2011-2015

Woman's Cases	2011		2015	
	Number	Percent	Number	Percent
Physically /Verbal Abused	280	54.90	260	41.00
Sexual Abused	8	1.57	17	2.67
Victims of Prostitution	38	7.45	50	7.87
Emotional & Psychological Abused	100	19.61	143	22.51
Economic Abused	-	-	94	14.80
Victims of Trafficking	40	7.84	60	9.44
Abused Kasambahay	44	8.63	5	0.78
Victims of Illegal Recruitment	-	-	3	0.47
In Detention	-	-	-	-
Unwed Pregnant women	-	-	3	0.47
Total	150	100	635	100

Source: Social Services Development Department

3.4.5 | Persons with Disabilities (PWDs)

The estimated number of persons with disabilities in 2015 was 29,366. There were more male differently abled persons (15,032) than female (14,334). About 10,254 or 34.92% of this figure were served by SSDD, 5,573 are male and 4,681 are female. Type of disability of the persons served includes; mental and orthopedically handicap, hearing, speech, visual disabilities and others. Orthopedically handicapped persons are the most number of PWDs served with 2,041 cases or 19.90% of the total number of PWDs served, followed by learning disability with 1,642 cases or 16.01%, hearing impaired persons chronic illness with disability with 1,437 cases or 14.01% of the total PWDs served.

SSDD also recorded a total of 12 PWDs who were reported to have been neglected and abandoned. This is lower compared to 31 PWDs reported in 2011. (See Table DS-27)

Table DS-27 | Number of PWDs Served by Type of Disability and Reported Cases of Abandoned/Neglected PWDs by Sex, Quezon City: 2015

Type of Disability	Number	Percent	Number	Percent
Mental	334	281	615	5.99
Orthopedically handicapped	1,108	933	2,041	19.90
Hearing	558	468	1,026	10.01
Speech	669	562	1,231	12.01
Visual Disability	446	376	822	8.02
Psychosocial Disability	618	515	1,133	11.05
Chronic Illness with Disability	781	656	1,437	14.01
Learning Disability	892	750	1,642	16.01
Multiple Disability	167	140	307	2.99
Total	5,573	4,681	10,254	100.00
Reported Cases				
Abandoned/Neglected	8	4	12	

Source: Social Services Development Department

The Disabled Persons Affairs Committee (DPAC) was created thru City Ordinance No. SP-158,S-94 in recognition of the need to more active participation and involvement of disabled persons in the formulation of policies that would affect their lives. In 2002, the Disabled Persons Affairs Office (DPAO) was made functional thru the City Council Ordinance No. SP-1141,S-2002, which provides for the structural and functional reorganization of the DPAO to be created in lieu of DPAC.

The issuance of PWD IDs is being handled by DPAO as part of their functions and responsibility and extends various programs to city's PWD constituents as follows; Capacity Building Program, Advocacy and Monitoring, Resource generation and Partnership-Building, Linkages and Referrals.

3.4.6 | Older Persons (OPs)

The elderly population is among the vulnerable group in Quezon City that is in need of special attention and protection. In order to enjoy the senior citizens twilight years, the government programs for the elderly have been expanded to include projects that will enable them to interact with their peers, articulate their needs, express their interests and participate in developmental undertakings.

The following are the benefits and privileges as cited under Section 4 of Republic Act 9994 otherwise known as Expanded Senior Citizens Act of 2010 “An act Granting Additional Benefits and Privileges to Senior Citizens, Further amending RA 7432 of 1992 as amended by RA 9257 of 2003”;

- Free medical and dental services, diagnostic and laboratory services in all government facilities;
- 20% discount for medicines;
- 20% discount in hotels, restaurants, recreation centers;
- 20% discount in theaters, cinema houses and concert halls;
- 20% discount in medical/dental services, diagnostic and laboratory fees in private facilities;
- 20% discount in fare in domestic air, sea, travel and public transportation;
- 5% discount in basic necessities and prime commodities;
- 12% VAT exemption on the purchase of goods and services which are entitled to the 20% discount;
- 5% discount for the monthly utilization of water and electricity provided that the water and electricity meter bases are under the name of the senior citizens;
- Exemption from the payment of individual income taxes of senior citizens who are considered to be minimum wage earners in accordance with RA No. 9504;
- Exemption from training fees for socio-economic programs;
- DOH shall administer free vaccination against the influenza virus and pneumococcal disease for indigent senior citizen patients;
- Educational assistance to senior citizens to pursue post secondary, tertiary, post tertiary, vocational and technical education, as well as short term courses for retooling in both public and private schools;
- The continuance of the same benefits and privileges given by the GSIS, SSS and the PAG-IBIG , as the case may be, as are enjoyed by those in actual service;
- Provision of express lanes for senior citizens in all commercial and government establishments; in the absence thereof, priority shall be given to them; and
- Death benefit assistance of a minimum of Two Thousand pesos (Php2,000.00) shall be given to the nearest surviving relative of a deceased senior citizen

Aside from the aforementioned elderly benefits and privileges, the city has passed various City Ordinances and Resolutions for the advantage of the city’s elderly. Among these includes:

- Ordinance No. SP-2472, S-2015 - “ An ordinance exempting all senior citizens of QC from the payment of initial rate for parking fees in establishments, malls, hospitals parking areas or any other similar places charging the same situated within the territorial jurisdiction of the city & providing penalties for violations thereof”.
- Ordinance No. SP 1986, S-2009 - An Ordinance giving due recognition and reward to city residents aged 100 years or more as part of the city’s effort to support senior citizens.
- Resolution No. SP 4629, S-2009 – A resolution urging all cinema operators in QC to grant free admission to all senior citizens of the city every Monday & Tuesday of all films shown in their establishment.

The city's estimated number of persons 60 years old and over in 2015 is 162,158 (67,349 male and 94,809 female). The Office of the Senior Citizens Affairs Office (OSCA) has issued a total of 436,656 senior citizens card from 1993-2015. The figure however, may include cases of lost cards that were replaced and also deceased elderly. There is also the problem of inability to track down their present status.

The SSDD on the other hand has served about 6,323 elderly (409 male & 5,914 female) senior citizens under their Elderly Welfare Program. Reported number of older persons needing special attention decreased from 81 cases in 2011 to 53 in 2015. Majority (36) reported cases are neglected elderly, 16 neglected and 1 maltreated elderly (See Table DS-28).

Table DS-28 | Reported Cases of Older Persons in Need of Special Attention By Sex, Quezon City: 2011-2015

Cases	2011			2015		
	Male	Female	Total	Male	Female	Total
Abandoned	15	25	40	7	9	16
Neglected	14	21	35	16	20	36
Maltreated	2	4	6	-	1	1
Total	31	50	81	23	30	53

Source: Social Services Development Department

3.4.7 | Families

While there are 220,364 households or 38% with income below the poverty threshold in 2011, a total of 60,789 families have availed of the Family Welfare Program in 2015. Of this, 4,999 were served under the Solo Parent services. More female solo parents (4,741) were served than male (258). PhilHealth IDs were issued to 42,694 indigent families (25,071 male household heads and 17,623 female household heads).

The city is included in the Pantawid Pamilyang Pilipino Program (4Ps) or Conditional Cash Transfer Program of the Department of Social Welfare and Development (DSWD) since 2008. This is a poverty reduction strategy that is a right based program and focuses on human capital investment through provision of health and education cash grants to eligible poor households. Its aim is to enable the poor households meet certain human

development goals and break the intergenerational cycle of poverty through investment in human capital (health, nutrition and education).

The provision of cash grants is conditional upon the compliance of the beneficiaries with the conditionality of the program with specific verifiable behaviors such as pregnant women undergoing preventive health check-ups, children 0-5 years old undergoing growth monitoring and receiving vaccinations, and children aged three to fourteen years old enrolled in day care, kindergarten, primary and secondary and alternative delivery modes of education maintaining at least an 85% attendance.

As one of the various social assistance programs that have been patterned from Latin American and other

developing countries, Pantawid Pamilya contributes to the improvement of attendance of children in school, improve maternal and child health and nutrition and in preventing child labor.

Of the city's 142 barangays, 125 barangays or 88.02% are covered by the Pantawid Pamilyang Pilipino Program. These were the barangays identified with families below poverty threshold through a Proxy Means Test (PMT) done by DSWD. Table DS-29 below shows that all barangays in District II (5 bgys.) and District V (14 bgys.) were covered by the program including almost all barangays in District VI (10 out of 11 barangays). The rest of the district's covered barangays are as follows: 33 Barangays from District I out 36 barangays, 32 out of 38 barangays in District IV and 31 barangays in District out of 37 barangays.

Table DS-29 | Number of Barangays by District Covered by Pantawid Pamilya Pilipino Program, Quezon City: 2015

District	No. of Barangay	No. of Barangays Covered by 4Ps
I	36	33
II	5	5
III	37	31
IV	38	32
V	14	14
VI	11	10
Total	142	125

Source: Department of Social Welfare and Development

As of August 26, 2016, there are 37, 970 4Ps partner-beneficiaries from 2008-2015. Set 6 in 2013 has the highest registered beneficiaries with 22,259 or 58.62% of the total beneficiaries while the lowest registered Pantawid Pamilya Members is from Set 8 in 2015 with only 4 recorded beneficiaries. (See Table DS-30)

Table DS-30 | Number of Pantawid Pamilya Beneficiaries Per district/Set, Quezon City: 2008-2015

District	Sets/Year								Total
	2008 Set 1	2009 Set 2	2010 Set 3	2011 Set 4	2012 Set 5	2013 Set 6	2014 Set 7	2015 Set 8	
I	3	3	2	841	36	2,814	1,105	1	4,805
II	1,153	12	20	721	52	7,255	1,424	1	10,638
III	2	2	3	533	11	2,146	615	1	3,313
IV	6	4	6	1,319	28	2,532	1,374	-	5,269
V	9	10	9	2,823	40	3,210	2,079	1	8,181
VI	8	4	5	268	18	4,202	1,159	-	5,664
Total	1,181	35	45	6,505	185	22,159	7,756	4	37,870

Source: Department of Social Welfare and Development

3.4.8 | Social Welfare Facilities

Social welfare services for various sectors were extended by SSDD to its clients in the following welfare service facilities: 294 day care centers in 2015, an increase of 24 DCCs from 262 in 2011; 18 Supervised Neighborhood Play (SNP); 11 Night Minding Centers and/or Micro-Geo Net in various barangays specifically, at Bgys. Paang Bundok, Project 6, Batasan Hills, Quirino 3-A, Loyola Heights, Libis, Dona Imelda, Fairview, Novaliches Proper, Apolonio Samson, and Tandang Sora. These centers were established to provide temporary shelter/care to children aged below nine years old whose parents are working/vendors at night and rescued street children; 3 Community Based Therapeutic Rehabilitation Centers for PWDs; 1 QC Women Crisis Center located at the QCGH which is a one-stop shop; 1 Reception and Action Center; 1 Molave Youth Home; 1 Senior Citizens Day Center and; 1 Drug Treatment & Rehabilitation Center (TAHANAN).

The city's on-going construction of Halfway Home or "Bahay Arugaan" for children in need of special protection particularly abandoned and neglected children located at P. Bernardo Park, Bgy. Kamuning will soon be operated and managed by the SSDD.

3.4.9 | Other Welfare Institutions/Organizations

There were 32 registered non-government organizations providing welfare services in the city compared to 46 in 2007. The decreased is due to inability to renew accreditation with DSWD on their license to operate.

Majority of the programs/services of these welfare agencies are community based especially in the city's informal settlements in close coordination with the barangay and community leaders of target areas. Activities/services are being undertaken either in barangay halls, health centers, multi-purpose halls and other facilities.

3.5 HOUSING

3.5.1 | Introduction

By population, Quezon City is the largest city in the country. The Philippine Statistics Authority (PSA) census of 2015 showed that there were 2,936,116 people living in the city. With an annual growth rate of 1.17%, the population was estimated to be 2,970,562 in 2016 and expected to reach 3,005,413 in 2017. High population results to problems like poverty, unemployment, urban blight, traffic congestion, high solid waste generation, inadequate health and educational facilities, and housing shortage. Urban governance in the City is faced with the huge challenge of matching the growth in population with corresponding growth in basic services and facilities, given the limited amount of resources at its disposal. The challenge is even made difficult by the fact that approximately 28% of the population is poor, the sector most in need of assistance to improve their quality of life.

Section 9 (Urban Reform and Housing), Article XIII (Social Justice and Human Rights) of the 1987 Philippine Constitution provides that, “The state shall, by law, and for the common good, undertake in cooperation with the private sector, a continuing program of urban land reform and housing which will make available at affordable cost decent housing and basic services to

underprivileged and homeless citizens in urban centers and resettlements areas. It shall also promote adequate employment opportunities to such citizens. In the implementation of such program the State shall respect the rights of small property owners.”

Decent housing, according to PSA, is described as housing units with permanent roofing material, strong outer walls and has a security of tenure.

The 2010 PSA survey showed that the proportion of occupied housing units with outer walls made of concrete/brick/stone increased from 46% in 2000 to 67% in 2010. Those with outer walls made of half concrete/brick/stone and half wood decreased from 32% in 2000 to 22% in 2010. Meanwhile, majority (89%) of the occupied housing units in 2010 had roof made of galvanized iron/aluminum, which is higher than the proportion of 78% recorded in 2000.

As prescribed in the Implementing Rules and Regulations (IRR) of PD 957 and Batas Pambansa 220 (BP 220) (amended per Board Resolution No. 824, S-2008), the minimum lot and floor area requirements (in sq. m.) for the types of housing unit and the housing project is presented in the table below: (See Table DS-31)

Table DS-31 | Minimum Lot Area and Floor Area Requirement Per Type of Housing Unit under PD 957 and BP 220 (in sq. m.)

Type of Housing Unit	PD 957				BP 220			
	Open Market		Medium Cost		Economic		Socialized	
	LA	FA	LA	FA	LA	FA	LA	FA
Single Detached	120	42	100	30	72	22	64	18
Duplex/Single Attached	96	42	80	30	54	22	48	18
Row House	60	42	50	30	36	22	28	18

Source: Housing & Land Use Regulatory Board (HLURB)

Note:

1. Saleable lots designated as duplex/single attached and/or row house lots shall be provided with housing components.
2. Price of saleable lots intended for single detached units shall not exceed 40% of the maximum selling price of the house and lot package.
3. Mandatory provision of firewall for duplexes/single-attached units and at every unit for row houses.
4. The number of row houses shall not exceed 20 units per block/cluster but in no case shall this be more than 100 meters in length.

The minimum floor area (FA) requirement (in sq. m.) per type of housing project are the same for all types of housing units.

Affordable housing, on the other hand are housing units with the most reasonable price based on the needs and financial capability of Program beneficiaries and appropriate financing schemes. It should not exceed 30% of the HH income spent on housing and utilities.

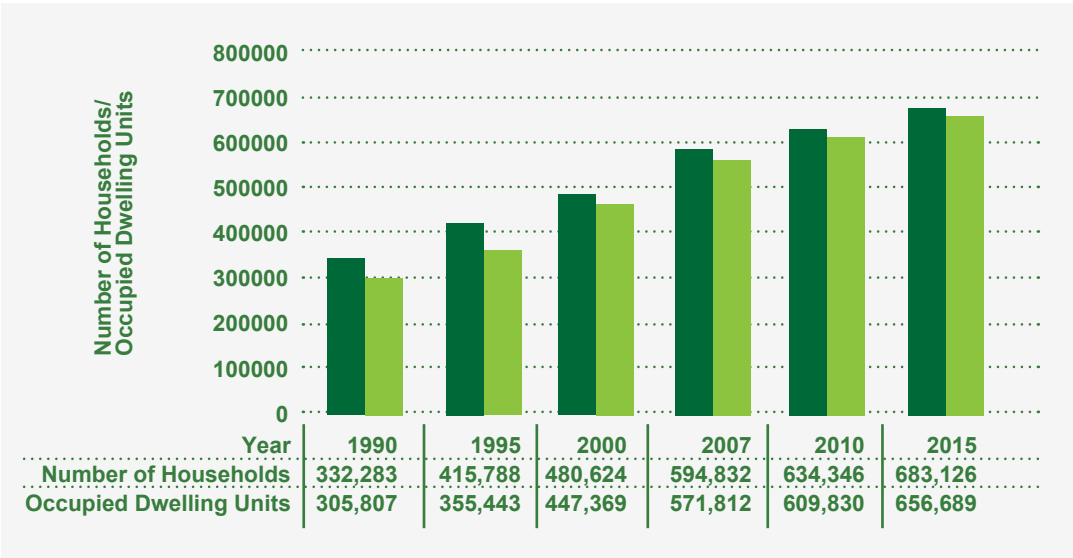
Urban housing is the single most visible problem in the city as it involves the use of exposed physical resources which are land and the dwelling structure. The urban poor consisting of informal settler families (ISFs), slum dwellers and tenants in low-cost but poor rental dwelling units contribute immensely to the city’s housing backlog. Existing government shelter programs cater

mostly to ISFs. The tenants and renters in apartments and low-cost but poor rental units are usually neglected despite the fact that they spend a considerable portion of their income on rents; refraining from squatting and keeping their tenorial status legitimate while also aspiring to have housing of their own. Aside from them, new households being formed every year expand the sector in need of shelter. The Local Government Code of 1991 (RA 7160) provides the statutory framework for the devolution of local public administration and service delivery responsibilities as well as revenue mobilization powers to LGUs. It also provides the framework for the roles of LGUs in the national shelter program. The Urban Development Housing Act of 1992 (UDHA or RA 7279) requires LGUs to provide socialized housing and other mass dwellings especially for the poor and underprivileged.

3.5.2 | Current State of Housing in Quezon City

Households & Occupied Dwelling Units

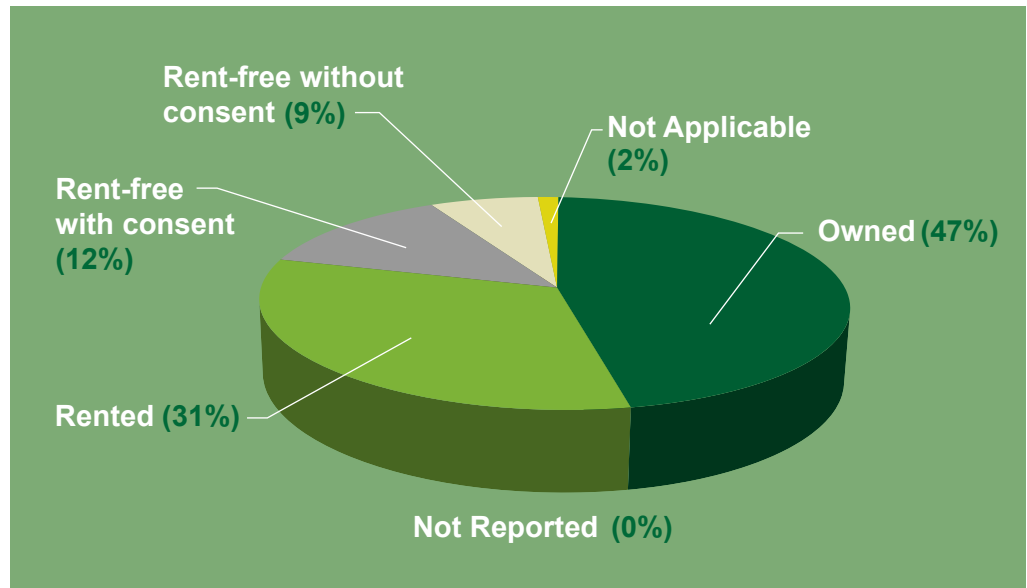
The PSA survey made in 2010 indicated that there were 634,346 households occupying 609,830 dwelling units. This translates to a ratio of 104 households for every 100 occupied housing units. Average household size was 4.3 persons which is lower than the average household size of 4.8 in 2000. In 2015, the number of households based on the PSA survey was 683,126 and the number of occupied dwelling units was 656,689. (Refer to Figure DS-23).



Source: Philippine Statistics Authority (PSA)

Figure DS-23 | Comparative Number of Households and Occupied Dwelling Units, Quezon City: 1990-2015

It is to be noted that forty-seven percent(47%) of the 634,346 households owned or amortized the lots they occupied, higher than the 2000 survey at 36.3% of the 480,624 households. Moreover, 30.8% of the households rented the lots they occupied, 12.1% occupied lots which were rent-free and with consent of the owner while 8.5%, (53,943 HH or 231,955 persons) are informal settlers occupying lots which were rent-free but without the owner’s consent. (Refer to Figure DS-24)



Source: Philippine Statistics Authority (PSA)

Figure DS-24 | Number of Households by Tenure Status of the Lot, Quezon City: 2010

Doubled-up Households

At present, it is estimated that the number of households is 683,126 while the number of occupied dwelling units is 656,689. By these figures alone, the doubled-up households is determined to be 26,437, not considering the fact that many of the existing dwelling units are already in a state of deterioration, needing either improvement or total replacement.

Homeless

Using a factor of 0.1% (0.001) of the total household population, it is estimated that there are 683 homeless people in the city. Each homeless is counted as one household to be provided with housing.

Unacceptable and Makeshift Dwelling Units

“Unacceptable housing units” is defined as 5% of housing units made of “mixed materials,” which, on the other hand is defined as housing units with walls and roofs made of wood, cogon/nipa/anahaw, asbestos and others. The PSA data

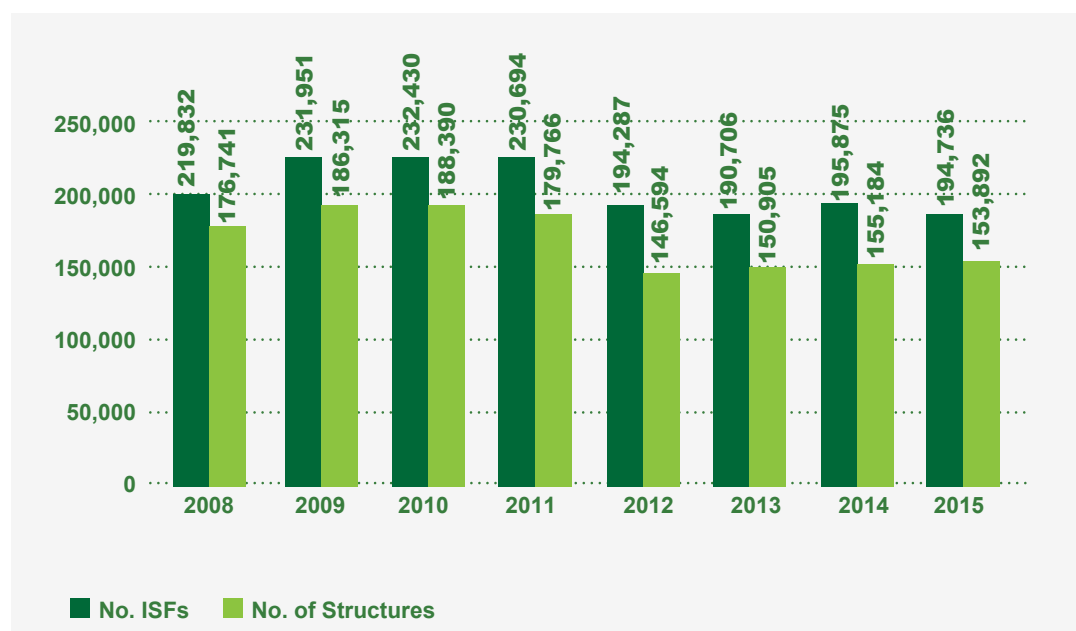
show that the number of this type of housing in QC is diminishing by 9.14% annually since the materials are not grown and are commonly used in the rural areas where they are easily harvested. The makeshift housing units were likewise decreasing by 8.52%. According to the PSA data of 2010, the city had a total number of only 13 unacceptable housing units and 2,596 makeshift/salvaged/impoverished housing units. By 2015, all these types of dwellings number only a total of 1,110 units.

Informal settlers

A large section of the city population in need of adequate shelter consists of informal settlers occupying idle, public and private lands. Public lands consist of parcels owned by different government agencies, designated open spaces, road right-of-ways, aqueducts, and danger areas like dumpsites and easements of transmission lines, rivers and creeks. Relocation is the only intervention option for those in danger zones and sites for government infrastructure projects.

The results of the census-survey done by the Housing Community Development and Resettlement Department (HCDRD) formerly Urban Poor Affairs Office, as a continuing activity showed the number of ISFs to be increasing from 2008 to 2010. A decreasing trend however was observed from 2011-2013, mainly attributed to massive relocation activities for ISFs occupying danger areas particularly river and creek easements affected by flooding and the clearing of the list and database of ISFs by HCDRD.

The 2012 actual census conducted covered 194,287 ISFs housed in 146,594 structures, a decrease of 36,407 ISFs from 2011 census survey. Actual census conducted in 2013 covered 190,706 ISFs housed in 150,905 structures, a decrease of 3,581 ISFs from 2012 census survey. However, in 2014 the number of ISFs slightly increased to 195,875 housed in 155,184 structures. Actual census in 2015 covered 194,736 ISFs housed in 153,892 structures, a decrease of 1,139 ISFs from 2014 census survey. (See Figure DS-25)



Source: Housing Community Development & Resettlement Department (HCDRD)
(formerly Urban Poor Affairs Office (UPAO))

Figure DS-25 | Number of Informal Settler Families (ISFs) and Structures, Quezon City: 2008-2015

At the district level, Table DS-32 shows that for the four (4) year period (2012-2015), the bulk of ISFs is consistently recorded in District II, followed by District VI and District IV. In 2015 alone District II already represents 26.86% of the total ISFs in the city while District VI and District IV comprised 19% and 15% respectively of the city's total ISFs.

Table DS-32 | No. and Percent Distribution of Informal Settlers in Quezon City by District: 2012-2015

District	2012		2013		2011		2015	
	No.	%	No.	%	No.	%	No.	%
I	24,882	12.81	25,248	13.24	27,689	14.14	28,436	14.60
II	53,849	27.72	49,468	25.94	51,887	26.49	52,308	26.86
III	20,191	10.39	19,882	10.42	20,080	10.25	19,355	9.94
IV	31,334	16.13	31,673	16.61	31,289	15.97	29,319	15.06
V	30,189	15.54	30,385	15.94	28,777	14.69	28,314	14.54
VI	33,842	17.42	34,050	17.85	36,153	18.46	37,004	19.00
Total	194,287	100.00	190,706	100.00	195,875	100.00	194,736	100.00

Source: Housing Community Development & Resettlement Department (HCDRD)

As to area classification or sites occupied by the ISFs, Table DS-33 shows that majority, 91,701 families or 47% are occupying private properties, 49,310 families or 25% in danger areas and government infrastructures, 35,426 or 18% in government lots. The remaining 15,661 families or 8% are within the declared area for priority development (APD) sites and some open spaces. The Table below also shows the possible interventions with which to address the problem either by way of providing relocation sites for those occupying danger areas or displaced ISFs and tenurial upgrading in government and private lots, APDs and those occupying open spaces.

Table DS-33 | No. and Percent Distribution of Informal Settlers in Quezon City by District: 2012-2015

Area Classification	District I		District II		District III		District IV		District V		District VI		Total
	DP	TU	DP	TU	DP	TU	DP	TU	DP	TU	DP	TU	
1.a. Danger Areas													
Waterways	3,855		2,554		2,602		2,679		2,350		1,537		15,577
Transmission Lines	0		0		216		1,345		0		6,334		7,895
Dumpsite	0		907		0		0		0		0		907
Under the Bridge	11		0		12		0		0		687		710
Landslide zone	0		296		0		0		0		0		296
1.b. Government Infrastructures													
Sidewalk	1,923		25		94		431		61		0		2,534
RROW/Road lot	1,247		1,299		652		408		1,173		1,934		6,743
MNTC / Republic Ave.	0		0		0		0		3,563		243		3,806
MWSS	222		2,277		3,581		927		499		0		7,506
2. Government Projects		1,194		705		28		451		241		19	2,638
3. Government Properties		9,775		15,365		1,270		7,447		882		687	35,426
4. Area for Priority Development (APD)		3,128		0		910		7,327		71		1,833	13,269
5. Open Space		83		1,300		228		0		775		6	2,392
6. Private properties		6,998		25,924		9,861		8,330		18,621		21,967	91,701
Sub-total	7,258	21,178	9,014	43,294	7,058	12,297	5,764	23,555	7,724	20,590	12,492	24,512	194,736
Grand Total		28,436		52,308		19,355		9,319		28,314		37,004	194,736

Source: Housing Community Development & Resettlement Department (HCDRD)

Legend: DP – Displaced

TU – Tenurial Upgrading

Dwelling Units Needing Improvement

Structures needing improvement due to deterioration and obsolescence are also considered in determining the city's total housing requirements. Based on a factor of 2% of the total housing stock (excluding the informal settlers), there are 10,316 housing units needing improvement.

Summary of Shelter Needs

In summary, the city needs a total of 219,016 new housing units for all segments of the population arising from the current housing backlog consisting of doubled-up households; unacceptable housing units; homeless; displaced units and;

formation of new households brought about by population growth. The other requirements come from 10,316 households of the population excluding the informal settlers whose structures need improvement and from the remaining 145,426 ISFs occupying lands not for clearing yet. A mix of upgrading options like stabilization of land/housing tenure and improvement of infrastructure facilities and structures is intervention required for this bulk of ISFs. (See Table DS-34)

Table DS-34 | Summary of Shelter Needs, Quezon City: 2015-2020

Shelter Needs	Present Needs (2015)	Future Needs (2016-2020)	Total
New Housing Units Due To Housing Backlog			
Doubled-up households	26,437		226,437
Unacceptable housing units	1,110		1,110
Homeless	683		683
Displaced Units"	49,310		49,310
Sub-total	77,539		77,539
Formation Of New Households		141,476	141,476
Total	77,540	141,476	219,016
Upgrading Needs			
Structural (2% of formal population)			10,316
Tenurial/infrastructural			145,426

3.5.3 | Sources of Housing Supply and Tenure Types

Open Market

1. Condominium

Investing a condominium unit in Quezon City is a lucrative decision, personally and financially. Most developments in the city are located in or near key districts, and neighboring shopping centers, such as in Cubao and North Avenue, providing residents easy access to anything and everything they need for daily living and leisure.

Other key locations are near schools, such as in Katipunan Avenue and Diliman. While most students rent a condo or a room in a dormitory for the duration of their stay, families and newly married couples buy units in preparation for the long-term education of their children. For enterprising individuals, buying a condo in these areas also mean continuous occupancy (continuous income) because of the high demand.

Table DS-35 shows the list of selected condominiums in Quezon City, the features, floor area and its price per unit.

Table DS-35 | List of Selected Condominiums in Quezon City: 2015

Name of Condominium / Location	Features	Price (Php Million)	Floor Area (sq. m.)
DMCI Homes / E. Rodriguez cor T. Morato Ave., Bgy. LagingHanda	2 BR, 1 T&B	4.67	56
Zinnia Towers / EDSA Munoz, Bgy. Apolonio Samson	3 BR, 2 T&B	5.43	75
Columbia Garden / Bgy. Batasan Hills	4 BR, 3 T&B	6.50	113
Victoria Sports Tower / EDSA Kamuning GMA Station	1 BR, 1 T&B	1.70	
Victoria Towers 2 / Timogcor Panay Ave., Bgy. Pinagkaisahan	2 BR, 1 T&B	2.98	41
Zinnia Towers North Tower / Katipunan Avenue	1 BR, 1 T&B	2.96	42
Penthouse Condo / TandangSora&Katipunan Ave.	2 BR, 1 T&B	4.40	56
RFO Condo / 1211 EDSA Bgy. TandangSoraKatipunan	3 BR, 2 T&B	5.40	
Burgundy Plaza Condo / Bgy, Loyola Heights	1 BR, 1 T&B	2.20	
Centro Tower / N. Domingo, Cubao	2 BR, 1 T&B	3.61	
Magnolia Place / TandangSora Ave. Extn.,Bgy. Talipapa	3 BR, 2 T&B	4.50	
Manhattan Plaza Tower 1 / Araneta Center, CubaoBgy. Socorro	2 BR, 1 T&B	12.20	105
Amaia Skies Cubao / EDSA cor. P/ Tuazon Ave., Bgy. Socorro	1 BR, 1T&B	2.20	27
Eastwood Legrand 1 / Eastwood City, Bgy. Bagumbayan	1 BR, 1 T&B	5.50	42
Phinma Properties Midrise Condo / Novaliches, QC	1 BR, 1 T&B	1.39	30
Avida Towers New Manila / Boni Serrano Ave., Bgy. Bagong Lipunan ng Crame	2 BR, 1 T&B	3.80	46
Redwoods Condo, DMCI Homes / Quirino Highway, Novaliches	2 BR, 1 T&B	4.50	56.5
One Orchard Condominium / Bgy. Libis	1 BR, 1 T&B	5.00	57
Capitol Plaza Condo / Matalino St., Diliman, QC	1 BR, 1 T&B	2.65	27
Hacienda Balai / Zabarte Rd., Novaliches QC	1 BR, 1 T&B	1.14	30
Francesca Royale Condo / Bgy. Alicia	1 BR, 1 T&B	1.88	26
Trees Residences / Bgy. Pasong Putik, Novaliches	2 BR, 1 T&B	2.29	30
Francesca Royale Condo / Mindanao Ave., Novaliches QC	1 BR, 1 T&B	2.73	41

Source: Lamudi, Philippines

Of the twenty-three (23) listed condominiums in the city, eleven (11) offers 1bedroom-1 toilet and bath, eight (8) condominium buildings has 2 bedrooms-1 toilet and bath, 3 condo buildings has 3 bedrooms-2 toilet and bath and 1 with 4bedrooms-3 toilet and bath. The prices range from as low as P1.14M to as high as P12.20M depending on the location and feature of the units.

2. Townhouses

The City boasts of countless houses for rent and for sale from elegant antique residences in the New Manila area to huge villa-inspired homes in Corinthian Village. If preferred, a contemporary townhouse for sale in Quezon City can be found in TandangSora area and Diliman.

Buyers will be pleased to know that the city offers many housing options within a wide range of prices. Homes within the subdivisions in TandangSora are being sold from P4.75 M to 8.80 M. Those within Don Antonio Heights and within the Filinvest Heights are being sold for P5.50 M and P12.0 M, respectively. For the truly affordable, there are townhouses in Novaliches area that are being sold for less than P5.0M while high-end townhouses in the New Manila area are being sold for P24.0 M more or less.

Table below shows the list of selected townhouses in Quezon City, the features, floor area and its price per unit.

Table DS-36 | List of Selected Townhouses in Quezon City

Name of Condominium / Location	Features	Price (Php Million)	Floor Area (sq. m.)
Townhouses / Mendoza St., Bgy. Paltok	3 BR, 3 T&B	5.70	116
RFO Townhomes / KingspointSubd., Novaliches	3 BR, 3 T&B	4.80	
New Manila Townhouse / New Manila, QC	5 BR, 4 T&B	23.93	324
Luxury Townhouse / near New Manila, Robinsons Magnolia	5 BR, 4 T&B	24.00	
Teresa Ville Townhouse / PleasantviewSubd., TandangSora	3 BR, 3 T&B	5.00	
Townhouses / near Mindanao Ave., Old Sauyo Road	3 BR, 2 T&B	3.98	88
Townhouses / Teachers Village East	5 BR, 4 T&B	9.50	250
Townhouses / TandangSora Ave., QC	4 BR, 4 T&B	8.80	180
Townhouses / Mindanao Ave. near TandangSora Ave.	3 BR, 3 T&B	4.75	104
Townhouses / Project 8, QC	4 BR, 4 T&B	5.50	250
Townhouses / V. Luna, Diliman QC	5 BR, 5 T&B	9.50	210
Tandang Sora Townhomes / Congressional cor. TandangSora Ave., QC	3 BR, 2 T&B	4.10	
Townhouses / Sct. Chuatoco, Roxas District	4 BR, 4 T&B	12.90	277
Townhouses / Filinvest Heights, Bgy. Batasan Hills	4 BR, 3 T&B	12.00	320
Townhouses / Cubao, QC	3 BR, 3 T&B	4.70	128
Townhouse / Don Antonio Heights, Commonwealth Ave.	3 BR, 2 T&B	5.50	126
Townhouse / Sta. Mesa Heights, Bgy. Matalahib	3 BR, 4 T&B	15.50	230

Source: Lamudi, Philippines

3. Condominium Units for Rent

A condominium for rent in Quezon City is one of the best ways to get the most out of living in the Metro. Units provide easy access to key areas, and renting as opposed to buying allows for financial flexibility, especially if one would rather have a house in the future. Monthly rental rates range from P15,000 for a studio unit to P48,000 for a two-bedroom flat. Renters who are ready to become buyers also have an option to opt for rent-to-own properties, which are just as popular in QC.

For those who prefer a condo unit for rent in Quezon City that is only walking distance from office towers and shopping malls, the many residential buildings in Eastwood City offer a great choice. It is a combined commercial and residential district that provides its occupants everything in just one place, whether it is work, groceries, or leisure. While one of the more popular areas in the city, Eastwood City is hardly the only place to find quality residences.

Notable estates currently available for students looking to live near their chosen college or university can be found along Katipunan. These flats offer potential tenants proximity to the city's top schools, such as AteneoDe Manila University, Miriam College, and UP Diliman.

As one of the busiest business districts of the city, Cubao is yet another neighborhood with plenty of condo options. This area is an ideal choice particularly for those who work in one of the bustling business process outsourcing (BPO) offices.

Table DS-37 below shows the list of condominium units for rent in Quezon City, the features, floor area and its respective rental rate per unit.

Table DS-37 | Condominium Units for Rent in Quezon City: 2015

Location	Features	Rental Rate
22 sq. m. Eastwood LeGrand 3, Bgy. Bagumbayan	1 BR, 1 T&B	15,000.00
22 sq. m. Manhattan Parkview Tower 2, Araneta Center Cubao	1 BR, 1 T&B	25,000.00
60 sq. m. Eastwood LeGrand 2, Bgy. Bagumbayan, Libis	1 BR, 1 T&B	25,000.00
Blue Residences Condo / Katipunan Ave.	1 BR, 1 T&B	18,000.00
37 sq. m. One Orchard Road Condo Tower 3 / Bgy. Bagumbayan, Libis	1BR, 1 T&B	30,000.00
50 sq. m. (with terrace) / F. dela Rosa St., Bgy. Loyola Heights, QC	1 BR, 1 T&B	18,000.00
73 sq. m. The Grand Eastwood Palazzo / Bgy. Bagumbayan	2 BR, 1 T&B	48,000.00
130 sq. m. One Central Park Penthouse / Cyberpark, Bgy. Bagumbayan	3 BR, 1 T&B	75,000.00

Source: Lamudi, Philippines

4. Apartment Units for Rent

Apartments for rent in Quezon City are one of the best ways to experience the city if one is new to the area or are unsure of how long they will be staying. The city's many residential areas are abound with flats for every budget.

A typical 1-bedroom, 1- bath apartment for rent has a monthly rate of P 6,000.00 in Bgys. San Bartolome and TandangSora. A studio-type apartment monthly rental rates ranges from P 7,500.00 in Bgy. Bagumbayan to P 13,000.00 in Bgy.Tatalon. On the other hand, a 2-bedroom 1-bath apartment units in the LaLoma area and in Bgy. Sta. Lucia has a monthly rental rate of P 15,000.00.

Table below shows the list of apartment units for rent in Quezon City, the features, floor area and its respective rental rate per unit.

Table DS-38 | Apartment Units For Rent in Quezon City: 2015

Location	Features	Rental Rate
Eleuteria St., Bgy. San Barolome	1 BR, 1 T&B	6,000.00
Kalantiaw St., Project 4, QC	1 BR, 1 T&B	6,000.00
Studio-type apartment / Napocor Village, Bgy. TandangSora	1 BR, 1 T&B	6,000.00
18 sq. m. studio-type / JP Rizal St. Project 4, Bgy. Bagumbayan	1 BR, 1 T&B	7,500.00
25 sq. m. Studio-type apartment / Mapagbigay St., Bgy. Pinahan	1 BR, 1 T&B	8,000.00
Corumi St., Bgy. Masambong	2 BR, 1 T&B	8,500.00
Spencer corner Seattle St., Bgy. Immaculate Concepcion	1 BR, 1 T&B	8,500.00
Single bedroom apartment / Fr. Martinez St. Bgy. Obrero	1 BR, 1 T&B	8,500.00
40 sq. m. / Narig St., Bgy. Veterans Village	1 BR, 1 T&B	12,000.00
Shorthorn St. Project 8, Bgy. Bahay Toro	2 BR, 1 T&B	12,000.00
Studio type apartment / Kaliraya St., Bgy. Tatalon	1 BR, 1 T&B	13,000.00
Ipo St., LaLoma, QC	2 BR, 1 T&B	15,000.00
Duplex apartment / A. Mabini St., Bgy. Sta. Lucia	2 BR, 2 T&B	15,000.00

Source: Lamudi, Philippines

National Government

The National Housing Authority (NHA), upon request of local government units, is providing technical and other forms of assistance in the implementation of their respective urban development and housing programs with the objective of augmenting and enhancing local government capabilities in the provision of housing benefits to their constituents. Said agency is the key player in providing house and lot units in off-city resettlement areas while the City Government is involved in providing financial, trucking and food assistance.

Since 2010 to August 2016 the total number of ISFs relocated from danger areas was 23,352 broken down as follows:

1. Waterways-9,304
2. Infrastructure-7,384
3. North Triangle-6,664

Resettlement sites provided by the NHA for the displaced ISFs are in the municipality/city of Pandi, San Jose del Monte, Norzagaray, Bocaue and Balagtas in Bulacan and the municipality of Rodriguez, Teresa and Morong in Rizal. Table below shows the breakdown on the number of ISFs relocated to NHA resettlement sites per area classification.

Table DS-39 | Number of ISFs Relocated to NHA Resettlement Sites: 2010-2016*

Area Classification	No. Of Informal Settler Families Relocated (Off-city)								Total
	Pandi, Bulacan	Sjdm, Bulacan	Norzagaray, Bulacan	Bocaue, Bulacan	Balagtas, Bulacan	Teresa, Rizal	Morong, Rizal	Rodriguez, Rizal	
Waterways	2,999	2,574	200	664	213	167	142	2,345	9,304
Infrastructure ¹	,967	1,173	69	313	41	21		3,818	7,384
North Triangle ⁰		1,208	00		00		05	,456	6,664
TOTAL	4,966	4,955	269	977	254	169	143	11,619	23,352

*As of August 2016

Source: National Housing Authority (NHA)

Housing Community Development & Resettlement Department (HCDRD)

Local Shelter Program

1. Community Mortgage Program (CMP) and Direct Sale Program

From January 2010 to July 2015, there were a total of 57 city-originated CMP taken-out (T.O.) projects with 3,077 beneficiaries for the last six (6) years and still 72 areas on-going CMPs at various stages of development per HCDRD records. District II has the most number of CMP take-out projects with 41 areas and 1,814 beneficiaries. From 1990 to July 2015, there are now 259 CMP take-out projects in the City with 11,443 beneficiaries.

Table DS-40 | CMP Taken-Out Projects and Number of Beneficiaries by District, Quezon City: 2010-2015

District	2010		2011		2012		2013		2014		2015		Total	
	CMP T.O. Proj	Ben	CMP T.O. Proj	Ben	CMP T.O. Proj	Ben	CMP T.O. Proj	Ben	CMP T.O. Proj	Ben	CMP T.O. Proj	Ben	CMP T.O. Proj	Ben
I	0	0	1	15	0	0	0	0	0	0	0	0	1	15
II	2	46	7	310	0	0	2	69	2	30	7	471	41	1,814
III	0	0	2	303	2	171	0	0	0	0	0	0	4	474
IV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V	2	66	5	131	3	166	2	90	5	139	3	255	10	388
VI	0	0	6	335	3	179	0	0	3	301	0	0	12	1,630
TOTAL	4	112	21	1,094	8	516	4	159	10	470	10	726	57	3,077

Source: Housing Community Development & Resettlement Department (HCDRD)

As to the Direct Sale Program, the city has disposed 22 government-owned lots/projects with 5,711 beneficiaries/families.

2. “BistekVille” Housing Program

The Quezon Task Force on Socialized Housing and Development of Blighted Areas (Task Force Housing) is the driving force behind the creation of the new in-city housing community called “BistekVille” (BV) housing projects, with the HCDRD, non-government organizations (NGOs) and housing financial institutions as partners in development.

To date, there are twenty (20) BistekVille Housing Projects in the City. Three (3) housing project sites have already been completed (Bistekville 1 at Bgy. Payatas, Bistekville 2 at Bgy. Kaligayahan and Bistekville 8 at Bgy. Bagbag). The rest are at various stages of development as shown in TableDS-41.

Table DS-41 | BistekVille (BV) Housing Projects; Quezon City: 2015

BV	Lot / Location / New Owner (Previous Owner) / Developer	AREA (SQ. M.)	Type Of Housing / No. Of Units	Remarks/ status
1 (Off*)	Lot 9-B Psd 00-036995 Molave St., Bgy. Payatas LGU-QC (formerly Oviedo property) Land: Solid Rock Const. & Dev't Corp. Housing: Habitat for Humanity Philippines	15,561	190 one-sty. with loft; 144 two-sty. walk-up (for ISFs along waterways)	Land dev't.: 100% completed Housing dev't. : 334 of 334 housing units completed
2 (On**)	Lot 614 & Lot D (LRA) Psd-384988 Bgy. Kaligayahan Ofelia Arce Property (conveyed to LGU-QC) Land & Housing: Phinma Property Holdings Corporation	48,876	703 one-sty. with loft; 375 three-sty. walk-up (for ISFs along waterways)	Land dev't.: 100% completed Housing dev't.: 1078 of 1078 housing units completed
3 (On**)	Lots 36, 37 & 38 Pcs-00-014047 Banana Island, Burol & Libis area, Bgy. Escopa II R.P. (DENR as administrator by virtue of Pres. Proclamation No. 6, S-2001) Land & Housing: MRB II Const. Corp.	4,436	98 units one-sty. with loft row houses (27 sq. m. FA incl. loft)	Banana Island: 100% completed (land & housing dev't.) Libis Area: 32 of 43 units completed
4 (On**)	Lot 644-A-7-D (LRC) Psd-32238 Limqueco Road, Bgy. Culiati LGU-QC (expropriated property formerly Mariano Tiong) Land: Diadema Enterprises Housing: Habitat for Humanity Philippines	9,200	266 units two-sty. walk-up (21 sq. m. FA excl. corridor space)	Burol Area: land dev't - for bidding Land dev't.: approx. 90% completed Housing dev't.: 94 of 266 units completed
5 (On**)	Lot 12 Pcs-2491 Madyaas Road, Bgy. Payatas LGU-QC (formerly Antonino property) Land: Solid Rock Const. & Dev't Corp. Housing: Habitat for Humanity Philippines	10,903	58 units one-sty. with loft 146 developed lots (CMP)	Land dev't.: on-going Housing dev't.: 25 of 58 units – in near completion lot only: 146 lot on-going re-blocking - CMP
6 (On**)	Consolidation of Lots 8 & 16, Blk 12 and Road Lot 11 (LRA) Pcs-12376 Chestnut St., Bgy. Fairview LGU-QC (donated properties) Land & Housing: MPM Builders	16,890	122 units two-sty. walk-up 115 developed lots (CMP)	Land dev't.: on-going Housing dev't.: 76 of 108 units completed.: 32 of 108 units – On-going construction lot only: 115 lots-already
7 (On**)	Lot 3 Block 1 Psd-0062447 PUD Site, Bgy. Escopa III Housing & Urban Renewal Authority Land & Housing: MRB II Const. Corp.	1,872	90 units 3-sty. walk-up (30 units vacant lot, 60 units ISF-occupied)	re-blocked - direct sale Land dev't.: 100% completed Housing dev't.: Site-1 : 30 of 30 units - completed : Site-2 : 60 of 60 units - for bidding
8 (On**)	Lot 176-A-8 Psd-34977 Int. King Michael St., Bgy. Bagbag LGU-QC (donated property) Land: ARV Construction & Supply, Inc. Housing: Compact Builders	1,973	105 units 3-sty. walk-up (21 sq. m. F.A. excl. corridor area)	Land dev't.: 100% completed Housing dev't.: 105 of 105 units completed
9 (Off*)	Lot 109 Blk 1 Psd-13199 & Lot 2-B Psd-24313 Nenita Ext., Bgy. Gulod LGU-QC (formerly Quizon property) Land & Housing: Solid Rock Development & Housing Corporation	4,238	192 units 3-sty. walk-up (21 sq. m. F.A. excl. corridor area)	Land dev't. : on-going Housing dev't.: 51 of 192 units – completed 75 of 192 units – on-going construction
10 (On**)	Lot 13 Blk. 4 (LRC) Pcs-941 Buenamar St., Bgy. Novaliches Proper LGU-QC (formerly Tancinco property) Land & Housing: Rosand Builders	1,286	66 units of 3-sty. walk-up (21 sq. m. F.A. excl. corridor area)	Land & housing dev't.: suspended (awaiting final conversion from the City Council)

BV	Lot / Location / New Owner (Previous Owner) / Developer	AREA (SQ. M.)	Type Of Housing / No. Of Units	Remarks/ status
11 (On**)	Lot 85-A-1-C Psd 007404 030208-D Sarmiento St., Bgy. Sta. Monica LGU-QC (formerly G.B. Francisco Inc. property) Land & Housing: Rosand Builders	877	42 units 3-sty. walk-up (21 sq. m. F.A. excl. corridor area)	Land dev't.: on-going Housing dev't.: 42 of 42 units on-going construction
12 (Off*)	Lot 161-New-C-3 Psd-2110 SB Diversion Road, Bgy. NagkaisangNayon LGU-QC (formerly Biglang-awa prop.) Land: Grandeur Construction Housing: Vibrant Realty Inc.	4,000	183 units 3-sty. walk-up (21 sq. m. F.A. excl. corridor area)	Land dev't. : on-going Housing dev't. : for bidding
13 (On**)	Lot 176-A-16 Psd-23748 Int. King Michael St., KingspointSubd. Bgy. Bagbag LGU-QC (formerly Castillo property)	2,584	105 units 3-sty. walk-up (21 sq. m. F.A. excl. corridor area)	Land dev't.: on-going site clearing Housing dev't. : for bidding
14 (On**)	Lots 25 & 26 Fls-2696-D Sta. Barbara St., Bgy. Gulod G.B. Francisco Inc. (for transfer to QC) Land & Housing: Centiare Const. & Trading Corp.	1,633	78 units of 3-sty. walk-up (21 sq. m. F.A. excl. corridor area)	Land dev't.: on-going site clearing Housing dev't.: for bidding
15 (Off*)	Lot 554-B-4-D (LRC) Psd-270021 & Lot 596-B (LRC) Psd-99855 Richland Drive, Bgy. Sauyo LGU-QC (formerly A.O. Knitting Mfg. Inc. property) Land & Housing: Persan Construction, Inc.	19,893	588 units 3-sty. walk-up (21 sq. m. F.A. excl. corridor area) 111 units economic housing	Land dev't.: on-going Housing dev't.: for bidding
16 (Off*)	Lots 1186-A, 1186-B, 1186-C & 1186-D Psd-19166 SB Diversion Road, Bgy. NagkaisangNayon LGU-QC (formerly PrescillaArce property) Land & Housing: Mascot Corporation	7,164	3-sty. walk-up (21 sq. m. F.A. excl. corridor area)	Land dev't.: on-going Housing dev't.: for bidding
17 (Off*)	Lot 2-A-1-A Bgy. Payatas MOA with Wright Park Residences Dev't Corp.	8,500	234 units3-sty. walk-up (21 sq. m. F.A. excl. corridor area)	Land dev't.: on-going Housing dev't.: 78 of 234 units - ongoing construction
18 (On**)	PWD Housing NVRC Compound, Bgy. Escopa III R.P. (DENR as administrator by virtue of Pres. Proclamation No. 6, S-2001) Land: R.S. Gatabonton Construction Housing: Habitat for Humanity Philippines & Gawad Kalinga	5,083	130 units 2-sty. walk-up (21 sq. m. F.A. excl. corridor area)	Land dev't.: approx. 80% completed Housing dev't.: awaiting signing of MOA with GK
19 (On**)	Lot 797-C-5 Psd-5975 Luzon Ave., Bgy. MatandangBalara BSP Property (for title transfer to QC)	10,000	400 units3-sty. walk-up (21 sq. m. F.A. excl. corridor area)	Land dev't.: for bidding Housing dev't.: for bidding
20 (On**)	Plan RS-00-001500-Lot 58 SWO-16801 Villa Beatriz Extension, Bgy. MatandangBalara LGU-QC (formerly Garcia property)	2,980	147 units3-sty. walk-up (21 sq. m. F.A. excl. corridor area)	Land dev't.: for bidding Housing dev't.: for bidding

Source: Housing Community Development & Resettlement Department (HCDRD)

* Off-site - BV projects that are relatively vacant at the time it was acquired by the City

** On-site - BV projects that are occupied by ISFs hence, the beneficiaries of the housing project
(as of June 2016)

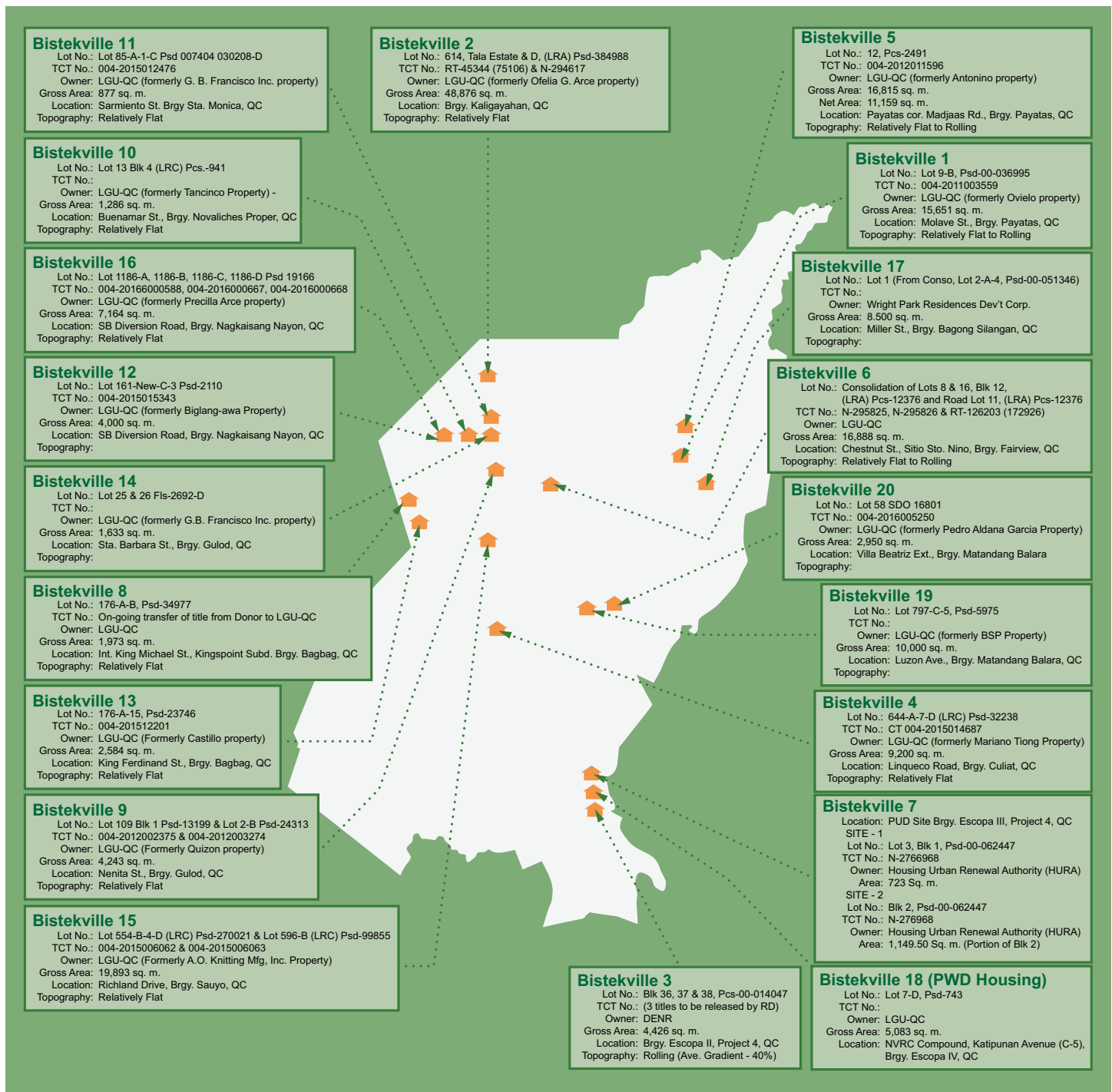


Figure DS-27| Bistekville Housing Project Sites, Quezon City: 2015

3.5.4 | Affordability Levels

Household Income and Expenditure

The PSA is conducting the Family Income and Expenditure Survey (FIES) every three years. From 1985 to 2000, the data released contained city disaggregated data on income and expenditure. However, in 2003, 2006, 2012 and 2015 the FIES indicate results for NCR and the Philippines only. However, based on the

2009 FIES - Small Area Estimates, Quezon City families registered an estimated monthly income of P 29,441.00 which is P 229.00 lower than MM, or P 12,274.00 higher than the entire Philippines, and monthly expenditure of P 26,169.00 which is P 422.00 higher than MM, or P 11,502.00 higher than the entire Philippines (See Table DS-41).

Table DS-41 | Average Household Income and Expenditure, QC, NCR and Philippines: 2000-2015

Year	Income			Expenditure		
	QC	NCR	PH	QC	NCR	PH
2015	ééé	35,417	22,250	ééé	29,083	17,917
2012	ééé	31,583	19,583	ééé	27,083	16,083
2009	29,441	29,670	17,167	26,169	25,747	14,667
2006	ééé	25,916	14,394	ééé	21,500	12,263
2003	ééé	22,204	12,324	ééé	18,159	10,308
2000	32,757	25,025	12,093	29,577	22,204	9,903

Source: NSO, FIES

é é é - No city disaggregation for year 2003, 2006 and 2012

Potential Percentage of Income Available for Housing

On the average, the Metro Manila family is earning P 35,417.00 per month and is spending P 29,083.00 in 2015. Major portion of income is spent on basic needs such as food, shelter, utilities (water, electricity, gas and other fuels) and transportation.

In the pattern of Total Family Expenditure Item in the NCR for 2015, the percentage spent on housing and utilities constitute 27.0% or P 7,852.00 which is 6.9% higher than that of the entire country. (See Table DS-42)

Table DS-42 | Percent Distribution of Total Family Expenditure by Expenditure Group, Philippines & NCR: 2015

Expenditure ItemP	hilippines	NCR
Food expenditures:	41.9	36.3
Foods consumed at home	33.7	25.0
Food regularly consumed outside the home	8.2	11.3
House Rent/Rental Value	12.2	18.2
Water, Electricity, Gas and other Fuels	20.7	26.5
Transportation	6.2	6.6
Miscellaneous goods and services	6.3	6.3
Education	3.8	3.5
Health	3.7	2.9
Furnishing and Routine Household Maintenance	2.5	2.8
Communication	2.2	2.9
Clothing and footwear	2.4	2.0
Durable Furniture and Equipment	2.5	1.5
Recreation and culture	0.8	0.8
Tobacco	1.1	0.8
Special Family Occasion	2.5	1.5
Alcoholic beverages	0.5	0.4
Accommodation services	0.2	0.0
Other Expenditure	3.1	4.6
TOTAL	100.0	100.0

Non-essential expenditure items are potential sources which could be made available for housing: Alcoholic Beverages, Tobacco, Recreation and Culture, Accommodation Services, Miscellaneous Goods and Services, Special Family Occasion and Other Expenditures

Housing Loans Available From the National Government

Individual Loans

Under the Pag-Ibig Housing Loan Program (In-house program of the Pag-IbigFund), the following can be availed by the clients:

1. End-User Home Financing Program

- Doubled the loanable amount from P 3.0 M to P6.0 M
- Interest rate for as low as 6.5% per annum from 11.5%
- Risk-based interest rates
- Adoption of a Borrowers Evaluation System to improve underwriting

2. Affordable Housing Program (AHP) / Abot-KamayPabahay Program

- Designed for minimum wage earners and Overseas Filipino Workers (OFW),
- Loan amount from P 450,000.00 up to P750,000.00
- Interest rate as low as 4.5%*

Table DS-43 shows the Pag-IbigAbot-KamayPabahay Program'smonthly amortization at the following interest rates per annum:

Table DS-43 | Pag-Ibig Abot-Kamay Pabahay Program

Monthly Income	Interest Rate	Monthly Amortization for 30 Years (incl. MRI & Fire Insurance)
Up to P 15,000.00 (Old Rate)	4.5%*	P 2,424.20
Over P 15,000.00 (Old Rate)	6.0%	P 2,942.10
Over P 15,000.00 (New Rate)	6.5%	P 3,128.43

* Applicable for the first 10 years of the Affordable Housing Loan. Thereafter, the interest rates shall be based on the Fund's Full Risk-Based Pricing Framework.

3. Institutional Loan Programs

- Direct Developmental Loan Program
 - a) Developmental financing for developers under easier terms and conditions
 - b) Loan may be used for the development of residential subdivision or medium-rise buildings or for the construction of housing units

Wholesale Loan Rate	
1-Year Fixing	6.125%
2-Year Fixing	6.750%
3-Year Fixing	7.875%

as of September 1, 2013

- Group Housing Loan Program (GHLP)
 - a) Engage the participation and involvement of project proponents, through land development and house construction on the land owned and provided by the project proponent.
 - b) Units from the project to be financed shall be offered for sale to the project beneficiaries.

Community Mortgage Program (CMP)

Under the Social Housing Finance Corporation (SHFC), the Community Mortgage Program, engaged with community or group mortgages, assists legally organized associations of residents in blighted/depressed areas to own the lots they occupy. This will provide them security of tenure and eventually improve their neighborhood and homes to the extent of their affordability (Retrieved from www.shfc.gov.ph). The project covers three stages namely: land acquisition, site development/community upgrading, and house construction. Figure DS-28 shows the process flow or framework for CMP implementation in the availment of the loan.

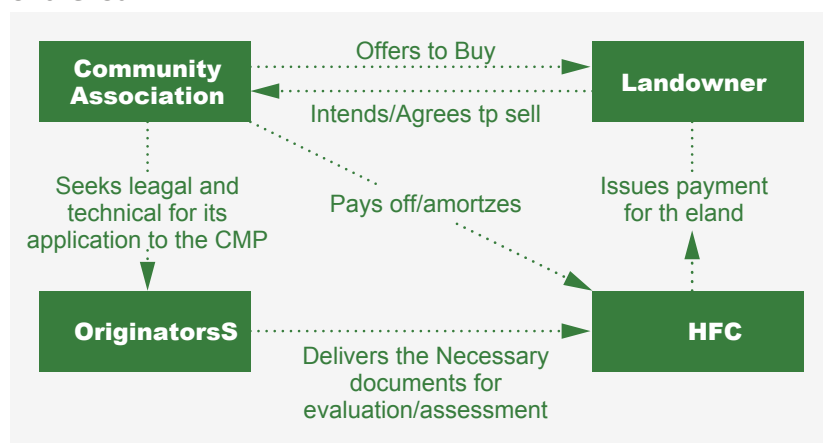


Figure DS-5 | Framework for CMP Implementation

Revised Loan Entitlement Amounts applicable for both Metro Manila and highly urbanized cities, and other areas, without distinction, have been increased as follows: (See Table DS-44)

Table DS-44 | CMP Loan Windows

Purpose	Maximum Loan Amount	Monthly Amortization
Land Acquisition	100,000.00	685.30
Site Development / Community Upgrading	30,000.00	205.59
House Construction	120,000.00	834.60
Loan Package	250,000.00	1,725.49

The CMP loan will bear 6% interest per annum based on the outstanding balance and will be payable over a maximum period of 25 years in equal amortizations.

Table DS-45 | CMP Subsidy Implementation

Capital Subsidy	Maximum Loan Amount
Terms of the Loan • 6% interest ^a Loan amortization payments (straight amount – 25 years to pay)	Technical Support: • Assistance in loan requirements compliance Capacity Building: • Training of CMP-Mobilizers on CMP Processes • Training of CA for CMP

High Density Housing Program (HDH)

The High Density Housing (HDH) Program was developed in 2013 by the SHFC in response to the P50billion Housing Program Fund for the ISFs residing along waterways and other danger areas in Metro Manila. (Retrieved from www.shfc.gov.ph). The qualified beneficiaries are validated and certified by the Department of the Interior and Local Government (DILG).

It enables the SHFC to extend financing assistance to organized communities in danger areas for the implementation of multi-storey housing projects in the National Capital Region (NCR).

It adopts the CMP's "Community Driven Approach" in creating the People's Plan which will be the basis for their housing projects.

The loan will bear 4.5% interest per annum based on the outstanding balance and will be payable over a period of 30 years on the following amortizations: Php 1,283.18 during the first year, with an increase of 10% until the 11th year; Php 2,993.03 from the 11th year until the 30th year (including MRI and Fire Insurance).

Table DS-46 | HDH Subsidy Implementation

Capital Subsidy	Technical Subsidy
Terms of the Loan <ul style="list-style-type: none">• 4.5% interest• Graduated for the first 10 years and fixed amount starting on the 11th up to 30th Tenurial Arrangement <ul style="list-style-type: none">• Usufruct on Land – to sell to the community when they are already capable	Technical Assistance Subsidy Subsidy Fund (10% of the Project Cost) <ul style="list-style-type: none">• for taxes & permits• for CSO service fees• for insurance• for payment of professional fees Capacity Building and Estate Management

In-House Financing of LGU-QC

Qualified beneficiaries for the said financing scheme are ISFs of on-site projects that are declared and approved by the Quezon City Council.

The loan will bear 5.1% interest per annum based on the outstanding balance and will be payable over a period of 30 years on the following amortizations: Php 1,500.00 during the first year, with an increase of 10% until the 5th year; Php 2,500.00 from the 6th year until the 30th year (exclusive of MRI and Fire Insurance).

Local Housing Funds

Idle Lands Tax

The annual budget of the city's housing program is limited considering the tremendous housing requirement of the city. The City Government is undertaking revenue generation measures within its power mandated by R.A. 7160 or The Local Government Code of 1991. It has started collecting the idle land tax in 2011, which is equivalent to 5% of the assessed value of the property which shall be in addition to the basic real property tax.

Paragraph "e", Section 42, Article XI of RA 7279, states that funds for urban development and housing program may come from the proceeds from the Socialized Housing Tax and, subject to the concurrence of the local government units concerned, Idle Land Tax as provided in Section 236 of the Local Government Code of 1991 and other existing laws.

Socialized Housing Tax

In addition, the City has also imposed the collection of the Socialized Housing Tax as provided for under Section 43 of R.A. 7279 otherwise known as the Urban Development and Housing Act (UDHA) of 1992, Local Finance No. 1-97 of the Department of Finance and thru Ordinance No. SP-2095, S-2011 of the Honorable City Council. Said tax is equivalent to one half percent (0.5%) on assessed value of all lands in Quezon City exceeding One Hundred Thousand Pesos (P 100,000.00).

Balanced Housing Development

As provided for under Section 18 of R.A. 7279, the Program shall include a system to be specified in the Framework plan whereby developers of proposed subdivision projects shall be required to develop an area for socialized housing equivalent to at least twenty percent (20%) of the total subdivision area or total subdivision project cost, at the option of the developer, within the same city or municipality, whenever feasible, and in accordance with the standards set by the Housing and Land Use Regulatory Board and other existing laws. The balanced housing development as herein required may also be complied with by the developers concerned in any of the following manner:

- Development of new settlement;
- Slum upgrading or renewal of areas for priority

development either through zonal improvement programs or slum improvement and resettlement programs;

- Joint-venture projects with either the local government units or any of the housing agencies; or
- Participation in the community mortgage program.

Resources

1. Land Requirement and Inventory
Land Area Needed

The priority of this shelter plan is the delivery of socialized housing to the poor and low-income segment of the population. The basic assumptions employed in planning are as follows:

- 40-sq.m. gross area allocation for each household resettled in a socialized housing subdivision or resettlement site
- 1-hectare land allocation for every 450 households

On top of the priority are the households that should be relocated from danger zones and the homeless consisting of 49,992 families. Assuming that 75% or 37,494 can be accommodated in a socialized housing or resettlement project and 25% or 12,498 will avail of MRH/HDH, an area of 177.75 hectares is required for them alone. The rest of the households within the housing backlog (28% of the doubled-up households and those with unacceptable housing units) need 26.33 hectares. Twenty-eight percent (28%) of the new households formed need 123.24 hectares. A total of 327.32 hectares is required to address the socialized housing needs due to housing backlog and population growth.

2. Infrastructure

The city government has embarked on massive road construction in the recent years linking communities and growth centers and making previously hard-to-reach areas accessible. It gives priority to road provision in establishing housing projects.

Power, water and communication utility companies adequately serve the city. They give assurance that they have the capability to supply the needs of the present and future population.

3. Financing

a) Funding Required

The following assumptions are employed in estimating the funding requirement of the city's socialized housing program:

- P 250,000.00 cost allocation for every household resettled in a socialized housing or resettlement site
- P 450,000.00 cost allocation for a household housed in the MRH/high density housing (HDH)

With the same assumption that 25% of the households will be relocated from danger areas to MRH/HDH and 75% will be transferred in resettlement sites with house and lot package, Php 14.99 billion is required. For the rest covered by the housing backlog, the amount of Php 2.96 billion is involved. Housing the 28% of the new households to be formed in 2016 to 2020 on the basis of 50% availing of socialized housing subdivision units and 50% accommodated in MRH/HDH will require Php 13.86 billion. The total amount needed to provide socialized housing is Php 31.81 billion.

b) Possible Funding Sources

- **National Housing Assistance/Funding** - The city's housing projects are tied up with the Social Housing Finance Corporation (SHFC) since land acquisition and project development are too costly for the city to finance. The Home Mutual Development Fund (HDMF) or the Pag-Ibig fund also provides such assistance.
- **Bond Flotations** - The 1991 Local Government Code has given local government units more authority to increase financial resources. It allows LGUs to create indebtedness and avail of credit facilities to finance infrastructure and other socio-economic development projects to include housing.

Other funds sources of the City Government are:

- **LGU Budget for Housing** - The annual budget of the city's housing program is limited considering the tremendous housing requirement of the city. The city

government is now undertaking revenue generation measures within its power mandated by the Local Government Code. It has started collecting the idle land tax (Amended Quezon City Revenue Code, 2009), and imposed the 0.5% socialized housing tax (City Council Ord. No. SP-2095, S-2011).

For the years 2011 and 2012, the LGU collected PhP 500 million (PhP 250 million each year) from the socialized housing tax.

However, a petition seeking to declare the ordinance as unconstitutional has been filed with the Supreme Court (SC). A taxpayer assailed the constitutionality of the socialized housing tax alongside the garbage tax. The LGU had a penchant for collecting taxes for essential services that the City should already cover with its Internal Revenue Allotment (IRA).

In February 2014, the Supreme Court issued a temporary restraining order on the imposition of said taxes. The Quezon City Government has commented on the petition and a final decision is expected soon.

Finally, the City Council approved Res. No. SP-2226, S-2013 which created the Socialized Housing Special Account of Quezon City. The resolution states that this fund cannot be used for any other purpose except for the Socialized Housing Program.

- **Public-Private Partnerships** - Given the corporate power of the LGU's and their authority to generate and efficiently harness resource, LGU's can enter into partnerships with the private sector (landowners and private developers) in the development of blighted properties close to their project areas. The benefit derived from this is that the removal of blight will greatly increase the value of their own properties.

3.5.5 | Local Shelter Organization

Housing delivery by the city government is done through a number of its offices/instrumentalities.

- *Housing Community Development & Resettlement Department (HCDRD)*

The main actor in the provision of socialized housing is the Housing Community Development and Resettlement Department (HCDRD) being the implementer of the several CMPs and Direct Land Sale in the City. What was formerly the Urban Poor Affairs Office (UPAO) was upgraded as a department by virtue of City Council Ordinance No. SP-2129, S-2012. As a full department, it can now direct and implement a sustainable approach to community development and resettlement, from the identification and census of informal communities, planning and programming effective resettlement solutions, social preparation, provision of livelihood ad guides to estate management and community administration.

Support partners in the provision of socialized housing include the following:

- *Housing and Urban Renewal Authority (HURA)*

The Housing and Urban Renewal Authority (HURA) is also responsible for shelter delivery in Quezon City. It was created by virtue of City Council Ordinance No. SP-1236, S-2003 approved by the former City Mayor Hon. Feliciano Belmonte, Jr. on 01 April 2003, and was mandated to undertake and/or to promote the development of housing for marginal and low-income families and urban renewal and redevelopment in Quezon City. It is comprised of seven (7) members of the Board of Directors with the City Mayor as Chairman. The officers include the Head of the HURA as the President/General Manager, while the City Treasurer and the City Administrator act as Corporate Secretary and Corporate Treasurer, respectively.

- *Local Housing Board (LHB)*

Prior to the creation of HURA, former City Mayor Belmonte approved City Council Ordinance No. SP-1111, S-2002 on 22 March 2002 which created the

Quezon City Local Housing Board (LHB) for wider stakeholder participation. It is mandated to formulate, develop and ensure the implementation of policies in the provision for housing and resettlement areas and the observance of the right of the underprivileged and homeless to a just and humane eviction and demolition. The Board convened on April 14, 2011. The meeting and was presided by the City Mayor, Hon. Herbert M. Bautista as the Chairman, with the following as members:

1. The Vice-Mayor as Vice-Chairman;
2. Head of the QC Urban Poor Affairs Office (UPAO) (now Housing Community Development & Resettlement Department (HCDRD)) who shall also act as the Board Secretary;
3. Two (2) members representing the City Council to be elected by among themselves;
4. A representative from the Housing & Urban Development Coordinating Council (HUDCC) to be designated by the HUDCC Chair;
5. Five (5) members to be appointed by the Mayor;
6. Five (5) representatives of duly accredited QC People's organization (PO); and
7. Two (2) representatives of duly accredited QC Non-Government Organizations (NGOs)

The Quezon City Housing Board is also composed of different agencies, such as:

- Presidential Commission on the Urban Poor (PCUP)
- Commission on Human Rights (CHR)
- National Housing Authority (NHA)
- Social Housing Finance Corporation (SHFC)
- Secretary to the Mayor
- Head of the Task Force COPRISS (Control, Prevention and Removal of Illegal Structures and Squatting)
- Head of the Subdivision Administration Unit (SAU)
- President of the Adelfa Visayas Avenue Neighborhood Association, Inc.

- *Task Force on Socialized Housing and Development of Blighted Areas*

In June 2010, the City Mayor created the Special Task Force on Socialized Housing and Development of Blighted Areas to implement the transformation

of blighted areas into decent communities and provide appropriate assistance to the families who will be affected by the development. It consists of the Secretary to the Mayor as Chairman and the Chief of Staff of the Mayor, Head of HCDRD, the City Engineer, City Planning and Development Officer, Head of the Social Services and Development Department (SSDD), and Head of Task Force COPRISS as members. It is the driving force behind the creation of the new in-city housing community called “BistekVille” housing projects, with its aim of creating slum-free communities, transforming blighted areas within the city into well-organized housing projects, and providing decent and affordable housing to the city’s ISFs in particular, those living along danger areas.

- *Task Force COPRISS (Control & PRevention of Illegal Structures & Squatters)*

The Task Force COPRISS is an ad hoc body that has, for many years, been acting as the anti-squatting group of the city government. It is responsible in removing new and on-going constructions and in providing manpower assistance during relocation operations.

- *Committee Against Squatting Syndicates and Professional Squatters*

This Committee was created by virtue of Executive Order No. 13, S-2012, with the following functions:

- Adopt necessary measures to identify and effectively curtail the activities of professional squatters and squatting syndicates, including the names of public officials and/or private individuals or entities suspected of abetting or tolerating the commission of said acts;
- Provide the Housing and Urban Development Coordinating Council (HUDCC) and the National Housing Authority (NHA) copies of list of identified professional squatters and squatting syndicates, in order to safeguard against their inclusion in future development housing programs/projects and recommend their disqualification in existing programs;
- Provide legal assistance to victims of professional squatters and squatting syndicates, giving priority to small property owners, and make available, through the Philippine National Police (PNP) and

the Department of Justice (DOJ), a consolidated list of professional squatters and squatting syndicates;

- File or assist the complainant in filing the appropriate charges before the Office of the City Prosecutor;
- Undertake investigation of cases of violation of laws or rules on eviction and demolition forwarded to it and recommend appropriate actions on the same to the concerned agencies;
- Monitor eviction and demolition activities and establish its own monitoring system;
- Submit reports to the HUDCC and the Office of the President, copy furnished the concerned agencies involved in the implementation of RA 7279; and,
- Request for assistance from any government entity, if necessary.

- *Social Services Development Department (SSDD)*

The SSDD provides food and material assistance to affected families and coordinates the Balik-Probinsya Program during relocation.

- *Quezon City Development Authority (QCDA)*

The Quezon City Development Authority (QCDA) stands as a government-owned and controlled corporation (GOCC), covered by the provisions of Republic Act No. 10149 (The GOCC Governance Act of 2011) and is subject to the jurisdiction of the Governance Commissions for GOCCs (GCG).

The QCDA will address socialized housing and urban renewal concerns within Quezon City, including the following:

- Provision of adequate and affordable housing to marginal and low-income families in Quezon City;
- Encouraging the participation of the private sector in housing ventures and urban renewal;
- Provision of greening and development of vacant, blighted and underutilized lands in Quezon City owned by the local government; and,
- Provision of projects, such as affordable means and schemes of transportations, energy, telecommunications, information technology and manufacturing, to the constituency of Quezon City that will improve their quality of life.

Private Sector, NGOs and POs

There is consensus among stakeholders that housing delivery is not an exclusive responsibility of the government or the private sector but rather a multi-sectoral concern that should also involve the community, non-government organizations and other stakeholders in the civil society.

Both the POs and NGOs in Quezon City have demonstrated on countless occasions that they have the resources and capability to undertake community development initiatives. More than 400 POs and NGOs have secured accreditation with the City Council so they can formally and actively engage themselves in the planning and implementation of development in the city. Fifty of them sit as members of the City Development Council.

The participation of NGOs in shelter delivery includes capacitating the community in self-organization and improving their living condition. Many actually act as originators in CMPs. The HCDRD lists the following among these NGOs:

- Gawad Kalinga Foundation
- Habitat For Humanity
- Pusong Makabayan Foundation, Inc.
- Foundation for Development Alternatives, Inc.
- Universal Component Foundation
- Crown Circle Builders
- Kristong Hari Foundation
- Golden Grains Livelihood Foundation, Inc.
- Share Foundation, Inc.
- Welfare for the Community, Inc.
- Center for Urban Poor Services, Inc.
- Center for Housing and Human Ecology Development Foundation, Inc.
- Center for Housing Innovative and Component Services, Inc.

The private sector is a proven partner in community development. Efficient and endowed with great amount of resources, they have contributed immensely to the growth of QC. They express willingness to be key players in the delivery of housing.

3.6 SPORTS AND RECREATION

A necessary feature of urban life is the sports and recreation area. Here, city dwellers can satisfy their leisure and recreational needs to help them cope with the rigors of urban living. Areas for sports and recreation, therefore, provide opportunities for the tired and weary to rejuvenate and for the young to engage in active physical and athletic development.

3.6.1 | Outdoor Sports and Recreation Facilities

The city-maintained Amoranto Memorial Sports Complex in District IV offers an outdoor sports experience for those who are on-look for an activity outside the confines of a walled structure. The place consists of a velodrome, badminton / tennis courts, covered and open basketball court, a swimming pool, shooting range, volleyball courts and a multi-purpose hall. Other sport facilities that are also available in the city but with limited access are three (3) private sport complexes like the renovated Smart-Araneta Coliseum, the Capitol City Sports Plaza and the QC Celebrity Sports Plaza. Several golf courses with driving range are also located in the city such as the Capitol Hills Golf and Country Club, Maru International Golf Range, Rod Taylor Sports Company, Inc., GPL International, Inc., the Veterans Memorial Golf Course and those situated inside Camp Aguinaldo and Teresa Heights Subdivision in District II.

In 2015, there were 12 public swimming pools compared to only 7 in 2007. Four (4) of these public swimming pools are located in District V (Novaliches area), one in Bgy. Nagkaisang Nayon, two (2) in Bgy. Kaligayahan (Zabarte Subdivision and North Olympus) and the other in Goodwill Homes Phase I in Bgy. San Bartolome. District III has 3 public swimming pools located at, Xavierville II Park, White Plains Subdivision Park and the one inside the Balara Filtration Plant in Bgy. Pansol. Districts I and IV on the other hand have each two (2) public swimming pools located at Project 6 Park, Phil-Am Park, Bernardo Park and the one at Amoranto Sports Complex respectively while District II has one in BF Subdivision Park at Bgy. Holy Spirit. District VI has no existing public swimming pool. Eleven (11) of these public swimming pools are city owned and the other one is national owned/ managed by the Metropolitan Waterworks and Sewerage System (MWSS).

In the community level, most of the city's barangays have at least one basketball court. In total, there are currently 181 covered basketball courts, 89 open courts and 11 half courts in 2015 against only 145 covered basketball courts, 79 open courts and 14 half courts in 2013. These are usually located in the barangay's

identified open space, near the barangay hall or parish church. These structures also serve as sites for other community activities and events such as tiangge, bingo socials, meetings and dialogues. Where there is available space, there are also tennis, pelota and volleyball courts that are put up. (See Annex DS-1)

Apart from these, several subdivisions, particularly the more affluent ones, have their own swimming pools, parks and playgrounds and clubhouses.

For those who may prefer not-so vigorous activities the likes of which are offered by sports, they can take delight in the various parks and playgrounds. The City has three major parks, the Quezon Memorial Park/Circle which is being maintained and operated by the City, the Ninoy Aquino Parks and Wildlife under the Protected Areas and Wildlife Bureau of the Department of Environment and Natural Resources (DENR) and the La Mesa Eco Park managed by Bantay Kalikasan. The Quezon Memorial Circle continuing improvement and development will entice more people to come and ultimately boost business and tourism industry in the city. As for the Ninoy Aquino Parks and Wildlife, its features include a lagoon, a mini amphitheater, a zoo and a botanical garden.

Parks are considered important recreational areas since they are accessible to all social and economic groups of the city's populace. Moreover, they offer various types of recreation catering to all ages such as bicycle lanes, picnic areas, and promenades.

3.6.2 | Indoor Sports and Recreation Facilities

The city is also home for numerous indoor game and recreational facilities. The registered private sports and recreation businesses and facilities as of 2015 in the city are eight hundred seventy one (871). The figure include nine (9) bowling lanes; thirty three (33) billiard halls; one hundred twenty two (122) amusement centers and kiddie rides; sixty one (61) cinemas and theaters; one hundred fifty one (151) physical fitness gyms; nine (9) badminton courts; thirty (30) swimming pools; four (4) golf clubs and driving range; seven (7) shooting range; four (4) tennis/squash courts and four hundred forty eight (448) other amusement and recreational facilities such as bingo halls, dance studio, videoke, OTB and others. (See Annex DS-2 for)

3.7 PROTECTIVE SERVICES

3.7.1 | Police Services

Quezon City was formerly under the jurisdiction of the Northern Police District which also covered Caloocan, Navotas, Malabon and Valenzuela. With the creation of the Central Police District now Quezon City Police District (QCPD) in October 1990, QCPD is mainly responsible for the maintenance of the peace and order situation of the entire Quezon City only. The QCPD Headquarter is located at Camp Karingal, Sikatuna Village in District IV.

The total police force of the QCPD as of 2015 is 3,565, an increase of 828 police from 2,737 police personnel in 2010. The police manpower is comprised of 189 Police

Commission Officers, 3,197 Police Non-Commissioned Officers (PNCOs) and 159 Non-Uniformed Personnel (NUP).

Of the total police personnel, 3,092 or 86.73% are males and 473 or 13.27% are females. With the city's 2015 population of 2.94M, police-population ratio is 1:824. This means that the average policeman provides protective services almost twice the number of persons he can effectively serve, the standard police-population ratio, being 1:500, for urbanized areas such as Quezon City. It was noted that the current police-population

ratio has improved compared to 1:1,009 ratio in 2010. To attain the ideal ratio, the City needs to add 2,307 more policemen.

To complement, if not to augment, the present police force, the City maintains some 3,256 Barangay Protection Security Officers (BPSOs) who are primarily tasked to maintain peace and order within the barangay through nightly “rondas”, rescue operations assistance and disaster prevention and mitigation.

The QCPD has twelve (12) police stations and twenty-five (25) Police Community Precincts (PCPs). Aside from these, the QCPD has also established the Barangay Police Community Precincts (BPCPs) in each of the city’s 142 barangays by deploying an average of three (3) police officers for each barangay. The BPCP’s program implemented a system of community-oriented policing aimed to provide efficient police service to the people by protecting their rights and upholding the law. It is primarily bilateral, meaning, the police and the city residents alike are responsible for crime prevention. The police station-population ratio in 2015 was 1:244,680 which is way above the standard police station population ratio of 1:100,000 meaning one police station cover twice the population it has to ideally serve. With this situation, the city’s required number of police station is 28 police stations or a deficiency of 16 more police stations that need to be established.

The police are equipped with 3,898 short/long firearms, 1,203 of which were donated by the City Government. They also have 1,319 communication equipment which include mobile-base and handheld radios. The total number of vehicles is 438, majority (73%) or 318 were also provided by the city. The QCPD has 112 investigative equipment; eight (8) fingerprint kits, eight (8) investigative kits, seventy (70) first aid and responders’ kits, one (1) video camera, 13 blotter, 13 police line and

four (4) digital cameras being used by the police force in their conduct of investigation.

3.7.2 | Crime Incidence

In 2015 the city’s recorded crime incidences went down by 11,134 cases or 35.11% from the 31,712 reported cases in 2014. Reported crime volume was low in 2013 with only 9,862 reported cases and high in 2014 with 31,712 reported cases.

The city’s average monthly crime rate therefore, in 2015 is 61.92 per 100,000 population which is higher compared to Metro Manila’s average monthly crime rate of 55.52% per 100,000 population. Crime solution efficiency on the other hand increased from 29.07% in 2014 to 41.64% in 2015.

By classification of offense it shows that of the 20,578 crime volume in 2015, more than half 53.98% or 11,108 cases are considered as index crimes while 46.02% or 9,470 cases are classified as non-index crime. Crime against Persons and Property are classified as index crimes which are sufficiently significant and occur with regularity to be considered as an indicator of the crime situation. Violation of special laws such as; estafa, vagrancy, trespassing, seduction, coercion, gambling, scandal are among those classified as non-index crimes.

In the last 3 years, the three (3) most prevalent crimes are theft, physical injury and robbery. The reported number of crimes in 2015 shows, that there were 4,986 (44.89%) cases of theft, 2,361 (21.25%) physical injury and robbery with 2,162 (19.46%). Reported rape cases was however, noted to have increased from 59 in 2013 to 191 in 2014 and further increased to 308 cases in 2015. (See Table DS-47)

Table DS-47 | Reported Number of Crimes by Classification of Offense, Quezon City: 2010-2015

Classification of Offense	2013		2014		2015	
	Number	%	Number	%	Number	%
Crime Against Persons	1,594	23.98	3,539	22.79	2,953	26.58
Murder	112	1.68	192	1.28	207	1.86
Homicide	108	1.62	179	1.19	77	.69
Physical Injuries	1,315	19.78	2,977	19.81	2,361	21.25
Rape	59	0.89	191	1.27	308	2.77
Crime Against Property	5,054	76.02	11,987	79.20	8,155	73.42
Robbery	1,963	29.53	3,783	25.17	2,162	19.46
Theft	2,578	38.18	7,414	49.33	4,986	44.89
Carnapping	513	7.72	790	5.26	1,007	9.06
Total Index Crimes	6,648	67.41	15,526	48.95	11,108	53.98
Violation of Special Laws	826	25.70	3,496	21.60	4,303	45.44
Other Non-index Crimes	2,388	74.30	12,690	78.40	5,167	54.56
Total Non-Index Crimes	3,214	32.59	16,186	51.05	9,470	46.02
Total Crime Volume	9,862	100.00	31,712	100.00	20,578	100.00
Crime Rate	361.44		840.25		743	
Solved Cases	3,193		9,220		8,564	
Crime Solution Efficiency	32.38		29.07		41.64	
Qc Average Monthly Crime Rate	30.12		70.02		61.92	
Metro Manila Average Monthly Crime Rate	38.64		40.22		55.52	

Source: Central Police District Command

3.7.3 | Fire Protection and Prevention

Fire protection and prevention services are rendered by the Quezon City Fire District (QCFD) which has twenty one (24) fire sub-stations in 2015 against only 19 fire sub-stations in 2010. These facilities are distributed to the city's six (6) congressional districts.

In 2015, there were 571 firefighters or an additional 93 firemen from 478 firemen in 2010 complemented by 35 civilians. There are also 47 fire aides that were provided by the city government. The present firemen-population ratio stands at 1:5,142 and although way below the standard ratio of 1:2,000, the ratio has improved from the ratio of 1:6,194 in 2010. At the present ratio, the number of persons a city fireman services is more than twice the number of people he can effectively serve. Clearly there is a shortage in the city's firefighting force of about 897 firemen. The city has 27 firetrucks, but

only twenty one (21) are serviceable, two (2) under repair and four (4) unserviceable. There are also two (2) emergency vehicles, but only one is functional. The two (2) aerial ladders are both functional.

The 2015 fire-substation to land area ratio is 1:7 sq.km. against 1:9 sq.km. in 2010. Although there was reduction in the fire-substation-land area ratio due to the existence of additional three (3) fire-substations from the previous number of said facility, the ratio is still below the standard fire-substation land area ratio of 1:4 sq.km. This means that one (1) fire substation almost doubled the land area it has to cover. The required fire-substation in the city therefore is 40, thus with the existing 24 fire-substation there is an acute shortage of 19 fire-substations. The city has one (1) ambulance and one (1) rescue van.

3.7.4 | Fire Incidence

In 2015, the Quezon City Fire District responded to 1,034 fire incidences a decrease of 61 fire incidences from 1,095 fire incidences in 2010. The amount of losses due to these fire incidences is ₱53,127,200.00. Of the said fire incidences, majority (76.78% or 794) were structural in nature involving buildings, houses and other structures while 23.21% or 240 are non- structural (grass, rubbish, forest, motor vehicle). More than half (52.32%) of the

causes of fire was electrical or those involving MERALCO/ NAPOCOR facilities such as electrical posts, primary and secondary distribution lines and transformers, while 13.61% of the fire incidences are caused by cigarette butts smoke. Majority of the fire incidences occurred in District II wherein a great number of informal settlers are located particularly in Barangays Commonwealth and Batasan Hills. (See Table DS-48)

Table DS-48 | Number of Reported Fire Incidence and Responded to by the QC Fire Department, Quezon City: 2010-2015

Fire Incidents by Type	2013		2014		2015	
	Number	%	Number	%	Number	%
Causes of Fire						
Electrical	486	54.67	532	51.50	541	52.32
Combustible/Heat Bonfire	3	0.34	35	3.39	10	0.97
Open Flames/Cooking	42	4.72	43	4.16		
Cigarette Butts Smoke	121	13.61	133	12.88	177	17.12
Fireworks/Explosive Sparks	4	0.45	1	0.09		
Flammable Liquids	0		4	0.39		
LPG Tanks/Stove	31	3.49	48	4.65	20	1.93
Unknown/Others	202	22.72	237	22.94		
Unattended Cooking Stove					19	1.84
Unattended Lighted Candle					14	1.35
Under Investigation					253	24.47
Total	889	100.00	1,033	100.00	1,034	100.00
Motives						
Intentional	6	0.67	7	0.68	13	1.26
Accidental	692	77.84	793	76.77	768	74.27
Under Investigation	191	21.48	233	22.55	253	24.47
Total	889	100.00	1,033	100.00	1,034	100.00
Nature						
Structural	300	33.74	303	29.33	794	76.79
Vehicular	69	7.76	72	6.97		
Grass	42	4.72	73	7.07		
Chemical	6	0.67	14	1.35		
Rubbish	77	8.66	101	9.78	174	16.83
Forest	0	0	0	0		
Ship	0	0	0	0		
Transformer explosion	2	0.22	2	0.19		
Post fire	6	0.67	31	3.00		
Secondary Wire	3	0.34	2	0.19		
Service Entrance	4	0.45	4	0.39		
Electric Fan	1	0.11	1	0.10		
Tree Fire	1	0.11	2	0.19		
Transmission Line/High Tension	1	0.11	0	0.00		
Others	377	42.41	428	41.33	66	6.38
Total	889	100.00	1,033	100.00	1,034	100.00
Estimated Damages (In Pesos)	152,798,200		91,805,500		53,127,200	

Source: QC Fire Department

3.7.5 | Administration of Justice

The delivery and administration of justice at the local level is a collective responsibility of the Office of the City Prosecutor, the Metropolitan Trial Court and the Regional Trial Court.

In 2015, the Metropolitan Trial Court recorded 19,204 cases including pending cases in previous years, an increase of 3,476 cases or 22.10 % from the 15,728 recorded cases in 2014 of which 9,218 cases or 48.00% were disposed. The Regional Trial Court on the other hand, received and recorded 9,525 cases in 2015 for

prosecution and disposed 5,905 cases or 62.00% which is slightly higher compared to 60.00% disposed cases in 2014. (See Table DS-49)

There are thirteen (13) Metropolitan Trial Court branches; forty five (45) Regional Trial Court branches both presided over by an equal number of judges and ninety one (91) Prosecutor's Offices. Personnel in both courts and the Office of the City Prosecutor including City Fiscals and Judges total 1,119 of which 465 are males and 654 females.

Table DS-49 | Recorded and Disposed Cases; Quezon City: 2014-2015

Administration of Justice	2014		2015	
	Number	%	Number	%
Metropolitan Trial Court				
Recorded	15,728		19,204	
Disposed	6,606	42.00%	9,218	48.00%
Regional Trial Court				
Recorded	11,646		9,525	
Disposed	6,988	60.00%	5,905	62.00%

Source: Metropolitan Trial Court and Regional Trial Court

3.7.7 | Reformatory Institutions

The City has three (3) reformatory institutions, the Molave Youth Home, the Quezon City Jail and the Quezon City Drug Treatment and Rehabilitation (TAHANAN).

The Quezon City jail located within Bernardo Park Bgy. Pinagkaisahan along EDSA can be considered as the most highly congested safekeeping institution in Metro Manila with male inmate's jail population of 2,877 as of 2015, a slight increase from the 2,811 inmates in 2010. The existing city jail has 1,717.75 sq.m. floor area and

ideally it has to accommodate only 800 to 900 following the standard space requirement per inmate of 3 sq.m., but due to its limited space, the inmates are all housed in the said facility in three (3) dormitories with only forty one (41) cells. Basic utilities such as water supply and sewerage facilities are inadequate resulting in unsanitary and unhealthful conditions inside the jail. Similarly, Camp Karingal, where female inmates are housed, is congested. The 2015 number of 503 female inmates increased from 484 in 2010.

The jail is managed by 161 police officers assigned to guard the inmates and secure them during scheduled hearings. Twenty seven (27) are assigned to guard the inmates (custodial personnel) and thirty one (31) escorting officers. The jail had escorted during court hearings an average of 93 inmates per day. The present jail guard/custodial – inmate ratio is 1:97 which is way below the ideal ratio of 1:7, while escort-inmate present ratio is 1:18 as against the ideal 1:1. Current shortage of jailguards is 250.

The existing city jail is proposed to be transferred on the newly acquired property formerly owned by M.S Florendo and Sons Inc. located at Group 13, Area. B, Litex Road Barangay Bagong Silangan, this city. It has a land area of 34,225 sq. m. now registered to the QC Government under TCI #004-2015007454 and 2.4

hectares of the said property is allocated for the said facility.

The QC Drug Treatment and Rehabilitation Center (TAHANAN) located in Diamond Hills Subdivision, Bgy. Payatas offers services for the treatment of drug dependents. Table DS-50 shows that in 2015, there were 253 clients (221 male & 32 female) served, an increase of 63 clients from 190 recorded clients in 2013. At the district level, it shows that, most of the clients are from District II followed by District IV and V. As to their civil status, 74.00% are single and 26.00% are either married or common-law partners. The clients are accommodated in three (3) 2-storey ward with an approximate floor area of 182.62 sq.m. for each building. The center is being managed by 85 personnel.

Table DS-50 | Number of Drug Dependents/Clients Served at TAHANAN by District; Quezon City; 2013-2015

District	2013	2014	2015
I	26	58	39
II	43	60	63
III	18	34	31
IV	44	48	45
V	25	51	43
VI	26	33	30
Non-QC residents	8	15	2
Total	190	299	253

3.9 CULTURE

In spite of its young history, Quezon City, like other cities in the country, has many historical spots that speak of its rich heritage. There were eight (8) historical sites, foremost is the San Francisco Parish Church built in 1590 at San Francisco del Monte and the Church of the Holy Sacrifice at UP Diliman. Also, situated at the heart of the city and adjacent to the City Hall compound is the towering Quezon Memorial Shrine, the site of several historic occasions such as the mass officiated by His Holiness, Pope Paul VI on November 29, 1970 and Pope John Paul II on February 18, 1981.

The City museum located at the base of the Quezon Memorial Shrine houses the remains of the late President Manuel L. Quezon, aside from other memorabilia. Other historical spots are Gen. Fulton Monument in Barrio Bagong Silangan, where American General Lawton was actually killed by the Katipuneros and at Sitio Pugad Lawin situated on a rocky area near Project 8 where the Katipuneros led by Andres Bonifacio launched the revolution against the Spanish Colonial rule in 1896. Added to this is the resting place of the remains of Melchora “Tandang Sora” Aquino at Banlat, Barangay Tandang Sora. The Cloverleaf road complex, where the Balintawak monument in honor of Bonifacio is situated is being converted into a tourist spot of the city. Camp Aguinaldo and Camp Crame can both be considered historical sites for being the center of the EDSA Revolution last February 25, 1986.

There are now six (6) museums/art galleries against 5 museums in 2013. Three (3) are public museums and three (3) private museums. The public museums include the Armed Forces Museum and George Vargas Museum and the newly established QCX Museum. The QCX Museum is located at the eastside portion of the QC Memorial Circle near the Philcoa Entrance, comprised of a five-building complex in a sprawling area of 20,000 sq.m. which includes Gallery A, B, C, Administrative Building and Business Center. It is the first of its kind; a socio-cultural interactive museum that showcases the city’s humble beginnings up to the present, encompassing its society and culture. It also aims its visitors and guests to be entrenched and re-live the “Quezon City Experience”. On the other hand, the three (3) private museums consist of the SSS Art Gallery,

Ateneo De Manila University Art gallery, Mowel fund Plaza and Film Museum.

Three (3) heritage houses are also found in the city, one in Cubao named MIRA-NILA Heritage House, the Quezon Heritage House formerly located at No. 45 Gilmore St., New Manila which was transferred and restored to its new location within Quezon Memorial Circle. Likewise, in honor of the late Pres. Corazon C. Aquino who was once a resident of the city, a replica of their residence at Times Street, Bgy. West Triangle was also constructed near Quezon Heritage House in QMC which is now both being considered as tourist destination of the city and cultural site that could be visited by the students in their educational trips.

Inspired by Pres. Quezon’s vision that Quezon City shall be the seat of the national government, the city has retained its importance and distinction as the main National Government Center for it is where the historic building of the Batasang Pambansa and other national government buildings such as the Department of Social Welfare and Development (DSWD) and Civil Service Commission (CSC) can be found. Other institutional buildings and offices located in the city are the Quezon City Civic Center. Novaliches District Center, Philippine Heart Center for Asia, the Philippine Lung Center, the National Children’s Hospital, Philippine Children’s Medical Center, East Avenue Medical Center, the Atomic Energy Commission, Social Security System (SSS), Bangko Sentral ng Pilipinas, Quezon Institute, the Philippine Orthopedic Center, La Mesa Dam and the Balara Filters Plant. It is also where the University of the Philippines can be found which is famous for having one of the biggest university campuses in the world and the UP Oblation.

The Schools Division Office has also been very active in promoting activities that motivate pride of the nation’s rich cultural heritage among residents as part of its on-going educational program.

The Cultural Tourism and Affairs Office and the Quezon City Performing Arts of the city government are also involved in actively enhancing and promoting culture and arts among city residents.



CHAPTER 4 | **Economic Profile
and Development**

The Economic Profile focuses on the sub-sectors on Labor and Employment, Family Income and Expenditure, Trade and Industry and Tourism

4.1 LABOR AND EMPLOYMENT

The Labor Force Survey (LFS) conducted quarterly every year by the Philippine Statistics Authority (PSA) has been the main source of employment data of the city. From the year 2004 onwards, city level data were no longer made available in the LFS. The increase in population over the years required increasing area samples in the survey. With no increase in the sample size, city level figures became less accurate with a wider margin of error, therefore no longer reflected in the results.

Due to absence of city data and for the purpose of getting more updated labor and employment statistics, NCR figures have been used to represent those of the city. This is attributed to the large representation of the city's population and land area to the NCR. The city population as of 2015 based on PSA official census is almost one-fourth 23% of the total population of the NCR and one-fifth or 20% of its land area which provide a great influence in regional economic status. Even from past LFS data, when city level data were still available, it could be noted that the city's figures were not far off or just followed closely those of the region.

Quezon City's population as per PSA 2015 Census of population is 2,936,116 (23 % of the NCR's

population). The working age population 15 years old & over is 2,079,407 (70.8% of the entire population). The working age population is divided into:

*The economically active population or those in the labor force

This group is 62.9% of the working age population composed of the employed & the unemployed. Using the NCR's rates, employment has been placed at 91.5% representing about 1,196,772 of city population which also includes the underemployed or those which are working less than the regular 8-hours per day and still looking for additional work. There are more employed males (55.8% or 667,799) than females (44.2% or 528,973). The Unemployment on the other hand, is placed at 8.5 % or about 771,460 of city's population.

*The economically inactive population or those not in the labor force.

The economically inactive or those not in the labor force on the otherhand, makes up 37.1% or about 771,460 of the working age population not looking for work composed of students, housewives, retirees, the sick, PWDs, etc.

Table ED-1 | NCR / QC Population by Employment Status -2015

Employment Status	Number	% Share
Working Age Population 15 years old & over	2,079,407	100
Labor Force Population	1,307,947	62.9
- Employed	- 1,196,772	91.5
(Includes the Underemployed : 119,677)		
- Unemployed	- 111,175	5
Not in the Labor Force Population (i.e. students , housewives , retirees, PWDs, the sick)	771.460	37.1

Source: Source: PSA-NSO Labor Force Survey (LFS)

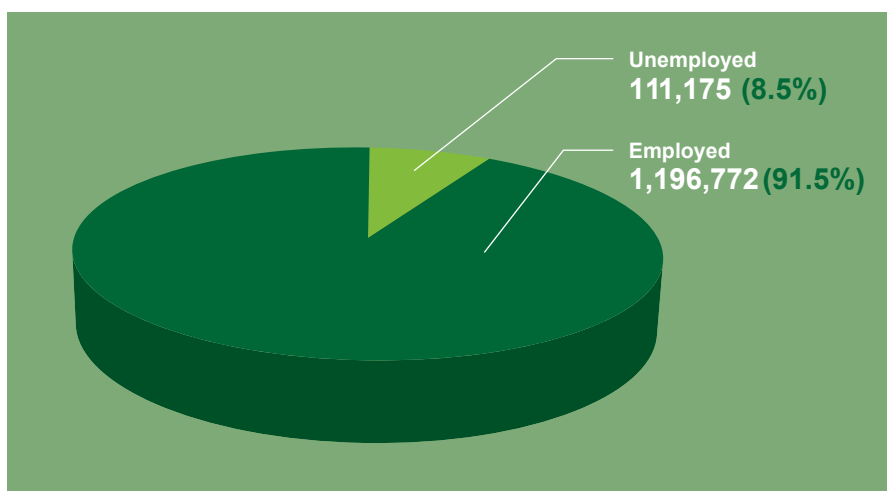
Table ED-2 | Labor Force Participation, Employment, Unemployment, Underemployment rates of NCR / QC: 2010 - 2015

Year	Labor Force Participation		Employment		Unemployment		Under Employment	
	Rate	Pop	Rate	Pop	Rate	Pop	Rate	Pop
2010	62.4	1,215,998	88.5	1,076,158	11.5	139,840	11.9	128,063
2011	63.0	1,265,744	88.7	1,122,715	11.3	143,029	14.6	163,916
2012	63.1	1,303,012	89.4	1,164,893	10.6	138,119	14.4	167,745
2013	63.5	1,348,546	89.7	1,209,646	10.3	138,900	12.1	146,367
2014	64.2	1,403,028	89.6	1,257,113	10.4	145,915	11.1	139,539
2015	62.9	1,307,947	91.5	1,196,772	8.5	111,175	10.0	119,677

Source: PSA-NSO Labor Force Survey (LFS) ;

2010 & 2015 figures are Official Census results; figures for other years are projections/estimates

The employment rate is shown to be slightly improving every year. Underemployment (which is part of the employment figure) in the last five years is also favorably decreasing inspite of the growing labor force..

**Figure ED-1 | Labor Force: 2015**

Being supported by the employed population are 1,739,344 dependent population composed of the following:

- those in the dependent age below 15 years old (856,709),
- the economically inactive (771,460),
- and the unemployed persons (111,175).

Dependency ratio is therefore computed at 1.5:1 which means that there are about three (3) dependents for every two (2) workers, for a household with an average size of five (5) persons.

On Employment by Class of worker, majority or about 78 % of those employed are wage and salaried workers, followed by the self-employed/own account workers with about 20%.

As to occupation, the laborers and unskilled workers formed the largest group (21.9%) of the total employed followed by Officials of Government, special interest organizations, corporate executives, managers, managing proprietors and supervisors (18.9%) and next by Service Workers, Shop and Market sales Workers (15.3%).

In a separate study or Census of the PSA on 2015 Business Establishments by Industry & Employment, NCR as in the past has been shown to have the highest share (37%) in the country's total employment figure as it has been known to be the center of major business activities in the country. The top NCR cities on employment are: Quezon City registered the highest employment (677,580) with 23.3% of the total regional employment (2,911,554), followed by Makati (18,9%) and Manila (10.6 %). The city's top five industries with highest employment are: Real Estate, Renting & Business Activities (260,148), Wholesale & Retail (137,397), Manufacturing (62,320), Construction (62,154), Accommodation and Food Services /Hotel & Restaurant (53,193)

In view of limited employment opportunities, many are forced to engage in small-scale entrepreneurial activities mostly unregistered and unregulated known as the informal sector, and also many are also forced to seek employment abroad,

The Informal Sector/Economy

These are those irregularly engaged in entrepreneurial activities working in full, part time or seasonal basis. They are also known to belong in the underground economy where activities not covered by formal arrangements. There is actually no precise data to account this sector as their activities are usually unmonitored, unregulated, unregistered and un-taxed. Those who belong to the sector are: the hawkers, vendors, kasambahay & other household help, small storeowners, jeepney / tricycle drivers, etc.

Based on partial data on the sector: the Market Development & Administration Department (MDAD) had recorded as of 2016, eight hundred and fifty three (853) vendors operating in its twenty seven (27) hawkers' temporary vending sites in various parts of the city. The Tricycle Regulation Unit (TRU) also, on their database recorded one hundred fifty (150) Tricycle Operators and Drivers Associations (TODAs) in the city with about twenty four thousand seven hundred thirteen (24,713) tricycles units with corresponding drivers with approved route measured capacity (RMC) by the Tricycle Franchising Board (TFB). The Public Employment Service Office (PESO) also had registered 400 workers in Informal Sector composed of kasambahays, store owners, and utility workers from different barangays that participated in their Advocacy on Social Protection, the SSS Registration in partnership with Social Security System (SSS).

Overseas Filipino Workers (OFW)

For better employment opportunities, many are forced to seek employment abroad. These are the Overseas Filipinos Workers (OFWs), who contribute on nation's economic well-being. The OFWs foreign currency remittances constitute a big part of the Philippines Gross National Product (GNP). Based on records of Overseas Workers Welfare Administration (OWWA) membership as of 2015, OFW from Quezon City ranked highest in number in the NCR with 103,226 or 21.88% share (males: 51,465 and females: 51,761). Their numbers have increased by 32.43% from last year (25,278 to 77,948) which could be attributed to the greater awareness of the OFWs on the importance of being a documented worker to be able to have government support /assistance in case problems are encountered abroad.

By type, land-based OFWs show a bigger number with 80,441 (77.93%) compared to sea-based workers 22,785 (22.07%). The sea-based OFWs is largely dominated by males with 95.13% share but for the land based OFWs, there are more females (62.9% share) than males mostly in house-based domestic works.

According to Philippine Overseas Employment Administration (POEA) records, there were twelve thousand nine hundred seven nine (12,979) OFW new hires from Quezon City deployed in foreign countries, 45.13% (5,858) are males and 54.87% (7,121) are females. Majority are deployed in Middle East Countries such as; Saudi Arabia, Qatar, United Arab Emirates, Kuwait, Bahrain, Oman and Jordan, while the remaining others deployed in other Asian countries, Canada and Guam. Contributing to the city's unemployment problems are the returning OFWs with finished and non-renewed work contracts from abroad. Some have returned as they have been maltreated and abused by employer, jailed/ executed for various reasons/ offenses, or repatriated due to armed conflicts/ civil war in the country where they worked for.

As per 2015 records of POEA, in terms of jobs and skills, QC-OFWs deployed in foreign countries are ranked accordingly: Services and Sales Workers 34.16% (4,433), Elementary Occupations 28.57% (3,708), Craft and Related Trades Workers 11.37% (1,476), Professionals 10.83% (1,405), Technicians and Associate Professionals 6.87% (892), Plant and Machine Operators

and Assemblers 4.65% (604), Clerical Support Workers 2.67% (347), Managers 0.63% (81), Other Workers not elsewhere classified 0.13% (17), and Skilled Agricultural, Forestry and Fishery Workers 0.12% (16).

Various programs are continuously undertaken by the city on employment generation, promotion and protection where such services are mostly lodged with the PESO. Among these programs are: Job Fairs/ Job Referrals, National Skills Registry System (a comprehensive skill/ job mapping and matching service facility), Retooling Assistance for Employment of Returning OFWs, creation of a Migrants Resource Center, etc. The Small Business Development and Promotion Office also undertakes Livelihood technology skills training (e.g. on production of processed food, recycled paper-based products, cloth & personal care products, etc.) and entrepreneurship seminars. It also has the Micro-Credit Program or Puhunang Pangkaunlaran ng Sikap Buhay (PPSB) another livelihood assistance program that provides financial assistance including assistance in the Formation of Cooperatives (Cooperative Development Program). A cooperative is an autonomous association of persons who voluntarily cooperate for their mutual social, economic and cultural benefit. Economic benefits are distributed proportionally to each member's level of participation in the cooperative. There are several types of cooperatives most common of which are the Multi-purpose, Credit, Service, Consumer, Producer and Transport cooperatives. The 2015 records of Cooperative Development Authority show the following information:

Table ED-3 | Total Number of Cooperatives, Philippines, NCR and QC: as of December 31, 2015

Philippines	NCR	% Share to Philippines	QC	% Share to NCR
25,610	2,635	10.29	765	29.03

Source : Cooperative Development Authority (CDA)

In the NCR, Quezon City had the highest number of cooperatives (29.03% of the NCR's figure) Majority or 51.35% of the cooperatives are multipurpose followed by the Credit Cooperative (19.47%) and Service Cooperative (12.68%).

4.2 FAMILY INCOME AND EXPENDITURES

In the NCR, Quezon City had the highest number of cooperatives (29.03% of the NCR's figure). Majority or 51.35% of the cooperatives are multipurpose followed by the Credit Cooperative (19.47%) and Service Cooperative (12.68%).

4.2.1 | Family Income

In 2015, Filipino families had an average monthly income of P22,250.00 based on the results of the 2015 Family Income and Expenditures Survey (FIES) conducted by the PSA. It increased by 13.6% from the average monthly income of P19,583.00 in the year 2012.

On the other hand, families in the National Capital Region (NCR) earned an average monthly income of P35,417.00 in 2015, increasing by 12.1% from the 2012 figure of P31,583.00.

In the absence of more updated income statistics, NCR figures have been used to represent that of the city in view that the population of the city makes up ¼ that of NCR. Even with past data, it could be noted that the city's figures were not far off or just followed closely that of the region's figures.

Table ED-4 | Average Family Income, Expenditure and Savings
Philippines, NCR and Quezon City: 2003 – 2015

Year	Average Monthly Income			Average Monthly Expenditure			Average Monthly Savings		
	Phils.	NCR	QC	Phils.	NCR	QC	Phils.	NCR	QC
2015	22,250	35,417	***	17,917	29,083	***	4,333	6,333	***
2012	19,583	31,583	***	16,083	27,083	***	3,500	4,500	***
2009	17,167	29,670	29,441	14,667	25,747	26,169	2,500	3,923	3,272
2006	14,394	25,916	***	12,263	21,500	***	2,131	4,416	***
2003	12,324	22,204	***	10,308	18,159	***	2,016	4,045	***

Source: PSA-FIES

*** No city disaggregation for years 2003, 2006 and 2012 & 2015

Table ED-5 | Family Income Per Capita Income Decile; Philippines and NCR 2015

Per Capita Income Decile	Income				Expenditure				Savings			
	Phils.		NCR		Phils.		NCR		Phils.		NCR	
	Annual	Monthly	Annual	Monthly	Annual	Monthly	Annual	Monthly	Annual	Monthly	Annual	Monthly
First Decile	86,000	7,167	147,000	12,250	89,000	7,417	155,000	12,917	(3,000)	(250)	(8,000)	(667)
Second Decile	114,000	9,500	180,000	15,000	110,000	9,167	180,000	15,000	4,000	333	-	-
Third Decile	133,000	11,083	216,000	18,000	122,000	10,167	206,000	17,167	11,000	916	10,000	833
Fourth Decile	156,000	13,000	256,000	21,333	140,000	11,667	237,000	19,750	16,000	1,333	19,000	1,583
Fifth Decile	182,000	15,167	286,000	23,833	161,000	13,417	251,000	20,917	21,000	1,750	35,000	2,916
Sixth Decile	218,000	18,167	332,000	27,667	189,000	15,750	296,000	24,667	29,000	2,417	36,000	3,000
Seventh Decile	259,000	21,583	365,000	30,417	217,000	18,083	313,000	26,083	42,000	3,500	52,000	4,334
Eighth Decile	320,000	26,667	467,000	38,917	260,000	21,667	393,000	32,750	60,000	5,000	74,000	6,167
Ninth Decile	415,000	34,583	551,000	45,917	326,000	27,167	451,000	37,583	89,000	7,416	100,000	8,334
Tenth Decile	786,000	65,500	992,000	82,667	534,000	44,500	767,000	63,917	252,000	21,000	255,000	18,750

*2012 data poorest decile richest decile

Note: The richest decile represent families belonging to the top 10 percent in terms of per capita income while the poorest decile represent families in the bottom 10 percent

The income distribution among families in the Philippines improved in 2015 compared with the figure in 2012, although it still showed that the gap in income between the richest decile and the poorest decile remains wide. Nationwide, families in the richest decile earned an annual income of Php 786,000.00 in 2015 or Php 65,500.00 monthly.

On the other hand, the families in the poorest decile earned an annual income of P86,000.00 in 2015 or P7,167.00 monthly.

The average annual family income of the richest decile was about nine times that of the poorest decile.

Families in the poorest decile registered a negative monthly savings of P250.00 while families in the richest decile registered monthly savings of P21,000.00.

According to the results from the 2015 FIES, the Gini coefficient, which is a measure of income inequality within a population, was estimated at 0.4439 for 2015.

The figure is slightly lower than the 2012 ratio of 0.4605 which may indicate some improvement in the income distribution among families.

As there is no available data for NCR in 2015, data in 2012 will be used.

In the NCR, families in the richest decile earned an annual income of P992,000.00 in 2012 or P82,667.00 monthly, on average. The families in the poorest decile, on the other hand, earned an annual income of P147,000.00 or P12,250.00 monthly.

With these data, families in the poorest decile registered a negative savings of P333.00 and P667.00 in the Philippines and NCR, respectively, while families in the richest decile registered savings of P17,667 and P18,750.00 in the Philippines and NCR, respectively.

Sources of Income

In terms of sources of income for families in the NCR and which would likely be representative of Quezon City, majority or 68.2% of the families in the National Capital Region rely on salaries/wages as their main source of income; 19.1% rely on other sources of income which includes cash receipts from local and abroad, pension and retirement, dividends and investments, house rental, interest income, etc.; and the remaining 12.7% rely on entrepreneurial activities (wholesale and retail trade, small-scale manufacturing, transportation and communication services, community, social and other services).

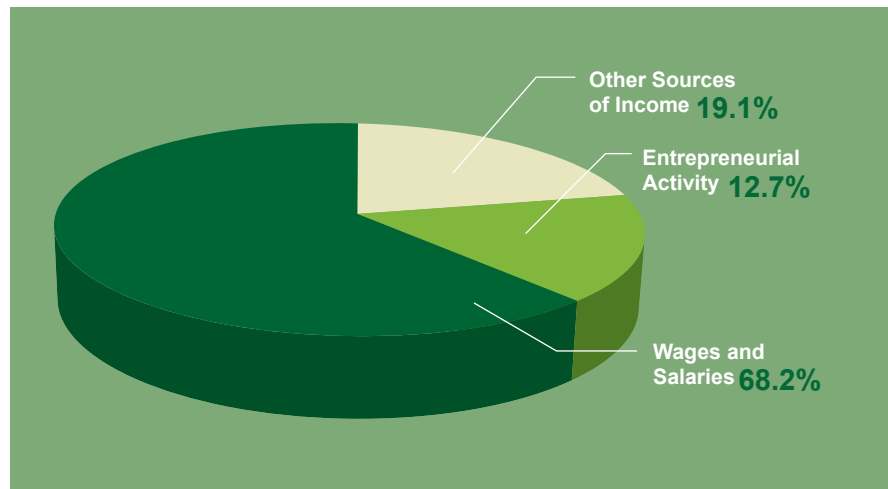


Figure ED-2 | Distribution of Families by Main Source of Income, NCR: 2015

4.2.2 | Family Expenditure

Filipino families in 2015 had an average monthly expenditure of P17,917.00 increasing by 11.4% from the average monthly family expenditure of P16,083.00 in 2012.

On the other hand, average monthly expenditure in NCR was registered at P29,083.00 in 2015. It increased by 7.4% from the average monthly expenditure of P27,083.00 in 2012.

In terms of pattern of expenditure, Filipino families spent about 41.9% on food (33.7% spent on foods consumed at home and 8.2% regularly spent on foods consumed outside the home), 12.2% on housing, 7.9% on water, electricity, gas and other fuels and 6.2% on transportation. Other expenditure items include expenses on education, health, durable furniture and equipment and special family occasion.

Table ED-6 | Percent Distribution of Total Family Expenditure by Expenditure Group, Philippines & NCR: 2015

Expenditure Item	PH	NCR
Food expenditures:	41.9	36.3
Food consumed at home	33.7	25.0
Food regularly consumed outside the home	8.2	11.3
Alcoholic beverages	0.5	0.4
Tobacco	1.1	0.8
Other Vegetable-Based products	0.0	0.0
Clothing and Footwear	2.4	2.0
Furnishings and Routine Household Maintenance	2.5	2.8
Health	3.7	2.9
House Rent/Rental Value	12.2	18.2
Water, Electricity, Gas and Other Fuels	7.9	8.8
Transport	6.2	6.6
Communication	2.2	2.9
Recreation and Culture	0.8	0.8
Education	3.8	3.5
Accommodation Services	0.2	0.0
Miscellaneous Goods and Services	6.3	6.3
Durable Furniture and Equipment	2.5	1.5
Special Family Occasion	2.5	1.5
Other Expenditure	3.1	4.6
Total	100.00	100.00

Source: Philippine Statistics Authority (PSA)

In the NCR, about 36.3% of the total annual expenditures was spent on food, 18.2% on House Rental and about 8.8% was spent on basic utilities as water, electricity, gas and other fuels. Other major expenditures include Transport (6.6%), Education (3.5%) and Health (2.9%).

4.2.3 | Food and Poverty Thresholds

Food threshold is the minimum income required to meet basic food needs and satisfy the nutritional requirements set by the Food and Nutrition Research Institute (FNRI) to ensure that one remains economically and socially productive. It is used to measure extreme or subsistence poverty.

Poverty threshold is a similar concept, expanded to include basic non-food needs such as clothing, housing, transportation, health, and education expenses.

In 2015, a family of five in the country needed at least P6,329.00, on average, every month to meet the family's basic food needs (food threshold) and at least P9,064.00, on average, every month to meet both basic food and non-food needs (poverty threshold). They indicate increases of about 15 percent in food and poverty threshold from 2012 to 2015

In the National Capital Region in 2015, the monthly food threshold for a family of five was computed at P7,276.00 while the poverty threshold was computed at P10,420.00. Food and poverty threshold in NCR indicate increases of about 23% from 2012 to 2015.

Table ED-7 | Poverty and Food Thresholds, Phils. & NCR : 2006, 2009, 2012 & 2015

Statistics	2006	2009	2012	2015	Increase (Decrease)		
					2006-2009	2009-2012	2012-2015
Monthly Poverty Threshold:							
Philippines	5,566	7,030	7,890	9,064	26.3%	12.2%	14.9%
NCR	6,541	8,011	8,477	10,420	22.5%	5.8%	22.9%
Monthly Food Threshold:							
Philippines	3,878	4,908	5,513	6,329	26.6%	12.3	14.8%
NCR	4,568	5,594	5,919	7,276	22.5%	5.8	22.9%

Source: Philippine Statistics Authority (PSA)

4.2.4 | Poverty and Subsistence Incidence

Poverty incidence among Filipinos in 2015 was estimated at 21.6%. During the same period in 2012, poverty incidence among Filipinos was recorded at 25.2%. It is estimated that there are about 21.9 Million poor Filipinos in 2015.

In the NCR, poverty incidence in 2015 did not register any change from the 2012 estimate of 3.9%. In terms of number, however, the poor in the NCR in 2015 increased by about 33,799 from the 460,831 figure in 2012 to 494,630 figure in 2015.

On the other hand, subsistence incidence among Filipinos, or the proportion of Filipinos whose incomes fall below the food threshold (food poor), was estimated at 8.1% in 2015. This translates to about 8.2 million food poor Filipinos in 2015. The subsistence incidence among Filipinos in 2012 is at 10.4 percent. Subsistence incidence among Filipinos is often referred to as the proportion of Filipinos in extreme or subsistence poverty.

Subsistence incidence in NCR registered in increase from 0.5% in 2012 to 0.7% in 2015. Food poor population in the NCR in 2015 was estimated at 82,747 or an increase of 24,554 from the 2012 figure of 58,193.

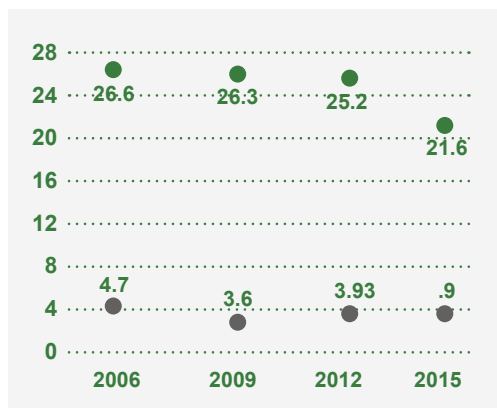


Figure ED-3A | Poverty Incidence
Phil's and NCR: 2006, 2009, 2012 & 2015

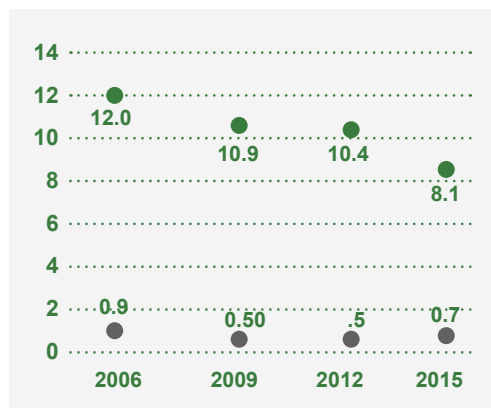


Figure ED-3A | Subsistence Incidence
Phil's and NCR: 2006, 2009, 2012 & 2015

Minimum Wage

Table ED-8 | Current Daily Minimum Wage Rates
National Capital Region, Per Wage Order No. NCR-20 (Effective June 02, 2016)

Sector / Industry	Basic Wage	COLA Integration	New Basic Wage	New COLA	New Minimum Wage Rates
Non-Agriculture including Private Hospitals with bed capacity of 100 or less	466.00	15.00	481.00	10.00	491.00
Agriculture (Plantation and Non Plantation)	492.00	15.00	444.00	10.00	454.00
Retail/Service Establishments employing 15 workers or less	492.00	15.00	444.00	10.00	454.00
Manufacturing Establishments regularly employing less than 10 workers	492.00	15.00	444.00	10.00	454.00

Source: Department of Labor and Employment – National Wages and Productivity Commission

4.3 FOOD SECURITY

Food security “exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life”. The four (4) elements on the definition of food security are as follows: 1) Availability - There must be adequate food supply to meet people’s needs; 2) Accessibility - It considers people’s incomes/expenditures, markets and prices in achieving food security. 3) Utilization - It is the way the body takes in the nutritional value of the food they consumed. 4) Stability - It is having suitable food intake not only on a periodic basis but at all times.

The major sources of food supply come from the country’s Agricultural Sector: the agricultural, fisheries, aqua-culture and forestry products. The country is therefore undertaking great efforts to improve productivity of the sector. Food security is not all food but also having access to clean water sources and sanitation facilities. Insufficient food consumption, its deficiencies, imbalances in the consumption, the incapability of acquiring acceptable food result to hunger or malnutrition. The national goal is to end hunger for all Filipinos.

With urbanization comes the challenges in food security. Metro Manila is a highly urbanized region in the country with Quezon City as one of its most populated cities. Food systems are required to ensure efficient & sustainable production, distribution and delivery of goods from the farm to the metropolis or to all its local units.

4.3.1 | Food Availability

As a highly urbanized city, with no agricultural sector to readily supply food requirements, food is sourced by the city from nearby provinces. Agricultural produce are brought to the city in bulk, at trading areas or “bagsakan” areas and sold mostly to wholesale clients who then distributes said goods to other market outlets located in various areas in the city. A trading area of the city is the Balintawak Cloverleaf Market and the Mega Q-Mart located at EDSA. The distribution or retail outlets are: city’s eight (8) public markets, forty-three (43) private markets. There are also now many other available suppliers of basic goods and commodities/

distribution outlets such as supermarkets, mini marts groceries strategically located in various areas of the city.

Through the years, the number of the private markets have decreased considering the opening of the new and modern supermarkets and groceries (e.g. Savemore, Puregold, Hypermart, Robinson’s, etc.) which became a preference by market-goers due to better and more convenient facilities that they offer. This has posed a challenge to many operators of private wet and dry markets.

Food distribution in the city is also channeled through the numerous food outlets such the neighbourhood stores, restaurants and some 213 food establishments engaged in food processing and 12 food manufacturing companies.

The city, in coordination with the national agencies, e.g. Department of Trade & Industry, National Food Authority, Dept. of Agriculture, National Meat Inspection Services (NMIS), etc., constantly controls and monitors operations on food supply and distribution in order to stabilize its supply and demand.

On Rice

Rice, a staple food of Filipinos. The major source of rice distributed by the National Food Authority particularly for the NCR are from top producing provinces in Luzon namely: Pangasinan, Nueva Ecija, Tarlac, Pampanga, Bulacan, Cagayan, Isabela and Mindoro. The country has been ranked as one of top rice producers in Asia but data from the NFA, that in past years when the country experienced deficit in production, rice was imported from the following countries: Vietnam, Thailand and India to ensure stability of supply. The country is working to becoming self sufficient in rice production for the coming years.

On Fish and Vegetables

Sources of fish sold in markets, flea markets, supermarkets in the city mainly come from the Navotas Fish Port, with others coming from Cavite, Batangas, Quezon, and as far as provinces in the Visayas and Mindanao.

Vegetables in the city are sourced from mostly from northern provinces in Luzon : Baguio, Pangasinan, Isabela, Bulacan, Pampanga . These are brought to city’s major trading /“bagsakan” area at the Cloverleaf Balintawak Market which through the years became known as a trading site for agricultural produce coming in from the north. Other trading areas are the Mega Q- Mart. Other food retailers also go directly to the major sources for supply.

On Livestock and Poultry

Slaughtered meat are sourced from the city’s slaughterhouses. The live animals (hogs, cattle, carabao ,goats) brought in for slaughtering in the city’s abattoirs are sourced from nearby provinces Bulacan, Nueva Ecija, Batangas etc. The city has three (3) existing slaughterhouses: Novaliches Slaughterhouse (the only accredited slaughterhouse of the city by the NMIS, Labudahon Slaughterhouse and Mega Q-Mart Abbatoire –(a temporary Slaughterhouse). There are also the non-NMIS accredited small slaughterhouses of the “lechonan” operators at La loma serving specifically the city’s lechon industry requirements. Chicken/ fowls on the otherhand, are also sourced out from nearby provinces ,and brought in to various public

market stallholders for slaughtering. Quezon City does not have a city-owned slaughterhouse, But all slaughterhouses operations in the city are monitored and inspected by its City Veterinary Office (CVO) to see to that operations are in accordance with national and local regulations.

Based on a market assessment study conducted by the city ,the daily total production capacity from existing slaughterhouses as monitored by the(CVO) shows a big deficiency in supply (See table below). To cope with the meat requirements of the city, many distributors/ traders (e.g. public & private markets, supermarkets, groceries etc.) get their meat supply from other sources namely:

- Slaughtered meat from nearby cities and municipalities
- Local processed meat suppliers/ manufacturers namely: Pure foods, Monterey, Magnolia, CDO, Bounty Fresh, and other meat companies; and
- Imported frozen products (USA and Canada as the country’s major suppliers).

This shows that there is a big market for slaughtered meat products /services.

Table ED-9 | Daily Meat Demand and Supply of QC

Type	* Average Consumption	** Meat Requirements/ Demand	Production Capacity/ Supply
Hogs	.05137 kilos	1,142 hogs	550 (220 from lechoneros)
Cattle	.00677 kilos	183 cattle	54
Goat			136
Chicken	.03496 kilos	68,431 chicken	8,449

Sources: * PSA Consumption Study
 ** City Veterinary

Risk of supply disruption

Food insecurity exists when there is the risk of supply disruption– a situation when people lack secure access to sufficient safe & nutritious food for normal growth and development and an active & healthy life.

The factors that could affect food security are: poor quality of transport infrastructure, climate change, typhoon, strong rains, disasters, farmers’ lack of lands to be irrigated and lack of income which can be grouped into economic, environmental, demographic, political conditions, and risks, hazards and shocks.

4.3.2 | Food Affordability

This category measures the ability of consumers to purchase food, their vulnerability to price shocks, and the presence of programs and policies to support them when shocks occur.

The capacity to afford good-quality food without undue stress is a crucial aspect of food security. Food affordability considers first, whether an average individual in a country has sufficient means to purchase food, and second, the public structures that have been established to respond to personal or societal shocks. Together, these provide a holistic treatment of affordability, exploring elements of ability to pay and cost under a broad array of environmental conditions.

Food consumption as a share of household expenditure

This indicator captures the relative importance of food in household budgets. The lower the share of household expenditure on food, the easier it is for a household to cope with price increases and shocks.

Income plays an important role to food security. It is the determining factor of how much food can be bought by the consumer household. When consumers' income increases, their choices expand to include food quality. Food spending as a percentage share to total expenditures generally declines as income increases. In the Philippines, the average household earned P 267,000 in 2015. 41.9% of total spending is on food. In the NCR, 36.3% of income earned by families are spent on food alone. NCR estimates are also used by QC in the absence of data in the PSA-FIES Survey. The big percentage being spent on food just shows that still many of the city's families still belong to the low income group.

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The QC Local Price Coordinating Council has been created for the proper efficient and effective enforcement of the "Price Act" (a national policy that ensures the availability of basic necessities /commodities at reasonable prices at all times). It protects consumers on price manipulation and other illegal acts on profiteering by some businesses especially during times of emergency/calamities.

4.3.3 | Food Security, Safety, and Quality

Food security, safety and quality is a condition where foods are fit for human consumption. Food and water must be edible and potable at all times. Security and protection of human health is basically depended on the food we eat and water we intake. Comprehensive, intensive and effective food control systems are essential to protect and safeguard the health, safety and welfare of the consumers. It is also critical to assure the security, safety and quality of foods entering the country and local territories. The food regulatory agencies of both national and local government are responsible for setting food safety standards, regulating food establishments and food business operators as well as the products they manufacture, offer for sale, or distribute, by conducting inspections to ensure compliance with the law.

In Quezon City, some issues and concerns on food security and safety which are addressed are the following : sale of hot/double dead meats known as "Botsa" in public and private markets; distribution and sale of expired bottled and canned goods and other processed goods in supermarkets, groceries, convenient stores and sari-sari stores; illegal importation of smuggled foods and goods from foreign sources; sale of cooked foods and drinks not legally registered along the streets and sidewalk, in schools, and other public places; sale of meat, chicken, fish, seafood, fruits and vegetables injected or sprayed with chemicals. The City Health Department, City Veterinary Office (CVO) and Market Development and Administration Department (MDAD) are the local regulatory agencies in charge in the implementation and enforcement of pertinent laws, ordinances, rules and regulation relative to food security, safety and quality in the city.

4.4 INDUSTRY AND SERVICE

The city's economy continues to be dominated by small to medium-scale business establishments engaged mostly in the distribution of finished products and in the provision of basic services.

Table ED-10 | Number of Registered New and Renewing Business Establishments: 2009-2015

Year	New	Renewal	Total	Growth Rate
2009	10,474	43,277	53,751	-
2010	12,382	45,019	57,401	6.79
2011	12,765	48,567	61,332	6.85
2012	13,074	49,628	62,702	2.23
2013	13,417	51,098	64,515	2.89
2014	13,679	52,965	66,644	3.30
2015	12,107	54,989	67,096	0.68

Source: QC-ITDO

There has been an increasing trend in the number of registered businesses from 2009-2015, for 2015 registered businesses are broken down as follows - 12,107 new businesses and 54,989 renewing businesses totaling to 67,096 – a 0.68 percent increase from previous year. The biggest increase in the number of businesses was recorded in 2011, an increase of 6.85 per cent from 2010. Average annual growth rate of registered business establishments on said period is computed at 3.25 per cent. Although there is an average of 13,345 new businesses that come in and

register every year, it could be noted that the annual increase in total number of businesses every year is only about 1,906 primarily attributed to the big annual number of non-renewing firms.

Every year, some 21% of the total registered businesses do not renew their permits in the succeeding year. These non-renewing firms are those that may have shut down operations due to bankruptcy, mismanagement, etc. or those that may have just continued operations without securing the required permits.

There are many businesses that have shut down operations but have not registered / declared retirement with the city due to the high cost of retiring a business (back taxes are required to be paid) and create a tedious process as many documents have to be submitted. From year 2010 to 2014, only 6,809 businesses (or an average of 1,362 per year) have declared retirement.

The city government is therefore undertaking great efforts not only in generating growth in new investments but also sustaining growth of the old investments thru more improved and systematic business registration processing, provision of tax incentives, conduct of inspections with apprehension of operators without permits (Suyod Buwis), and better coordination with the barangays, etc.

Table ED-11 | Number of Registered Business Establishments by PSIC Type: 2011-2015

2009 PSIC	2011	2012	2013	2014	2015	% to Total (2015)
Industry	3,610	3,978	3,947	3,947	3,558	5.31
Electricity, Gas, Steam, and Air Conditioning Supply	6	5	5	5	13	0.02
Water Supply; Sewerage, Waste Management and Remediation Activities						
Construction	1,364	1,751	1,709	1,739	1,561	2.33
Manufacturing	2,240	2,222	2,233	2,229	1,984	2.96
Service	57,722	58,724	60,568	62,671	63,538	94.69
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	25,952	26,384	27,922	28,306	25,044	37.32
Transport and Storage	1,978	1,921	1,872	2,063	3,514	5.24
Information and Communication						
Accommodation and Food Service Activities	4,313	4,368	4,318	4,567	4,758	7.09
Financial and Insurance Activities	2,504	2,675	2,855	3,058	3,318	4.95
Real Estate Activities	16,347	17,005	17,461	17,870	15,973	23.8
Professional, Scientific and Technical Activities						
Administrative and Support Services Activities						
Education	991	951	919	1,028	985	1.47
Human Health and Social Work Activities	1,078	1,090	1,274	1,378	1,672	2.49
Arts, Entertainment, and Recreation	4,532	4,330	3,947	4,401	8,274	12.33
Other Services Activities						
Total	61,332	62,702	64,515	66,644	67,096	100.00

Source: QC-ITDO

As to industry type, registered businesses were classified using the Philippine Standard Industry Classification (PSIC), the classification also used by national agencies. The PSIC provides three (3) major divisions namely: Agriculture, Industry & Services, further subdivided into sub-classes / industries. Majority of businesses (about 94%) belong to the SERVICE SECTOR, while

the INDUSTRY SECTOR has only a 6% share of total businesses. There are no business operations that registered in the AGRICULTURE SECTOR, the usual case in highly urbanized cities. Furthermore, majority of city's businesses are under the micro and small business size category.

Table ED-12 | Number of Registered Business Establishments by (PSIC) Type and by District: 2015

2009 PSIC	1	2	3	4	5	6	Citywide	Total
Industry								
Electricity, Gas, Steam, and Air Conditioning Supply	5		1	1		1		13
Water Supply; Sewerage, Waste Management and Remediation Activities	1		2	1	1			
Construction	308	153	249	354	199	248	55	1,561
Manufacturing	592	106	232	313	293	345	103	1,984
Service								
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	6,373	1,686	4,392	5,545	3,744	2,596	697	25,044
Transport and Storage	558	162	310	410	357	389	76	3,514
Information and Communication	219	61	364	356	121	108	23	
Accommodation and Food Service Activities	1,039	161	1,115	1,495	580	258	110	4,758
Financial and Insurance Activities	727	223	750	815	405	246	152	3,318
Real Estate Activities	3,582	609	3,125	4,594	1,481	1,587	1,040	15,973
Professional, Scientific and Technical Activities								
Administrative and Support Services Activities								
Education	149	127	182	205	184	100	38	985
Human Health and Social Work Activities	366	100	319	501	217	115	54	1,672
Arts, Entertainment, and Recreation	102	15	142	127	84	24	20	514
Other Services Activities	1,707	466	1,475	1,940	1,086	854	232	7,760
Total	15,728	3,869	12,658	16,612	8,763	6,866	2,600	67,096

Source: QC-ITDO * Citywide: These businesses have no address or have incomplete addresses to determine which district they belong

4.4.1 | Services

Data for the year 2015 show that majority or 95% of registered businesses belong to the SERVICE sector.

The biggest shares are those business firms engaged in the Wholesale/Retail Trade Activities which total to 25,044 or 37.33% of total registered businesses. It is also the number one business revenue source of the city and shown to have the highest increase amongst all sectors in number in the last three (3) years. Such is evidenced by the existence of numerous shopping malls where many retail stores operate. These malls include the five SM Malls, the Ayala Malls (Trinoma, UP Town Center and Fairview Terraces), the Robinsons Malls (Fairview, Magnolia & Galleria) and Ever-Gotesco Mall, Eton Centris, Gateway Mall and Fishermall, as well as supermarkets and groceries/convenience stores located in various parts of the city. There are also many home-based retail stores such as sari-sari stores, bakeries, carinderias mostly located in high density residential areas. Many of these establishments engaged in the Wholesale/Retail Trade are concentrated in Districts 1 & 4.

The second major business type in the city is the Real Estate Activities; Professional, Scientific & Technical Activities; and Administrative & Support Service Activities i.e. those engaged in leasing of real properties, consultancy and law offices, janitorial/ messengerial / labor services, real estate broker and developer which registered a total of 15,973 businesses. Many of these businesses are also mostly found in District 1 and 4.

Those engaged in Accommodation and Food Service Activities ranked 3rd in number with a total of 4,758 mostly found in Districts 1, 3 & 4 (at Banawe, Quezon & West Avenues, SM North, Trinoma, Cubao Commercial Area, Eastwood City, SM Centerpoint & South Triangle areas).

The other succeeding types are the following: Financial and Insurance Activities (composed of banks, pawnshops, money shops and financing & holding companies, etc.) with 3,318; Transport and Storage (transport companies/operators, trucking/hauling services, forwarding/freight services, radio & TV networks, Call Centers, etc.) with 3,514 establishments. The increasing number of BPO locators in the city account for the big number of businesses in this category. The Human Health and

Social Work Activities (hospitals, clinics, laboratories, etc.) with 1,672 establishments; and lastly, Education (composed of the colleges, universities, vocational schools and other training institutions) that recorded 985 registered establishments.

Other Service Activities (e.g. beauty salons, dress shops, tailoring shops, etc.) has a total of 7,760 registered businesses.

4.4.2. | Industry

The INDUSTRY sector has only a 5.30% share of the total registered businesses numbering to 3,558 in 2015. This is composed of those in the Manufacturing businesses (printing/publishing, assembly of motor vehicles, fabrication of metal, steel and aluminum products, etc.) numbering to 1,984 or 2.96% share; followed by Construction (composed of construction of buildings, site preparation & development, Architectural and Engineering works, etc.) with 1,561 establishments (2.33%) and those in the Electric, Gas & Water Supply with only a 13 but considered large establishments.

It could be noted that the manufacturing industry in particular are no longer growing in number through the years due to a national policy on industry dispersal outside Metro Manila during the 70's. Those manufacturing businesses – labor-intensive, clean industries not harmful to the environment may however still need to be revitalized and encouraged to grow due to economic benefits that such industries entail. These are those located in the city's traditional industrial areas at District 5 & 6 - the Balintawak & Novaliches area.

Business Data from Other National Sources / Statistics
For comparative and information purposes on the city's standing in distribution and ranking of businesses in the country and in the region, the results of the 2014 Survey of Establishments of the Philippine Statistics Authority (PSA) were gathered and analyzed (Table ____). The data showed that 22 % of total businesses in the country are in the NCR. Top four cities with the highest number of businesses in the region are Quezon City (44,552), followed by the City of Manila (38,744), Makati (20,405) & Caloocan City (17,983). Wholesale & Retail trade activities and Accommodation & Food Service Activities are the two major dominating types similar to all four localities.

Table ED-13 | Number of Business Establishments by PSIC (2014 NSO Business Database)

2009 PSIC	Phils	NCR	QC	Manila	Makati	Caloocan
Agriculture, Forestry, and Fishing	8,472	258	52	19	36	33
Mining and Quarrying	987	126	9	6	48	2
Manufacturing	118,749	22,213	4,790	2,828	1,308	2,895
Electricity, Gas, Steam, and Air Conditioning Supply	1,135	129	15	7	35	2
Water Supply; Sewerage, Waste Management and Remediation Activities	3,376	175	31	10	12	9
Construction	437,602	1,461	482	100	192	60
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	5,159	88,906	18,028	18,315	6,198	7,809
Transport and Storage	127,600	2,214	192	848	212	83
Accommodation and Food Service Activities	39,107	27,560	6,087	4,925	2,895	2,063
Information and Communication	39,107	9,630	1,595	1,785	1,047	1,166
Financial and Insurance Activities	35,845	8,572	1,845	1,551	1,500	399
Real Estate Activities	9,824	4,601	763	710	1,027	182
Professional, Scientific and Technical Activities	18,697	6,603	1,275	804	1,887	197
Administrative and Support Service Activities	17,149	6,682	1,282	1,590	1,145	249
Education	18,044	4,805	1,350	714	428	412
Human Health and Social Work Activities	28,119	8,006	2,073	1,334	833	588
Arts, Entertainment, and Recreation	15,121	2,572	554	452	154	231
Other Services Activities	60,678	17,341	4,129	2,746	1,448	1,607
Total:	984,780	211,854	44,552	38,744	20,405	17,983
% as Against Total Philippines		21.51	4.52	3.93	2.07	1.83
% as Against Total NCR:			21.03	18.29	9.63	8.49

Source: 2014 List of Establishments

Philippine Statistics Authority

Census and Technical Coordination Office - National Censuses Service
Service & Industry Census Division

In the same survey - Distribution of Businesses by employment & type of industry (Table ED-5), the NCR also had the highest share amongst country's regions contributing more than one third share to total employment, and where majority fall under the Real Estate, Renting & Business and the Wholesale & Retail Trade activities. As to regional employment, Makati has the highest share (22.3%) followed by Quezon City (21.9%) and City of Manila (10.6%). This shows that Makati has bigger firms as compared to Quezon City.

From this same data, the locational quotient (LQ) was computed to get information on which industries of the city are more unique, higher concentrated and have greater advantage over the region. And these industries are the following: Construction, Wholesale & Retail, Health & Social Work Activities, Education, and Electricity Gas & Water.

Another business data source is the Business World Publication on the Top 1,000 Corporations in the Philippines Economy 2014. From this publication,

majority or about 75% of the top corporations in the country were shown to be located in the National Capital Region (NCR) with Quezon City (with 105 firms) ranking second to Makati City (with 236 firms) in terms of number of business establishments (mostly engaged in the Wholesale & retail activities).

Various efforts have been undertaken to improve services. Processes on business registration has been simplified and made easier thru:

- Putting up of a Business-One-Stop-Shop (BOSS) which has reduced time and requirements in securing a business permit.
- Improving the payment system of taxes & fees thru the opening of more satellite offices, use of over-the-counter payments in accredited banks, internet banking, automated teller machines and mobile money service providers.
- Operationalizing the Philippine Business Registry (PBR) which utilizes an on-line integrated system connecting various concerned national government agencies (DTI, BIR, SEC, HDMF, SSS and Philhealth)

in the registration of new businesses. The QC government was also the first LGU in the country to operationalize the PBR.

- Passage /Implementation of the following :

Ordinance No.SP-2219 s-2013, the QC Economic Development Incentives Code of 2013 to encourage and to accelerate inflow of investments-- the entry, expansion, modernization of the service and industry sectors in various areas of the city. It provided the creation of an Economic Development & Investment Board (EDIB), the policy making body tasked to promote, regulate and monitor investments in the city; and a Local Economic Investment Promotions Office that shall serve as the implementing arm / Technical secretariat of the Board.

Ordinance adopting a Magna Carta for Micro Small Business Enterprises in QC (Ordinance No. SP-2360 s-2014) with the following development objectives:

- Business Environment (BE) – create an enabling business environment that is conducive to the establishment, innovation, development and sustainable growth of MSEs and entrepreneurship in the city;
- Access to Financing (A2F) – enable MSEs and entrepreneurs to conveniently access appropriate and affordable financial services and assistance;
- Access to Markets (A2M) - enable MSEs and entrepreneurs to maintain their current markets and penetrate new markets; and
- Productivity and Efficiency (P & E) - enable MSEs and entrepreneurs to be innovation active and improve their capacities to develop, produce and deliver competitive products and services for the local, national and international markets.

Creation of the QC Small Business Development & Promotion Office (QC-SBDPO) –Ordinance No. SP-2364, s-2014) - QC-SBDPO was created to serve as implementing arm of the Micro and Small Enterprises Development Council (MSED Council) and shall also function as the Technical Secretariat of the MSED Council.

City plus factors

The city continues to attract investors with its various plus factors, namely:

- *Expansive Land* – it has 160 sq. kilometer urban landscape spread over one-fourth of Metropolitan Manila
- *Reasonably Priced Real Estate* – real estate land value and taxes are lower compared to other cities providing cost effective location
- *Strategic Location* – it is in the heart of Metro Manila; it is accessible from the major highways and thoroughfares and mass transit system of Metro Manila
- *Young Manpower Pool* – about 1/3 of the city's population are less than 15 years old; strengthening this young population are the numerous colleges / universities and training centers which included the prestigious University of the Philippines, Ateneo de Manila, Miriam College, etc.
- *Large Consumer Market* – the city has the largest population in the country providing a big consumer market for investors.

Other factors that are continuously being improved / maintained:

- Close private partnership with the various Business sectors
- Various strategies / programs undertaken by the city to include efficient assistance services (expeditious processing of business permits), good infrastructures, improved communication, stable policies and provision of various incentives.

The city also makes available the following national & local incentives which largely applied for firms that are registered with the Philippine Economic Zone Authority (PEZA), the Tourism Infrastructure and Enterprise Zone Authority (TIEZA), and the Board of Investments (BOI).

National Incentives:

- 100% foreign equity in all investments except those reserved for Filipinos by mandate of the Philippine

Constitution;

- Income Tax Holiday for six (6) years for pioneer firms and four (4) years for non-pioneer firms;
- Tax credit on raw materials, supplies and semi-manufactured products;
- Special Investors' Resident Visa;
- Employment of foreign nationals;
- Granting of Special Economic Zone status to tourism development zones & tourism estate and other incentives provided for under the Special Economic Zone Act of 1995 (RA 7916); and
- Private sector participation thru the Public-Private-Partnership (PPP) arrangement with the national implementing agencies and the local government units (LGUs).

Local Incentives:

- 10% discount on prompt annual payment of Business Taxes;
- 10% - 20% discount on prompt and advance payment of real property tax (RPT); and
- 50% discount on business taxes to business enterprises with assistance of not more than P3M (Barangay Micro Business Enterprises – BMBEs Law: RA No. 9178)

4.4.3 | Tourism

Tourism is an important sector for the Philippine economy. It is currently the largest & fastest growing industry in the world and has been utilized by countries & local governments as one of the foundation of economy. In the year 2016, the travel and tourism industry in the Philippines contributes about ten (10) per cent to the Philippine Gross Domestic Product (GDP). The Department of Tourism (DOT) recorded 5.96 million tourists visiting the country in 2016, the highest recorded tourist arrival data. It posted an 11.31% growth from the 5.31 million visitors in 2015 in spite of the calamities that continue to hit the country. The strong performance of the industry imprinted significant milestones in the Philippine history which attributed to the intensified marketing campaigns. The influx of visitors during the Christmas holidays, the international media exposure of the country during major international events such as the papal visit of Pope Francis in January 2015, the Phil. hosting of the APEC 2015 summit/meeting, and other tourism events which include the Miss Universe hosting (Dec. 2016 to Jan. 2017) help boost the country's tourism arrivals to the country.

Table ED-14 | Distribution of Tourist Arrivals by Type of Tourist, NCR & Philippines: 2009-2016

Year	NCR			Philippines			% Growth Rate
	Foreign	Domestic	Total	Foreign	Domestic	Total	
2009	1,205,127	702,689	1,907,816	2,756,581	260,518	3,017,099	(0.23)
2010	1,480,871	815,604	2,296,475	3,239,960	280,511	3,520,471	1.53
2011	1,729,862	997,595	2,727,457	3,667,089	259,544	3,926,633	1.03
2012	1,533,450	909,212	2,442,662	4,019,167	253,644	4,272,811	0.77
2013	1,751,191	854,515	2,605,706	4,435,205	246,102	4,681,307	1.79
2014	1,122,860	748,379	1,871,239	4,582,072	251,296	4,833,368	1.67
2015	848,320	568,755	1,417,075	5,099,745	260,937	5,360,682	1.17
2016				5,719,356	247,649	5,967,005	

Source : Department of Tourism (DOT)

In 2016, a total of 1.47 million South Koreans visited the Philippines. It is followed by the United States, China, Japan Australia, Taiwan, Singapore and Canada, which grew in number compared to previous years. In 2015, the country attracted 5,360,682 visitors and in 2016, the country welcomed a total of 5,967,005 arrivals, almost hitting the Six Million mark. It had shown that during the last 5 years (2011-2016) South Korea has been the largest source of visitors to the Philippines. The target of the Department of Tourism (DOT) is to reach the 10 million mark in tourist arrivals in the next three years.

The purposes of tourist visits were the following: to spend holidays, to visit friends and relatives, for official/business trips, for educational/studies, religious and civic missions, for convention, for incentives, for health/medical treatment/consultation, for shopping and others.

Quezon City as compared to its other major neighboring cities in the NCR gets only a limited share of the region’s tourist market due to its distance to entry points (airport and seaport), and existence of only few accommodation facilities, most importantly internationally managed hotels. The city also does not have a convention center.

Quezon City has 35 registered hotels (with estimated 3634 hotel rooms) mostly in the standard & economy classification. It has five (5) existing resorts, 76 apartelles, 4 inns and 3 pension houses. In spite of the big number of hotels, only four (4) are accredited with the (DOT) namely Crown Plaza Hotel, Eastwood Richmond Hotel, Microtel UP TechnoHub) and the Mirante Hotel.

Table ED-15 | Number of Hotels by Classification, Philippines, NCR & Quezon City: 2015

Classification	QC 2015
De Luxe	2
1st Class	2
Standard	14
Economy	17
Total	35

Source: For NCR & Philippines – DOT;
For Quezon City - CTAO

Based on the 2015 Philippines Travel & Tourism Statistics, the average length of stay of guests of accredited and non-accredited hotels in Metro Manila was 2.39 nights. The overall average occupancy rate of hotels in Metro Manila for 2015 was placed 66.95%, a little lower compared to year 2014 which is 67.21%.

The Local Tourism Development Plan aims to transform the city into a “premier urban destination and the showcase of sustainable urban tourism development in the Philippines”. It identified tourism districts for development and promotion. These are areas with inherent advantages and unique character which have become known for and particularly possessing potentials of attracting tourists/visitors. Urban design, structural and aesthetics enhancement specific to these areas shall be adopted to turn these areas into attractive and viable tourist attractions. The nine (9) identified tourism district areas cited in Development Plan are as follows: the Civic Center District, the Lifestyle District, the Eastwood City Cyberpark, the Knowledge Community District, the Cubao Growth Center District, the Quezon City China Town, the La Loma District, the Sergeant Esguerra Avenue District, and the Maginhawa Art and Food District.

Tourism is considered a powerful growth engine in economic development, it produces huge exchange movements and accommodates big investments. The city capitalizes on the following tourism marketing points/assets :

QC as a Wellness Center

Quezon City is the only city with a large number of internationally renowned specialty hospitals that can form the base of a thriving health and wellness industry. It has the most number of hospitals, with the biggest bed capacity in the country. Its bed to population ratio is 1:294 is above the required standard of 1:500. As of 2016, there are now sixty-four (64) hospitals in the city (18 government; 46 private) including the internationally known St. Luke’s Medical Center (a 650-bed, international-standard hospital facility), Philippine Heart Center (well-equipped, specialty hospital in cardiovascular), National Kidney and Transplant Institute (premier, ISO-certified facility for renal disease and organ transplant), Lung Center (specialty hospital for pulmonary diseases) and the Philippine Orthopedic Hospital. The city is also a pioneer in the stem cell therapy, the famous upscale

medical treatment which is available at NKTl and St. Luke's Hospital. It has the abundance of wellness and physical fitness centers, diagnostic, dental health and beauty clinics, rehabilitation centers, nursing homes, health spas, and alternative healing centers.

Other hospital facilities in the city: the Providence Hospital at West Triangle, Commonwealth Hospital & Medical Center at the Neopolitan Business Park, the Metro North Medical Center at Mindanao Avenue, the World Citi at Aurora Boulevard and the newly improved Fe del Mundo Medical Center at Banawe Street. Such development stimulates growth of medical tourism in the city. Not only do these medical institutions provide a ready place to get good medical care but they serve as grounds/site for new learnings/trainings or venue for summits, or seminars in the medical field. Though the number of medical/hospital facilities have increased, the quality of services however still needs to be greatly improved to face challenge in the global competition. (No of hospitals in NCR)

Quezon City as ICT Capital

The ICT, with all its power to provide virtual travel experience and on-line impersonal communication for the "Global Villagers", provides tourism in person-to-world experience, a window-shop to the world. Information Communication Technology (ICT) empowers tourism, with the developed e-commerce system already taking over the entire country, tourism finds an effective marketing ally in ICT.

Business Process Outsourcing (BPO), continues to be one of the major economic drivers of the country, in the NCR and in the city contributing greatly to Gross Domestic Product and generation of employment. As of 2015 data, there are a total of 456 IT Parks & Center/Buildings operating in the country and registered with the Philippine Economic Zone Authority (PEZA). Majority or 264 of these firms are in the NCR. Makati has the most number of IT Parks /Buildings (with 64); followed by Quezon City (with 54), and Cebu City (with 52). There are other more strong competition arising in this industry from other cities in the region such as Taguig (Global City), Pasig (Ortigas) and Mandaluyong, etc .

Quezon City also, ranked number one in terms of declared area with the PEZA devoted to IT operations with 260.3 hectares. The city's biggest IT Parks are: the Eastwood City Cyberpark (The first IT Park in the country), UP Science & Technology Park (North)/Ayala TechnoHub, Eton Centris, Araneta Cyberpark and the Vertis North Ayala Park. Many IT developments have also been integrated in the various mall complexes.

With the continuous growth of the IT industry in the city, employment is projected to increase this year and the succeeding years. The most recent employment data gathered from the different IT-related enterprises in Quezon City as of 2015 reached to a total of 372,000 persons employed.

Recognizing the economic contributions of the Contact Center and Business Process Industry, the QC-Information & Communication Technology –Global Service Outsourcing (QC-ICT/GSO) Task Force was created to promote global services (outsourcing) industry to generate investments and employment in the city . And as support to the industry , the city provides talent development interventions to provide locators with the required competent workforce (formulated with industry partners , other stakeholders and the Kor-Phil IT Training Center) .

Quezon City as Shopping Mecca of the Country

Quezon City can be called the shopping mecca of the country due to the existing big shopping malls/complexes sitting center stage in practically every dense community cluster. Among these are five (5) giant SM Malls , Robinson Malls, Ever Gotesco Mall, Gateway, the giant Trinoma Shopping Complex, the Eastwood City Mall, Eton Centris Mall, the Ayala Fairview Terraces Mall, the Walter Mart and the newly developed UP Town Center. All these shopping Centers are of international standards and fit for tourist visitors. Inside these malls are excellent recreational and entertainment facilities such as amusement centers, physical fitness centers, modern cinemas and restaurants (from fine dining to fast food which fits the tourists' pleasure).

The city is also home to other tourism facilities and activities that would also attract tourists:

Historical sites/Landmarks

Table ED-16 | Famous Significant Historical Sites in the City

Historical Sites	Location
Quezon Memorial Shrine	Elliptical Road, Bgy. Central
Pugad Lawin Shrine	Bgy. Bahay Toro
Mabuhay Rotunda	Quezon Ave. corner E, Rodriguez Ave.
Batasan Pambansa	Batasan Road
Tandang Sora Shrine	Banlat Road, Bgy. Pasong Tamo
La Mesa Dam	Lagro
Bantayog ng mga Bayani	Along EDSA, Quezon Avenue
Camp Aguinaldo*	EDSA
Camp Crame*	EDSA
People Power Monument	EDSA, Bgy. Ugong Norte
Gen. Lawton Monument	Bgy. Bagong Silangan
Balintawak Monument	EDSA, Bgy. Balingasa
EDSA Shrine	EDSA, Bgy. Ugong Norte
San Pedro Bautista Church	Bgy. Damayan
Himlayan Pilipino	Bgy. Pasong Tamo
Quezon Heritage House	QMC, Elliptical Road

Festivals/Events

The city also hosts different festivals and activities where local and foreign visitors are gaining interest. These events are cited in the succeeding table:

Table ED-17 | Famous Significant Historical Sites in the City

Activity / Event	Date of Celebration
Tandang Sora Birth Anniversary	January 6
Anniversary of People Power (EDSA 1&2)	February 25
Santacruzán / Flores de Mayo	May
Lechon Festival	3rd Sunday May
Death Anniversary of Pres. Manuel L. Quezon	August 1
Birth Anniversary of Pres. Manuel L. Quezon	August 19
Cry of Pugad Lawin	August 23
Feast of La Naval	October 8
Quezon City Foundation Day	October 12
Birth Anniversary of Andres Bonifacio	November 30

Sister-city Agreements

Tourists and potential investors are also expected to visit the city as a result of sister-city agreements forged by city officials. The city has entered tie ups with sister cities within and outside the country that promotes socio-economic and cultural exchange activities. The city however is encourage to engage more ties with highly urbanized or more industrialized cities in other countries to learn and gain advantage from the agreement.

The existing sister cities of QC are:

International Cities

Salt Lake City, Utah, USA
 Maui, Hawaii, USA
 Chiba City, Japan
 Taipei City, Taiwan
 Daly City, california,USA
 Agana, Guam
 Fort Walton Beach, Florida, USA
 Kenosha City, Wisconsin, USA
 New Westminster, British Columbia, Canada
 Shenyang City, People's Republic of China
 New Westminster, B.C. Canada
 Lviv, Ukraine, Eastern Europe

Local Cities:

Pura, Tarlac
 Wao, Lanao del Sur
 Cotabato City
 General Santos City
 Banaybay, Davao Oriental
 Puerto Prinsesa, Palawan
 Bacolod, Negros Occidental
 Daet, Camarines Norte
 Mercedes, Camarines Norte
 Caoayan, Ilocos Sur
 Alicia, Isabela
 Legaspi City
 Torrijos, Marinduque
 Tabaco City, Albay
 La Trinidad, Benguet
 Jagna, Bohol
 Tacurong, Sultan Kudarat
 Lal-lo, Cagayan
 Sadanga, Mountain Province
 Surigao City
 Iloilo City
 Baler, Aurora

QUEZON CITY

ECOLOGICAL PROFILE



CHAPTER 5

Environmental Management Program

The environment sector has five (5) areas of concern – Solid Waste, Air Quality, Water Quality, Parks and Open Spaces and Biodiversity.

5.1 SOLID WASTE

5.1.1 | Domestic Solid Waste

Generation

Quezon City generates very large amounts of solid waste due to its huge population and high concentration of social and economic activities. In the 2003 Waste Analysis and Characterization Study (WACS) conducted by Environmental Protection and Waste Management Department (EPWMD), each person in the City produced 0.66 kg of solid waste each day. Based on the latest WACS conducted in 2013 by the same Office, waste generation has increased to 0.88 kg/capita/day. The result increased to 0.22 kg. From that WACS, the city produced 2,796,143 kg of solid waste every day in 2015.

Waste Composition

Table below shows the comparative result of WACS 2003 and 2013. The biodegradable and residual increased to more than 5.95% and 12.76% respectively, while recyclables decreased to 18.7%. In the study, it also showed that 25.76% ideally will go to the sanitary landfill.

Table En-1 | Solid Waste Composition, Quezon City: 2003 and 2013

Type of Waste	2003	2013
Biodegradable	48 %	53.95 %
Food/Kitchen Waste	39 %	43.17 %
Yard/Garden Waste	7 %	9.43 %
Others	2 %	1.35 %
Recyclable	39 %	20.30 %
Plastic	16 %	9.64 %
Paper	17 %	8.65 %
Glass/Bottle	3 %	1.15 %
Metals	3 %	0.86 %
Residual	13 %	25.76 %

Source: EPWMD

Collection

The City employs a Package Clean- Up Collection System wherein private contractors were given the full responsibility to administer and directly carry out in their specific assigned area the actual collection, cleaning and disposal of solid wastes from various sources. They are also responsible for street sweeping activities, cleaning and clearing operations as well as enforcement of environmental laws and information dissemination. These components ensure the overall upkeep of the City.

An inclusion of the “Dedicated Collection” for biodegradable wastes and non-biodegradable wastes is an additional

responsibility of the contractor in compliance to Republic Act 9003 or Ecological Solid Waste Management Act of 2000.

In addition to the City contracted haulers, there are some barangays doing garbage collection using their own trucks. Commercial establishments, on the other hand, are responsible for the disposal of their own wastes. In 2015, the City collected 1,877,839 cu.m. (163,180 trips) while the barangay and private accredited haulers collected 422,557 cu.m. (26,943 trips) for a total of 2,300,396 cu.m. (190,123 trips) of solid waste collected. These wastes are then disposed at the Payatas Sanitary Landfill. (Refer to Table En-2)

Table En-2 | Volume of Solid Waste Collected (cu.m.), Frequency of Collection, Quezon City: 2015

Type of Collection	2015	
	Collected in Cu.m.	Number of Trips
A. Collected by the City		
• Six City Contracted Haulers	1,873,584	162,794
• City-owned trucks	4,255	386
Sub total	1,877,839	163,180
B. Barangay and Private Accredited Haulers	422,557	26,943
Total	2,300,396	190,123

Source: EPWMD

During the period of 2013- 2015 the volume of solid waste collected annually was less compared to the projected generation. (Refer to Table En-3)

Table En-3 | Estimated Volume of Solid Waste Generated, Volume of Waste Collected and Volume of Waste Disposed at Sanitary Landfill: 2013-2015

Year	Population	Per Capita	Estimated Waste Generation		Volume of Solid Waste Collected/Disposed
		Kg/d	Kg/d	cu.m./year	cu.m./36
2013	3,300,017	0.66	2,178,011.22	3,785,590.93	2,320,044.00
2014	3,085,786	0.88	2,715,492.00	3,726,273.00	2,246,516.00
2015	3,177,435	0.88	2,796,143.00	4,859,964.00	2,300,142.00

Source: EPWMD

Note: Projected Population: 2013 based on 2007 NSO Population Survey
2014 & 2015 based on 2010 Population Survey
Waste Generation/day : 0.66kgs/capita/day (2003 EPWMD WACS)
0.88kgs/capita/day (2013 EPWMD WACS)
Waste Density: 210 kg/cu.m.

The difference between generation and actual collection could mean that aside from the Package Clean-Up Collection System working efficiently in the city, considerable amount of solid waste was no longer reaching the Sanitary Landfill but was being recycled elsewhere. The passage of RA 9003, otherwise known as the Ecological Waste Management Act of 2001 paved the way for the implementation of a systematic, comprehensive and ecological solid waste management program.

Based on data coming from EPWMD, an average of 2,517.38 tons/day or 44 % of waste being diverted in the period of 2013-2015. (Refer to Table En- 4)

Table En-4 | Volume of Waste Reduction: 2013-2015

Year	Waste Reduction		
	cu.m.	Tons/day	%
2013	1,465,546.93	834.43	38.70
2014	1,479,757.00	1,078.40	39.74
2015	2,559,822.00	1,813.65	52.67

Source: EPWMD

Republic Act 9003 and other City Ordinances, requires solid waste reduction to be undertaken at source, the recovery of recyclable materials and the proper disposal of the remaining wastes. It provides for the segregation and collection of solid waste at the barangay level and the collection of non-recyclable and special wastes by the municipality or city. The commitment of the barangay to improve solid waste management and reduce waste in compliance with the law is growing. As a result, 137 out of the 142 Barangays of the city have been continuously active on their Solid Waste Management Committees. (Refer to Table En-5)

Table En-5 | No. of Barangays with Programs and Projects in Compliance with RA 9003 (2015)

RA 9003 Requirements	District						Total
	I	II	III	IV	V	VI	
With Solid Waste Management Committee	37	5	37	34	14	10	137
With Solid Waste Management Plan	37	2	37	27	8	10	121
With Materials Recovery Facility	13	3	18	13	8	5	60
With Materials Recovery System	24	5	19	25	10	6	89

Source: EPWMD

Disposal

There is no available record that accurately shows when the Payatas open dumpsite started although accounts from old timers point to the period of mid to late 70's as its time of emergence. As to how it began, some claimed that syndicates came and operated as Metro Manila was nearing the garbage crisis since the Smokey Mountain's capacity to absorb garbage was diminishing. It was most likely that Metro Manila's waste was being diverted to Payatas. With the closure of the Smokey Mountain in the late 1980's and early 1990's, the open dumpsite grew remarkably until that tragic landslide that occurred on July 10, 2000 which brought its temporary closure. The facility was reopened in November of the same year with the creation of the Payatas Operations Group (POG). In 2004, the City Government in compliance with RA 9003, embarked in the conversion of the open dumpsite into controlled dump facility.

In December 2010, the Payatas Controlled Disposal Facility was closed, now the City is disposing its garbage in a 3.2 hectare Sanitary Landfill. It is operated by Isabelita P. Mecado-Environmental Services, Incorporated (IPM-ESI) and started in January 2011.

The QC Sanitary Landfill is located in Barangay Payatas, in the northeastern part near the boundary of Rodriguez, Rizal. It is about 3.5 kms, from the junction of Litex Road and Commonwealth Avenue and can be reached via the two-lane concrete paved Litex Road.

The Integrated Solid Waste Management Facility has three (3) project components:

- Materials Recovery and Processing Facility for waste reduction/processing
- Engineered Sanitary Landfill for the disposal of residual wastes
- Maintenance and post closure care of the Payatas Controlled Disposal Facility

In order to closely monitor the landfill operation pursuant to DENR regulation and administrative order, a Multi-partite Monitoring Team was created and is composed of the DENR-EMB, MMDA, EPWMD and POG, IPM-ESI, non-government organizations and the Barangay

The post closure care of the old dumpsite is being undertaken to ensure its safety to human health and the environment. As part of the greening program, a total of 1,846 trees were planted for 2015 which covered about 500 sq.m. It is estimated to have an equivalent carbon of 72 MTCO₂e stored. There are already a total of 12,088 trees planted in the disposal

facility covering about 3,274 sq.m. located both in the closed controlled disposal facility and the present sanitary landfill area. Aside from tree planting project, the following are the improvements made to the Controlled Disposal Facility; Asphalt Overlay, Access Road, Land Development Filling and Compaction, Perimeter Fence with Vertical Garden, Energy Efficient Streetlight, Improvement and Repair of Leachate Collection System, Improvement and Repair of Drainage System, Slope Protection and Erosion Control, Installation of Pre-Fabricated Plant Box and Improvement of Security Post.

Legislations

The City Council has passed several legislative measures to provide the executive branch the needed mandate and support to implement various programs, projects and activities related to the environment. (Refer to Appendix ____)

Solid Waste Management Projects

- **Materials Recovery Project** – The facility was established to further reduce the amount of wastes that are disposed at the landfill. Eight (8) MRF Stations were set up and manned waste pickers and junk traders that were organized to do further segregation and buying of recyclable materials and other saleable goods.
- **Biogas Emission Reduction Project** – The City operates the first Clean Development Mechanism (CDM) project. The biogas emission reduction facility is the product of an agreement of the city government with the Italian firm, PANGEA Green Energy and its local counterpart, PANGEA Philippines. Memorandum of Agreement with PGEP was done on February 14, 2007. The facility extracts collects, processes and converts biogas into electricity. The project does not only reduce the greenhouse gas emission of the landfill but also acts as source of renewable energy which financially benefits the City thru the 5% share from the sale of electricity to Meralco. It also provides power to the Sanitary Landfill.

As per report of EPWMD, September of last year, the total electricity that was exported to Meralco is 12,543,469.56 kWh, since the implementation of the commercial expanded plant in March 2013, the City already received a total amount of P 2,438,507.46 as part of its share from the sale of electricity.

Further expansion is being proposed given the potential to harness more methane from the facility, thus, stabilizing the dumpsite and reducing its environmental impact.

Waste Management Initiatives

To sustain the efficiency and effective implementation of the City's Solid Waste Management Program, solid waste management initiatives are being undertaken to wit:

- Community-based Projects
 - Hiwa-hiwalay na Basura sa Barangay Project- waste segregation at source and dedicated collection of wastes
 - Kitchen Wastes Collection – The project was implemented in barangays without Materials Recovery Facility or composting sites. EPWMD has accredited kitchen waste collectors for the project.
 - Best Solid Waste Management Practice
 - Search for the Cleanest Barangay with the Best Solid Waste Management Practice
 - Barangay Incentives Projects
- Institution-based Projects
 - Waste Markets- The project promotes a convenient drop-off and buy back center in QC malls for both traditional and non-traditional recyclable wastes. It is a collaborative effort of Quezon City Government, QC Malls, junkshops and other recycling companies.
 - QC Hall Waste Management Segregation Project – This involves the implementation of Waste Segregation and Recycling at the QC Hall Complex.
 - Quezon City Hall Materials Recovery Facility- The project aims to raise the public awareness on proper waste disposal, encourage recycling by providing an easily accessible place to divert wastes.
- School Based Projects
 - Hakot Bulasi sa Eskwela- The project aims to establish a mandatory waste segregation and recycling program in all public elementary and high schools in the hope of making recycling a part of school culture. Instead of cash, the corresponding points recorded in the students' passbooks will be later used to buy school supplies or groceries.
 - Hukbong Luntian Para sa Kalikasan
 - Urban Agriculture
- Basura Monster QC Edition- QC Edition Book Reading Activity aims to instill a sense of responsibility towards the environment during the growing up years of a child's life.
- Impact Projects
 - Riverways Cleaning Operation Project- The project aims to physical clean and clear the four (4) major river systems and their tributaries that traverse the city. Said project is composed of volunteers that conduct regular cleaning and clearing operations.
 - Special Cleaning Operations- the Special Cleaning Operations Groups (SCOG) is formed to conduct cleaning and clearing operations in preparation for various events and activities.
 - Clean-up Operation for Dengue Prevention- This project is being implemented to reduce dengue cases in highly affected barangays in the city.
 - War on Waste- the city conducts an annual war on waste project to encourage all barangays to conduct clean-up operations to help combat solid waste problems.
 - International Coastal Clean-Up- The city government supports and participates in the annual International Coastal Clean-up (ICC) conducted every September.
 - Posting of Signage and Ordinance Plates- Ordinance plates and signage are also posted along conspicuous and dumping prone areas within the city so that the constituency may be reminded to keep the environment clean and garbage-free at all times.
- Environmental Enforcement & Inspection
 - Deputized Environmental Police to conduct regular roving, fixed-posting and night operations along city's major thoroughfares and identified litter or dumping prone areas to ensure cleanliness in the city.
 - Green Desk Program- Thirty five (35) police officers from twelve (12) police stations were deputized to handle environment-related cases.
 - Junior Environment Police (JEP)- 130 selected public high school pupils from 13 public high schools were deputized as Junior Environmental Police. These JEP were authorized to reprimand their co students who will violate environmental laws within the school campus.

5.1.2 | Hazardous Wastes

DENR Administrative Order No. 29 Series of 1992 defines hazardous wastes as substances that are without any safe commercial, industrial, agricultural or economic usage and are shipped, transported or bought from the country of origin for dumping or disposal into or in transit through any part of the territory of the country. It also refer to by-products, side-products, process residues, spent reaction media, contaminated plant or equipment or other substances from manufacturing operations and as consumer discards of manufactured products which present unreasonable risk and/or injury to health and safety and to the environment.

In Quezon City, hazardous wastes are not included in the scope of regular collection of solid wastes, however, the City Council passed Ordinance No. SP-1483, S-2005 and now implemented in the city. Said ordinance requires all residents and business establishments to segregate spent fluorescent light bulbs from the regular collection of solid waste. Selected

Materials Recovery Facilities are being used as areas for disposal for busted bulbs from households.

Of the almost 65,000 registered businesses in Quezon City, 2,233 (3.46%) are generally categorized as manufacturing which does not allow the distinction of industries actually producing toxic and hazardous wastes. The monitoring system is too weak to pinpoint sources.

Healthcare Wastes

In a survey made by the City Planning and Development Office in 2008, a number of hospitals responded by saying that they are now using more ecologically-sound on-site methods of hospital waste management such as microwave disinfection and thermal decomposition and hiring accredited hospital waste contractors with proper treatment and disposal facilities.

Table En-6 | Hospital Waste Generators, Quezon City: 2008

Hospital	Hospital Category	Waste Generation		Present Treatment/Disposal Method	
		Total (kg/day)	Unit (kg/bed/day)	On-site Method	Collector for off-site disposal
A	T	213	0.71	-	PAE Environmental Phil.
B	T	30.33	0.46	-	Chevalier Enviro Services, Inc. (CESI)
C	S	3.5	0.11	thermal decomposition	Integrated Waste Management, Inc.
D	T	125	0.498	storage building	CESI
E	S	20	0.44	improvised incineration	CESI
F		14		microwave disinfection system	CESI
G	S	.38	0.025	-	PAE Environmental Phil.
H	T	178	.04	microwave disinfection system (non-burn technology)	CESI
I	T	43	0.25	-	outsourced
J	T	140	0.4	-	CESI

Legend: P – Primary S – Secondary T – Tertiary

Source: QCPDO Survey 2008

Aside from the numerous hospitals, there are many small and big health medical clinics, wellness and aesthetic centers, laboratories, funeral parlors and other establishments producing clinical, pathological, infectious, radioactive and other related wastes which are suspected to be mixed with the domestic solid wastes during collection.

Program/Project

- Toxic/Hazardous Waste Collection, Treatment and Disposal Project-** The project aims to ensure the busted fluorescent lamps (BFL) and spent households batteries are handled properly and separately from other non-toxic/non-hazardous household, commercial, industrial and institutional wastes for proper treatment and stabilization before final disposal.

5.2 AMBIENT AIR QUALITY

As stated in Republic Act 8749, otherwise known as the Clean Air Act of 1999, “Ambient Air Quality” is the average purity of the atmosphere as distinguished from discharge measurements taken at the source of pollution.

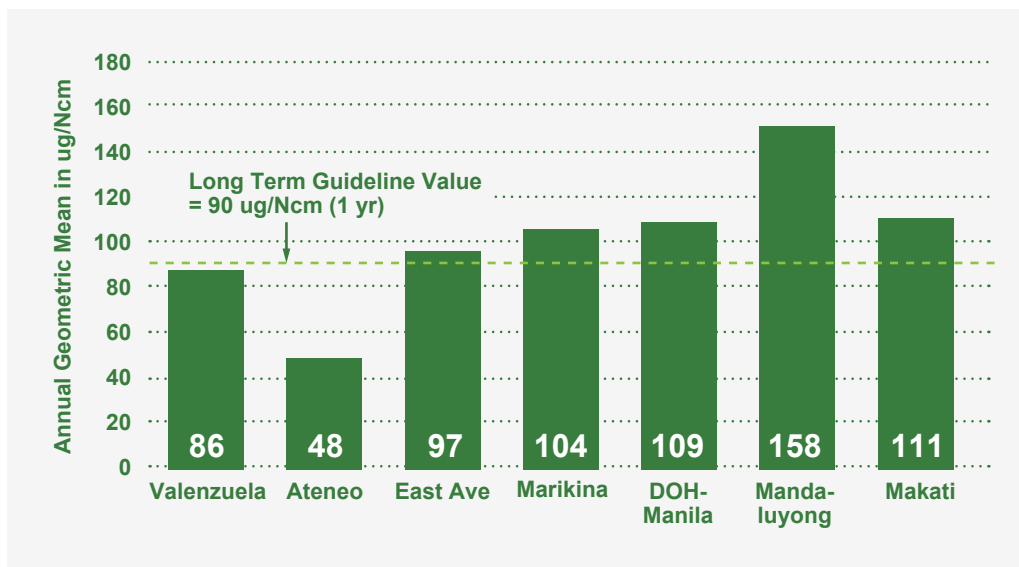
5.2.1 | Total Suspended Particulates (TSP)

Total Suspended Particulates is defined as the “small airborne particles such as dust, fume and smoke with diameters of less than 100 micrometers. They are emitted from various sources including power stations, construction activities, incineration and vehicles.

The Environmental Management Bureau- National Capital Region (EMB-NCR) is operating and maintaining twelve (12) manual ambient air quality monitoring stations which are strategically located in various areas in Metro Manila, namely:

- Manila Observatory Compound- Ateneo de Manila University Campus, Katipunan Road;
- National Ecology Center-East Avenue;
- National Printing Office, EDSA
- Marikina Sports Complex, Sumulong Highway;
- DOH, Rizal Avenue
- Mandaluyong City Hall, Maysilo Circle
- MMDA Compound, EDSA
- Pasay Rotunda Station, EDSA cor Taft Avenue;
- Radyo ng Bayan Compound in Marulas Valenzuela,
- NAMRIA Compound
- Lawton Avenue
- Muntinlupa Bilibid Prison Compound.

Manila Observatory Compound at Ateneo de Manila University is dedicated for general ambient air monitoring while National Ecology Center-East Avenue and National Printing Office, EDSA are for the measurements of roadside ambient air monitoring.



Source: QCPDO Survey 2008

Figure En-1 | TSP Concentration Annual Geometric Mean Registered at Different Monitoring Stations (2015)

Above graph shows the results of the ambient (roadside and general monitoring in the seven (7) air quality monitoring stations measuring Total Suspended Particulates for 2015. Ateneo station recorded annual geometric mean average of 48 ug/Ncm which is 53% lower than the guideline value of 90ug/Ncm. The data reveals that despite the heavy traffic situation in Katipunan Avenue during school days, the carbon emission is sequestered with the presence of thriving flora along the periphery and within the grounds of the Ateneo de Manila Campus. Another is from East Avenue Station reflected an annual TSP geometric average of 97ug/Ncm which is slightly higher than the long term guideline value. Moderate to heavy traffic was observed within the vicinity almost throughout the year as it is bounded by the National Government Center, tertiary hospitals and commercial establishments. Conversely, other monitoring stations located outside Quezon City did not meet the standard annual TSP long term guideline value of 90 µg/ except in Marulas, Valenzuela City with a recorded annual geometric mean average of 86 ug/Ncm.

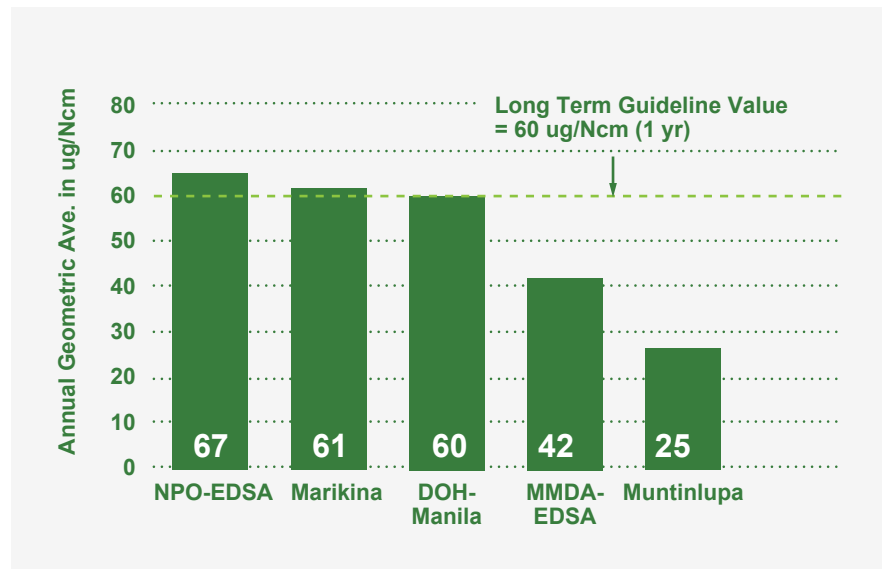
5.2.2 | Particulate Matter (PM10)

PM10 are smaller particles that are likely responsible for adverse health effects because of their ability to reach the lower regions of the respiratory tract. The PM10 standard includes particles with a diameter of 10 micrometers or less (0.0004 inches or one-seventh (1/7) of the diameter of a human hair. The long term guideline value set for PM10 is 60 mcg/cm.

Potential health effects of exposure to PM10 include the effects on breathing and respiratory system, damage to lung tissue, cancer, and premature death. The elderly, children, and people with chronic lung disease, influenza, or asthma, are especially sensitive to the effects of particulate matter.

PM10 comes from mobile and stationary motor vehicles, woodstoves, power plants, domestic and industrial fuel burning activities to name a few. Their chemical and physical compositions vary widely. Particulate matter can be directly emitted or can be formed in the atmosphere when gaseous pollutants such as SO₂ and NO_x react to form fine particles.

From graph below, showed that NPO-EDSA station registered the highest concentration which exceeded the long term guideline value of 60 ug/Ncm. This station is located roadside and is exposed to motor vehicle exhaust emission and other area sources.



Source: QCPDO Survey 2008

Figure En-2 | Annual Comparative Readings of PM-10 at Different Stations (2015)

5.2.3 | Greenhouse Gas Emissions Inventory

Emissions inventory is an estimate of air pollutants based on an emission factor and an activity indicator. It typically changes over time because of improvements in data or changes in source operating conditions. A capacity building program on the conduct of a Greenhouse Gas Inventory was initiated by the City Government in 2011 for the Environment Policy Management Council (EPMC). The following table shows the results of the Government Operations GHG Emissions inventory:

Table En-7 | GHG Emission Inventory Result on Government Operations: 2011

Sector	Total eCO ₂ (kg)	% share
Buildings	39,000,857.99	62
Transport	6,289,050.28	10
Streetlights	14,922,134.77	24
Waste	2,268,847.17	4
Total	62,480,890.21	100

Year 2010 was used as the base year since it was the most complete year showing emissions from the owned and operated facilities of the Quezon City Government. A total of 62,480,890.21 kgs. of carbon dioxide (eCO₂) has been computed.

On the same year, a similar project spearheaded by Climate Change and Clean Energy Project (Cenergy) was conducted in the community level, results of which were the following:

Table En-8 | GHG Emission Inventory Result in the Community Level: 2011

Emission Sources	2010 Volume	Unit	Total Emissions (tCO ₂ e)	% per Emission Source
Transportation	289,775,687.47	Liters	709,806,272.66	99.51
Other Sectors:				
Stationary Energy – Electricity	3,926,193	MWh	2,038,479.59	
Stationary Energy – Fuel	403,328	Liters	961,844.98	
Solid Wastes	705,640	Tons	270,605.34	
Waste Water – Septic Tanks	37,290,341	kg BOD	234,929.15	
Sub-Total of Other Sectors	445,250,234.61		3,505,859.06	0.49
Total			713,312,131.72	
(Forestry)	2,546	hectares	(31,742.86)	
Grand Total			713,280,388.86	100

The calculated greenhouse gas emissions from fuel sales, electricity consumed and solid wastes and wastewater generated in the city in 2010 is 713,312,131.72 tons of carbon dioxide equivalent. With 2,545.89 hectares of forest land that is able to sequester approximately 31,743 tons of carbon dioxide equivalent, the total emissions of the city has been reduced to 713,280,388.86 tons of carbon dioxide equivalent.

5.2.4 | Energy Efficient Lighting System

The City Government in cooperation with the Road Board thru its, National Lightning Project is converting the city's streetlights into more energy-efficient LED (Light Emitting Diode) lights. The LED lampposts are being installed around the Quezon Memorial Circle, along Quezon Avenue, Commonwealth Avenue (Philcoa to Tandang Sora), along Mother Ignacia, Timog, Tomas Morato and East Avenues. Thru LED conversion, it will eventually reduce the annual electricity consumption of the city.

Another project is the replacement of incandescent bulbs with more energy-efficient compact fluorescent (CFL) bulbs in the city's markets such as Frisco, Galas, Litex, Luzon and Murphy in partnership with Global Philips Electronics & Lightning, Incorporated.

Table En-9 | Status of Existing Streetlight per District (2015)

District	Total Existing Streetlight	LED Installed	No. of Streetlights to be Converted
I	4413	1,372	3041
II	2227	715	1512
III	3115	1024	2091
IV	6487	3324	3163
V	5009	1285	3724
VI	3942	1128	2714
Total	25,193	8948	16,245

Source: Task Force Street Lightning

Table En-9 showed that, as of 2015, a total of 25,193 streetlights are existing in the city and 8,948 are being replaced by LED (Light Emitting Diode) lights and the remaining 16,245 will be replaced in the next two years.

5.2.5 | Compliance to Green Building Ordinance

The Department of Building Official reported that as of June 2011 up to present, a total of 153 green building applications were given preliminary certification, 38 applications are on process while 23 were given final green building certification and 92 are pending.

5.2.6 | Compliance to Green Building Ordinance

The Environmental Management Bureau –National Capital Region (EMB-NCR) is authorized to process and evaluate applications for Environmental Compliance Certificate (ECC). Based on DENR Administrative Order (DAO) 2003-30, projects that are located within environmentally critical areas and are considered to pose significant environmental threats and adverse environmental impacts, are subject to the application of ECC. On the other hand, projects that do not fall within the purview of the Philippines Environmental Impact System are subject to the application of Certificate of Non- Coverage (CNC). As per Bureau's report, a total of 364 new and amended ECCs and 319 CNCs were processed and issued for the year 2015 in National Capital Region. The highest number of application was observed in Quezon City with 58 and 120 respectively.

Pollution Control Programs

- Clean Air Program
 - Anti-Smoke Belching – roadside apprehension of drivers and operators and testing of motor vehicles using the certified smoke emission testing machine along roadsides. Flyers are also distributed to passing motorists to bolster information and education campaign. Through continuous Anti-Smoke Belching operations, motorists are influenced to follow set emission standards to improve the people's health and well-being and contribute to environmental protection.
 -
 - Transport Summit- To increase awareness on air pollution and proper vehicle maintenance to lessen emissions of harmful pollutants.
 -
 - Industrial Inspection and Monitoring of Business Establishments – rigid inspection and monitoring of business establishments prior to the issuance of pollution clearance.
 -
 - Close down unscrupulous emission testing centers, promote routes for electric vehicles and bike lanes and ban open-pit burning and smog creating activities.

5.3 WATER QUALITY

5.3.1 | Groundwater Resource

Groundwater Levels

According to the final report on the 2004 study on the Water Resources Assessment for Prioritized Critical Areas (Phase I) of the National Water Resources Board (NWRB), the groundwater levels in Metro Manila have declined sharply over the decades. A comparison between the 1955 and 1994 piezometric water levels showed that the groundwater flow pattern significantly changed due to excessive extraction of water from the aquifer. Three prominent cones of depression were noted in Paranaque, Pasig and Valenzuela. In Quezon City, a relatively small area adjacent to Caloocan and Valenzuela had a groundwater level 20 meters below mean sea water level and the Libis-Ugong Norte near Pasig had 40 to 80 meters below sea level in 1994. In 2004, the decline progressed steeply as almost the whole stretch of Novaliches from Balintawak to Kaligayahan experienced levels ranging from -20 to -120 meters – said to be among the deepest declines happening in Metro Manila over the years. Leveling data from the National Mapping and Resource Information Authority (Namria) reveal areas in Metro Manila that sank 0.68 meter to 1.34 meters in 30 years (from 1979 to 2009). This only means much great danger of saltwater intrusion and having groundwater unfit for human consumption in the city.

Groundwater Abstraction

The decline in water levels and the depletion of groundwater resource are attributed to massive withdrawal of water from the aquifer. Aside from the groundwater abstraction of MWSS equivalent to 3% of the total water supply for Metro Manila, wells legally registered with the NWRB were extracting groundwater at the rate of 12,823.53 liters/second in 2010. However, it is believed that the actual withdrawal is 70% more due to illegal abstraction. NWRB has no segregated data for Quezon City except for the number of well permits granted as of December 2013. (Refer to Table En-10)

Table En-10 | Well Permittees by Purpose, Quezon City: as of December 2013

Purpose	Number of Permits Granted
Commercial	27
Domestic	47
Industrial	26
Hospitals	8
Irrigation	7
livestock	3
Municipal	9
Fire Protection	1
Total	128

Source: NWRB

Subsidence

To worsen the situation, many parts of Metro Manila are subsiding. Called ground subsidence, this is the phenomenon in which land sinks primarily because water that occupies the ground below is extracted by humans, faster than it is replenished by nature. Leveling data from the National Mapping and Resource Information Authority (NAMRIA) reveal areas in Metro Manila that sank 0.68 meter to 1.34 meters in 30 years (from 1979 to 2009). A big part of groundwater subsidence in Camanava (Caloocan, Malabon, Navotas and Valenzuela) is mainly due to excessive groundwater pumping by fishpond operators, according to a study by Rodolfo and Siringanin 2006.

The probable consequences of continued sinking of the ground are dire, as dikes that serve to protect Camanava from sea water incursion may eventually be overtopped and bring forth sudden flooding in the northern part of the metropolis are Navotas, Malabon, Caloocan and Manila, and neighboring areas of Guiguinto, Marilao and Meycauayan in Bulacan. In the south are the cities of Muntinlupa and Las Piñas in Metro Manila, Biñan in Laguna, and Dasmariñas City and the municipality of Rosario in Cavite.

Ground subsidence rates are up to 5.5 to 6 centimeters per year and are highest in Marilao, Meycauayan and Caloocan. The satellite image of Metro Manila shows movement of the ground. (See map.) Blue areas correspond to sinking ground with the highest rates of subsidence at 5.5 cm per year. The image was processed by Narod Eco of the DOST project team.

Circular pattern

The circular-shaped pattern of sinking grounds in Metro Manila indicates overpumping of groundwater as the primary cause of subsidence. Unless excessive groundwater

withdrawal is curbed in these areas, subsidence will continue. In 20 years, such rates mean that the ground surface will drop by more than a meter. This will aggravate flooding from heavy rainfall and constitute a coastal-dike breach hazard in areas near Manila Bay.

West Valley Fault

The probable causes of ground movement in Muntinlupa, Taguig and Pateros are still uncertain. The motion along the West Valley Fault, clearly seen in these areas in the deformation image of Metro Manila, may play an important role. However, the contribution of tectonic activity in these areas to the groundsubsidence phenomenon is yet unknown and still being investigated.

NWRB study

A field inventory of wells was conducted by CEST Consultants Inc. for the National Water Resources Board (NWRB) in 2004 to determine the groundwater levels in greater Metro Manila. Complemented by information derived from reports, maps, secondary well data, climatic data and hydrologic records, the NWRB identified eight critical areas where too much lowering of the groundwater level takes place.

Considered critical areas are: 1) Guiguinto 2) Bocaue-Marilao 3) Meycauayan-North Caloocan 4) Navotas-Caloocan-West Quezon City 5) Makati-Mandaluyong-Pasig-Pateros 6) Parañaque-Pasay 7) Las PiñasMuntinlupa and 8) Dasmariñas, Cavite

Hot spots, adobe

Many of the critical areas identified by the NWRB correspond to the subsidence “hot spots” of greater Metro Manila recognized in the processed satellite images. This is no surprise as the known consequence of heavy extraction of groundwater is ground subsidence

Also notable is the absence of observed lowering of the ground surface in Quezon City, Makati, Mandaluyong and Pasay. Adobe, a more coherent rock compared with coastal sediments, underlies these areas and may be responsible for keeping the ground from sinking despite heavy

To prevent deterioration of the aquifer, the NWRB strongly recommends the immediate development of alternative sources of water such as those drawn from rivers or lakes. A shift from groundwater to surface water from the Metropolitan Waterworks and Sewerage System (MWSS) and its concessionaires will give our ailing aquifers the badly needed respite. To inhibit total depletion and deterioration of Metro Manila's aquifers, the NWRB and its consultants further recommend artificial recharging with water from Laguna de Bay and excess surface water flows from Angat Dam.

Assessment of new applications for groundwater permits, enforcing design standards for new wells, requiring the submission of well data, identification of illegal wells and calculation and modeling of the groundwater budget are further recommendations for the effective management of Metro Manila's groundwater resource.

Since the privatization of the MWSS in 1997, when concessions were awarded to Maynilad and Manila Water, the supply of surface water to Metro Manila residents has expanded. East, west concessionaires

Manila Water, the MWSS concessionaire for the east zone signed a memorandum of agreement with the provincial government of Bulacan for the Bulacan Water Supply Masterplan.

The project, which has three implementation phases, involves the construction of water-supply facilities, including a 190-million liters per day (mld) capacity raw-water aqueduct, treatment plants, reservoirs, pumping stations and primary lines, to cater to the demand of 1 million residents in the province.

The P11-billion project initially covers Malolos City, Meycauayan, Marilao, Sta. Maria, Obando, Baliuag, Bulacan, Pandi, Guiguinto and Bocaue.

Maynilad Water Services Inc., the MWSS concessionaire for the west zone, now delivers clean water from Laguna Lake to populations in Barangays Putatan, Bayanan, Ayala Alabang, Alabang, Poblacion and Tunasan in Muntinlupa, and parts of Las Piñas. Lake water is filtered at a treatment facility in Putatan, Muntinlupa.

The expected capacity of the filtration plant is 100 million liters per day (mld), enough to supply the water requirements of 105,000 residents in southern Metro Manila.

There are many other facility improvements being implemented by the MWSS and its concessionaires. Hopefully, they keep up with the ever rising demand of a rapidly growing urban population. To save our aquifers and prevent land subsidence, there should be enough surface water to supply not only the domestic demand, but also the requirements of industry, agriculture and aquaculture. Laws

5.3.2 | Natural Waterways

Numerous rivers and creeks crisscross the territory of Quezon City. They are extensive and serve best as network for natural drainage. They form part of the river basins covering the city's landscape, the largest of which are the Malabon-Navotas-Tullahan - Tinajeros River System and the San Juan – Pasig River Basin. Two major concerns that confront the City's natural waterways are pollution and the loss of creek and river easements.

Pollution of the City's River System in Relation to Pasig River

The greater part of Quezon City and its river system drains into the Pasig River System. The QC area comprises 80 sq.km of San Juan River Basin (which has an area of 87 sq.km.) and about 8 to 9 sq. km.) of the Marikina Downstream River Basin (covering an area of 17 sq. km.). Aside from high population concentration in these areas, the greater majority of commercial and industrial establishments in the city are likewise located here.

Pollution of the City's River System in Relation to Manila Bay

Situated in the northern part of Quezon City, the Novaliches watershed is the upstream of the Malabon-Navotas-Tullahan - Tinajeros (Manatuti) River System which runs through the cities of Malabon and Navotas, and finally empties to Manila Bay. The river system has a combined length of 23km and the widest span width of 60m in Navotas City. The Manatuti River System has a catchment area of 69.25 square kilometers. The La Mesa Dam controls the headwater of the said river system. The area is highly populated and majority of industrial establishments are located.

Sources of Water Pollution

There are two (2) general sources of pollution: point source and non-point source. Point source means any identifiable pollution source with specific discharge point into a particular water body. Non-point sources have no identifiable source and include run-off from irrigation or rainwater that picks up pollutants from farm and urban areas.

A study shows that domestic wastewater discharge accounts for the highest pollution load introduced to Manila Bay. Only

18 percent of the wastewater generated in Metro Manila households are collected by localized separate sewerage systems. Nearly all of these are discharged through outfalls into Manila Bay. Most residential wastewater of about 82 percent are discharged into the public drainage system either directly or through septic tanks. These septic tanks are not desludged and the effluent discharged into the water bodies are essentially untreated, causing heavy pollution everywhere in Metro Manila, particularly in high density areas. (Sources: <http://www.worldbank.org.ph> and MWSS, 2003)

The water quality degradation of the fresh water bodies could be attributed to the wastewater effluent coming from the industries, leaking sewers and septic tanks, direct discharge of animal wastes and of polyphosphates from detergents, run-offs and improper dumping of solid wastes.

Water Quality Assessment

Water quality is assessed on the basis of a set of beneficial uses as defined in the DENR Administrative Order 34, S-1990. There are 33 parameters that define the desired water quality per water body classification. Parameters monitored include:

- Dissolved oxygen (DO), biochemical oxygen demand (BOD), total suspended solids (TSS), total dissolved solids (TDS), and heavy metals for inland surface waters.
- Fecal Coliform, nitrates, and salinity (chloride content) for groundwater as defined in the Philippine National Standards for Drinking Water (PNSDW)
- DO, Coliform, and heavy metals for coastal and marine waters.

Lack of dissolved oxygen (DO) in the river during the dry season is the main reason for its offensive odor and the lack of biological life. Low DO levels are the result of the discharge of domestic and industrial wastes from communities and industrial sites.

Biological oxygen demand (BOD), on the other hand, measures the amount of oxygen consumed by microorganisms in decomposing organic matter in stream water. The higher BOD value indicates more pollution.

Water Quality Monitoring Station

Malabon-Navotas-Tullahan - Tinajeros (Manatuti) River System

There are fifteen (15) monitoring stations established in Manatuti River System, five (5) stations are located in Quezon City namely, Sarmiento Station in Bgy. Sta. Monica, Gulod Station in Gulod Bridge, Bgy. Gulod, Northridge Station in Northridge Park Subd. Bgy. Sta. Monica, Dahlia Station in Dahlia Avenue, and Fairview Station in Fairview Bridge both located in Bgy. Fairview.

Table En-11 | Results of the Water Quality Monitoring Stations, Meycauayan-Navotas-Tullahan-Tenejeros River System (Matatuti): 2013-2015

Water Quality Parameters	2013	2014	2015
	Mg/L		
Biochemical Oxygen Demand(BOD) 7 mg/L below	35.86	39.19	39.00
Dissolve Oxygen(DO) 5 mg/L Up)	00.06	00.00	00.00
Total Suspended Solids(TSS) 10 mg/L	33.89	39.61	13.00
Oil & Grease (2 mg/L)	4.64	4.17	4.10

Based on the Table En-11, the annual recorded results of all the monitoring stations located in Quezon City, and also the other monitoring stations located in Malabon and Navotas did not pass the DENR Water Quality Criterion for the past 3 years. This indicates that Matatuti River System is not capable in carrying aquatic life.

San Juan – Pasig River System

There are eight (8) water monitoring stations located in Quezon City, namely Ermitanyo Station in Aurora Blvd. Cubao, Diliman Station in Umbel St. Bgy. Kalusugan, Kaliraya Station in Bgy. Tatalon, Mariablo Station in Roosevelt Avenue, Bgy. Sta. Cruz, Talayan Station in Bgy. Talayan, Caroline Station in MH del Pilar, Bgy. San Antonio, Dario Station in EDSA and Culiati Station in Bgy. Culiati. Monica, Dahlia Station in Dahlia Avenue, and Fairview Station in Fairview Bridge both located in Bgy. Fairview.

Table En-12 | Results of the different water quality parameters, San Juan River Monitoring Stations: 2014-2015

Location of Station	Name of Creek	Biochemical Oxygen Demand(BOD) 7 mg/L below		Dissolve Oxygen(DO) 5 mg/L Up)		Total Suspended Solids(TSS) 10 mg/L		Oil & Grease (2 mg/L)	
		2014	2015	2014	2015	2014	2015	2014	2015
Aurora Blvd. Broadway	Ermitanyo	58.00	54.75	0.00	0.42	0.00	53.33	5.60	5.18
Umbel St., Kalusugan	Diliman	56.00	76.42	0.00	0.34	0.00	61.67	5.80	6.08
Kaliraya St. Tatalon	Kaliraya	57.8	57.67	0.00	0.36	0.00	51.67	5.20	5.45
Roosevelt Avenue, Sta. Cruz	Mariablo	57.5	54.76	0.00	0.58	0.00	54.17	4.70	5.32
Araneta, Talayan	Talayan	83.22	78.58	0.00	0.33	0.00	64.17	6.30	5.71
MH Del Pilar, San Antonio	Caroline	52.5	58.08	0.00	0.50	0.00	49.17	4.30	5.23
EDSA	Dario	63.50	57.08	0.00	0.86	0.00	51.67	5.00	5.23
Edsa, Culiati	Culiati	48.5	53.00	0.00	1.02	0.00	50.00	4.20	5.14

Based on the Table En-12, the recorded results of all the monitoring stations located in Quezon City did not pass the DENR Water Quality Criterion for the past 2 years. This implies that San Juan River System is not capable of supporting marine life.

Encroachment of Creeks and River Easements

Ocular inspection of the rivers and creeks and their tributaries shows that easements and riverbanks, as defined and provided for by the law, are no longer existent. Many are occupied by structures belonging to affluent and poor families alike.

According to the 2015 census of the Housing, Community Development and Resettlement Department (HCDRD), there are 15,577 families occupying creek and river easements.

Physical development in some areas has also resulted in the narrowing of creeks and rivers and even loss of some segments on these waterways. There are instances where the creek has been covered, diverted, and in some cases, reclaimed to generate building lots.

Programs/Project

- **Riverways Cleaning and Management Program**- It seeks to clean and maintain the aesthetic condition of the city's rivers and creeks with active community involvement. The project has visible impact in terms of enhancing the physical environment and demonstrating strong partnership with the community and at the same time provide employment opportunity to poor residents.
- **Automatic Trash Rake** –It aims to design and develop an alternative measure to de-clog rivers/creeks and improve the operation of flood control facility. The automatic trash rake is located at Balingasa Creek specifically along G. Araneta (Center Island) near Mauban St., at the boundary of Barangays Manresa and Masambong. It was turned-over to the Quezon City Government on December 3, 2014 and became fully operational on February of 2015.

5.4 PARKS AND OPEN SPACES

Endowed with the biggest land resource in Metro Manila, Quezon City boasts of numerous parks and open spaces, both vast and small. The inventory consists of major and special parks that are themselves unique in terms of size, features, and even biodiversity; historical

parks and shrines. It also includes reserves and potential areas adding to the City's expansive network of open spaces like institutional grounds (UP, Ateneo de Manila University, Miriam College, Congress, and the like), golf courses, corridors or right-of-ways and river easements.

5.4.1 | Major and Special Parks

Quezon Memorial Circle

The Quezon Memorial Circle (QMC) is a 25-hectare public realm located at the heart of the City. It serves as the core and unifying element of the city's Open Space Network System (Garden City) because of its strategic location and high visibility.

The major components of the QMC are the following:

- Quezon Memorial Monument (Pylon) and shrine, the central element of QMC and shall be the point reference for all development programs, projects and activities
- Meditative area
- Parks, playground and other recreational areas
- Venue for social interaction, socio-cultural exchange, celebrations and other public gatherings
- Venue for facilities for arts and culture and historical heritage promotion
- Environment protection showcase area
- Economic enterprise area

QMC Office also reported that visitors of QMC ranged from 12,000 to 15,000 during weekdays and 25,000 to 30,000 during weekends and holidays.

Ninoy Aquino Parks and Wildlife Center

The Ninoy Aquino Parks and Wildlife Center (NAPWC) is the only zoological and botanical garden with an area of 19.29 has. located at the southwest of the Quezon Memorial Circle. It keeps various species of endemic and endangered birds, mammals, reptiles and amphibians in the open-air Mini-zoo and Wildlife Rescue Center. It also serves as a venue for public education, as a training and research facility for future veterinarians and biologists, and as a source of wildlife stock for local zoos and DENR-accredited facilities for their public education, breeding, and other conservation-oriented undertakings. Other amenities include cottages available for conferences, meetings, seminars, etc. and children's playground, visitor's center, a man-made lagoon for fishing, a rock garden and a craft village.

NAPWC Office informed that visitors of NAPWC in the year 2014 and 2015 were 515,281 and 471,600 respectively. Total Income generated in that period was amounted to P 8,866,935.46.

La Mesa Watershed

The La Mesa Watershed is the last remaining forest of its size in Metro Manila – the so-called “Green Lung” of the Metropolis. With an area of about 2,700 hectares, it was declared as Watershed Reservation by virtue of Presidential Proclamation No. 1336 on 25 July 2007. Previously, the control of the La Mesa Watershed was under the jurisdiction of the Metropolitan Manila Waterworks and Sewerage System (MWSS) from 1971 by virtue of Republic Act No. 6234 until 2007. By virtue of Presidential Proclamation Number 1336, the Watershed is now under the joint administrative jurisdiction, supervision and control of the MWSS and the Department of Environment and Natural Resources (DENR).

Within the watershed is a reservoir or man-made lake of about 179 hectares that serves as water impounding structure supplying water for domestic and commercial use of some 12 million people in Metro Manila.

Another attraction that gives impact in the area is the 30-Hectare La Mesa Ecopark Resort, a joint effort of the ABS-CBN Foundation with the MWSS and the City Government. It has combined a natural recreational refuge with educational purposes of an outdoor classroom envisioned to bring the people back to La Mesa as it did in the old days. Amenities include the Orchidarium, Butterfly Garden, Hanging Bridge, Picnic area and Eco-trails. The park has a reported gate receipt ranging from 290,000 to 300,000 in 2015.

On the other hand, the Parks Development and Administration Department (PDAD) reported that out of 583 parks and open spaces, 238 are developed, 70 are partially developed and 275 are undeveloped. District V has the most number of parks developed and undeveloped, 67 and 63 respectively. (See Table En-13)

Table En-13 | Status of Parks/Open Spaces per District: October 2016

Status	District						Total
	II	I	III	IV	V	VI	
Developed	35	22	35	26	67	53	238
Partially Developed	4	3	14	1	21	27	70
Undeveloped	42	49	31	36	63	54	275
	81	74	80	63	151	134	583

Source: PDAD

Table En-14 | Developed Parks by Type and District, Quezon City: 2008 (old table)

Type	District				Total
	II	I	III	IV	
Community Park	29	145	33	24	231
Neighborhood park	13	10	6	3	32
Major/Special Park	-	1	1	6	8
Historical Park	2	3	-	1	6
Street park	1	1	4	3	9
Total	45	160	44	37	286

Historical Parks

The historical parks consist of the Pugad Lawin Shrine, Tandang Sora Shrine, A. Bonifacio Monument, Gen. Geronimo Monument, Bantayog ng mga Bayani, and People’s Power Monument.

Other Open Spaces

Adding to the inventory of open spaces in the city are large institutional grounds like those of University of the Philippines, Ateneo de Manila University, Miriam College, QC Hall, Congress, Veteran’s Memorial Medical Center Compound, Camp Crame, and Camp Aguinaldo.

5.5 BIODIVERSITY

The City has richer wildlife compared with other cities in Metro Manila due to the size and nature of its parks and open spaces. Studies show that the parks and open spaces in Quezon City are habitat to numerous species of flora and fauna, some of which are classified as endemic or indigenous, exotic, endangered, highly endangered, or vulnerable.

5.5.1 | La Mesa Watershed

Flora

Floral Inventory Component (other than tree species)

- 1,883 individuals of consisting of 74 species were inventoried in the different vegetation cover of the Watershed. Diversity of plant species computed w/ Shannon –Weinner index was found to be 4.15, considered as favorably diverse.
- As to conservation status of inventoried plants, 7 are exotic, while others are either bundant, endemic or indigenous ones. Pampolina et al. reported the vine, *Tetrastigma harmandu* as endangered, the host of the endangered *Rafflesia* sp.
- Eight (8) non-tree, plant species were also listed as endangered namely: Pandakaki, Hingiw, Dapong kahoy, Nito, Anchoan Dilaw and Payong-payongan.

Forest Biomass

- A total of 45 species under 17 families include Gmelina, Japanese Acacia, Kaatoan bangkal, mahogany, narra, giant ipil-ipil, kupang, teak, santol, alibangbang and binayuyu.
- Six (6) species categorized as vulnerable in IUCN Red List of Threatened Species (antipolo, hamindang, molave, narra, piling liitan and tangilin).
- Aggregate H Index was computed at 2.21 (normal species diversity) while Aggregate J Index was obtained at 0.5, indicating that the species are not evenly distributed since the area is not a natural forest. Obtained index is lower than the diversity index in Mt. Makiling Forest Reserve (4.65) and that of Taal Mountain Range Laurel area (2.28)

- ABS-CBN Foundation, Inc. launched “Bantay Kalikasan” (Nature Watch) aimed to revitalize the 2,500 Has. largely denuded La Mesa Watershed.
- Per 2002 study conducted within the 100-ha. UNDP Reforestation Project, 86 plant species were planted, of which 5 are critically endangered, 3 are endangered and 4 are vulnerable under the IUCN category.*

Fauna

- A total of 504 birds consisting of 49 species were counted based on sightings, calls and mist net captures.
- Shannon’s Diversity Index computation showed that species diversity ranged from 2.9958-2.7965 (Shannon index lower than 1 considered as poor low diversity) . This means that the avian diversity is relatively moderate.
- For mammals, a total of 83 bats (4 species) that are endemic and common, were captured by mist netting. Only 1 rodent (*Rattus tanezumi*) was captured in the livetrapp.
- UNDP (Pampolina et al. 2003) earlier reported 6 reptilian species, where monitor lizard (*Varanus salvator*) is listed in CITES Appendix II as vulnerable species. The amphibian species listed are marine toad (*Bufo marinus*), small headed puddle frog (*Occidozyga laevis*) and Everett’s frog (*Rana everetti*).
- Eight (8) Invertebrate species were collected by means of insect net sweeps.

5.5.2 | Ninoy Aquino Parks and Wildlife Center (NAPWC)

Flora

- The stand composition included 4,505 individual trees and 6,901 stems, which belong to a total of identified 135 species in 83 genera and 38 families commonly found in Philippine forests. Of these, 58 are indigenous, with three (3) are Philippine endemics.

Fauna

- Various species of endemic and endangered birds, mammals, reptiles and amphibians are kept and maintained at the Wildlife Rescue Center which were being donated, abandoned, bred in captivity or confiscated within Metro Manila & those free-ranging animals within the center.
- The stand composition included 1,018 animals (110 species of mammals, 78 bird species, 43 reptile species and 18 insects. Of these, 90 are endemic/indigenous while 49 are exotic species.

5.5.3 | UP Diliman Campus

Flora

- A total of 38,569 individual trees, belong to 220 species in 38 families were identified.
- Most of the trees found in the site are exotic with 121 species; 83 are indigenous and 16 are endemic.
- The most abundant individuals species are Bauhinia spp. (2,937 trees); mango (*Mangifera indica*) (2,698); large-leafed mahogany (*Swietenia macrophylla*) (2,368); kaimito (*Chrysophyllum cainito*) (2,087); narra (*Pterocarpus* spp.) (1,841); palosanto (*Triplaris cumingiana*) (1,796) and rain tree (*Samanea saman*) (1,698). A marked decrease in the number of ipil-ipil (*Leucaena leucocephala*), the most dominant species in 1982, were noted, from 40,962 to 1,217.

Fauna

- 47 bird species were captured by mist netting
- Identified herpetofauna (reptiles and amphibians) consists of 15 species under 6 families, were observed
- 326 mammals were captured by mist netting • Fauna

5.5.4 | Ateneo de Manila Campus

Fauna

- A total of 27 bird species under 17 families were recorded and identified primarily through nested plot technique.
- A total of twenty-five (25) small non-volant mammals under 2 families were identified thru live traps. A total of 52 bats representing 2 species were captured and identified by mist netting.
- A total of 9 species of amphibians and reptiles under 7 families were identified.

An inventory/study conducted in 2000 by Dr. Perry Ong and others at the UP Diliman Campus and Ateneo de Manila Campus concluded the following:

- The remaining sparse vegetation in UP Diliman & Ateneo de Manila University seems to provide a suitable habitat to the species thriving in the area.
- Species found are not as exceptional as those found in undisturbed ecosystems.
- More than 61% of wildlife species found were birds.
- The Diliman area, in general, has undergone a transformation that has wiped out its original ecosystems and habitats.

5.5.5 | Quezon Memorial Circle

Fauna

- There are 239 bird species found

Flora

- A total of 2,542 trees belonging to 54 species were identified

Program/Project

- **Quezon City Biodiversity Profiling-** The Quezon City Biodiversity Profiling aims to develop a database of tree inventories in the parks and open spaces in the City. Aside from the identification of tree species, the Project includes geo-tagging fieldwork with the use of a handheld Global Positioning System (GPS) to get the exact locations of trees. Maps were also generated using Geographic Information Systems (GIS) software.

QUEZON CITY

ECOLOGICAL PROFILE



CHAPTER 6

Institutional Profile and Development

6.1 LOCAL GOVERNMENT ORGANIZATION

6.1.1 | Evolution of the Quezon City Government

The organizational structure of the government of Quezon City evolved into what is now a complex form from a lean set-up of 10 offices and a 5-member City Council when it was created on October 12, 1939 by virtue of Commonwealth Act 502, the City's original charter. The passage of a series of acts by the National Assembly (before the war) and by the Philippine Congress (after the war) effected the changes, both minor and significant, to the City's organizational structure.

The original structure was composed of the Offices of the Mayor, the Vice Mayor, and six (6) offices, namely: the City Health, the City Engineer, the City Police, the City Treasurer, the City Assessor and the City Attorney as part of the Executive Branch; the City Council with the Mayor, the Vice Mayor and three (3) other members supported by the Office of the City Secretary comprised the Legislative Branch; and the Justice of the Peace Court with an auxiliary justice as the Judiciary Branch. All the city officials then were appointed by the President of the Philippines.

Commonwealth Act 659 dated June 21, 1941 amended the structure when the Office of the Justice of the Peace Court was renamed as the City's Municipal Court with two (2) branches: the First and the Second Branch. This Act also created the position of the Clerk of Court and increased the number of Assistant City Attorneys from one (1) to three (3).

On June 16, 1950 (after the war), Republic Act 537, also known as the revised charter of Quezon City increased the membership of the City Council to ten (10) - the Mayor, the Vice Mayor and eight (8) councilors. Also, the different city offices were elevated into department level. The Act also created the City Fire Department.

Later, on June 16, 1956, Republic Act 1575 increased

to three (3) the members of branches of the Municipal Court.

It is worthy to note at this point that the positions of the Mayor, the Vice Mayor and the City Council which used to be appointive were declared elective on June 19, 1959 by Republic Act 2259. The first local election for these offices was held on November 10, 1959.

Further amendments to the City's organization were made on June 18, 1960 by Republic Act 2649 with the creation of the Office of the City Fiscal in lieu of the Office of the City Attorney, with six (6) levels of Assistant Fiscals compared to only four (4) Assistant City Attorney levels.

The position of Assistant Chiefs of the various departments including that of the Secretary to the Mayor (also ranked as Assistant Department Chief) was created by Republic Act 3663 dated June 22, 1963.

Among the significant structural changes that the City experienced was the division of the City into four (4) Councilor Districts each to be represented by four (4) Councilors elected by district, thereby increasing the Council membership to sixteen (16). This was by virtue of Republic Act 5441 on September 8, 1968.

The Act however, removed the voting power of the Vice Mayor in the City Council except only in case of a tie. The same Act also elevated the position of Secretary to the Mayor into department level and created the position of Assistant Secretary to the Mayor.

It was however the creation of the Metropolitan Manila Commission on November 7, 1975 by virtue of Presidential Decree 824 that bears major impact not only on the City's organization but on its autonomy as well. Said decree made Quezon City along with the

sixteen (16) other Local Governments in the Greater Manila Area as component units of a higher-level, commission-type government agency directly under the Office of the President. The Commission was vested powers encompassing both the legislative function and some executive responsibilities previously held by the local government.

Local councils in Metro Manila were terminated on December 31, 1975. The Commission has the following salient feature.

The Commission acts as the central government that formulates programs and policies, including review and approval of local programs and administers its own programs like fire control, garbage disposal, and traffic management.

It was also empowered to review, amend, revise or repeal local ordinances and enact new ordinances and resolutions – powers that used to belong to the local councils.

The Commission was composed of the Governor, the Vice-Governor and three (3) Commissioners: one for planning, another for finance, and the third for operations – all of whom were appointees of the President.

It was appropriated an initial fund (P2,500,000) from the National Treasury plus proceeds from certain taxes accruing from contributions of the component LGUs and outlays in the Annual General Appropriations Decree.

While the National Assembly passed the Local Government Code in 1983 (Batas Pambansa Blg. 337 which was approved on February 10, 1983) which embodies the declared principle of autonomy of local government units, the act exempted Metro Manila area from its coverage. Hence, PD 824 continued to be in effect.

It was only with the ratification of the New Constitution in 1986 that the City, as with the rest of Metro Manila,

regained its autonomy, especially the power to legislate. The first local elections after martial law and as called for by the new constitution was held in January 1988. Posts to be filled were those of the City Mayor, Vice Mayor and twenty - four (24) councilors with six each from the four (4) districts.

For four (4) years, from 1986 to 1990, the fate of the Metro Manila Commission (MMC) was uncertain. Executive Order 392 of January 9, 1990 reconstituted it to become the Metropolitan Manila Authority (MMA) composed of the heads of the seventeen (17) Local Government units of the region as its Council, the chairman of which is elected from among its members for a six (6) month term. In contrast to the previous Commission, the Authority's jurisdiction was trimmed to general executive functions involving services of metro-wide concern but none that will directly intervene with the legislative functions of the local councils.

The support structure of the MMC headed by three commissioners was retained. However, the commissioners were renamed Assistant General Managers while a new position for General Manager which used to be held by the Chairman was created.

MMA's existence was more of "interim" in nature, pending Congress action on a permanent entity to administer Metro Manila. On March 1, 1995, the President approved RA 7924 creating the Metropolitan Manila Development Authority (MMDA) which replaced MMA. The basic composition/organization and functions of MMA, however, remained unchanged except for the following:

the inclusion of the presidents of the Vice Mayors League and the Councilors League of Metro Manila in the Council

the Council Chairman shall be appointed by the President whose term shall be on the latter's discretion and has the rank of a cabinet member

additional funding shall come from the General Appropriations Act

Quezon City is within the National Capital Region (NCR) a metropolitan government under the MMDA.

MMDA is not a political unit of government, but a development authority likened to a national agency that is tasked to oversee the delivery of basic services. The power delegated to MMDA through the Metro Manila Council – the MMDA’s governing and policy-making body is limited only to the promulgation of administrative rules and regulations in the implementation of the MMDA’s plans, programs and projects.

On the administrative character, the MMDA Chairman is a presidential appointee, with the rank of a cabinet member. One of the Chairman’s functions is to perform such other duties as may be assigned to him by the President. In LGUs, the President of the Philippines merely exercises supervisory authority.

The MMDA has no power to enact ordinances for the welfare of the community. It is the local government units, acting through their respective legislative councils that possess legislative and police powers. This is in line with the local autonomy being enjoyed by the LGUs.

6.1.2 | Existing Organizational Structure of Quezon City Government

The present organizational set-up of the Local Government of Quezon City is a structure with two (2) distinct branches, the Executive and the Legislative. (See Appendix 1). Existing QC Government Organizational Structure)

The Executive Branch

The Executive Branch is composed of thirty-two (32) departments and seven (7) offices which are further divided into services, divisions and sections. At the helm of the organization is the City Mayor from whom all executive authority and responsibilities emanate. The City Administrator and the Secretary to the Mayor stand next in the hierarchy as they exercise delegated authority to supervise the operations of line and staff departments/ offices and units. There are also several program-based units, committees and Task Forces

operating directly under the Office of the Mayor. The existing departments/offices, committees, and task forces and their functions are shown in Appendix 1.

Under Council Ordinance No. 154, S-90, three (3) positions of Assistant City Administrator were created to assist the City Administrator in the performance of his functions relating to the proper supervision, coordination and monitoring of development programs and other services being delivered by the city. They are: the Assistant City Administrator for Operations, the Assistant City Administrator for General Affairs and the Assistant City Administrator for Fiscal Affairs.

The position of Assistant Secretary to the Mayor was renamed as Assistant Secretary to the Mayor for Internal Affairs, while another position, that of the Assistant Secretary to the Mayor for External Affairs was also created under Council Ordinance 154 -S-90.

The positions of the City Administrator, Secretary to the Mayor, and the Assistant Secretary to the Mayor for External Affairs are co-terminus with the appointing power.

Other co-terminus positions are the City Legal Officer, Head of the Department of Public Order and Safety, Secretary to the Mayor and Asst. Secretary to the Mayor for External Affairs.

The Legislative Branch

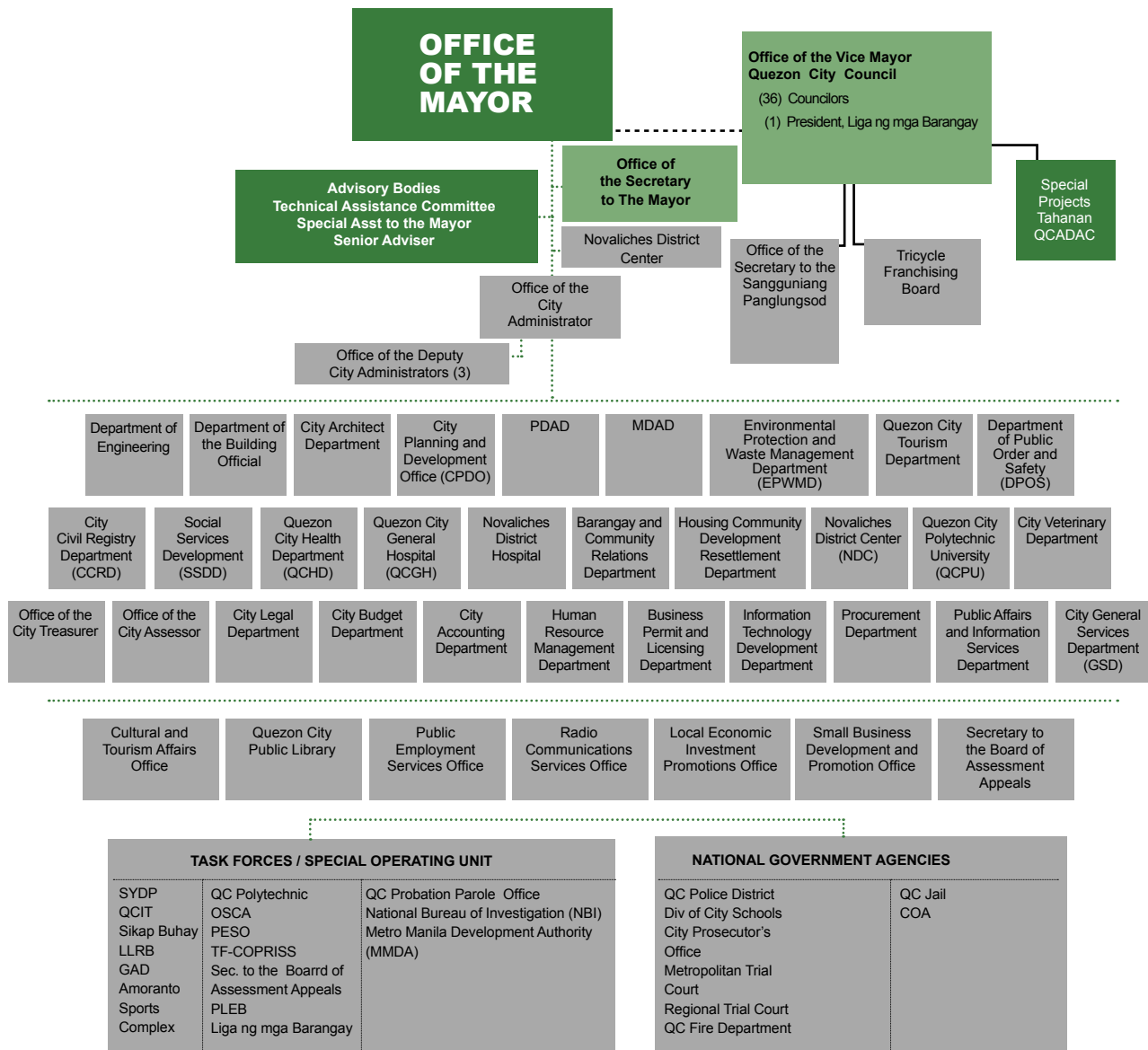
Another structural change in the City was by virtue of Republic Act No. 10170 dated July 2, 2012 apportioning the 2nd legislative district of QC. This created two (2) additional districts and twelve (12) Sangguniang Panglunsod seats. By said Act, QC is now comprised of six (6) legislative districts and has now six (6) district representatives and thirty six (36) city councilors.

The City Council, the legislative body of the city, is composed of the Vice-Mayor as the Presiding Officer, the 36 regular council members, and the President of the city chapter of the Liga ng mga Barangay. The Office of the Vice Mayor has also supervisory control over the following special projects such as:

Table In-1 | Special Projects supervised by the Vice Mayor

Project Title P	Project Description / Objectives
Quezon City Drug Treatment and Rehabilitation Center (TAHANAN)	Takes charge of the treatment and rehabilitation of drug dependents whether on voluntary or compulsory confinement
Sports Development Council	Plans and supervises an integrated sports promotion and development program in the grassroots of level, coordinates with the 142 barangays relative to implementation of sports projects
Task Force Greening	Extends assistance through livelihood projects which will provide job opportunity and income for the families of Quezon City
QC Anti-Drug Abuse Council	Prepares plans and programs to minimize, if not eradicate drug abuse and a comprehensive drug rehabilitation program
Healthy Cities Initiatives Program	Prepares plan, programs for the Quezon City Healthy Cities Initiatives consistent with the WHO guidelines and the National Health Cities Initiative Committee
Performing Arts Program	

6.1.3 | Organizational Structure for Developing Planning



6.1.4 | QC Government Manpower Complement

As of December 2015 the Quezon City Government employs a total of 14,415 personnel broken down under the following types and of employment status:

Elective - These are the officials of the city elected by the qualified voters during election period and whose term of office is three years but shall not serve for more than three consecutive years in the same position. They are the City Mayor, City Vice Mayor, the 36 regular members of the City Council and the two sectoral representatives (the Youth and the ABC sectors). There are 39 elective officials.

Permanent - issued to a person who meets all the minimum qualification standards of the position to which he is being appointed as prescribed by the Civil Service Commission (CSC). Personnel holding this nature of appointment enjoy security of tenure and all benefits accruing to government employees. The city government has 4,470 employees with permanent appointment.

Temporary - issued to a person who meets the education, skills and experience requirements to the position to which he is being appointed. The appointee however, has to complete 12 months training (probationary period of satisfactory performance) before he is recommended to permanent appointment. Positions like drivers, reproduction machine operators and the like

are required to pass through this type of appointment. There are 82 of this kind.

Co-Terminus - issued to a person whose entrance and continuity in the service is based on trust and confidence of the appointing authority. The term of the Legal Officer, the City Administrator, Secretary to the Mayor, Head of the Department of Public Order and Safety (DPOS), Confidential Secretary are co-terminus with the appointing power. The staff of the City Council is also co-terminus with the term of the city councilors. There are 204 co-terminus employees.

Contractual - This refers to employment where the contracts of services are not covered by the Civil Service laws but covered by Commission on Audit (COA) rules. Contractual services rendered are not considered government services. The Executive Branch has (5,703) 6,010 contractual personnel for special projects, various task forces, committees and several line departments/offices which also employ appointment of this kind while the Legislative Branch has 3,340. The total contractual personnel is 9,350, as of December 2015.

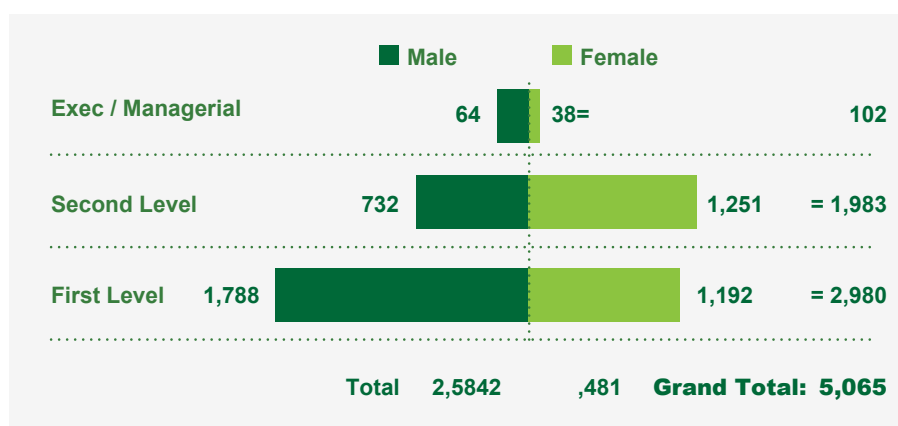
Consultant - Issued to a person with technical expertise essential to a service. The city has 42 consultants.

**Table In- 1 | Manpower Complement; QC
Government 2008-2015**

Type of Appointment	2008	2011	2015 as of dec.
Elective	28	28	39
Permanent	4,454	4,874	4,740
Temporary	59	69	82
Co-terminus	157	141	204
Contractual (Exec. Leg)	2,497	4,920	6,010
Consultant	3,796	2,590	3,340
TOTAL	-	-	42
	11,204	12,622	14,415
No. of Plantilla Positions	7,243	7,720	7,847
No. of filled up Positiona	4,698	5,112	5,065
TOTAL	11,204	12,622	14,415

Of the 7,847 plantilla positions, 5,065 are filled-up and 2,782 are vacant. Of the filled up slots, 2,481 are female (48.98%) and 2,584 are male (51.10%).

Being a government entity, Quezon City Government operates in accordance with existing laws or guidelines on managing and developing human resources as prescribed by the Civil Service Commission, particularly the Omnibus Rules/Implementing Book V of Executive Order No. 292.



**Figure In- 1 | Manpower Complement; QC
Government 2008-2014**

Classification of Manpower Support

The existing manpower support has been classified according to functional hierarchy:

Executive / Managerial. This is the top level executive group performing primarily management functions. This is where policies and objectives that guide the activities of the various departments/offices of the entire organization originate. The group is composed of elected officials and Heads of the various departments/offices operating vital units in the organizational structure. Salary grade falls between 25-30. There are 102 of this type.

Second Level. This group coordinates and supervises staff activities of their office. It is responsible in enforcing proper performance of their delegated functions in order to attain the office/unit and ultimately the organization's thrusts and objectives. This group includes Assistant Office Heads, Chiefs of other special operating units, Division and Assistant Division Heads, and Section Chiefs. Salary grade is 18-24. Under this level we have 1983.

First Level. All salary grade 17 and below belongs to this group. This includes the technical group responsible in translating city plans, programs and projects into implementable forms through researches and development. This group consists of the Urban Planners, Statisticians, Researchers, Computer Programmers, Analysts, and the administrative group or support staff involved in providing clerical, general services, security, transport, and area maintenance. This group is composed of positions such as Staff Aides, Clerks, Drivers, Security Guards, among others. Personnel under this category are 2,980 in all.

6.1.5 | Physical Plant and Facilities

The head offices of the QC government organization are located at the High Rise and the Annex Buildings at the east and south wings of the main building, though some departments / offices operate sub - offices/ branches and stations in various parts of the city. The main building is a 14-storey structure built during the term of the late Mayor Norberto S. Amoranto and inaugurated on January 1, 1972.

In the year 1981, a fire gutted the 3-storey left wing of the QC Hall destroying property worth P10 million. On June 11, 1988, another fire razed the main building from the 7th to 14th floors causing property damage of about P240 million. The main building was again hit by fire on August 7, 1998, destroying the fifth floor and affecting the fourth and sixth floor as well. On May 6, another fire hit the south wing housing the Accounting Unit, Fiscal and Administrative Units of the City Treasurer's Office.

At present, many offices of the main building have undergone renovation. The second floor of the main building has been converted into a taxpayers lounge. The ground floor of the south wing annex now offers taxpayers the comfort and convenience while waiting for their assessment documents.

The present administration can be credited with the major development in the city hall building and its environs. Included in this development are the following the rehabilitation of the legislative building and the construction of a new 8-storey twin building (Civic Center Building A and B) at the south portion of the compound to house some offices; the DRRM and DPOS Building; the newly constructed three (3) Storey City Civic Registry Office (CCRO) which likewise are transacting heavily with the public; the New Justice Hall Building; and the national building, which is still undergoing construction, to house some national offices operating in the city like the NBI, Police.

Districts II, V, VI are served by a “Mini City Hall”, the Novaliches District Center, which houses the following government agencies:

- Engineering Office
- Sub - Office of the City Treasurer
- Bureau of Post
- Fire Department
- Health Department
- Business Permits and Licensing Office
- City Library
- Social Services Development Department
- City Civil Registry Office
- Parks Development Adm. Office
- Liquor Licensing Regulatory Board
- Tricycle Regulatory Unit
- Office of Senior Citizen Affairs

6.1.6 | Management System & Operations

Major innovations introduced and practiced in different service areas

- **Strategic Planning Workshops** – an organization-wide planning workshops participated in by heads of department and offices
- **Clustering of Offices** – is done to give the City Mayor various In 2001 upon the assumption of the Belmonte administration it made a commitment to make QC a model for others to follow in terms of governance and leadership.
 - Governance & Administration;
 - Economic Development;
 - Security, Peace and Disaster Preparedness;
 - Environmental Protection and Climate Change Adaptation
 - Poverty Reduction and Social Development and Welfare and;
 - Infrastructure, Housing and Urban Planning and Development
- **Regular conduct of Executive Staff and Management Committee Meetings** - Given the size of QC, the city government officials track the direction as to where the city is going thru the weekly consultative meetings. Here, the city executives are regularly kept abreast with programs and developments in other areas of the city government. This venue also enhances each other's gains and complements efforts not needlessly waste resources through duplication. The Management Group composed of 6-7 top management members also meet during the alternating week. In this group, ideas are freely discussed and exchanged.
- **Resource Allocation** - Achieving more with less use of human and material resources is an underlying principle of resource allocation efforts of the city government. For example, a process that guides fuel allocation thru the use of fleet card thereby minimizing improper use and waste was adopted.
- **Systems Improvement** - QC is one of the first to computerize its real estate assessment and payment

systems and the process for securing business permits. Operational improvement in business processing was adopted to shorten the period for renewals of low-risk establishments. Official receipts for tax payment have security features that are hard to counterfeit and anti-graft cases against erring employees were filed at the Office of the Ombudsman.

In project identification/selection systematic method for selecting and prioritizing was formulated to determine their distribution throughout the districts and for identifying sources of funds. The principle is for a balanced development.

In addition, the following systems improvements were put in place.

- **Quality Management System (QMS-ISO).** This involves improvement of systems in service delivery and efficiency to the level of ISO standard in order to satisfy/meet the needs/expectations of the QC residents. The Revenue Cluster, Economic sector consisting of 15 departments/offices having passed the system's requirement was able to register and receive ISO 9001:2008 in May 2016. Next in line for enrollment for ISO certification are some selected governance and administration cluster departments. Efficiency and increased productivity while minimizing errors and waste are the key results of the systems' standard.
- **Service Modernization Program.** With the objective to make it easy for constituents to pay city taxes, Quezon City now offers the full cycle of electronic payment system for real property taxes and business taxes. This means the taxpayers can choose 2 ways to pay their taxes conveniently 24/7 without going to City Hall. One is through mobile money payment using G cash and a Globe or TM cellphone lines for real property and business tax payments up to Php

100,000.00. Another way is an online payment system available for Landbank and Bancnet ATM and debit card account holders. With this system, taxpayers can print electronic receipts which have been approved by the Commission on Audit. For taxpayers who insist on going to City Hall, the Treasurer's cashiers are open six (6) days a week to accept payments.

- **eFinancial System.** This is QC LGU's electronic-based integrated system that links the financial transactions of key government departments with financial functions. This system promotes greater transparency and efficiency.
- **Enhanced Tax mapping System.** The use of Geographic Information System (GIS) leads to systematic management of real property units for taxation purposes.
- **Computerized Health Information Tracking System (CHITS).** An open source electronic reporting and data base management system that makes it easier to generate and maintain health records and manage patients' scheduling system at health centers.
- **Retooling and Modernizing the Bureaucracy.** To raise the level of public service performance, there is a need to continuously retool the city personnel and reconfigure the organizational units.
 - Continuing capacity building is one of the significant programs that reinforces the city personnel to further enhance their capabilities through attendance in various trainings, seminars and workshops. These venues have become instruments that update/upgrade the management mechanisms and technical know-how that will suit the current needs of the government personnel. With the flourishing and fast paced development of information technology, it is necessary that the

bureaucracy sustain the level of information services to build its capacity and share knowledge with other stakeholders to maintain its standing in the global map.

- Rationalization efforts are also underway to modernize the city's organizational structure and bring the city performers to the 21st century organizations. In the pipeline are the City Legal, City Health, Novalches District Hospital, the Barangay Operations the Community Relations Office and the QC Polytechnic University.
- Policies are updated and standards are localized, such as those embodied in the New Market Code, Veterinary Code, Sanitation Code and Building Code to attune these relevant legislations to changing times.
- Passing the certification requirement of the International Organization for Standardization (ISO)'s Quality Management System . The 15 department belonging to the LGU's revenue generating offices have passed the ISO 9001:2008 for their type of services. The next round of ISO certification programmed for 2017 will cover the city hospitals, health centers, as well as social services and public order and safety departments.

Table In-2 | Awards Received, Quezon City

Awards Received	Year	Awards Received	Year
2015 LGU Eco Champion (National LGU Eco Champions Project of Green Convergence & DENR)	Feb. 11, 2016	Most Outstanding Sangguniang Panlungsod (NCR) (2015 Local Legislative Award)	July 2015
Hall of Fame & Best PESO-NCR Highly Urbanized Cities (DOLE)	October 26, 2015	Special Achievement in GIS (SAG) Award at the ESRI International User Conference in San Diego, California, USA for its Enhanced Tax Mapping Systems	July 2015
No. 1 Economically Most Dynamic city in the Highly Urbanized Category (National Council Competitiveness)	July 2015	Most Outstanding Sangguniang Panlungsod in the NCR winning the Local Legislative Award at the regional level	2015
2015 Kapit-Bisig Awards Outstanding Partner (Bangko Sentral ng Pilipinas)	July 14, 2015		

Best Practices

Good Financial Housekeeping Awardees

Sept. 21, 2015 – Barangay Day Celebration held at Crown Plaza

Barangay	Punong Barangay
1. Lourdes	1. Hon. Mary Catherine C. Sioson
2. Nayong Kanluran	2
3. NS Amoranto	3. Hon. Von Rommel P. Yalong
4. Salvacion	4. Hon. Ernesto B. Bernardino
5. Phil-am	5. Hon. Simplicio E. Hermogenes
6. Amihan	6. Hon. Arsenio C. De Guzman
7. Blue Ridge A	7. Hon. Gabriel C. Legaspi
8. St. Ignatius	8. Hon. Edwin S. Tansingco
9. Ugong Norte	9. Hon. Zarina Yasmin Xenelle W. Jorge
10. Claro	10. Hon. Ronald N. Tagle
11. Villa Maria Clara	11. Hon. Reynaldo B. Rivera
12. Escopa II	12. Hon. Fernandito M. Ortiz
13. Doña Aurora	13. Hon. Zandy A. Zacate
14. UP Village	14. Hon. Virgilio S. Ferrer
15. North Fairview	15. Hon. Manuel A. Chua
16. San Bartolome	16. Hon. Lamberto L. Pascual
17. Gulod	17. Hon. Rey Aldrin S. Tolentino
18. Kaligayahan	18. Hon. Alfredo S. Roxas

Best Barangay Institution (BBIs)

Barangay	Punong Barangay
1. Sto. Cristo	Hon. Rizaldy C. Nepomuceno
2. Mangga	Hon. Cesar R. Dela Fuente, Jr.
3. Paligsahan	Hon. Leopoldo A. Tiamson
4. Doña Imelda	Hon. Concepcion S. Malañgen
5. Culiati	Hon. Victor D. Bernardo
6. Greater Lagro	Hon. Renato U. Galimba

Barangays with Best Practices Awardees

Barangay	Punong Barangay
1. Phil-am	Hon. Simplicio E. Hermogenes
2. Masambong	Hon. Ramon G. Veloso
3. Commonwealth	Hon. Manuel A. Co
4. Bagumbuhay	Hon. Raulito R. Datiles
5. St. Ignatius	Hon. Edwin S. Tansingco
6. Blue Ridge B	Hon. Arturo S. Dimayuga
7. Paligsahan	Hon. Leopoldo A. Tiamson
8. Greater Lagro	Hon. Renato U. Galimba
9. Bagbag	Hon. Richard V. Ambita
10. New Era	Hon. Reynaldo B. Ebron

Dangal ng Lungsod Awardees

Barangay	Punong Barangay
1. Holy Spirit	Hon. Felicito A. Valmocina
2. Bagumbayan	Hon. Elmer C. Maturan
3. Loyola Heights	Hon. Caesar P. Marquez
4. Sangandaan	Hon. Rolando B. Quitarior

Gawad sa Huwaring Pamamahala Awardees

Barangay	Punong Barangay
1. Damar	Hon. Ester M. Gutierrez
2. Talayan	Hon. Virginia C. Ongtauco
3. Horseshoe	Hon. Francisco M. Aguilar
4. UP Campus	Hon. Isabelita P. Gravides
5. Novaliches Proper	Hon. Asuncion M. Visaya

6.1.7 | The Barangay

The basic political units we know today as “barangays” serve as the primary planning and implementing unit of government policies, plans, programs, projects and activities in the community and as the forum wherein the collective views of the people may be expressed, crystallized and considered and where disputes may be amicably settled. The barangays emanated from what were then called “barrios” which exist and operate as quasi-municipal entities that perform particular government functions thru its “barrio council” and under the supervision of the Mayor. Republic Act 2370 of June 21, 1959 or the Barrio Charter governed the activities of barrios.

Changes in Boundaries

In the period of the Marcos administration, particularly during the martial law period, barrio assemblies came to be called as citizen’s assemblies as prescribed by PD 86 dated December 31, 1972. When PD 557 was issued on September 21, 1974, these barrios were renamed as barangays and the Barrio Charter, as amended by RA 3590 of June 22, 1963 was adopted as the Barangay Charter. In Quezon City, prior to PD 86, there already existed forty-four (44) barrios that were constituted by the then City Council. In 1973, pursuant to PD 86, eighty-nine (89) more civic assemblies were created and later all these one hundred thirty-three (133) barrios and civic assemblies were declared as barangays thru Executive Orders No. 20 to 35 dated June 25, 1975 of then Mayor Norberto S. Amoranto in compliance with PD 557. The boundary descriptions and maps which formed part of the said Executive Orders, were prepared by the then Quezon City Secretariat on the Delineation of Barangay Boundaries. These were submitted to then Department of Local Government and Community Development (DLGCD) on December 9, 1975 for confirmation.

Subsequent barangays created in the City were either thru Presidential Decrees (1978 to 1981)- three (3) barangays, or thru Batas Pambansa (1982 to 1984) - another three (3), making a total of 139 barangays.

However, since the entire City was already covered by the respective territories of the 133 barangays, these newly created barangays were merely “carved-out” of existing barangays. Meanwhile, the area now known as Barangay Payatas was declared as separate barangay from Barangay Commonwealth thru a court order rendered by Quezon City Court of First Instance, Branch 31, on March 5, 1976, hence, is of a special case. However, said court order did not define the exact metes and bounds of Barangay Payatas.

The latest addition to the list is thru Ordinance No. SP 439, S-96 dated September 10, 1996 dividing Barangay Pasong Putik into three (3) barangays namely: Greater Lagro, Pasong Putik Proper, and North Fairview.

The City is made up of 142 barangays each with a barangay council composed of one (1) Punong Barangay, seven (7) Barangay Kagawad Members (1) Sangguniang Kabataan Chairman, (1) Barangay Secretary, (1) Barangay Treasurer and (1) Lupon Tagapamayapa.

These barangay officials are the City government’s overwhelming presence in communities and the grassroots. They are deemed persons of authority in their jurisdiction, being designated by law to take charge of the maintenance of public order, protection and security of life and property and maintenance of a desirable and balanced environment.

With the passage of Local Government Code of 1991 (RA 7160), the barangays were granted more powers and prerogatives. In terms of land area, Barangay Bagong Silangan with 595.1 ha. is the biggest while Barangay Escopa I with 1.28 ha. is the smallest. In terms of population, Barangay Commonwealth has the biggest with 198,285 and Barangay Manga has the least with 1,158.

Table In- 3 | Barangay Income Profile

Highest	Lowest
Barangay Income Bgy. Damar, Dist 1: (P 10,064,922.39) Bgy. Holy Spirit, Dist 2: (P 6,370,000.00) Bgy. Ugong Norte, Dist 3: (P 17,976,078.69) Bgy. Pinyahan, Dist 4: (P 9,300,000.00) Bgy. Fairview, Dist 5: (P 9,100,000.00) Bgy. Sauyo, Dist 6: (P 3,300,000.00)	Barangay Income Bgy. San Isidro, Dist 1: (P 450,000.00) Bgy. Bagong Silangan, Dist 2: (P 1,940,000.00) Bgy. Villa Maria Clara, Dist 3: (P 250,000.00) Bgy. Obrero, Dist 4: (P 475,000.00) Bgy. San Agustin, Dist 5: (P 350,000.00) Bgy. Unang Sigaw, Dist 6: (P 128,573.00)
Share on RPT Bgy. Sto. Cristo, Dist 1: (P 9,947,422.27) Bgy. Batasan Hills, Dist 2: (P 7,635,079.65) Bgy. Bagumbayan, Dist 3: (P 24,000,000.00) Bgy. South Triangle, Dist 4: *(P 20,525,705.28) Bgy. Greater Lagro, Dist 5: (P 9,552,082.48) Bgy. Apolonio Samson, Dist 6: (P 11,051,526.30)	Share on RPT Bgy. Alicia, Dist 1: (P 2,596,095.31) Bgy. Payatas, Dist 2: (P 2,422,996.08) Bgy. Escopa IV, Dist 3: *(P 2,422,947.43) Bgy. Botocan, Dist 4: (P 2,392,509.28) Bgy. Capri, Dist 5: (P 2,446,508.00) Bgy. New Era, Dist 6: (P 2,698,031.91)
Share on IRA Bgy. Bahay Toro, Dist 1: (P 37,790,806.00) Bgy. Commonwealth, Dist 2: (P 99,923,319.00) Bgy. Matandang Blara, Dist 3: (P 38,677,708.00) Bgy. Tatalon, Dist 4: (P 32,181,020.00) Bgy. Gulod, Dist 5: (P 29,393,387.00) Bgy. Tandang Sora, Dist 6: (P 46,060,236)	Share on IRA Bgy. Damar, Dist 1: (P 31,694,436.00) Bgy. Bagong Silangan, Dist 2: (P 42,396,322.00) Bgy. Quirino 3-A, Dist 3: (P 1,480,942.00) Bgy. Old Capitol Site, Dist 4: (P 1,881,219.00) Bgy. Capri, Dist 5: (P 7,538,428.00) Bgy. Unang Sigaw, Dist 6: (P 4,353,017.00)

Of the 142 barangays, Ugong Norte in District III and Damar in District I have the highest income with Php 17.97 million and Php 10.06 million respectively, while Barangays Unang Sigaw in District I and Villa Ma. Clara in District III have the lowest with Php 128,573 and P 250,000, respectively. In terms of share on Real Property Tax (RPT), Barangay Bagumbayan in District III and South Triangle, District IV, have the highest share with Php 24 million and Php 20.52 million respectively, while Barangays Botocan in District IV and Escopa IV, District III posted the lowest with only Php 2.32 million and Php 2.42 million, respectively. On the other hand, Barangay Commonwealth in District II got the biggest share on IRA with Php 99.92 million and Php 46.06 million largely due to its big population and large area and Barangays Quirino 3-A and Damar in District I got the smallest share, with only Php 1.48 million and Php 1.69 million, respectively.

Operation of the barangays is funded out of the following major sources:
(See Table In-4)

Table In- 4 | Barangay Fund Sources

Sources	Share / Distribution
Internal Revenue Allotment (IRA)	20% of IRA from National Taxes
Community Tax	50% of the community tax collected through the Barangay Treasurer
Real Property Tax (RPT)	30% of the Real Property Tax is distributed among the component barangays
	a. 50% accrues to the barangay where the property is located
	b. 50% accrues equally to all component barangays of the city

Quezon City is the first local government unit to give Barangay officials full fiscal control over their share of real property tax starting 2002, which are given them on a quarterly basis.

Coordination with the various barangay is being handled by the Barangay Operations Center.

The term of office of all local elective officials is three (3) years but shall not serve for more than three (3) consecutive years in the same position.

Table In- 5 | Status of Barangay Halls: QC, 2016

District	No. of Barangay	Permanent Structure Occupying Permanent Site	Status				Renting
			Permanent Structure Occupying Temporary Site				
			Local/ National	Private	Sidewalk	Creek Easement	
I	37	32	1	0	3	0	1
II	5	5	0	0	0	0	0
III	37	28	1	0	3	5	0
IV	38	30	0	0	5	1	2
V	14	13	0	0	1	0	0
VI	11	10	0	1	0	0	0
Total	142	118	2	1	12	6	4

Source: Barangay Operations Center

Quezon City is home to 142 barangays dispersed in the city's six (6) districts. Each barangay has its own barangay hall. Of the 142 barangays, 118 have permanent structure in a permanent site, 21 have permanent structure occupying a temporary site, either as private, sidewalk and/or creek easement while three (3) barangays are renting a space. (Refer to Table In-5).

6.1.8 | National Government Agencies

The Local Government Code of 1991, provides that national agencies and offices with project implementation functions shall coordinate with the local government units in the discharge of these functions. They shall ensure the participation of local government units both in the planning and implementation of national projects.

For this purpose, the city exercises close coordination with the national agencies like the DPWH, MWSS and the MMDA in regard to their respective plans and projects to be undertaken in the City. This is to prevent overlapping and/or duplication of projects in the city as well as to ensure a smooth implementation of the projects.

Some national government agencies (NGAs) have branches based and operating in the city that are rendering services to the city residents. Among them are:

- Regional Trial Court (Department of Justice)
- City Prosecutor's Office (Department of Justice)
- Metropolitan Trial Court (Department of Justice)
- City Auditor's Office (Commission on Audit)
- Civil Service Commission Field Office (Civil Service Commission)
- Central Police District Command (DILG)
- QC Fire District (with 16 Fire-Sub Stations, DILG)
- Division of City Schools (Dep Ed)
- QC City Jail (BJMP, DILG)
- DILG-Field Office (DILG)
- Bureau of Immigration (DFA)

List of National Government Center and Government Owned and Controlled Corp.

DISTRICT 1

- Bureau of Agricultural Economics
- Bureau of Agricultural Extension
- Bureau of Animal Industry
- Bureau of Forest Development
- Bureau of Internal Revenue

- Bureau of Mines and Geodetic Science
- Cooperative Development Authority
- Council for the Welfare of Children
- Department of Agrarian Reform
- Department of Agriculture
- Department of Education (Regional Office)
- Department of Interior and Local Government
- Dept. Of Environment and Natural Resources
- National Food Authority
- National Labor Relations Commission
- National Telecommunications Communication
- Office of the Ombudsman
- Philippine Childrens Medical Center
- Philippine Coconut Authority
- Philippine Health Insurance Corporation
- Philippine Information Agency
- Quezon City Parole & Probation
- Sugar Regulatory Administration
- Veterans Memorial Medical Center

DISTRICT 2

- Civil Service Commission
- Commission on Audit
- Congress of the Philippines
- Department of Social Welfare and Development
- National Council on Disability Affairs
- Sandigan Bayan

DISTRICT 3

- Armed Forces of the Philippines
- Department of National Defense
- Philippine Veterans Affairs Office
- National Vocational Rehabilitation Center

DISTRICT 4

- Bangko Sentral ng Pilipinas
- Bureau of Internal Revenue – Region 4
- Bureau of Public Standards
- Central Minting & Security Plant
- Civil Service Commission
- Commission on Election (Satellite)
- Commission on Higher Education
- Commission on Human Rights

- Criminal Investigation & Detection Group
- Department of Public Works & Highways
- East Ave. Medical Center
- Federation of Women's Club
- Housing Land Use & Regulatory Board
- Integrated Bar of the Philippines
- Land Registration Authority
- Land Transportation Office
- Local Water Utilities Administration
- Lung Center of the Philippines
- Manila Seedling Bank Foundation
- Metropolitan Waterworks & Sewerage System
- MMDA Traffic Operations
- MMDA-Refuse & Environmental Sanitation
- Metropolitan Trial Court
- National Bureau of Investigation (Satellite)
- National Census and Statistics Office
- National Computer Center
- National Housing Authority
- National Intelligence Coordinating Agency
- National Irrigation Administration
- National Kidney Transplant & Institute
- National Mental Health
- National Power Corporation
- National Printing Office
- National Red Cross of the Philippines
- National Tobacco Administration
- Pag-ibig Fund
- Philippine Atmospheric Geo-Physical & Astronomical Services Administration
- Philippine Charity & Sweepstakes Office
- Philippine Drug and Enforcement Agency
- Philippine Heart Center
- Philippine Institute of Volcanology
- Philippine National Police (Satellite)
- Philippine Nuclear Research Institute
- Philippine Red Cross
- Police Anti-Crime & Emergency Response
- Philippine Postal Office

- Philippine Veterans Affairs Office
- Public Attorney's Office
- Quezon City Fire District
- Quezon City Police District
- Quezon City Veterinary Department
- Regional Trial Court
- Social Security System

DISTRICT 5

- Novaliches District Center

DISTRICT 6

- Bureau of Jail Management & Penology
- Child and Youth Research Center
- Government Service Insurance System

Adjudication, controlling, protective services are, among others, the type of public services rendered by these agencies to the city residents and the city government as well. The basic services and facilities herein above enumerated are funded from the share of local government units in the proceeds of national taxes, other local revenues and funding support from National Government (RA 7160, Sec. 17, 4g).

Other national government agencies that are housed in the Quezon City Hall Compound and providing direct service to the QC residents and general public as well through extension offices are the Philippine National Red Cross (PNRC), Commission on Election (COMELEC), National Bureau of Investigation (NBI), the Philippine Postal Corporation, and the Department of Foreign Affairs (Bureau of Immigration)

Table In- 6 | Devolved Functions to LG

National Agencies	Devolved Function	Local Government Unit
Housing and Land Use Reg. Board (HLRB)	Approval of subdivision schemes and development plans of all subdivision, residential, commercial, industrial, all economic and socialized housing projects	Subdivision Administration Unit (ZAU)
=Land Transportation Franchising and Regulatory Board (LTFRB)	Accepts and recommends to the Tricycle Franchising Board (TFB) the approval of all applications for motorized tricycle operator's permit (MTOP/Franchise) dropping or cancellation of Franchise/MTOP, change of ownership of tricycle unit, renewal of MTOP/Franchise, amendment of franchise which are applied to by operators of motorized tricycles	Tricycle Regulation Unit (TRU)
Philippine Gamefowl Commission	Inspects, monitors, conduct of cockfighting and/or derby activity in the city and evaluates proposals for construction of cockpits	
Department of Agriculture	Empowerment of urban farmers and interested constituents thru extension methodologies; Assistance in procurement of high breed species adoptable and appropriate of its purpose; Assistance in animal deliveries, farm and home visits; Assistance in procurement and/or dispersal of fingerlings; Extension of technical assistance to organizations to serve as channels for developing leadership and cooperation leading to community development	EPWMD (the devolved personnel takes charge of urban agriculture)
Department of Social Welfare and Development (DSWD)	Protection and rehabilitation of the segment of the city's population (individual, family & community) who has the least in life in terms of physical, mental and social well-being, needing social welfare assistance and social work interventions to restore their normal functioning and participation in community development	Social Services Development Department (SSDD)
Department of Health	Establishment and operation of health care centers, maternity lying-in, clinics for sexually-transmitted diseases, laboratories, mobile clinics and others. Provide pre-marital counseling, communicable disease control, disease surveillance and epidemic logical investigations, nutrition information, education and motivation.	QC Health Department
Department of Environment and Natural Resources (DENR)	Assistance in the implementation of the Anti-Smoke Belching Program of the city such as apprehension of smoke belching vehicles, verification of apprehension (Dist 1-4)	Pollution control Unit under EPWMD

6.2 GOVERNMENT AND INCOME EXPENDITURE

6.2.1 | Government Income

Sources of government revenue can be classified as regular income and non-regular income. Regular income covers traditional sources as taxation, internal revenue allotment, fees and charges and other receipts. Non-regular income, on the other hand, are sources of financing allowed for local government units (LGU) which include among others as credit financing, bond flotation, privatization, etc.

On nominal basis, total revenue of Php16.5B as of end-2015 was more than twice (114%) of year 2007 level of Php7.7B. The nine-year period 2007-2015 posted consistent growth at an annual average of 10.06%. Mayor Belmonte's Administration increased the City's

income at an average annual rate of 9.10% for five and a half years from July 2010 until end-2015.

One year-on-year basis, highest growth was attained at 12.06% in 2009 (the last full year of Mayor Belmonte Administration) and 16.03% in 2015 (The fifth full year of Mayor Bautista's Administration).

Sharp decreases were noted in 2010 (the two Administrations' transition year) from 12.60% to 5.97%. The 13.74% growth in year 2011 surpassed 2010 but slid to one-digit growth rates in 2012 to 2014 until a 2-digit growth was regained in 2015 at 16.03%. (See Fig In-2).

Figure In- 2 | Local Government Income Growth, QC: 2007-2015

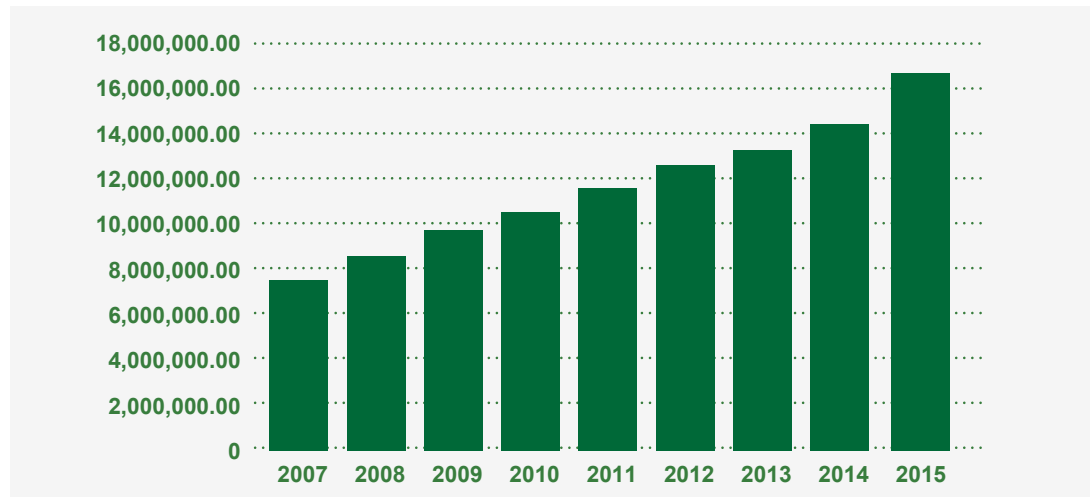
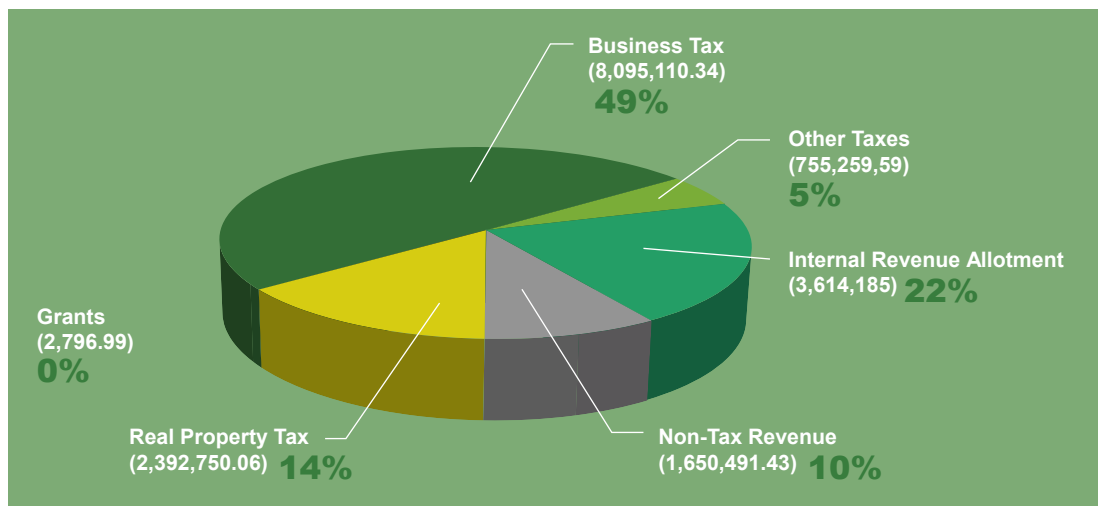


Figure In- 3 | Local Government Income Growth, QC: 2007-2015



Tax Revenues

Tax revenues, ranging from 57.53% to a high 68.82% in 2014 and 68.10% in 2015 of total, consistently remain the top revenue source during 2007 to 2015. Tax revenue grew at an average of 11.83% annually during the said period. Internal revenue allotment (IRA) contributed as the second largest revenue source increasing yearly at an average of 8.92%. Non-tax revenues also increased annually by 7.38%.

Total revenues of Php16.5B raised in year 2015 registered an increase of 18.96% from the 2014 total income of Php14.2B in 2014. Sources were tax revenues (68.10%), IRA (21.89%) and non-tax revenues (10.00%). (See Fig In-3)

Type of Tax	Amount	Share to Total Income
Real Property Tax	Php2,392,750.06	18.96%
Business Tax	Php8,095,110.34	24.46%
Other Taxes	Php755,259.59	17.57%

Real Property Tax

Collections from real property tax grew at an average of 10.05% during the period 2007-2015.

In 2015, real property tax collections reached Php2.39B or about 18.96% of total city income and recorded a minimal increase of 3.84% compared with the preceding year 2014. It stayed third among the biggest revenue sources of the city. The 15% ratio to total income is lower compared with the percentage to total income since year 2010 which ranged from 17% to 19%.

Business Tax

Collections from business tax have consistently been the top revenue source of the city growing by an average of

about 13.04% during the 2007-2015 period. In 2015, it reached Php8.1B or about 49% of total city income, an increase of 24.46% from P6.5B in 2014. The 2015 level is 160% of business taxes of P3.1B in 2007.

Other Taxes

Other taxes include tax of transfer of real property ownership, professional tax and community tax. Collection of these taxes provided the City an average increase of 9.94% during the 2007-2015. In 2015, revenues from other taxes reached Php755M, an increase of 17.5% from the 2014 figure of P642M. The P755M represents about 5% of total city income in 2015.

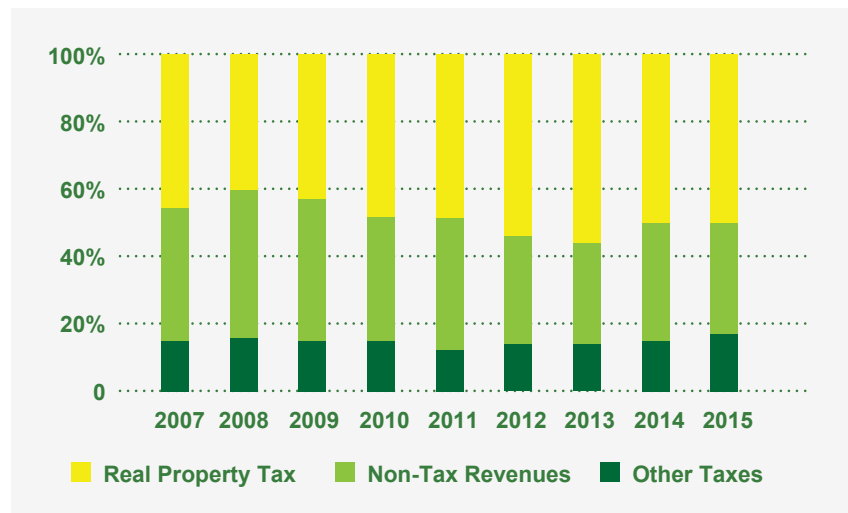
Internal Revenue Allotment

The internal revenue allotment (IRA) or the City's share in the national revenue taxes amounted to Php3.6B in 2015 or about 25.40% of total City income. During the period 2007-2015, IRA grew by an average of 8.92% annually. Compared with 2014, year 2015 IRA increased by 14.5%. From the Php1.9B in 2007, the increase was 93% in 2015.

Non-Tax Revenues

Non-Tax revenues or income from regulatory fees, service user charges and receipts from economic enterprises such as the city's markets, reached Php1.65B in 2007, an increase of 1.92% from the 2014 figure of Php1.619M. It comprised about 10% of total city income in 2015 and grew by an average of 7.38% during the period 2007-2015. It registered a 62% increase from the 2007 level. (See Fig. In-3).

It is worthy to note that under both the Belmonte and Bautista Administrations, the city did not resort to any loans / borrowings to operate the city and has paid all its obligations since 2006 incurred by the previous administration before the Belmonte Administration.



Source: City Treasurer's Office

Figure In- 4 | Percentage Share of Government Income by Source: 2007-2015

6.2.2 | Government Expenditure

By Major Function

The city's expenditures increased at an average of 9.19% annually during the period 2007-2015. Year 2015 expenditures, however, noticeably increased by 2.57% only compared with the preceding year 2014 total expenditures of Php11.025B. (See Fig. In-5).

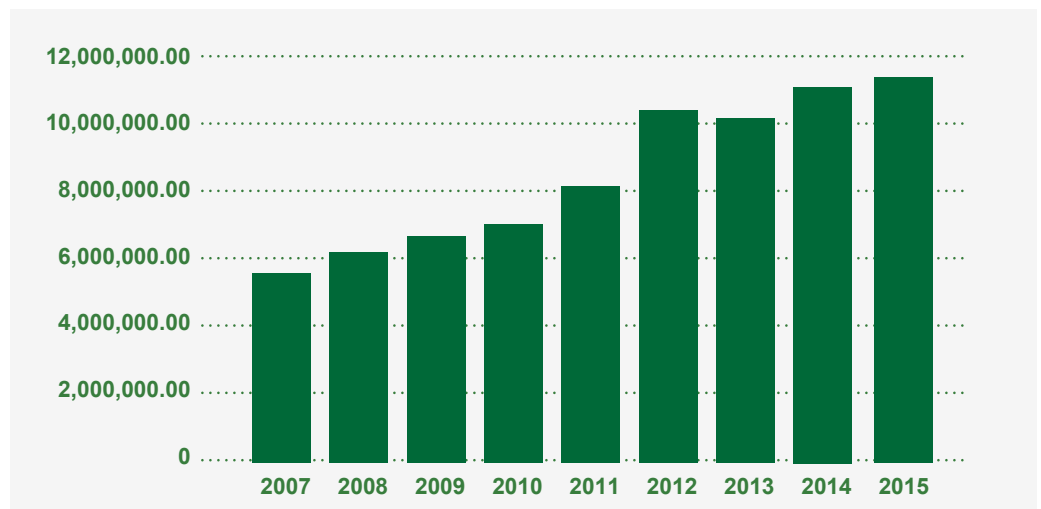


Figure In- 5 | Government Expenditure, QC: 2007-2015

On a year-on-year basis, Year 2012 recorded the highest percentage increase in expenditures by 25.25% which was subsequently reversed in Year 2013 with a net decrease of 0.54%. Comparing 2007 and 2015 total expenditures, an increase of almost 100% or Php5.6B is registered.

Expenditure for General Public Services topped the city’s expenditure in 2015, increasing by 0.19% from Php9.193B in 2014 to Php9.175B in 2015. Average annual growth rate for this expenditure item during the period 2007-2015 was computed at 9.18%. It comprised 81.14% of total city expenditures in 2015. It shows an increase of Php4.74B from the 2007 level of Php4.628B.

The rest of the expenditures shared less than 10% each account. The largest among these accounts was Health, Nutrition and population Control spending Php1.113B. It increased by 6.48% from the Php10.45B figure in 2014. This expenditure item comprised 9.84% of total city expenditure in 2015 and exhibited an annual average growth rate of 23.88% during the period 2007-2015.

Other city expenditures include expenditure on Social Security Services and Welfare with Php282M (2.49%), Economic Services with Php234M (2.07%), Housing and Community Development with Php40M (0.35%), Labor and Employment with Php17M (0.15%).

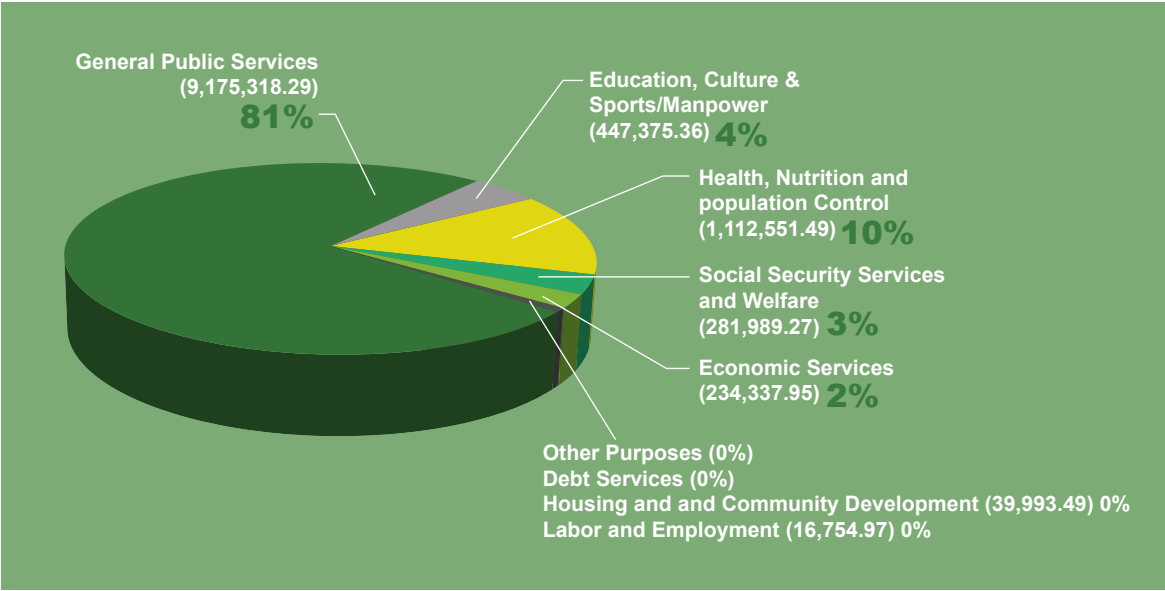


Figure In- 6 | Government Expenditure by Major Function QC: 2015

By Allotment Class / Object

Quezon City's expenses for the year 2015 classified as to allotment class / object are as follows: Personal Services – Php3.35 billion, Maintenance and Other Operating Expenses – Php6.85 billion, Property, Plant and Equipment – Php2.19 billion, Lump Sum Appropriations – Php170M and Statutory, Mandatory Obligation – Php1.9B. Figure In-9 shows the percentage components of city expenses by allotment class.

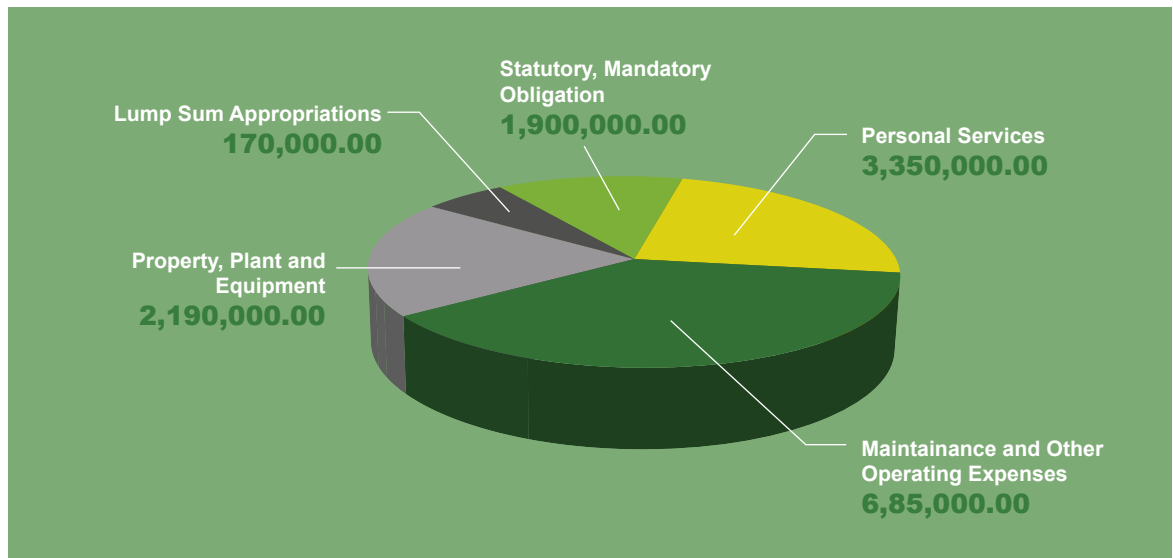


Figure In- 7 | Expenditure by Allotment Class, QC: 2015

A comparison of Income and Expenditure for the last nine (9) years based on figures as presented by the City Treasurer’s Office and City Budget Department is presented.

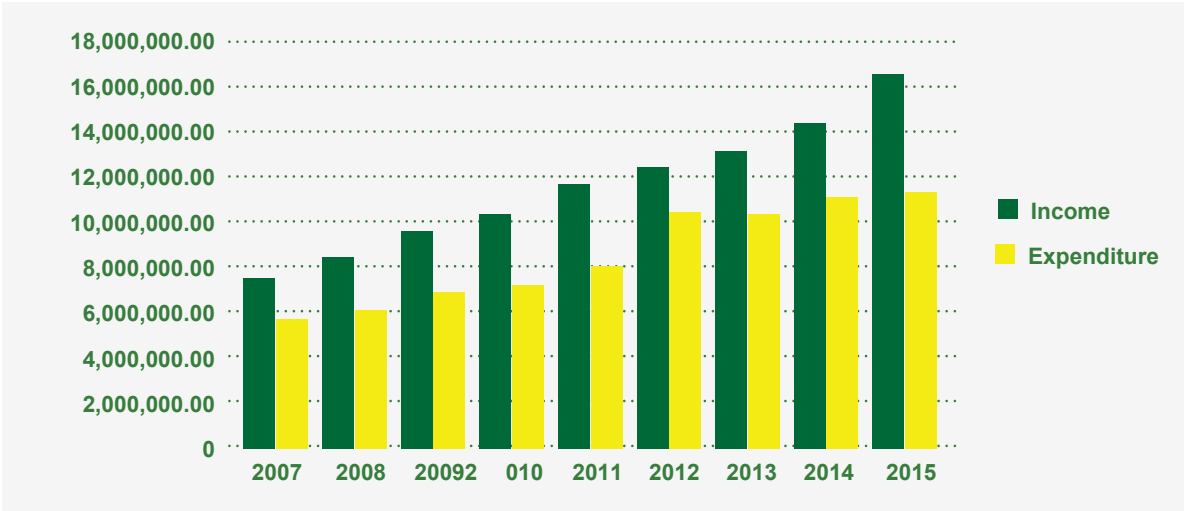


Figure In- 8 | Local Government Income and Expenditure, 2007-2015

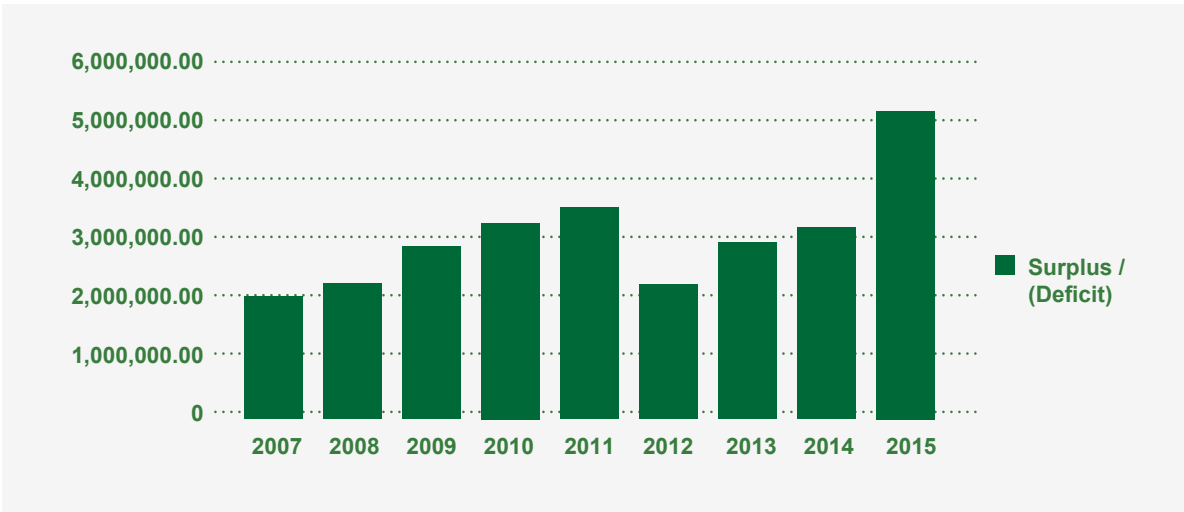


Figure In- 9 | Local Government Surplus / (Deficit), 2007-2015

The city averaged a nine (9) year surplus of Php3.06B from 2007-2015 with a high of Php5.2B registered in 2015 and a low of Php1.99B in 2007. 2015 surplus is significantly higher by 62.37% as compared to the 2014 surplus of Php3.2B. This is because of increased tax revenues, particularly the Business Tax with collections over Php8.10B or a difference of 24.46% as compared to 2014 figures of Php6.5B. Most other Tax Revenues and Non-Tax Revenues, including IRA increased.

The Expenditures for 2015, meanwhile, increased by only 2.5% or 11.31B from P11.03 in 2014. The bulk of expenditures were earmarked for General Public Services, which includes Salaries and Wages, Other Compensation, Personnel Benefits Contribution and Other Personnel Benefits. Health, Nutrition and Population Control, Education, Culture and Sports/Manpower Development, Social Security Services and Welfare and Economic Services contributed to the 2015 expenditures.

Noticeable under the chart is the 2012 surplus which dropped by 37.15% as compared to 2011 figures from P3.55B to P2.23B. Government expenditures for this year had significant increases compared with the previous year.

General Public Service increased by 19.50% or to Php8.60B from Php7.22 the previous year, Education, Culture & Sports/Manpower Dev't by 9.40% or to Php220.03 million from Php201.13 million, Health, Nutrition & Population Control by 177.06% or to Php922.62 million from Php332.99 million, Labor employment by 8.42% or to Php13.62 million from Php12.56 million, Housing & Community Development by 20.18% or to Php35.43 million from Php29.48 million, Social Security Services Welfare by 21.97% or to Php221.30 million from Php181.44 million and Economic Services by 12.07% or to Php193.22 million from Php172.41 million.

Income for 2012 registered the 2nd lowest increase during the 2007-2015 period, representing a 6.55% increase from 2011 or from Php11.70B to Php12.46B while expenditure for 2012 sharply increased by 25.57% from 2011 or from Php8.15B to Php10.23B, the highest spending for the same period.

Annual average growth rates for Income is 10.06% and expenditure at 9.19%. After 2012, income improved by 4.93% or the lowest in 9 years but expenditures dropped by 0.54%, also the lowest in 9 years, as surplus increased from 2012 level to Php2.90B from Php2.23B or by 30.04%. It has since then maintained a steady growth rate for income as spending has been very efficient.

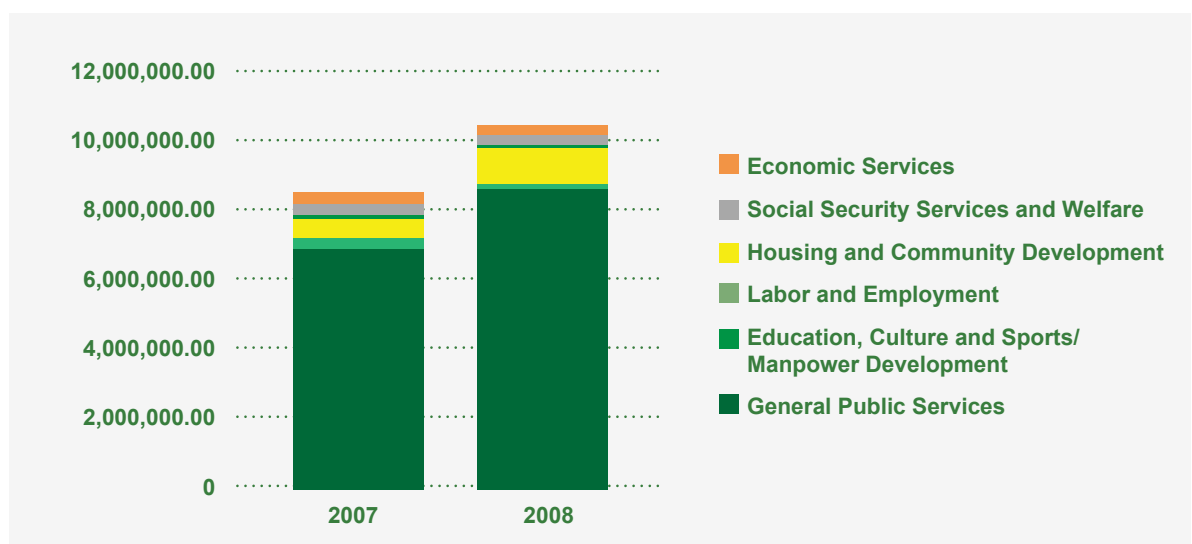


Figure In- 10 | Comparative Government Expenditure (2011-2012) - OPTIONAL

6.3 LOCAL LEGISLATION

As the legislative body of the City, the Council enacts ordinances that would facilitate implementation of social and economic development projects and activities and approves resolutions and appropriates funds for the general welfare of the City residents.

The Office of the City Secretary serves as the Secretary to the Council, providing legislative, administrative, and secretarial support services to the body. As such, the City Secretary is also responsible for the documenting and monitoring of all legislative measures and documents allowing the LGU to store and retrieve information regarding its legislative processes.

The thirty-six (36) city councilors have their own areas of political jurisdiction known as Councilor's Area of Responsibility (CAR). There are 36 CARs which serve as the extension area of the City Mayor thru the City Councilors to rationalize and facilitate the delivery of basic services to the residents comprising the area.

Table In- 8 | Brief Profile of Districts

Dist	No. of Bgy.	Land Area (Has.)	District Population
1	37	1,959.39	414,039
2	5	4,626.52*	635,967
3	37	2,184.82	307,638
4	38	2,311.33	428,555
5	14	2,802.58	488,172
6	11	2,197.39	487,349
Total	142	16,077.78	2,761,720

The 36 councilors also function as chairpersons, vice-chairpersons and/or member of regular committees at the city council.

Legislative Outputs

The Quezon City Council, from January 2014 up to December 2015 has passed and approved a total of 1183 legislative measures which were classified into 12 areas for planning purposes however, the classification was further reduced to 5 development sectors.

Table In- 9 | Legislative Outputs, Quezon City Jan. 2014 – Dec. 2015

Legislative Measures	No. of Ordinances	No. of Resolutions
City Properties & General Services, Local Governance and Administration	39	317
Taxation, Assessment, Budgeting & Property Valuation	15	5
Education, Science, Technology, Culture, Tourism and Internal Relations	25	109
Peace and Order, Public Safety, Transportation and Traffic Mgt.	22	78
Public Works, Infrastructure, Building, Zoning, Subdivision & Housing	54	88
Public Health and Social Welfare Services, Senior Citizens, Handicapped People, Women, Family, Domestic Relations & Civil Registration	44	95
Legal Affairs, Justice, Human Rights, Public Information & Assistance, and People's Participation	10	24
Commerce, Industry, Markets, Slaughterhouses, Economic Enterprises, Livelihood and Employment	8	9
Youth Welfare, Sports, Amusement/Entertainment, Games and Drugs	10	68
Barangay Affairs, Urban Poor and Human Settlements	11	67
Parks, Environment and Garbage	5	21
Energy, Water Resources, Public Services, Utilities and Telecommunications	1	48
TOTAL	244	939

Table In- 10 | Legislative Outputs, Quezon City Jan. 2014 – Dec. 2015

Sector	Approved Ordinances	% Equivalent	Approved Resolutions	% Equivalent
Social	112	46.00	417	44
Economic	23	9.00	24	3
Land Use/Infra	55	23.00	136	15
Environment	5	2.00	21	2
Institutional	49	20.00	341	36
Total	244	100	939	100

Table In- 11 | Subject Classifications of Legislative Measures (As of December 2015)

Subject	Ord. / Res. No.
City Properties & General Services, Local Governance and Administration	ORD.- 39; RESO. - 317
Taxation, Assessment, Budgeting & Property Valuation	ORD. – 15; RESO. – 5
Education, Science, Technology, Culture, Tourism and Internal Relations	ORD. – 25; RESP. – 109
Peace and Order, Public Safety, Transportation and Traffic Mgt.	ORD. – 22; RESO. - 78
Public Works, Infrastructure, Building, Zoning, Subdivision & Housing	ORD. – 54; RESO. – 88
Public Health and Social Welfare Services, Senior Citizens, Handicapped People, Women, Family, Domestic Relations & Civil Registration	ORD. – 44; RESO. – 95
Legal Affairs, Justice, Human Rights, Public Information & Assistance, and People's Participation	ORD. – 10; RESO. – 24
Commerce, Industry, Markets, Slaughterhouses, Economic Enterprises, Livelihood and Employment	ORD. – 8; RESO. – 19
Youth Welfare, Sports, Amusement/Entertainment, Games and Drugs	ORD. – 10; RESO. – 68
Barangay Affairs, Urban Poor and Human Settlements	ORD. – 11; RESO. – 67
Parks, Environment and Garbage	ORD. – 5; RESO.- 21
Energy, Water Resources, Public Services, Utilities ad Telecommunications	ORD. – 1; RESO. - 48

6.4 PEOPLE’S PARTICIPATION

The Philippine Constitution of 1987 promotes the involvement of people’s groups and the private sector at all levels of government. It is provided in the Local Government Code (RA 7160, Sec. 3 (I), 34, 35, 36) that local government units shall promote the establishment and operation of people’s and non-governmental organizations (POs/NGOs) to become active partners in the pursuit of local autonomy.

Sec. 3 (I) RA 7160 : “ The participation of the private sector in local governance, particularly in the delivery of basic services, shall be encouraged...”
Sec. 34 RA 7160 : “ Government units shall promote the establishments and operation of people’s and non-governmental organization to become active partners in the pursuit of local autonomy ...”

Sec. 35 RA 7160 : “ Government units may enter into joint ventures and such other cooperative arrangement with people’s and nongovernmental organizations...
All organizations seeking representation to the local development council shall apply for accreditation at the City Council through the City Council’s Committee on People’s Participation in the selection of sectoral representatives to the Local Development Council

(LDC). Only accredited organizations shall be qualified for representation in the local special bodies.

There are also non-LDC members which are actively participating in program/project development like the ABS – CBN Foundation, GMA Kapuso Foundation, Inc., etc.

The Community Relations Office (CRO) handles the coordination with the people’s organizations, non-governmental organizations and other community organizations. It also generates feedback from constituents that may help improve local government services.

6.4.1 | Local Special Bodies

To enhance the people’s active participation in the process of effective governance and development, people’s and non-governmental organizations are represented in the local special bodies where they will actively participate in the formulation of development plans and investment programs. (See Table In-12).

Table In- 12 | Local Special Bodies and Their Functions

Local Special Bodies	Functions
City Development Council	Assists the Sanggunian in setting the direction of economic and social development and coordinating development efforts within its territorial jurisdiction.
City Health Board	Serves as an Advisory Committee to the Sanggunian on health matters and/ or application of local appropriations for public health purposes.
School Board	Serves as an Advisory Committee to the Sanggunian on educational matters and the use of local appropriation
City Peace and Order Council	Formulates plans and recommends measures which will improve/ enhance peace and order and public safety in the local level
People’s Law Enforcement Boards *	Receives citizen’s complaints against PNP officials or members; recommends imposition of penalties after hearing and due process.
Bids and Awards Committee	Primarily responsible for the conduct of pre-qualification of contractors, biddings, evaluation of bids and recommendation of awards concerning local infrastructure projects and goods

Although the Implementing Rules and Regulations of the Local Government Code includes the People's Law Enforcement Board as one among the local special bodies, the provision of the Code as to the manner of selecting representatives to the local special bodies does not apply to the PLEBs.

In 2016, the Quezon City Council thru the Committee on People's Participation was able to accredit a total of 1081 organizations (SP- Ordinance No. 2524, s-2016), from which 50 sectoral representatives were elected and became members of the local development council (LDC). The City's LDC was first convened and reconstituted on February 27, 2003 with complete membership and since then has become a functioning LDC. (See Fig. In-8 & Fig. In-9)

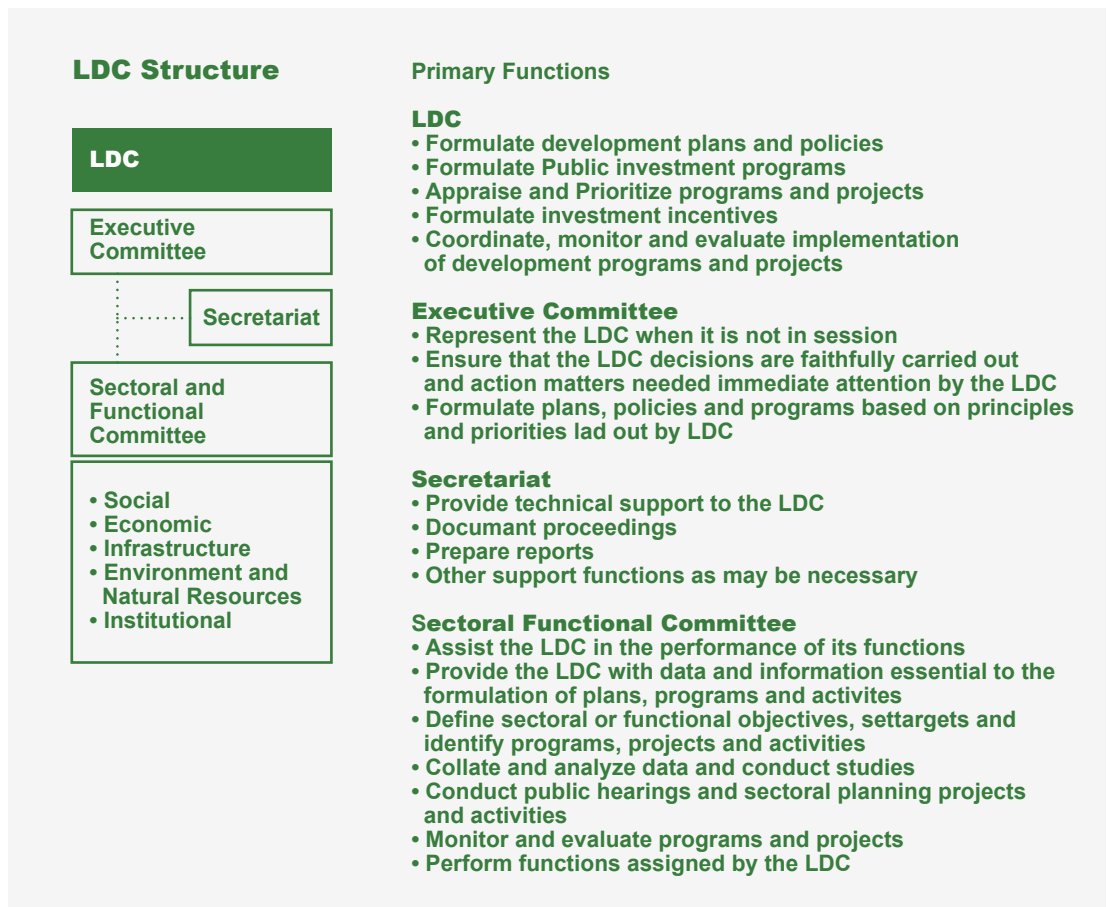


Figure In- 3 | LDC Structure

Table In- 13 | NGO/PO Representatives to the CDC

Sector	No. of Representative/s
Urban Poor	12
Cooperative	1
Charitable/Civic	1
Education Academic	1
Livelihood/Vendors	1
Labor/Workers	1
Social Justice/Peace & Order	2
Women	4
Sr. Citizens	6
Youth and Children	1
Business	1
Environment	1
HOA/Neighbourhood	12
Health/Sanitation	1
Social/Cultural Development	1
Transportation	1
Professional	1
Religious	1
Persons with Disability	1
Total	50

The accredited organizations adopt their internal rules of procedure to govern the selection of the sectoral representatives to the LDC. The designated sectoral representatives are co-terminus with the mandate of the local chief executive. Should a vacancy arise, the selected POs and NGOs shall designate a replacement for the unexpired term.

Through a selection process coordinated by the DILG-NCR, in an assembly enacted for the purpose, the 50 organizations were elected with their duly authorized representative to comprise the 25% requirement of the CDC membership. In the said accredited organizations, there is a big number of active urban poor organizations, hence, it posted the bigger representation. (See Table In-13).

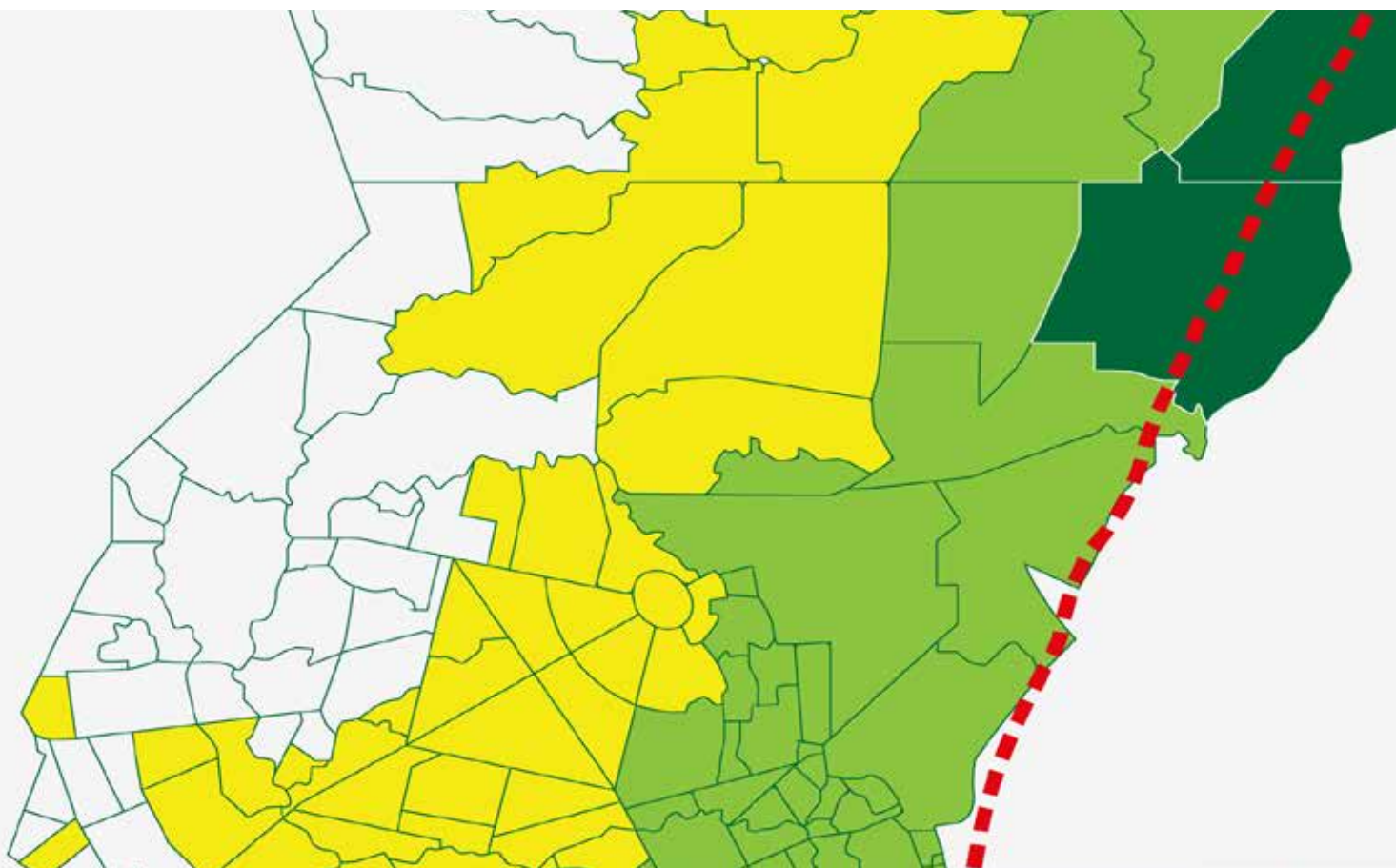
Table In- 14 | CDC Membership in Plenary

CDC Membership in Plenary	
Chairman	Local Chief Executive
Members	6 District Representatives
	142 Barangay Captains
	At least ¼ of the total membership of the fully organized council representing non-government sectors
	Chair of the Appropriations Committee of the City Council

Herbert M. Bautista
City Mayor

Ma. Josefina G. Belmonte
City Vice Mayor

	DISTRICT 1		DISTRICT 4
	Vincent “Bingbong” P. Crisologo CONGRESSMAN		Feliciano R. Belmonte, Jr. CONGRESSMAN
1	Councilor Anthony Peter D. Crisologo	1	Councilor Marvin C. Rillo
2	Councilor Lena Marie P. Juico	2	Councilor Raquel S. Malañgen
3	Councilor Elizabeth A. Delarmente	3	Councilor Irene R. Belmonte
4	Councilor Victor V. Ferrer, Jr.	4	Councilor Ivy Xenia L. Lagman
5	Councilor Oliviere T. Belmonte	5	Councilor Maria Aurora C. Suntay
6	Councilor Alexis R. Herrera	6	Councilor Hero Clarence M. Bautista
	DISTRICT 2		DISTRICT 5
	Winston “Winnie” Castelo CONGRESSMAN		Alfredo D. Vargas III CONGRESSMAN
1	Councilor Precious Hipolito Castelo	1	Councilor Jose A. Visaya
2	Councilor Bong L. Liban III	2	Councilor Karl Edgar Castelo
3	Councilor Ramon P. Medalla	3	Councilor Julianne Alyson Rae V. Medalla
4	Councilor Ranulfo Z. Ludovica	4	Councilor Godofredo T. Liban II
5	Councilor Estrella C. Valmocina	5	Councilor Andres Jose G. Yllana, Jr.
6	Councilor Roderick M. Paulate	6	Councilor Allan Butch T. Francisco
	DISTRICT 3		DISTRICT 6
	Jorge “Bolet” Banal, Jr. CONGRESSMAN		Jose Christopher “Kit” Belmonte CONGRESSMAN
1	Councilor Allan Benedict S. Reyes	1	Councilor Marivic Co-Pilar
2	Councilor Gian Carlo G. Sotto	2	Councilor Melencio “Bobby” T. Castelo, Jr.
3	Councilor Kate Abigael G. Coseteng	3	Councilor Rogelio “Roger” P. Juan
4	Councilor Jose Mario Don S. De Leon	4	Councilor Diorella Maria G. Sotto
5	Councilor Franz S. Pumaren	5	Councilor Donato C. Matias
6	Councilor Eufemio C. Lagumbay	6	Councilor Eric Rey Z. Medina
<p>Ricardo C. Corpuz ABS President ABS President Liga ng mga Barangay</p>			



CHAPTER 7 | Risk Profile

7.1 HAZARDS

As defined in the QC Disaster Risk Reduction Management Plan (DRRMP) 2014-2020, hazard is a dangerous natural phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihood and services, social and economic disruption or environmental damage. Hazards, both natural and human-induced, happen due to geological, meteorological, oceanic, biological and technological sources, sometimes acting in combination (DILG, 2011).

7.1.1 | Meteorological Hazards

Meteorological hazards are weather-related events such as typhoons, extreme rain, floods (caused by rain), droughts, landslides, sea level rise and extreme temperatures among others.

Typhoon

A typhoon is a mature tropical cyclone that develops in the western part of the North Pacific Ocean which is referred to as the Northwestern Pacific Basin and is the most active tropical cyclone basin on Earth. Due to its geographic location, the Philippines is one of the highly exposed country to typhoons and other natural hazards such as earthquakes and volcanic eruptions. About twenty (20) typhoons hit the country every year, and majority of these form between the months of June and November while typhoon formation is at minimum between December and May.

In 2009, Typhoon Ketsana (Ondoy) was recorded as the second most destructive typhoon to hit the Philippines surpassing typhoon Patsy (Yoling) in 1970. The typhoon's rainfall was very unanticipated and unprepared for which caused widespread flooding in Metro Manila and the nearby provinces of Bulacan, Rizal, Laguna and other Southern Tagalog areas. Due to the damage and deaths it caused, the names Ketsana and Ondoy were retired. On the Western Pacific basin, Ketsana was replaced by Champi and PAGASA selected Odette to replace Ondoy.

Typhoon Ketsana (Ondoy)

Typhoon Ondoy (International name: Ketsana) was the second most destructive typhoon to hit the Philippines surpassing typhoon Patsy (Yoling) in 1970. The typhoon's rainfall was very unanticipated and unprepared for which caused widespread flooding in Metro Manila and the nearby provinces of Bulacan, Rizal, Laguna and other Southern Tagalog areas. Marikina City was the most devastated region in the country as almost all of the city's area was submerged in water up to ten feet deep and knee-deep mud. Then President Gloria Macapagal-Arroyo declared a state of national calamity via Presidential Proclamation No. 1898 to allow officials to utilize emergency funds for relief and rescue.

Due to the damage and deaths it caused, the names Ketsana and Ondoy were retired. On the Western Pacific basin, Ketsana was replaced by Champi and PAGASA selected Odette to replace Ondoy.

The table below shows tropical cyclones which affected Quezon City and the rest of Metro Manila from 2006 – 2014.

Table R-1 | Typhoons That Affected Quezon City and Metro Manila: 2006-2014

Typhoon (International Name)	Period of Occurrence	Lowest Pressure	Highest Wind Speed	Casualties (Philippines)	Damages (Dollar)
Glenda (Rammasun)	Formed: Jul. 9, 2014	935mbar (hPa);	10-minute sustained: 165 kmh	195 fatalities	\$7.13B
	Dissipated: Jul. 20, 2014	27.61 inHg	1-minute sustained: 250 kmh	102 dead	
Basyang (Conson)	Formed: Jul. 1, 2010	970 mbar (hPa);	10-minute sustained: 130 kmh	46 missing	\$77.8M
	Dissipated: Jul. 18, 2010	28.64 inHg	1-minute sustained: 150 kmh		
Reming (Durian)	Formed: Nov. 25, 2006	915 mbar (hPa);	10-minute sustained: 195 kmh	More than	At least \$530M
	Dissipated: Dec. 6, 2006	27.02 inHg	1-minute sustained: 250 kmh	1,500 fatalities	
Milenyo (Zangsane)	Formed: Sept. 25, 2006	940 mbar (hPa);	10-minute sustained: 155 kmh	At least	\$750M
	Dissipated: Oct. 2, 2006	27.76 inHg	1-minute sustained: 230 kmh	310 fatalities	
Caloy (Chanchu)	Formed: May 8, 2006	930 mbar (hPa);	10-minute sustained: 175 kmh	309 dead	\$879 M
	Dissipated: May 23, 2006	27.46 inHg	1-minute sustained: 230 kmh		
Mario (Fung-wong)	Formed: Sept. 17, 1014	985 mbar (hPa);	10-minute sustained: 95 kmh	21 fatalities	\$75.5M
	Dissipated: July 18, 2010	29.09 inHg	1-minute sustained: 95 kmh		
Frank (Fengshen)	Formed: Jun. 17, 2008	945 mbar (hPa);	10-minute sustained: 165	At least	\$480M
	Dissipated: Jun. 27, 2008	27.91 inHg	1-minute sustained: 205 kmh	1,300 fatalities	
Ondoy (Ketsana)	Formed: Sept. 23, 2009	960 mbar (hPa);	10-minute sustained: 130 kmh	710 fatalities	\$1.09B
	Dissipated: Sept. 30, 2009	28.35 inHg	1-minute sustained: 165 kmh	37 missing	

Source: Wikipedia, Rappler

Habagat

In recent years, rains brought by the southwest monsoon, locally known as Habagat, and enhanced by nearby storms have become as destructive as the typhoons that enter the Philippine Area of Responsibility (PAR). For instance, in August 2012, the Habagat was enhanced by typhoon Saola (Gener) and strengthened by typhoon Haikui which has not yet entered the PAR. The 2012 Habagat was an almost-a-week period of heavy rain and thunderstorm. Its effect centered in Metro Manila and the surrounding provinces of Regions 3 and 4-A. The

Habagat in 2012 caused typhoon-like damage similar to Ondoy of September 2009. The heavy rains caused the Marikina River to overflow which triggered a landslide in the Commonwealth area, buried residential structures and killed nine (9) people. The La Mesa Dam was near to overflowing and because of this, two (2) of the Dam's gates to Tullahan River were opened and flooded some areas in Lagro and Regalado Highway as well as portions of Barangay North Fairview and Sta. Lucia. Losses throughout the country by Habagat reached almost P604.63M.

In 2013, the country experienced another Habagat, which, while weaker than that of the previous year, was enhanced by typhoon Trami (Maring) and also caused severe flooding which paralyzed Metro Manila and inundated the nearby provinces of Bulacan, Pampanga, Tarlac, Zambales, Bataan, Rizal, Laguna and Cavite. The following table shows the comparative information on Typhoon Ondoy, Habagat of 2012 and 2013 in terms of accumulated rainfall, affected population, flooding, etc.

Table R-2 | Comparative Information on Tropical Storm Ondoy and the Habagat of 2012 and 2013

	Tropical Storm Ondoy (Ketsana)	Habagat 2012	Habagat 2013
Dates	Sept 24-27, 2009	Aug 6-8, 2012	Aug 17-21, 2013
Highest Measured Accumulated Rainfall	556.1 mm of rain (4-day period) measured in Science Garden, Quezon City	1,007.4 mm of rain (3-day period) measured in Science Garden, Quezon City"	1,120.2 mm of rain (5-day period) measured in Sangley Point, Cavite
Affected Population	993,227 families or 4,901,763 persons in 2,018 barangays, 172 municipalities, 16 cities, and 26 provinces in 12 regions"	934,285 families or 4,236,151 persons in 2,634 barangays, 175 municipalities, 36 cities, and 17 provinces in 6 regions	689,527 families or 3,096,392 persons in 2,124 barangays, 160 municipalities, 37 cities, and 18 provinces in 6 regions
Evacuation Centers	244 evacuation centers 15,798 families or 70,124 persons	656 evacuation centers 48,784 families or 212,632 persons outside evacuation centers 166,979 families or 776,370 persons"	159 evacuation centers 5,761 families or 23,364 persons outside evacuation centers 5,192 families or 26,907 persons"
Status of Lifelines	57 roads and 1 bridge impassable to all vehicles in Regions II, III, IV, CAR, and NCR (at the height of the storm)	16 roads and 3 bridges impassable to all vehicles in Regions III, IV-A, CAR, and NCR (as of Aug 17, 2012)	8 roads impassable to all vehicles in Regions I, III, IV-B, and CAR (as of Aug 30, 2013)
Flooding	184 cities/municipalities in 12 regions"	59 cities/municipalities in 3 regions	19 cities/municipalities in 3 regions "
State of Calamity	23 provinces and Metro Manila Pres. Arroyo declared a state of national calamity via Proclamation No. 1898 on Oct 2, 2009"	9 provinces, 12 cities, and 13 towns in 7 regions"	5 provinces, 10 cities, 18 towns, and 7 barangays in 5 regions

Source: Rappler.

Extreme Rainfall and Temperature

Climate change has major long term effects including temperature change, rainfall change, sea level rise and the increased frequency in extreme events.

Temperature change could be noticed from the increase or decrease of average temperatures resulting in changes in the number of hot or cold days and nights. Rainfall change on the other hand, means a change of the amount of water that drops into the earth in a year during different seasons such as rainy season which is longer or shorter having an increase or decrease of frequency and intensity. The increase in extreme events is the abnormal weather events that could be identified from storm, extreme heat, drought or heavy rain.

The succeeding data and discussions were taken from a 2011 study of the Department of Science and Technology- Philippine Atmospheric, Geophysical and Astronomical Services Administration (DOST-PAGASA) entitled "Climate Change in the Philippines." The study highlighted key findings of the present (baseline) climates, future climates in 2020 and 2050 in the Philippines.

To generate projections of the temperature increase and rainfall change in the Philippines in 2020 and 2050, DOST-PAGASA used the PRECIS (Providing Regional Climates for Impact Studies) Regional Climate Model (RCM). Two time slices centered on 2020 (2006-2035) and 2050 (2036-2065) were used in the climate simulations using three emission scenarios; namely, the A2 (high-range emission scenario), the A1B (medium-range emission scenario) and the B2 (low-range emission scenario) defined as follows:

- The A2 scenario is at the higher end of the emission scenarios and is preferred by most countries because from an impacts and adaptation point of view, if man

can adapt to a larger climate change, then the smaller climate changes of the lower end scenarios can also be adapted.

- The A1B scenario is considered because the future climates in the next 30-40 years will be greatly influenced by past emissions, principally due to long lifetimes of carbon dioxide.
- The B2 scenario representing the low-range emissions, the most unlikely, even if it represents the low end.

The climate trends were analyzed using available observed data from 1951-2009 with the average for the period of 1971-2000 as the reference value. The key findings are as follows:

- There has been an increase in annual mean temperature by 0.65 °C.
- In terms of maximum and minimum temperatures, the increases have been 0.36 °C and 0.1 °C.
- Results of analysis of trends of tropical cyclone occurrence within the Philippine Area of Responsibility (PAR) show that an average of twenty (20) tropical cyclones form and/or cross the PAR each year with strong multi-decadal variability and that there is still no indication of increase in the frequency, but with a very slight increase in the number of tropical cyclones with maximum sustained winds greater than 150kph and above (typhoon category) being exhibited during El Nino years.
- The analysis of trends of extreme daily temperatures and extreme daily rainfall indicate significant increase in number of hot days but decrease in cool nights, and those of rainfall (extreme rainfall intensity and frequency) are not clear, both in magnitude (by what amounts) and direction (whether increasing or decreasing), with very little spatial coherence.

For future climates in 2020 and 2050, outputs of the simulations under the mid-range scenario are used with the following key findings:

Seasonal Temperature Change

All areas in the Philippines will get warmer, especially in the relatively warmer summer months.

Annual mean temperature (average of maximum and minimum temperatures) in all areas in the country are expected to rise by 0.9 °C to 1.1 °C and by 1.8 °C to 2.2 °C in 2050.

Seasonal Rainfall Change

- Reduction in rainfall in most provinces during the summer season March, April and May (MAM) making the usually dry season drier.
- Rainfall increases are likely in most areas of Luzon and Visayas during the southwest monsoon June, July, and August (JJA) locally known as “Habagat” and the September, October, and November (SON) seasons, making these seasons still wetter, and thus, with likelihood of both droughts and floods in areas where these are projected.
- In the northeast monsoon December, January, and February (DJF) season locally known as Amihan, rainfall is projected to increase, particularly for areas characterized by Type II climate with potential for more flooding.

Extreme Rainfall Events

- During the southwest monsoon season JJA larger increases in rainfall is expected in provinces in Luzon (0.9% to 63%) and Visayas (2% to 22%) but generally decreasing trends in most of the provinces in Mindanao.

Extreme Temperature Events

- rojections for extreme events in 2020 and 2050 show that hot temperatures (indicated by the number of days with maximum temperature exceeding 35 °C) will continue to become more frequent, number of dry days (days with less than 2.5mm of rain) will

increase in all parts of the country and heavy daily rainfall (exceeding 300mm) event will also continue to increase in number in Luzon and Visayas.

Climate Projections in 2020 and 2050 in NCR (National Capital Region)

Under the same study, climate projections were also undertaken in the seventeen (17) administrative regions of the country using the medium-range emission scenario. Findings for the National Capital Region include the following.

The projected seasonal temperature increase (Table R-3), and seasonal rainfall change (Table R-4) and frequency of extreme events (Table R-5) in 2020 and 2050 under the medium-range emission scenario in the provinces in the National Capital Region (NCR) are presented in the succeeding sections.

To use the tables and arrive at values of seasonal mean temperature and seasonal rainfall in 2020 and 2050, the projections are added to the observed values.

For example, in Metro Manila, the projected values in 2020 are:

- DJF mean temperature = $(26.1\text{ °C} + 1.0\text{ °C}) = 27.1\text{ °C}$
- DJF rainfall = $\{107.5\text{mm} + 107.5(-12.8\%) \text{mm}\} = (107.5 - 13.8)\text{mm}$ or 93.7mm
- number of days with $T_{\text{max}} > 35\text{ °C}$ in Quezon City during the 2006-2035 period (centered at 2020) = 1,984
- number of dry days in Quezon City during the 2006-2035 period (centered at 2020) = 6,302
- number of days with rainfall $> 300\text{mm}$ in Quezon City during the 2006-2035 period (centered at 2020) = 8.

Table R-3 | Seasonal Temperature Increases (in °C) in 2020 and 2050 Under Medium-Range Emission Scenario in NCR

Observed Baseline				Change In 2020				Change In 2050			
(1971-2000)				(2006-2035)				(2036-2065)			
DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
26.1	28.8	28.0	27.4	1.0	1.1	0.9	1.0	2.0	2.1	1.8	1.9

Table R-4 | Seasonal Rainfall Change (in %) in 2020 and 2050 Under Medium-Range Emission Scenario in NCR

Observed Baseline				Change In 2020				Change In 2050			
(1971-2000) mm(2006-2035)				(2036-2065)			
DJF	MAM	JJA	SON	DJF	MAM	JJA	SON	DJF	MAM	JJA	SON
107.5	198.5	1170.2	758.7	-12.8	-33.3	8.5	0.0	-17.3	-38.5	21.3	3.7

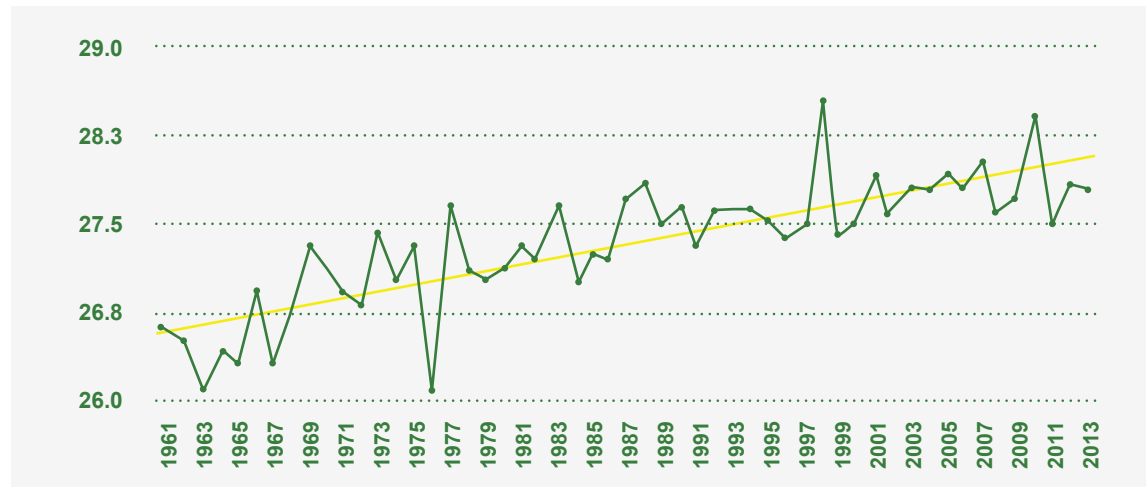
Table R-5 | Frequency of Extreme Events in 2020 and 2050 Under Medium-Range Emission Scenario in NCR

Stations	No. of Days w/ Tmax >35 °C			No. of Dry Days			No. of Days w/ Rainfall >200mm		
	OBS (1971-2000)	2020	2050	OBS	2020	2050	OBS	2020	2050
Port Area	299	1176	2118	7380	6445	6382	12	12	13
Science Garden	1095	1984	3126	7476	6302	6220	9	13	17

Note:

- For Kalookan North, Quezon City, Marikina, Pasig, Taguig, San Juan Mandaluyong, use values of Science Garden.
- For Navotas, Kalookan South, Malabon and Valenzuela, use values of Port Area.
- OBS - Observed Baseline

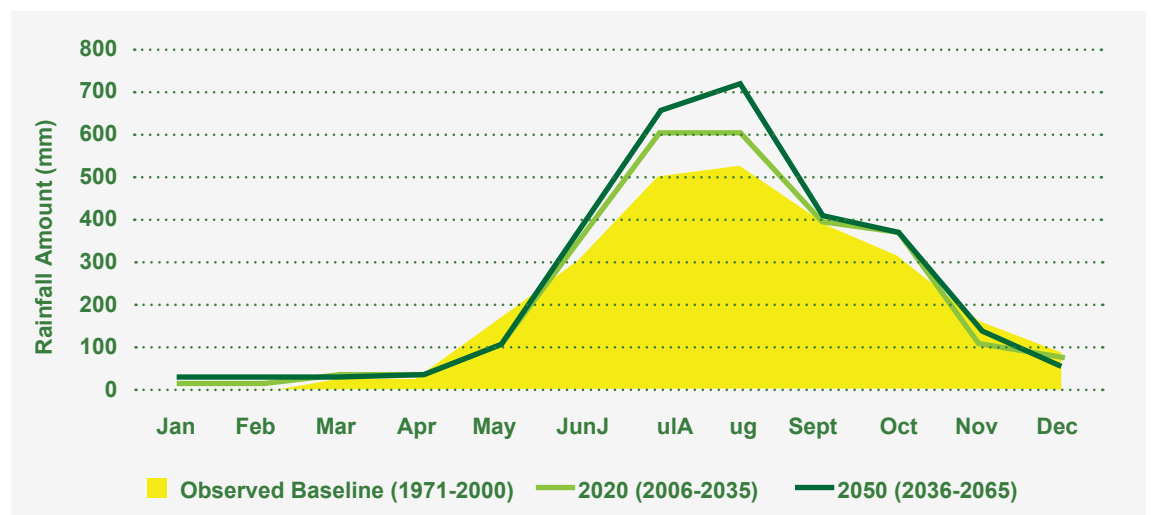
Data for Quezon City were also obtained from the DOST-PAGASA showing the city's Annual Mean Temperature, Projected Change in Monthly Rainfall, Projected Change in Monthly Average Mean Temperature, Projected Change in Monthly Average Maximum Temperature, and Projected Change in Monthly Average Minimum Temperature under Medium-range Emission Scenario (A1B). Figure R-1 indicates that Quezon City had an increase of 1.46°C from 1961 to 2013 (52 years).



Source: DOST - PAGASA

Figure R-1 | Annual Mean Temperature; PAGASA Science Garden: 1961 – 2013

The study shows too that the city will have an increase in rainfall in 2020 and 2050 particularly during the wet season (June, July and August). Heavy daily rainfall events (rainfall exceeding 300mm) will continue to become frequent in 2020 and 2050 (Figure R-2).



Source: DOST - PAGASA

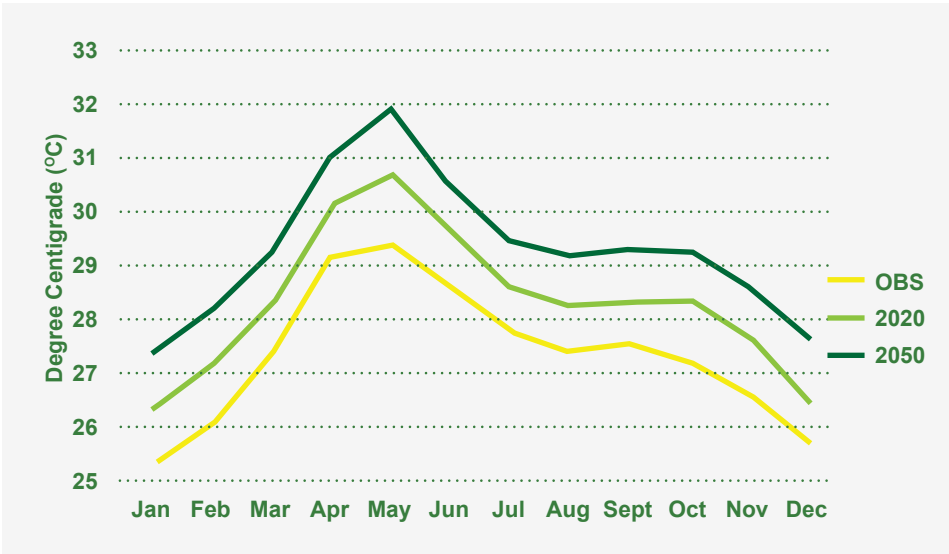
Figure R-2 | Projected Change in Monthly Average Rainfall (mm) under Medium-range Emission Scenario (A1B); Science Garden, QC

As reflected in Table R-6 and Figure R-3, Quezon City has a projected change in monthly average mean temperature of 0.7°C to 1.2°C in 2020 and 1.7°C to 2.4°C by 2050.

Table R-6 | Mean Temperature (1971-2000) and Projected Change in Mean Temperature (2020 and 2050); QC

Science Garden								
Month	MEAN		BIAS	Projected Change (%)		Bias Corrected Projected Change		
	Observed 1971-2000	Model 1971-2000		2020	2050	TMEAN		
						1971-200	2020	2050
Jan	25.4	24.8	-0.6	1	2	25.4	26.4	27.4
Feb	26.1	25.3	-0.8	1.1	2	26.1	27.2	28.1
Mar	27.4	26.9	-0.5	0.9	2	27.4	28.3	29.4
Apr	29.1	28.2	-0.9	1.1	2	29.1	30.2	31.1
May	29.5	27.8	1.1	1.2	2.4	29.5	30.7	31.9
Jun	28.6	26.9	1.2	1	1.9	28.6	29.6	30.5
Jul	27.8	26.5	1	0.8	1.7	27.8	28.6	29.5
Aug	27.5	26.4	0.8	0.8	1.7	27.5	28.3	29.2
Sept	27.6	26.2	0.8	0.8	1.7	27.6	28.4	29.3
Oct	27.3	26.3	0.8	1.1	2	27.3	28.4	29.3
Nov	26.7	25.9	1.1	1	2	26.7	27.7	28.7
Dec	25.8	25.4	1	0.7	1.9	25.8	26.5	27.7

Source: DOST - PAGASA



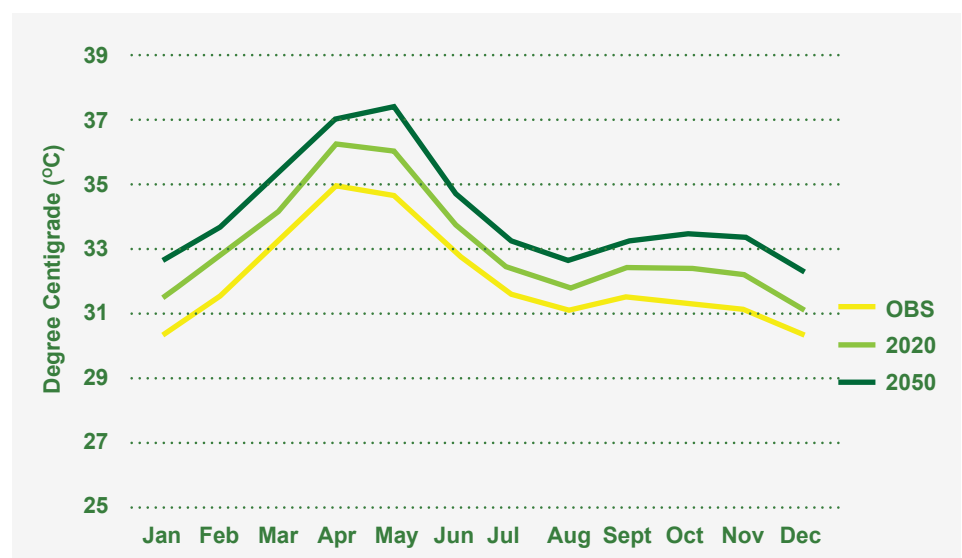
Source: DOST - PAGASA

Figure R-3 | Mean Temperature (1971-2000) and Projected Change in Mean Temperature (2020 and 2050); QC

The projected Change in Monthly Average Maximum Temperature for Quezon City for 2020 and 2050 is 0.7°C to 1.4°C and 1.6°C to 2.7°C, respectively. There would be an increase in the number of days greater than 35 °C particularly in 2050. (Refer to Table R-7 and Figure R-4)

Table R-7 | Maximum Temperature (1971-2000) and Projected Change in Maximum Temperature (2020 and 2050); QC

Science Garden								
Month	MEAN		BIAS	Projected Change (%)		Bias Corrected Projected Change		
	Observed 1971-2000	Model 1971-2000		2020	2050	TMEAN		
						1971-200	2020	2050
Jan	30.4	28.2	-2.2	1.1	2.2	30.4	31.5	32.6
Feb	31.6	29.4	-2.2	1.2	2.1	31.6	32.8	33.7
Mar	33.3	31.6	0.9	0.9	2.1	33.3	34.2	35.4
Apr	34.9	32.9	1.3	1.3	2.1	34.9	36.23	37
May	34.6	31.2	1.4	1.4	2.7	34.6	36	37.3
Jun	32.9	29.1	0.9	0.9	1.8	32.9	33.8	34.7
Jul	31.6	28.4	0.7	0.7	1.6	31.6	32.3	33.2
Aug	31.1	28.3	0.7	0.7	1.4	31.1	31.8	32.5
Sept	31.5	28.2	0.9	0.9	1.7	31.5	32.4	33.2
Oct	31.3	29.3	1.1	1.1	2.1	31.3	32.4	33.4
Nov	31.1	29	1.1	1.1	2.2	31.1	32.2	33.3
Dec	30.3	28.4	0.8	0.8	2	30.3	31.1	32.3



Source: DOST - PAGASA

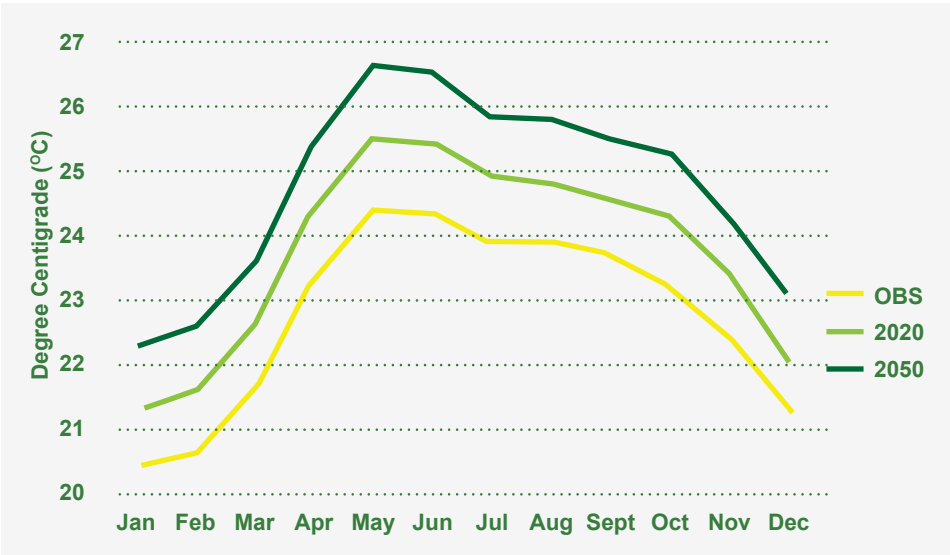
Figure R-4 | Maximum Temperature (1971-2000) and Projected Change in Maximum Temperature (2020 and 2050); QC

Table R-8 and Figure R-5 show that Quezon City has a projected change in monthly average minimum temperature of 0.7°C to 1.1°C in 2020 and 1.8°C to 2.2°C in 2050.

Table R-8 | Minimum Temperature (1971-2000) and Projected Change in Minimum Temperature (2020 and 2050); QC

Science Garden								
Month	MEAN		BIAS	Projected Change (%)		Bias Corrected Projected Change		
	Observed 1971-2000	Model 1971-2000		2020	2050	TMEAN		
						1971-200	2020	2050
Jan	20.4	22.7	2.3	20.4	1.9	20.4	21.3	22.3
Feb	20.6	22.7	2.1	20.6	2	20.6	21.6	22.6
Mar	21.6	23.8	2.2	21.6	2	21.6	22.6	23.6
Apr	23.3	24.9	1.6	23.3	2.1	23.3	24.4	25.4
May	24.4	25.4	1	24.4	2.2	24.4	25.5	26.6
Jun	24.3	25.2	0.9	24.3	2.2	24.3	25.4	26.5
Jul	23.9	25.1	1.2	23.9	1.9	23.9	24.9	25.8
Aug	23.9	25.2	1.3	23.9	1.9	23.9	24.8	25.8
Sept	23.7	24.9	1.2	23.7	1.8	23.7	24.5	25.5
Oct	23.2	24.2	1	23.2	2.1	23.2	24.3	25.3
Nov	22.4	24.1	1.7	22.4	1.9	22.4	23.4	24.3
Dec	21.3	23.7	2.4	21.3	1.8	21.3	22	23.1

Source: DOST - PAGASA



Source: DOST - PAGASA

Figure R-5 | Minimum Temperature (1971-2000) and Projected % Change in Minimum Temperature (2020 and 2050); QC

Flood

Flooding is a primary impact brought about by the increased precipitation or extreme weather events such as storms or cyclones.

Flooding Situation

Quezon City has higher elevation compared to Manila and other Metro Manila cities but it experiences regular flooding despite of this physical attribute.

The city has undulating terrain and is within the catchment area of five river systems- San Juan, Tullahan River, Marikina River, Pasig River and Meycauayan River and their tributaries and creeks have a total length of almost 200 km. These river systems receive tremendous amount of water during heavy rainfall and have great potential to flood low-lying areas.

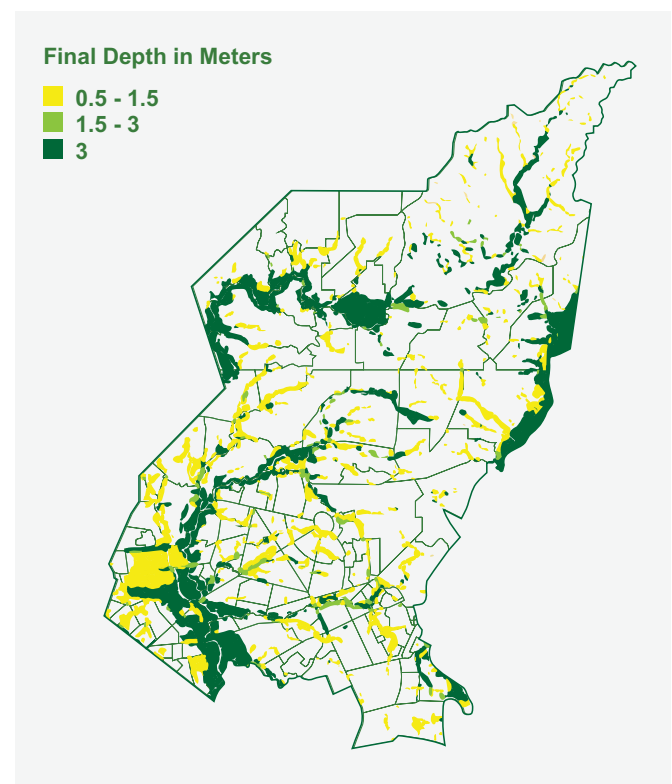
With elevation ranging from 2 meters above sea level (a.s.l.) on the south near Manila up to 232 meters a.s.l. on the northernmost tip of the La Mesa Reservoir, the City is generally not affected by tidal flooding. The low-lying areas along San Juan River in Barangays Dona Imelda, Damayang Lagi, Talayan, Roxas and Kalusugan

are prone to overflow flooding usually when San Juan River backflows from the junction with Pasig River. The areas near Manila like Simon, Maria Clara, Calamba and Cuenco Streets and Matimyas and Mindanao Streets where the Galas drainage culverts are located are also prone to back flow flooding.

In built-up areas, the local drainage collectors consisting of concrete piped and box culverts empty into the river or creek. The drainage system fails when there is lack of drop-inlets or insufficiently-sized of drainage pipes get silted or clogged. The result is flash flooding in many places.

Flood Risk Assessment

In 2012, the City Government entered into a Memorandum of Agreement with the Earthquake and Megacities Initiatives (EMI) for the joint undertaking of the “Building a Disaster Resilient Quezon City “ Project. Among the outputs of the project are the Hazards, Vulnerability and Risk Assessment (HVRA) Report and the Disaster Risk Reduction and Management Plan (DRRMP) 2014-2020 for managing earthquake and flood risks.

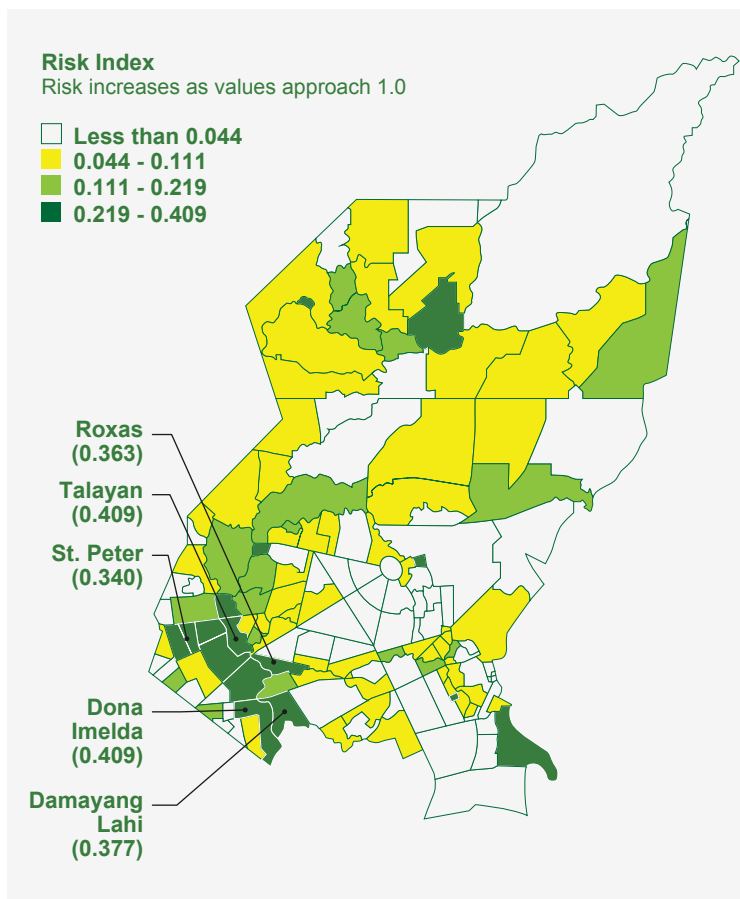


Source: QC Disaster Risk Reduction Management Plan (2014-2020)

Figure R-6 | Flood Susceptibility Map; Quezon City

Key findings in the HVRA Report indicated the following:

- The top five (5) barangays to prioritize for flood earth impacts are Barangays Talayan, Damayang Lagi, Roxas, St. Peter and Dona Imelda.
- In addition, Barangays Sto. Domingo (Matalahib), Tatalon, North Fairview, Bagumbayan and Dioquino Zobel constitute a second tier for prioritizing emergency management planning and preparedness actions.



Source: QC Disaster Risk Reduction Management Plan (2014-2020)

Figure R-7 | Barangay Hotspots Based on Flood Hazard and Vulnerability

Population affected by floods

- A total of 700,000 are estimated to be affected in Quezon City.
 - _ 16% in low susceptibility areas
 - _ 30% moderate flood susceptibility areas
 - _ 54% in high flood susceptibility areas
- The top three Barangays that have greater than 80% within the high flood susceptibility area are Barangays Capri, Talayan and Katipunan.
- The Japan International Corporation Agency (JICA) model estimates that climate change can increase the affected areas in Quezon City by 2050 by as much as 7%.

Casualties Caused by Floods

- It is estimated that 111 casualties in Quezon City will be caused by a 100- year flood.
- Areas which are in a high susceptibility flood susceptibility zone (inundation depth greater than 200cm) are likely to encounter casualties 2.5 times greater than medium susceptibility areas (inundation depth between 50cm and 20cm) and 5 times greater than low susceptibility areas (inundation depth below 50cm).
- The largest number of casualties is expected to be in Barangays Batasan Hills, Tatalon, Sta Lucia and Bagong Silangan due to their higher populations which are affected by high flood exposure levels. These barangays have more informal settlement buildings than average in Quezon City. This is also probably due to the many informal settlements located nearby river systems
- For every 1,500 informal settlement buildings, an average of 1 extra casualty is estimated to occur.
- 30% of the population of Quezon City is under 15 years old and are at greater risk of becoming a casualty.

Population Displaced and Affected by Floods

- Around 68,619 people are estimated to be displaced.
- The largest number of people displaced are expected to be in Barangays Batasan Hills, Tatalon, Sta. Lucia and Bagong Silangan due to their higher populations which are affected by high flood exposure levels.
- There is one casualty for every 1,000 people displaced.
- Around 700,000 people are expected to be affected with additional people due to possible power or utility issues.

Economic Losses

The total economic loss resulting from this study comes out to be 319 million USD of which about 245 million USD is capital stock related.

Table R-9 | Impact on Critical and High Loss Potential Facilities

Top Five Barangays for each of the critical and high loss facilities	
Member	Top 5 Barangays
Hospitals and Healthcare Centers	Doña Imelda, Damayang Lagi, Kalusugan, Central, Bagumbuhay
Emergency and Rescue Operation Centers	Masambong, N. S. Amoranto (GintongSilahis), Libis, San Antonio, Matandang Balara
High Loss Potential Facilities	Fairview, BagongLipunangCrame, Bagumbayan, E. Rodriguez, Holy Spirit
Hazardous Facilities	Tatalon, Manresa, Bagumbayan, Sto. Domingo (Matalahib), Talayan
Major Roads	Pag-ibig s aNayon, Commonwealth, Sta. Monica, Capri, Duyan-duyan

Post-Flood Health Issues - Adapted JICA Outbreak Model

- High disease incidence rate after a flood combined with systemic failures of healthcare systems and parallel infrastructure such as the water and sanitation system constitute a major vulnerability.
- More than 2,089 people were treated for bacterial infection in Manila and surrounding provinces 162 people have died as a result of Leptospirosis infections, more than five times the number of Leptospirosis deaths in the entire country in 2008 (Balbuena et al., 2010).
- Dose-response relationships for the indicator pathogen (E. coli) using different ingestion rates as a function of flood inundation depth and age show that as many as 6,800 people in Quezon City are at risk to gastrointestinal illness via incidental ingestion of flood water.
- People under the age of 15 are at significantly higher risk.

Table R-10 | Summary of Flood Related Consequences to Sectors

Core Elements	Primary Hazards Flood Inundation		Primary Damage Building Material Non-structural/ Equipment Primary Loss: Life/Injury, Repair Costs, Function, Communication/ Control	Secondary Hazard/ Damage Liquefaction, Landslide, Fire, Hazmat, Flooding Secondary Loss: Business/Operations, Interruptions, Market Share, Reputation
Economic Activity	66 Barangays District I - 20 District II - 5 District III - 11 District IV - 11 District V - 11 District VI - 8 *46% out of 142 barangays		Affected Est. Population: 1.334 M 150 deaths (Based on Ondoy)	
Economic Activity	Novaliches Bagong SilanganBata san Hills Bagumbayan Sto. Domingo Talayan Del Monte Santol	Dona Imelda Damayang Lagi Kalusugan Tatalon Roxas Masambong San Antonio Gulod	Structural Damage Roads & bridges Residential Commercial structures Drainage system Rip-raps	Loss of lives & property Loss of income & livelihood
Access to Income/Services	Places near Tullahan River Capri Gulod Novaliches Proper Nagkaisang Nayon North Fairview Sta. Lucia Barangays Near San Francisco River Siena Del Monte San Antonio Tatalon Damayan Talayan	Barangays near San Juan River Tatalon Doña Imelda Damayan Lagi Roxas Pasong Tamo CuliatVasra Along Marikina River/San Mateo Bridge Bagong Silangan Batasan Payatas Matandang BalaraLibis Bagumbayan	Displaced Families Casualties	Disease Outbreak
Emergency Management and First Responders	Quick Rise of Flood Water Flash Floods Tatalon Villa Espana Araneta Avenue Victory Avenue Dona Imelda Kapilingan Street	Betty Go Belmonte Barangay Roxas Gumamela Waling-waling Damayang Lagi Calvary Hills Area 5	Loss of lives Damage/loss of priorities Roads & Bridges Damage Widespread evacuation Damage to powerlines	Food/medicine shortage Water-borne disease outbreaks Electricity & water supply Contamination of portable water Stranded disruption of essential services (e.g. transportation) Suspension of classes
Institutional and Land Use Administrators	All barangays traversed by rivers & creeks Tatalon Dona Imelda Roxas Tlayan	Bagong Silangan Sta Lucia Gulod	Structural damages ISFs Residential Establishments Commercial Establishments Drainage System Ripraps Bridges & Roads Utilities (water & powerlines) Loss of lives, properties & livelihood	Outbreak of diseases Contamination of water supply Disruption of public services, commercial activities"

Table R-11 | Summary of Consequences of Floods to Sector Including Initial Recommendations to Reduce Consequences

Core Elements	Consequences to Sector of Flood	Initial Recommendations
Population	Affected Est. Population: 1.334 M 150 deaths (Based on Ondoy)	<ol style="list-style-type: none"> 1. Full implementation of the QC Shelter Program 2. Intercity Flood Control Program 3. Recovery of easements 4. Strict implementation of RA 9003
Economic Activity	<ol style="list-style-type: none"> 1. Loss of lives & damage to properties 2. Disruption of public services 3. Lifeline Disruptions (Communication, water, power) 	<ol style="list-style-type: none"> 1. Provision of budget for livelihood (start-up budget for livelihood) 2. Trainings for livelihood & income 3. Provision of additional rubber boat, generators and relief goods (food, medicine, clothes) 4. Provision of evacuation areas
Access to Income/ Services	<ol style="list-style-type: none"> 1. Loss of lives and injuries 2. Health and Sanitation 3. Livelihood & Shelter 4. Lifeline are damaged 5. Unemployment 6. Mobility and Accessibility 	<ol style="list-style-type: none"> 1. Identification of relocation sites/evacuation center 2. Community-based trainings DRRM - First Aid Training 3. Involve NGOs 4. Budget Allocation 5. Basic Training, using indigenous materials/resources 6. Creation of livelihood programs for rehabilitation "work for food"
Emergency Management and First Responders		<ol style="list-style-type: none"> 1. Declogging of canals/drainages/rivers 2. Development of protocols on alert levels/ communication during inclement weather (between brgys and QCRRMC) 3. Identification of relocation sites of ISF located along riverways/creeks 4. Formulation of barangay contingency plan 5. Enhancement of training & capacity building of BERT 6. Installment of CCTV & Flood markers to flood prone areas 7. Ordinance for forced evacuation 8. Increase of capacity through accredited community
Institutional and Land Use Administrators	<ol style="list-style-type: none"> 1. Structural Damages 2. Loss of lives, properties & livelihood 3. Presence of informal settlers along rivers & creeks 	<ol style="list-style-type: none"> 1. Review & revision of CLUP & Zoning Ordinance 2. Location of activities & functions in flood free areas 3. Strict implementation of the Water Code (3-meter creek easement)
Physical Resources	<ol style="list-style-type: none"> 1. Water Contamination (waterways & portable water) 2. Waste Accumulation 3. Damage to parks and wildlife 	<ol style="list-style-type: none"> 1. Strict monitoring of compliance of water companies 2. Construction of retaining wall & desiltation of rivers 3. Strict implementation of waste segregation policies 4. IEC on proper waste segregation 5. Desiltation & construction of retaining wall

Drought

Drought is a primary impact of increased temperature and a recurrent feature of climate. This is characterized by a deficiency of precipitation over an extended period of time. Drought is also related to the timing of precipitation. Other climatic factors such as high temperature, high wind, and low relative humidity are often associated with drought.

Impacts of drought involve water stock reduction in reservoir, water supply shortages, depletion of groundwater, soil moisture reduction and decrease in food production.

Droughts can have serious social, economic and environmental impacts. Social impact involves public safety, health and conflicts between water users. Economic impact on the other hand, relates to losses in yields in both crop and livestock production while some of the environmental impacts are environmental losses due to damages to plant and animal species, wildlife habitat, air and water quality, degradation of landscape quality, loss of biodiversity and soil erosion.

Quezon City has vast area of parks and open spaces such as the La Mesa Watershed, Ninoy Aquino Parks and Wildlife, Quezon City Memorial Circle, UP Diliman, Miriam College, Ateneo de Manila Campus which are habitat to numerous species of flora and fauna are perceived most vulnerable during the occurrence of drought.

The experience from droughts has underscored the vulnerability of human societies to this natural hazard.

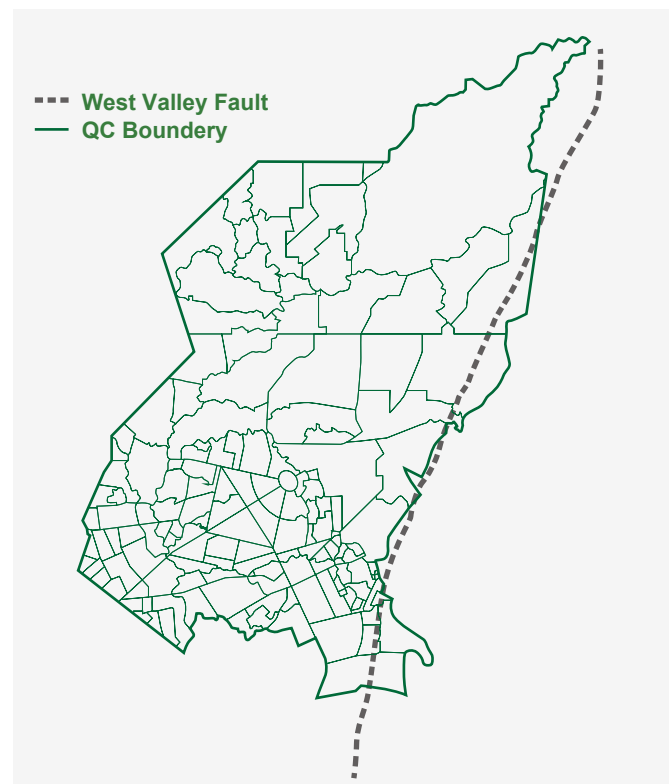
7.1.2 | Geological Hazards

Earthquake

The West Valley Fault extends north of Montalban in western Rizal Province and passes east of Metro Manila to the south, possibly as far as Tagaytay Ridge.

It traverses the eastern boundary of Quezon City, particularly Barangays Bagong Silangan, Batasan Hills, Matandang Balara, Pansol, Blue Ridge B, St. Ignatius, Libis, White Plains, Bagumbayan and Ugong Norte.

The large-magnitude earthquake from the movement of the fault system is said to recur in the last 1400 years at an interval of 200-400 years. Based on this estimate, it is most likely that there will be a big earthquake within the period 2000-2058. The 2004 MMEIRS of JICA projects the occurrence of a magnitude 7.2 earthquake from the movement of the WVF System.



Source: QC Disaster Risk Reduction Management Plan (2014-2020)

Figure R-8 | The West Valley Fault System

Earthquake Risk Assessment

The HVRA Report of “Building a Disaster Resilient Quezon City” Project also dealt extensively on the risks, consequences, and impacts of a 7.2 magnitude earthquake generated from the movement of the West Valley Fault System.

Top five barangays to prioritize for earthquake impacts are Barangays Bagumbayan, St. Ignatius, Ugong Norte Bagong Silangan and Batasan Hills while barangays which constitute a second tier for prioritizing emergency management planning and preparedness actions are Barangays White Plains, Blue Ridge B, Kaligayahan, Libis and Commonwealth.

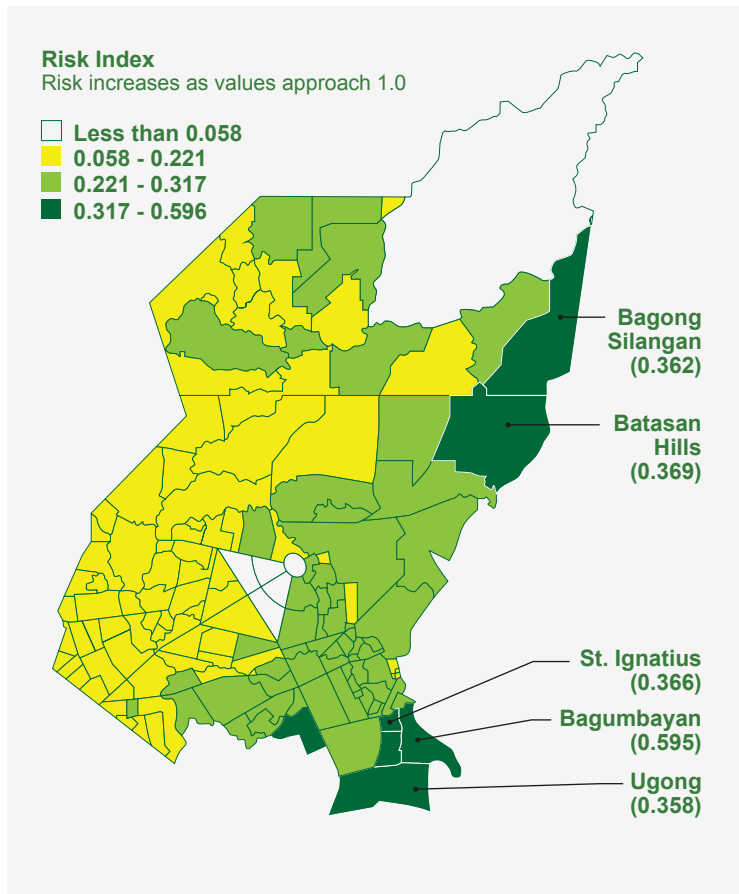


Figure R-9 | Barangay Hotspots Based on Earthquake Hazard and Vulnerability

Fire Following Impact

Based on Model 8 Scenario, a projected 4,800 buildings may be burnt in case of an 8-meter per second wind.

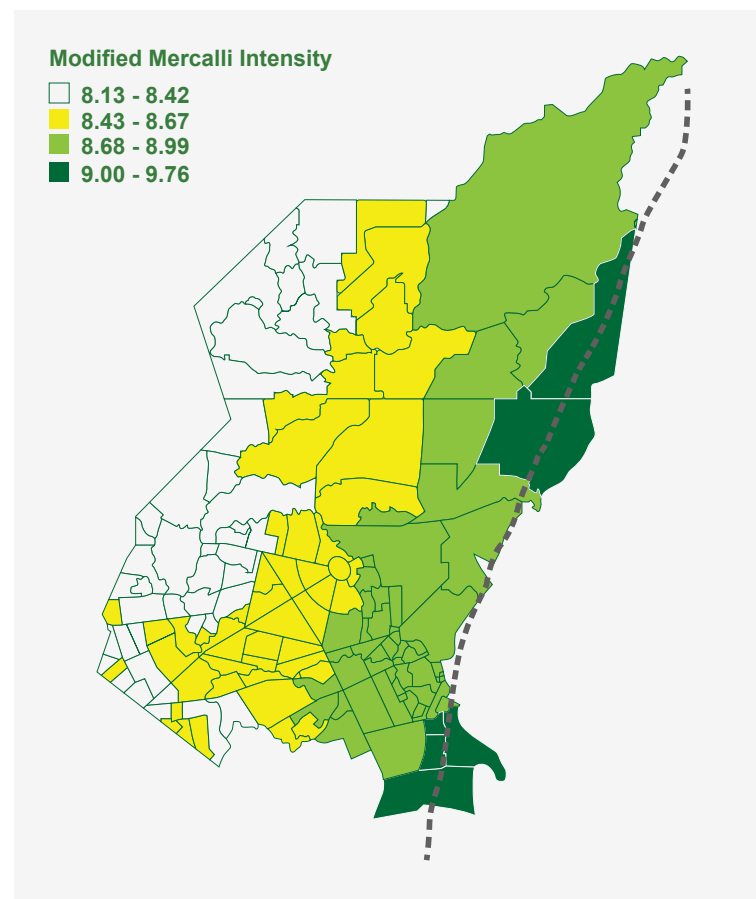
Liquefaction Impact

Table R-12 | Liquefaction-Prone Barangays

Barangay		Liquefaction Potential
Bagumbayan	Santol	Relatively High
Damayang Lagi	Sienna	
Doña Imelda	St. Ignatius	
Kalusugan	St. Peter	
Libis	Sta. Cruz	
Lourdes	Sto. Domingo	
Mariana	(Matalahib)	
Mariblo	Talayan	
Matandang Balara	Tatalon	
Roxas	White Plains	
Bagumbayan		Relative Low
Ugong Norte		

Ground Motion Shaking Severity

Barangays with strongest intensity of ground motion are Barangay Bagumbayan (9.76), Ugong Norte (9.36), Batasan Hills (9.28), Libis (9.26) and Bagong Silangan (9.25).



Source: QC Disaster Risk Reduction Management Plan (2014-2020)

Figure R-10 | Modified Mercalli Intensity Scale Distribution per Barangay; Quezon City

- The following barangays will suffer the most with building collapse: Batasan Hills (449 buildings), Bagong Silangan (249), Payatas (134), Matandang Balara (112), and Commonwealth (101). These barangays are located towards the eastern region of Quezon City. These same barangays will also suffer the most with buildings that will receive very heavy damages.
- The barangays that will suffer the most from buildings sustaining heavy damages are Commonwealth (1,414), Batasan Hills (1,348), Payatas (957), Holy Spirit (908), and Pasong Tamo (747).
- The barangays that will suffer the most from buildings that will sustain partial damages are Batasan Hills (5,741), Commonwealth (5,198), Payatas (3,705), Holy Spirit (3,236), and Bagong Silangan (3,155).
- The barangays that will suffer most fatalities are Batasan Hills (1,557), Commonwealth (948), Bagong Silangan (878), Holy Spirit (680), and Matandang Balara (650).
- The barangays that will suffer the most injuries are Batasan Hills (4,324), Commonwealth (3,130), Tandang Sora (2,571), Bagong Silangan (2,442), and Holy Spirit (2,240).

Table R-13 | Summary of the Earthquakes Impacts to Sectors from a M7.2 Earthquake from the West Valley Fault

Core Elements	Primary Hazards: Faulting, shaking, liquefaction, landslide	"Primary Damage: Building/Structural Non- structural/Equipment Primary Loss: Life/Injury, Repair Costs, Function, Communication/Control"	Secondary Hazard/ Damage: Liquefaction. Landslide Fire, Hazmat, Flooding... Secondary Loss: Business /Operations Interruptions, Market Share, Reputation
Population	<p>Shaking Silangan BF Homes Subd. Barangay Proper South Cemetery Petines Filinvest II</p> <p>Ugong Norte Mercury C-5 Greenmeadows Acropolis</p> <p>Libis Eastwood Cyberpark C. Atienza C. Industria</p> <p>Blue Ridge B. left side of bridge Pansol White Plains</p>	<p>Building Collapse Residential /Commercial, Industrial, Institutional, Reservoir Schools (Bagong Silangan ES/ HS) Churches, markets, hospitals Roads & Bridges (C-5) Cracking, damage</p> <p>to La Mesa Dam Expected % life loss - 3,000 (estimated) Injured - 9,000 (Estimated) $3000 * 2 = 6,000$ $9000 * 2 = 18,000$ Estimated 16 * $5000 = 90000$ students 1350 - injured, 67 deaths</p>	<p>Landslide Payatas (open dumpsite) Bagong Silangan</p> <p>Flooding Disruption of: Basic services/supply (food, water, electricity) Slowing down/stoppage of business</p>
Economic Activity	Faulting & Shaking	Damage to Malls, Condominiums and Residences Bagumbayan White Plains	<p>Buildings Collapse Bagumbayan</p> <p>Landslide Bagong Silangan Batasan Hills</p> <p>Informal Settlers Food & Water Shortage Communication & Power Interruption</p>

Core Elements	Primary Hazards: Faulting, shaking, liquefaction, landslide	"Primary Damage: Building/Structural Non- structural/Equipment Primary Loss: Life/Injury, Repair Costs, Function, Communication/Control"	Secondary Hazard/ Damage: Liquefaction, Landslide Fire, Hazmat, Flooding... Secondary Loss: Business /Operations Interruptions, Market Share, Reputation
Access to Income/Services	Ground Shaking Bagumbayan Escopa Loyola Heights Pansol Old Balara Batasan Bagong Silangan	<p>Damage to Balara Filter Plant & Main Water Aqueduct</p> <p>Damage to La Mesa Dam</p> <p>Damage to Schools Red: Bagong Silangan ES, Bagong Silangan HS, Bagumbayan ES, OB ES Orange: Payatas ES, Judge Cecilia Palma ES, Batasan Hills ES, Balara ES, Batino ES, T. Alonzo ES, JP Laurel HS, Camp Aguinaldo, PV Kalaw, Libis Orange: Murphy HC, Camp Aguinaldo Station Hospital, Quirino Memorial Medical Center, Proj. 4 HC, Villarosa Gen. Hospital, Escopa HC, Payatas A HC, Payatas B HC, Lupang Pangako, Commonwealth</p> <p>Primary Damage-Bridges and Roads Red: Bagong Silangan – (Joyful St.), San Mateo – Batasan, Bagumbayan (Calle Industria)</p> <p>Damage to Health Centers & Hospitals Red: Pansol HC, Libis HC, Bagong Silangan HC, Batasan Super and Batasan Annex HC, Doña Nicasia, Camarilla ES, Libis ES, Fort Auignaldo ES, Belarmino Sports Complex</p> <p>Life lines are cut Suspension of Classes Mass Casualties (Death, Injuries)</p>	<p>Possible flooding of barangays along Tullahan River</p> <p>Informal Settlers Fire Prone Flash flood Loss of Lives (mass casualties)</p> <p>Water supply interruption Health and Sanitation Problems -> Disease Outbreak Disruption of Health Services Disease Outbreak Loss of Lives Injuries Demand for services Delayed Emergency Response due to inaccessible roads</p>
Emergency Management and First Responders	Those affected by primary hazards: Blue Ridge B Libis St. Ignatius Bagumbayan	<p>Power Cut-off Loss of Communication, Water Supply Faulting along C5: Road Damage Flyover Libis-Katipunan Collapse</p>	<p>Buildings and Hotels Collapse Casualties/ Injuries Loss of Lives Work, school, suspension</p> <p>"Contamination of Waterways Liquefaction in Brgy. Bagumbayan Residential Fire Industrial Fire (e.g. Gas station, Factories) Industrial & Chemical Leaks in Bagumbayan Residential Areas prone to landslide Food/Medical Shortage</p> <p>Security Threat (Chaos among civilians), looting Closure of business/transactions Prolonged restoration of electrical & water supply Hampered PNP & other law enforcement response</p>
Institutional and Land Use Administrators	Bagong Silangan Batasan Hills Matandang Balara Pansol St. Ignatius Blue Ridge B White Plains Bagumbayan Ugong Norte Libis	<p>Roads & Bridges Damage Building Damage Government Offices, Churches Batasan National HS Batasan ES Bagong Silangan ES Bagong Silangan HS QC Polytechnic University Ateneo de Manila University</p> <p>Miriam College LupangPangako ES Payatas-A ES Corazon Aquino ES Daycare centers Health care centers Private schools Hospitals Barangay halls Commercial and industrial establishments (in Libis)</p>	<p>Liquefaction Batasan Hills B. Silangan Bagumbayan Ugong Norte</p> <p>Fire High-density areas, communities</p> <p>Flooding Access issues Extra human loss</p> <p>Landslide Matandang Balara BatasanHills B. Silangan</p>

**Table R-14 | Summary of Consequences to Sector of a M7.2 Earthquake
Including Initial Recommendations to Reduce the Consequences**

Core Elements	Consequences to Sector of M7.2 EQ	Initial Recommendations
Population	<ol style="list-style-type: none"> 1. Loss of Life, Possible injuries 2. Destruction of the environment 3. Loss of properties or infrastructure 	<ol style="list-style-type: none"> 1. Reduction of % of deaths through increasing the level of awareness on DRRM in the community 2. Greening the buffer zone of the fault line (5m on both sides) 3. Strict implementation of the National Building Code. 4. Relocation of the ISF located along the fault line 5. Proper Waste Management 6. Reduction on risk by: Identifying hazards 7. Empowerment of the people
Economic Activity	<ol style="list-style-type: none"> 1. Landslide 2. Roads & Bridges Damage 3. Shortage of Relief Goods (Foods and Medicine) 	<ol style="list-style-type: none"> 1. Resettlement of I.S.F. 2. Construction of EQ-proof bridges and all other roads and frequent inspections 3. Pre-deployment of relief good to strategic areas
Access to Income/ Services	<ol style="list-style-type: none"> 1. Casualties and injuries 2. Damaged school buildings 3. Damaged roads and bridges 	<ol style="list-style-type: none"> 1. Preparedness Drills 2. Retrofitting of treatment plants 3. Education 4. Advocacies 5. Capacity development of vulnerable groups 6. Relocation 7. Training of health personnel and community on first aid, rescue and water sanitation & hygiene 8. Capacity development of community & provision emergency kits and logistics for primary care services 9. Coordination & networking 10. Inspection of roads and bridges 11. Retrofitting and repair 12. Identification of alternative routes to transport people, supplies and other needed resources
Emergency Management and First Responders	<ol style="list-style-type: none"> 1. Landslide in Residential areas (Blue Ridge B) 2. Civil unrest (Brgy. Libis) 3. Chemical Leak (Fire) 	<ol style="list-style-type: none"> 1. Provision of early warning signage 2. IEC (Trainings & Drills) materials 3. Relocation of ISFs from danger zones 4. Identification of evacuation centers 5. Preparation of contingency plan on the part of PNP during civil unrest 6. Frequent exercise of fire and EQ drills 7. Conduct of Barangay-Ugnayan 8. Identification of the kinds of chemicals present 9. Contingency plan in cases of emergency, in coordination with QC BFP
Institutional and Land Use Administrators	<ol style="list-style-type: none"> 1. Depreciation of Land Values 2. Structural Damage (Infrastructure) 3. Disruption of government services and operations 	<ol style="list-style-type: none"> 1. Conversion of Use 2. Repair and rehabilitation (make the structures more resilient) 3. Strict Compliance & implementation of the National Building Code and Zoning Ordinance 4. Review and revision of the CLUP 5. Identification of areas where the services & operations can resume
Physical Resources	<ol style="list-style-type: none"> 1. Contamination of waterways 2. Uprooting of trees 3. Accumulation of wastes 	<ol style="list-style-type: none"> 1. Invest on Earthquake-resistant drainage systems 2. Retrofitting of treatment plants 3. Reinforcement of huge old trees 4. Continuous improvement of the existing disposal sites 5. Retrofitting of roads

7.1.3 | Anthropogenic Hazards

Anthropogenic hazards also known as human-made hazards which can result in the form of a man-made disaster. “Anthropogenic” means threats having an element of human intent, error or negligence or involving a failure of a man-made system causing one or more identifiable disastrous events.

Fire

Fire Protection and Prevention

Fire protection and prevention services are provided by the Quezon City Fire District which has 21 sub-stations in the city with 406 firefighters complemented by 41 fire brigade volunteers. At present, the city’s fireman to population ratio is at 1:6,234 which is way below the standard ratio of 1:2,000. Quezon City has 30 firefighting vehicles, but only 16 are operational. There are also 4 aerial ladders, all of which are functional.

The 2013 sub-station to land ratio is 1:8 sq.km. This is below the standard ratio of 1:4 sq.km. This also means that one (1) fire sub-station has to cover double the land area. The city’s required number of fire sub-station is 40. With the existing 21 fire sub-stations, there is a shortage of 19 sub-stations.

Fire Incidence

For the year 2009-2013, Quezon City had a total of 4,673 reported fire incidents with a total estimated amount of damages of P883M. The year 2010 recorded the most number of fire incidents at 1,095 occurrences while year 2011 had the highest cost of damages at P222.23M. Yearly, the average number of fire incident is 934.6 while the average cost of damages is P176.56M.

Over the five-year period, electrical (e.g. faulty wiring, etc.) is the leading fire incident type reported with an average of 433 occurrences a year. This is followed by unknown/others with about 279 fire incidents a year and cigarette butt/smoking with an average of 137 fire incidents a year.

Most of the fire incidents were accidental in nature averaging 656 per year. In terms of nature, other undetermined causes account for the most fire incidents at an average of 280 fire occurrences a year.

Table R-15 | Comparative Number of Reported Fire Incident and Estimated Damages: 2009-2013

Causes, Motives, Nature And Damages	2009		2010		2011		2012		2013		Ave.
	No.	%	No.	%	No.	%	No.	%	No.	%	
Causes of fire											
Electrical	420	45.26	428	39.09	427	47.76	402	46.37	486	54.67	432.6
Combustible/Heat Bonfire	24	2.59	13	1.19	2	0.22	13	1.50	3	0.34	11
Open Flames/Cooking	16	1.72	31	2.83	17	1.90	47	5.42	42	4.72	30.6
Cigarette Butt/Smoking	25	2.69	263	24.02	168	18.79	109	12.57	121	13.61	137.2
Fireworks/Explosion Sparks	1	0.11	10	0.91	0	0.00	2	0.23	4	0.45	3.4
Flammable Liquids	3	0.32	4	0.37	4	0.45	4	0.46	0	0.00	3
LPG/Tanks/stove	45	4.85	40	3.65	33	3.69	41	4.73	31	3.49	38
Unknown/Others	394	42.46	306	27.95	243	27.18	249	28.72	202	22.72	278.8
Total	928	100	1,095	100	894	100.00	867	100.00	889	100.00	934.6
Motives											
Intentional	2	0.22	0	0.00	13	1.45	5	0.58	6	0.67	5.2
Accidental	567	61.10	761	69.50	654	73.15	607	70.01	692	77.84	656.2
Under Investigation	359	38.69	335	30.59	227	25.39	255	29.41	191	21.48	273.4
Total	928	100.00	1,095	100.00	894	100.00	867	100.00	889	100.00	934.6
Nature											
Structural	260	28.02	299	27.31	238	26.62	297	34.26	300	33.75	278.8
Vehicular	68	7.33	61	5.57	48	5.37	54	6.23	69	7.76	60
Grass	75	8.08	171	15.62	101	11.30	63	7.27	42	4.72	90.4
Chemical	35	3.77	31	2.83	21	2.35	24	2.77	6	0.67	23.4
Rubbish	58	6.25	109	9.95	79	8.84	66	7.61	77	8.66	77.8
Forest	0	0.00	5	0.46	0	0.00	1	0.12	0	0.00	1.2
Ship	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Transformer Explosion	9	0.97	9	0.82	2	0.22	2	0.23	2	0.22	4.8
Post fire	36	3.88	26	2.37	56	6.26	41	4.73	6	0.67	33
Secondary wire	47	5.06	16	1.46	21	2.35	12	1.38	3	0.34	19.8
Service Entrance	154	16.59	62	5.66	32	3.58	27	3.11	4	0.45	55.8
Electric fan	7	0.75	4	0.37	1	0.11	3	0.35	1	0.11	3.2
Tree fire	1	0.11	5	0.46	1	0.11	1	0.12	1	0.11	1.8
Transmission Line/High Tension	14	1.51	5	0.46	0	0.00	0	0.00	1	0.11	4
Others	162	17.46	292	26.67	294	32.89	276	31.83	377	42.41	280.2
Total	928	100.00	1,095	100.00	894	100.00	867	100.00	889	100.00	934.6
Estimated Damages	P176,386,500.00		P151,004,300.00		P222,232,900.00		P177,338,100.00		P155,817,700.00		

Source: Quezon City Fire District

Table R-16 | Number of Casualties of Reported Fire Incident: 2009-2013

Victim	2009		2010		2011		2012		2013		Ave.	
	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed
Firefighter	3	0	2	0	3	0	0	0	3	0	2.2	0
Civilian	17	13	27	8	53	12	55	25	54	9	41.2	13.4

Source: Quezon City Fire District

Records of the Quezon City Fire Department show that in the period 2009-2013, there were 11 firefighters and 206 civilians who were injured while 67 civilians perished in fire.

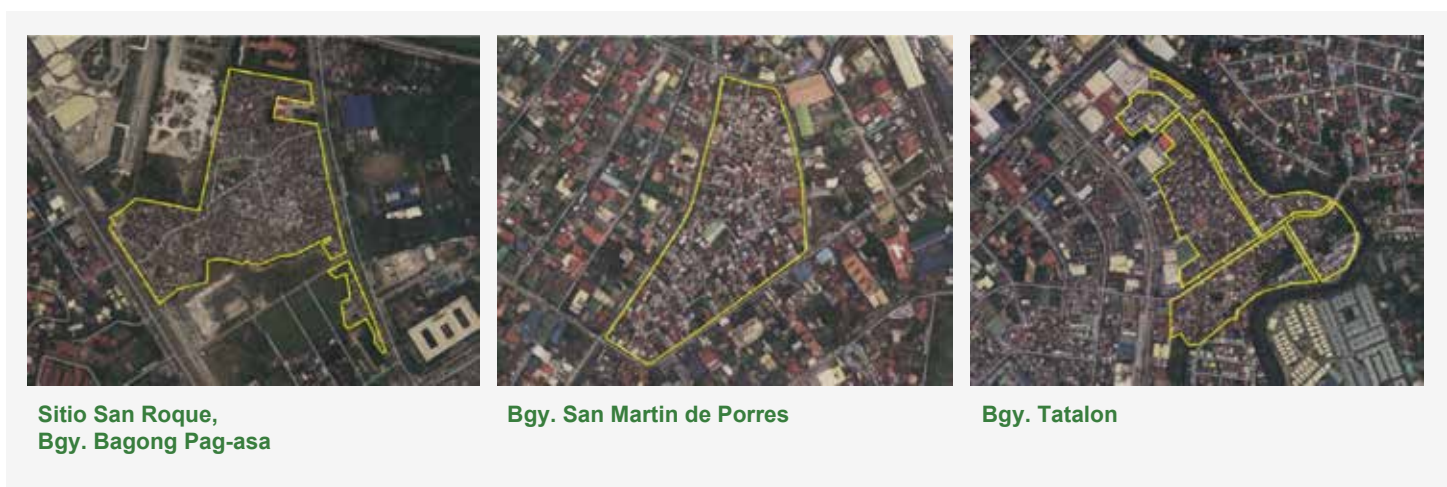
Fire-Prone Areas

Bagong Pag-asa in District I and San Martin de Porres & Tatalon in District IV are the barangays with the most number of fire occurrences.

From March 2008 to May 2010, there were a total of ten (10) reported fire incidents in Sitio San Roque in Barangay Bagong Pag-asa. Ironically, Sitio San Roque located in the North Triangle, is within the vicinity of Agham Fire Substation. The incapability of firefighters to immediately contain the fire maybe attributed to high congestion and poor internal mobility the area since Sitio San Roque is a huge colony of informal settlers.

Banahaw St., Zambales St., C. Benitez St. and Area 1 to 6 in Barangay San Martin de Porres and ROTC Hunters, Kaliraya, Sto. Niño-Tagupo and Kitanlad St. in Barangay Tatalon had each five (5) reported fire incidents. These areas are highly-dense and slum upgrading projects.

Figure Risk-11 shows the different fire-prone areas in Quezon City.



Source: QC Disaster Risk Reduction Management Plan (2014-2020)

Figure R-11 | Fire-Prone Areas; Quezon City

Industrial Explosion

Industrial Hazards

Industrial hazards are threats to people and life-support systems that arise from the mass production of goods and services. When these threats exceed human coping capabilities or the absorptive capacities of environmental systems they give rise to industrial disasters. Industrial hazards can occur at any stage in the production process, including extraction, processing, manufacture, transportation, storage, use, and disposal. This usually occurs in the form of explosions, fires, spills, leaks, or wastes. Releases may occur because of factors that are internal to the industrial system or they may occur because of external factors. Releases may be sudden and intensive, as in a power-plant explosion, or gradual and extensive, as in the build-up of ozone-destroying chemicals in the stratosphere or the progressive leakage of improperly disposed toxic wastes.

Industrial explosion- involves the production of a pressure discontinuity or blast wave resulting from a rapid release of energy. A pressure disturbance is generated in to the surrounding medium. Air becomes heated due to its compressibility and this leads to an increase in the velocity of sound, causing the front of disturbance to steepen as it travels through the air. The loading and hence the damage to the nearby targets are governed by the magnitude of and duration of pressure waves. The explosion mainly occurs due to the rapid combustion of a flammable material but can be brought about the chemical reactions other than combustion, provided they release large amount of energy (heat).

Types of Explosion

Chemical Explosion

Chemical explosions in plant or in vessel can arise due to exothermic reaction occurring internally. Such reaction may involve decomposition of unstable substances, polymerization of monomers, or combustion of fuel oxidant mixtures. Heating and increase of molecular number can result in a rise in pressure to the bursting point of the vessel, and explosives decompose so quickly that confinement and the development of pressure are self-imposed.

Physical Explosion

It occurs simply due to over pressure as in the case of steam boiler and air receiver explosions. Fire is not necessarily a consequence. But fire involving stock, buildings and plant ancillaries can cause physical explosions due to overheating followed by the overpressure in vessels and also the fireballs if contents are flammable.

Industrial establishments commonly use hazardous substances comprised of compounds and mixtures that pose a threat to health and property because of their toxicity, flammability, explosive potential, radiation or other dangerous properties. Hazardous chemicals may present physical hazards, although this is more common in transportation and industrial incidents.

Common causes of industrial explosion:

- Boilers that are not properly cared for;
- Careless cigarette smoking while on premises;
- Malfunctioning and dangerous equipment;
- Improper maintenance of machinery;
- Unseen corrosion;
- The use of impure or dirty chemicals; and
- Failing to properly train all employees.

Environmentally-sound management of these hazardous chemicals being produced, stored, used, treated or disposed of in industrial facilities should be done to minimize the incidence of explosion.

Incidence of Industrial/Gas Explosion

In Quezon City, incidence of gas leakage was reported in Bgy. Sta Cruz in 2012, about 300 people was affected and temporary sheltered in the barangay hall. Some were brought to the hospital for eye irritation and difficulty in breathing. The leakage gas was identified as Ammonia, or “anhydrous ammonia,” this is a commonly used refrigerant in large freezing and refrigeration plants such as those involved in ice making, dairy products manufacturing and cold storage. Exposure to ammonia, a colorless, corrosive and highly irritating gas with suffocating smell, can irritate or burn the nose, throat and respiratory tract, eyes and skin, and cause dizziness and nausea among victims.

Another incident was in Bgy. Pinyahan, wherein several people were hospitalized due to fumes that leaked from a chemical tank which was described the smell to that of muriatic acid.

Industrial explosion may possibly occur in industrial establishments under high risk category such as big scale manufacturing industry, junkshops, gasoline station, LPG retailer, etc.

Mass Hysteria/Stampede

The term stampede was derived from the 19th Century Mexican Spanish word “estampida” which means “uproar” (Encarta Encyclopedia DVD Premium, 2009). It is uproarious occurrences characterized by a sudden headlong surge of crowd in an uncontrolled rush for safety or competitive scramble for a valued objective.

Stampede is an act of mass impulse, which occurs in times of “massive flight’ or “massive craze’ response (Fruin,1993:4). In this sense, the occurrence of stampede is a consequence of impulsive response to a stimulus. The stimulus can be a sense of imminent danger to get the better of the crowd in the context of a competitive struggle for advantage such as viewing an event or person, or gaining a privileged seat in a stadium, material advantage, among others. Other possible triggers of stampede include fire outbreak, riots, gun fire, explosions and false alarm purporting safety threats.

Stampede situations are characteristically chaotic. These situations are marked by mass freight, anxiety, distress and panic. In large stampedes there are large injuries and fatalities resulting from pushing, trampling and crushing.

Effects of Stampede

The crowds, or the large concentration of people, occur frequently in the modern society particularly during religious gatherings or pilgrimages, large-scale sporting,

music or entertainment events. Crowded situations are inherently disaster-prone or stampede-prone. Human stampede is a typical instance of a crowd disaster (Fruin, 1993, 2010; Helbing & Mukerji, 2012;Still, 2014).

Hereunder are some prominent circumstances wherein a human stampede is likely to occur:

- Mass political gatherings such as rallies, campaigns
- Large scale social events
- Mega sporting events
- Religious festivals such as pilgrimages, mass initiation
- Massive job selection screening
- Complex emergency situations such as terrorists attacks, military siege
- Natural disaster situations such as the occurrence of earthquake, flood, tsunamis, etc.

As a form of disaster, stampede has critical consequences such as the following:

- Loss of life. Traumatic asphyxia being the most common cause of death and serious injuries. Asphyxia is defined as the lack of oxygen or excess of carbon dioxide in the body that results in unconsciousness and often death.
- Human injury
- Structural damage of public facilities
- Psychological trauma or distress
- Loss of material valuables

Causes of stampede

The true cause of human stampede does not rest with the crowd per se; it is rather a consequence of systematic failures in respect of space crowd control cum optimization (Helbing & Mukerji, 2012). As briefly observed by Fruin (1993:1), “Crowd occurs frequently, usually without serious problems. Occasionally, venue inadequacies and deficient crowd management results in injuries and fatalities”. One of the most culpable risk factor in crowd disaster is poor or ineffective utilization of space (Still, 2014).

Human stampede is a global phenomenon. It has occurred severally in various parts of the world over the years.

Research on the Wikipedia revealed that there are thirty (30) notable world's human stampedes that occurred between 2005 and 2013:

Table R-17 | List of human stampedes across the world: 2005-2013

Date of Occurrence	Event/Location	Incident
January 2005	Hindu pilgrims stampede/Maharashtra, India	265 people died
August 31, 2005	Baghdad bridge	1000 people died
December 2005	Flood relief supplies distribution/Southern India	42 people died
January 12, 2006	Stoning of the Devil Ritual/Jamarat Bridge, Mecca	345 people died
February 4, 2006	First Anniversary of ABS-CBN's Wowowee/Philippines Sports Arena, Philippines	78 people died, hundreds injured
September 12, 2006	Governorate, Yemen	51 people died and more than 200 injured
June 2, 2007	Football game between Zambia and Republic of Congo/Chililabombwe, Zambia	12 people died
October 3, 2007	Train station in Northern India	14 women died
October 5, 2007	Public execution in a stadium/Sunchon, North Korea	6 people died and more than 30 injured
November 11, 2007	Carrefour Supermarket sale on cooking oil/Chongging, China	3 people died and more than 30 injured
March 27, 2008	Indian Temple Pilgrimage/India	8 people died and 10 injured
June 20, 2008	Police raid/ Mexico Nightclub, Mexico	12 people died and 13 injured
August 3, 2008	Rain shelter collapse/Naina Devi Temple, Himachal Pradesh, India	At least 162 people died and 47 injured
September 14, 2008	Football match/Butembo, Democratic Republic of Congo	11 people died
September 20, 2008	Chamunda Devi Temple/Jodhpur, India	147 people died
October 2, 2008	Children's Dance Hall/Tanzania	20 children died
March 29, 2009	World cup qualifier/Houphouet-Boigny Arena	19 people died and 130 injured
March 4, 2010	Ram Janki Tempe, Kunda, India	71 people died and over 200 injured
May 4, 2010	Remembrance of the Dead/Dam Square, Amsterdam	63 people injured
June 6, 2010	Soccer Match between Nigeria and North Korea/Makulong Stadium	14 people injured
July 24, 2010	The Love Parade/Duisburg, Germany	21 people died and more than 500 injured
November 22, 2010	Water Festival/Phnom Penh	At least 347 people died
January 15, 2011	Sabarimala Temple, Kerala, India	102 people died; 100 people injured
January 15, 2011	Budapest	3 girls died; 14 people injured
November 8, 2011	Religious Ceremony, Haridwar, India	16 people died
January 1, 2013	New Year's Firework, Abidjan, Ivory Coast	60 people died; 200 injured
January 1, 2013	New Year's Eve Vigil, Estadio da Cidadela	10 people died; 168 injured
January 23, 2013	Night Club fire, Santa Maria, Brazil	242 people died; 168 injured
February 10, 2013	Hindu Festival Kumph Mela, Train Station in Allahabad, Uttar Pradesh, India	36 people died; 39 injured
October 13, 2013	Hindu Festival, Madhya Pradesh, India	115 people died; more than 100 injured

Incidentally, one of the human stampedes listed above occurred in the Philippines, known as the Wowowee Stampede, which happened on the February 4, 2006 at the PhilSports Football Stadium (formerly ULTRA) in Pasig City, Metro Manila which resulted in the loss of many lives and injured hundreds of people from the almost 30,000 people who waited in long queue outside the stadium to participate in the said event. According to reports, most of the victims were elderly women who were crushed against a steel gate on the stadium's slope entrance and one child also died. A fact-finding team created to investigate the case revealed that there was lack of coordination between the security guards of the organizers, PhilSport security guards, local police and relevant government agencies and the absence of a worked-out contingency plan for the huge crowd.

It may also be recalled that a stampede occurred when a fire broke out in the Ozone Disco Nightclub in Quezon City on the tragic night of March 18, 1996 where there were reported 162 deaths and 95 injuries were reported. Generally, the cases of human stampede have resulted in massive human injury as well as appreciable death tolls.

Quezon City is not spared from possible occurrences of stampede brought about the presence of big shopping malls, concert, sports, entertainment venues such as the Araneta Coliseum, SM Skydome, etc. The existence of the Light Rail Transit (LRT) and Metro Rail Transit (MRT) is also potential location of human stampede.

Many have been written on how to mitigate this form of disaster particularly during planned mass gatherings or where mass crowd is anticipated. as follows: Some of the considerations include:

- Making sure that the infrastructure such as roads, corridors, open spaces, entrances and exits is suitable for the mass gathering so that there is enough capacity and there are no bottlenecks or other compression points
- There should be crowd management plan that is followed, which includes crowd monitoring, scheduling and control
- There should be good contingency plans (e.g. evacuation) in case anything goes wrong
- Creation of functional mobile clinics
- Provision of stationary ambulance(s)
- Provision of well multiple “marked and manned” emergency entrances and exits in public event centers
- Pragmatic crowd control mechanism based on proactive and early warning techniques to prevent occurrence of crowd disasters
- Optimization of human volume and movements at public event centers to avoid stiff congestion as well as pressure on available space and facilities

Terrorism

Terrorism, as defined by Merriam-Webster dictionary, is the systematic use of terror especially as a means of coercion. It is the unlawful use of force or violence by a person or an organized group against people or property with the intention of intimidating or coercing societies or government, often for ideological or political reasons. In the Philippines, terrorism can be caused by conflicts

based on political issues conducted by rebel organizations against the government, its citizens and supporters. Most terrorist acts in the country are conducted by Islamic terrorist groups like the Moro Islamic Liberation Front (MILF), Moro National Liberation Front (MNLF) and the Abu Sayyaf Group (ASG). Much larger than the Islamic terrorist groups, the Philippine government is fighting a long running war with the communist New People’s Army (NPA).

Public mass transport and places of big gatherings such as churches, street markets and people assemblies are favorite targets of terrorists.

Since 2000, Islamic separatist forces have carried over 40 major terrorist attacks, mostly bombing, against civilians and properties. These mostly happened in the southern region of the country like Basilan, Jolo and other nearby islands. Numerous attacks have also been carried out in and around Metro Manila due to its political importance.

Incidence of Terrorism

The Rizal Day bombings were a series of bombings that occurred on December 30, 2000, a national holiday, in close sequence within a span of a few hours. More than twenty (20) fatalities were reported and about a hundred more were non-fatal injuries. The blast occurred in five (5) different locations in Manila namely: Plaza Ferguson in Malate; cargo handling area of the Ninoy Aquino International Airport; at a gasoline station along EDSA across the Dusit Hotel in Makati City; inside a bus while travelling along EDSA and a train cab at the Blumentritt Station of the LRT Line 1. The explosion at the LRT Line 1 claimed the most number of casualties. Three of the several arrested members of the Jemaah Islamiyah were later sentenced by the Manila Trial Court of imprisonment for multiple murder and multiple frustrated murder.

In Quezon City, one recorded terrorist act is the vehicle bomb explosion which happened on November 13, 2007 near the south lobby of the main building of the House of Representatives and claimed the lives of six (6) people including Basilan congressman Wahab Akbar and his congressional aides. Several staff members were also hospitalized in the attack. It was alleged that the Abu Sayyaf group claimed responsibility for the act.



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