

Chapter 2

THE PLANNING ENVIRONMENT

The present and future utilization of the city's land resources is and shall be shaped by external and internal factors affecting the City's development. In order to influence the future extent and intensity of preferred uses, these factors and their implications need to be considered in the analysis of the planning area. Such analyses and appreciation will lead to the surfacing of key policy issues, physical development potentials and limitations, socio-economic trends, and institutional conditions an understanding of which can facilitate the realization of the plan that shall be formulated.

This Chapter discusses external and internal factors—the former being those policies, events or physical conditions over which the city has no power to control, regulate or influence despite their implications on its development conditions. Such factors give rise to opportunities that should be identified and grabbed to facilitate its pursuit of its long term vision. Threats can also arise from such externalities and their identification can be used in determining courses of action or the adoption of policy alternatives that can diminish their negative influences over the city's development path.

Strengths and weaknesses of the City of San Fernando can be surfaced through the analyses of its internal conditions or factors over which the City has a direct influence.

Figure 4 Location of the City of San Fernando

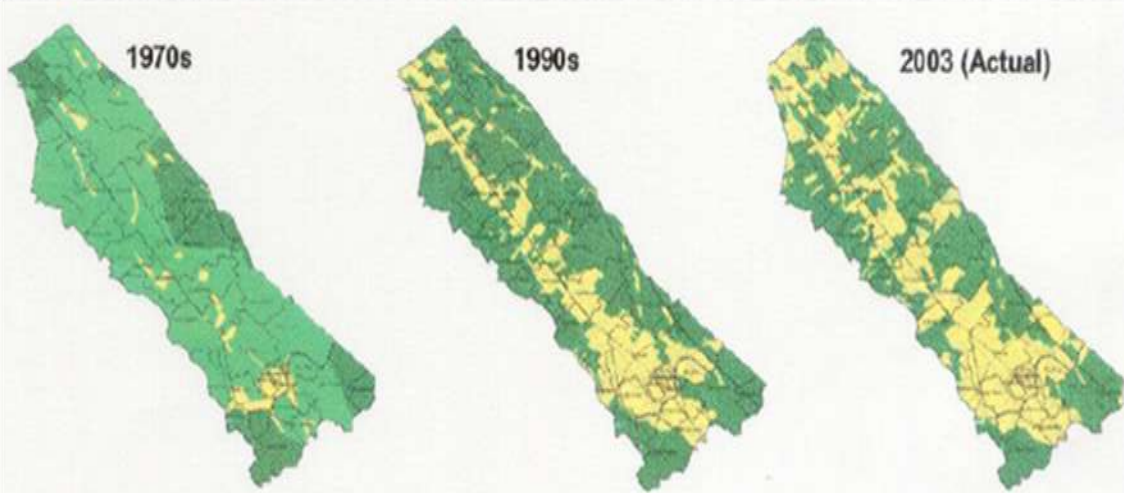
**A. External Factors that may affect CSFP's Land Uses****1. Capital City of the Province of Pampanga**

Being the capital city of the Province of Pampanga, the City of San Fernando hosts the seat of the provincial government. As such, it plays a significant role in the movement of people from all over the province. The natural tendency of the people from all component municipalities to regularly visit the City has made it into a bustling commercial area and

service provider. It has also become a government service center for the whole province.

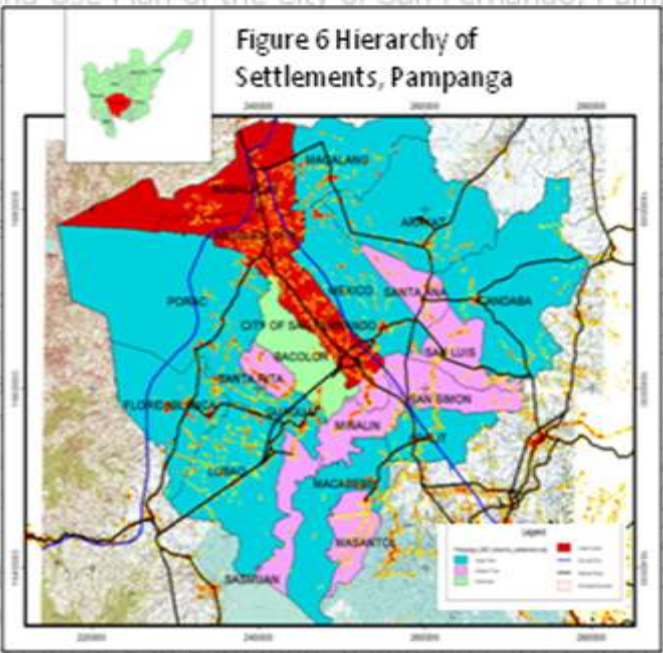
The natural concentration of people in the city which we may conclude to happen during daytimes of workdays, may have become the key factor in

Figure 5 Historical Land Uses



the establishment of secondary and tertiary economic activities in the city. Such growth in economic activities also resulted to expansion of built-up areas that is apparent in the land use maps in three different times shown overleaf.

The eruption of Mt. Pinatubo in 1991 did not diminish the attractiveness of the City to people although the direction of urban expansion was influenced by the series of lahar flow events and the subsequent flooding regimes resulting from the clogging of drainage ways especially the San Fernando River. The population of the City grew overnight when families in lahar affected areas in neighboring municipalities moved in relocation sites the most notable of which is in Bulaon. Since then Bulaon has become a major population center in the mid eastern part of the City.

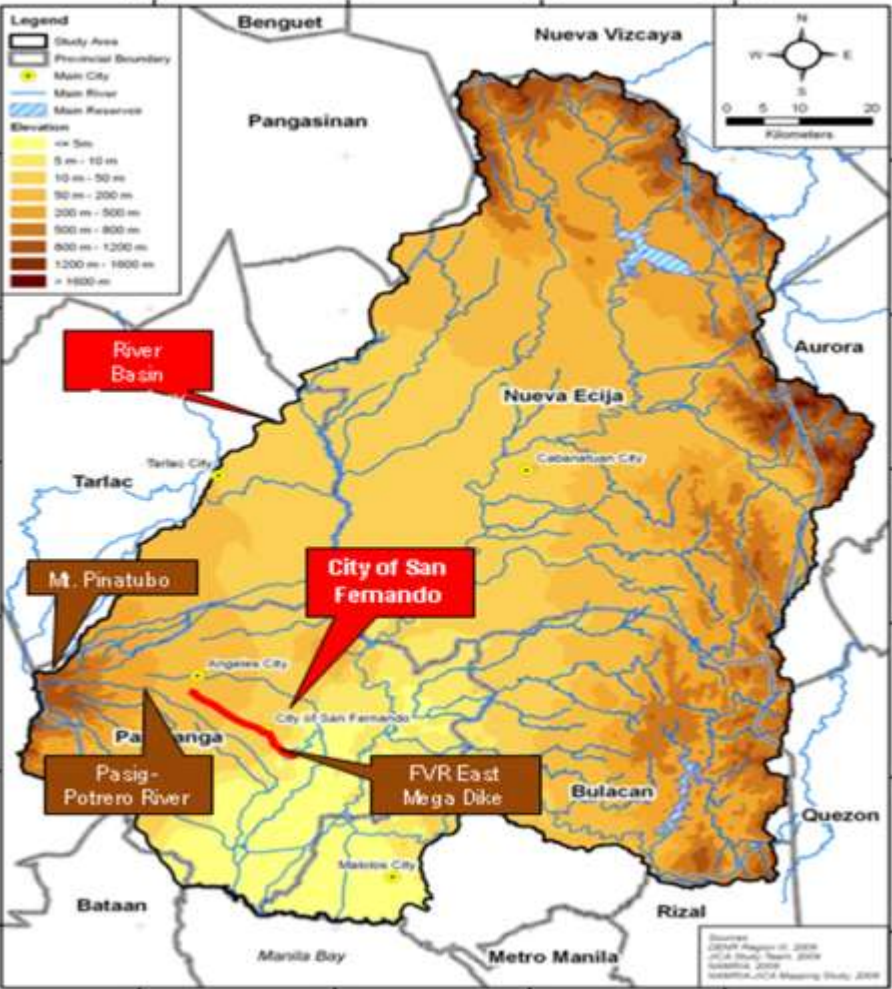


As the provincial capital city of Pampanga, it has become the second most populous LGU second to Angeles City. This is apparent in the hierarchy of settlements mapped in Figure 6 using the results of the August 2007 Census of Population. The attractiveness of the City to population is expected to continue as levels of services available increase over time.

2. Located in the Upper Low-lying Areas of Pampanga River Basin

The City of San Fernando lies within the northern and higher part of the floodplains of Pampanga Basin, which has an extensive catchment area of one million hectares as may be seen in Figure 7 below. A bigger portion of the City area has higher elevation although its southern area is part of Pampanga River Basin's floodplains. Thus, floodwaters pose a real threat to the City's physical development as may be apparent in succeeding discussions on land use trends. The bigger threat from the slopes of Mt. Pinatubo was addressed through the construction of the FVR Mega Dike that contained lahar flows within the Pasig-Potrero River System.

Figure 7 Elevation Zones in the Pampanga River Basin



Source: JICA & NWRB 2011

Within Pampanga River Basin can be found three sub-basins, namely: (1) the Main Pampanga River Basin (has the largest catchment area of 7,978km² and the longest channel length of 265km); (2) Pasac River Basin; and, (3) Angat River Basin. Pampanga River originates in Caraballo Mountains on the north of the study area, and flows into Pantabangan storage dam. The upstream stretch of the river above the dam is often called as Pantabangan River. After passing the dam, the river further flows southward meeting with several tributaries and finally emptying into Manila Bay.

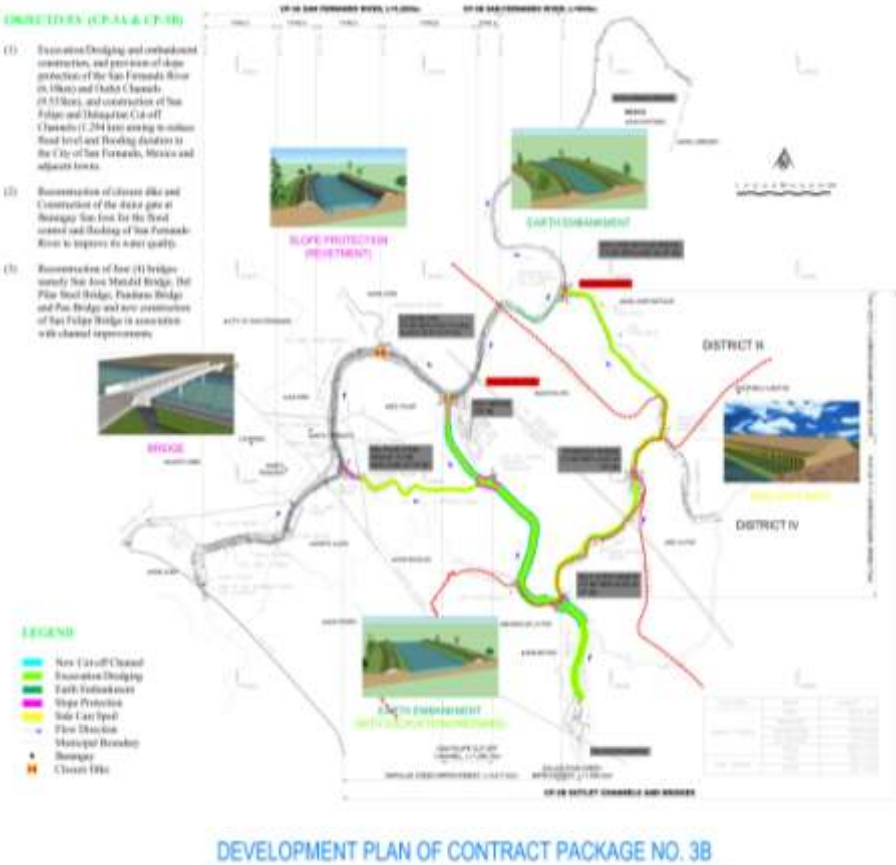
Pasac river basin covers various river channels running on the eastern slope of Mt. Pinatubo, such as Abacan-San Fernando River, Pasig-Potrero River and Porac-Gumain River. All the rivers originate in Mt. Pinatubo, and flow into Manila Bay. The total catchment area of the river basin is about 1,371km². In the lower reaches, the river system is connected to the Pampanga Main River by Bebe-San Esteban Cutoff Channel. The morphologies of Pasac River have been much affected by the eruption of Mt. Pinatubo in 1991. The river alignments have changed due to the mudflow produced by the eruption and serious sediment deposit in the river channel is still in progress up to the present.

Angat river basin originates in Sierra Madre Mountains and flows into Angat storage dam meandering through a narrow valley. In the lower reaches of the dam, the river flows westward and finally empties into Manila Bay through Labangan Floodway. There is a small connecting channel with Pampanga River, which is called Bagbag River. The total length of the main stream of Angat River is 153km and the total catchment area is about 1,085km².

The threat of flooding in the southern portion of the City has been minimized with the on-going implementation of Phase 3B of the Pinatubo Hazard Urgent Mitigation Project (PHUMP 3B). Started in 2008, the project, once completed in April 2015, shall increase the capacity of rivers, creeks and drainage systems including that of San Fernando River thereby reducing the flood occurrences in said area.

The construction of PHUMP 3B (summarized in Figure 8) aims to reduce damages to properties from perennial flooding by reducing flood level and flooding duration in the City of San Fernando and the adjacent towns of Mexico and Santo Tomas. Though countermeasures for flood control and storm drainage improvement have been conducted for the last 10 years, frequency of flooding and inundation are still high. This can be attributed to inadequate capacity of existing drainage systems to accommodate excess run off from Angeles-Mexico areas and the change of topography as a result of the eruption and post eruption of Mount Pinatubo.

Figure 8 Development Plan of PHUMP 3B



The most recent flooding event that submerged the low-lying areas of Bulacan and Pampanga from Typhoon Pedring attested to the efficacy of the project as floodwaters receded quickly in some areas of San Fernando while the other parts that were historically flooded were not submerged.

3.02 National and Regional Development Initiatives

Externalities to San Fernando’s physical development arise from regional and national government policies and initiatives in pursuit of regional and national development focused on inclusive growth, poverty alleviation and sustainable development.

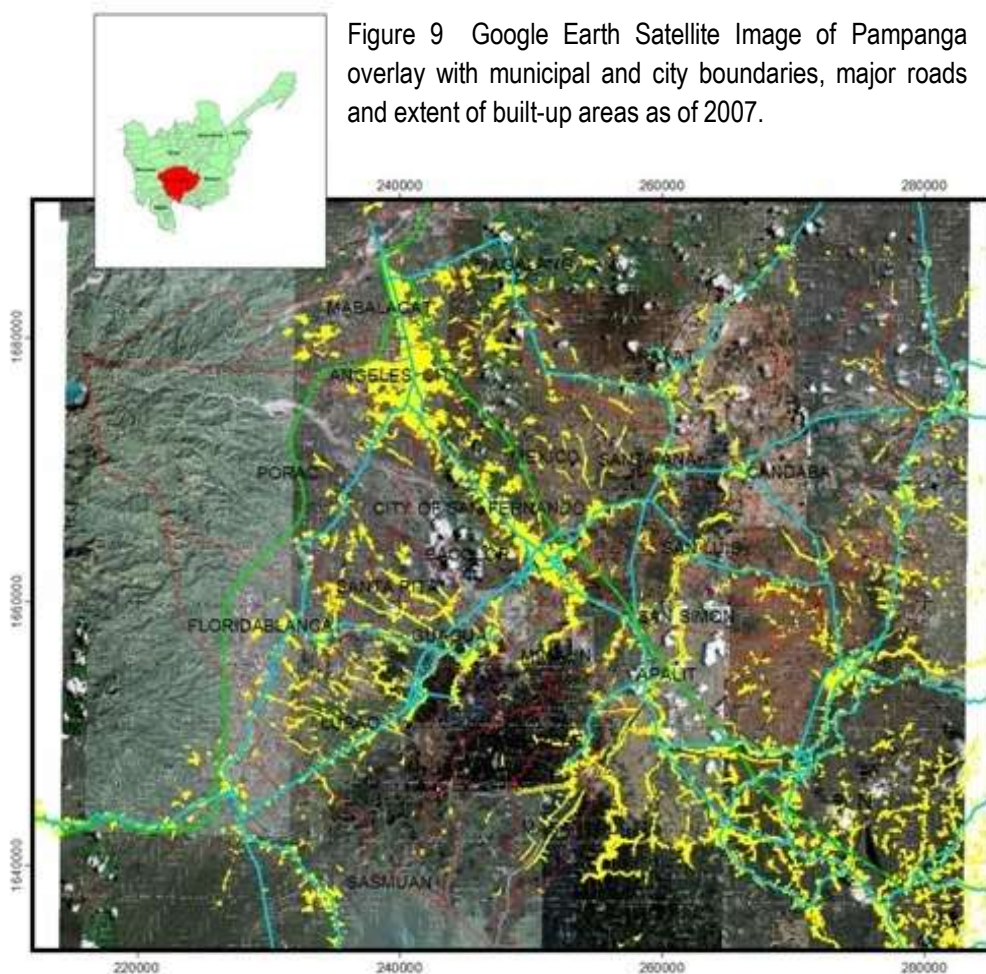
The City’s role in regional development is heightened by its being the regional center and host to regional government agency offices. The latter is a major cause of population movement into the City.

Its role in Central Luzon’s development priorities may be appreciated through its interaction with the special development areas of Subic Bay Freeport Zone, Clark Special Economic Zone and Hacienda Luisita in Tarlac. This is further complemented by the City’s being at the crossroad of the

major north-south (NLEX and MacArthur Highway) and east-west (Gapan-San-Fernando-Olongapo Road) transport links.

In the final report of the Subic Clark Alliance for Development (SCAD) Corridor Conceptual Land Use Plan prepared by the SCAD Council in 2009, the City of San Fernando is an integral part of the Metro Clark Area which forms the core of the tripolar corridor development. Together with Mabalacat, Bamban and Angeles City, it supports the development of the “air hub” of the corridor. As such it is expected to serve as the geographical and economic center of the Corridor, of Pampanga and of Central Luzon. It shall also provide higher order urban functions and services such as political-administrative, commercial-business, institutional, educational-cultural, transportation-utility center, among others.

The current and emerging role of the City of San Fernando vis-à-vis the SCAD Corridor makes it, hence, imperative to identify areas for expansion of higher order land uses such as commercial, residential, institutional and industrial with due consideration of ecological integrity and other sustainable land use principles.



4. Strategic Location and Accessibility

The City of San Fernando is strategically located at the heart of Central Luzon. One has to pass through the City to be able to go to any provinces from all directions, be it north to Tarlac and Pangasinan, west to Bataan and Zambales, east to Nueva Ecija and south to Bulacan and onwards to Metro Manila. Thus, it has established its role as the regional growth center, the center of commerce and trade in the region. The City also plays a pivotal role in the evolution of Central Luzon because of its strategic location and high-competitive indices. The City of San Fernando will be the major catalyst in the mega-region where the convergence of competencies, opportunities and resources will symbiotically catapult the city into the socio-economic limelight of the country.

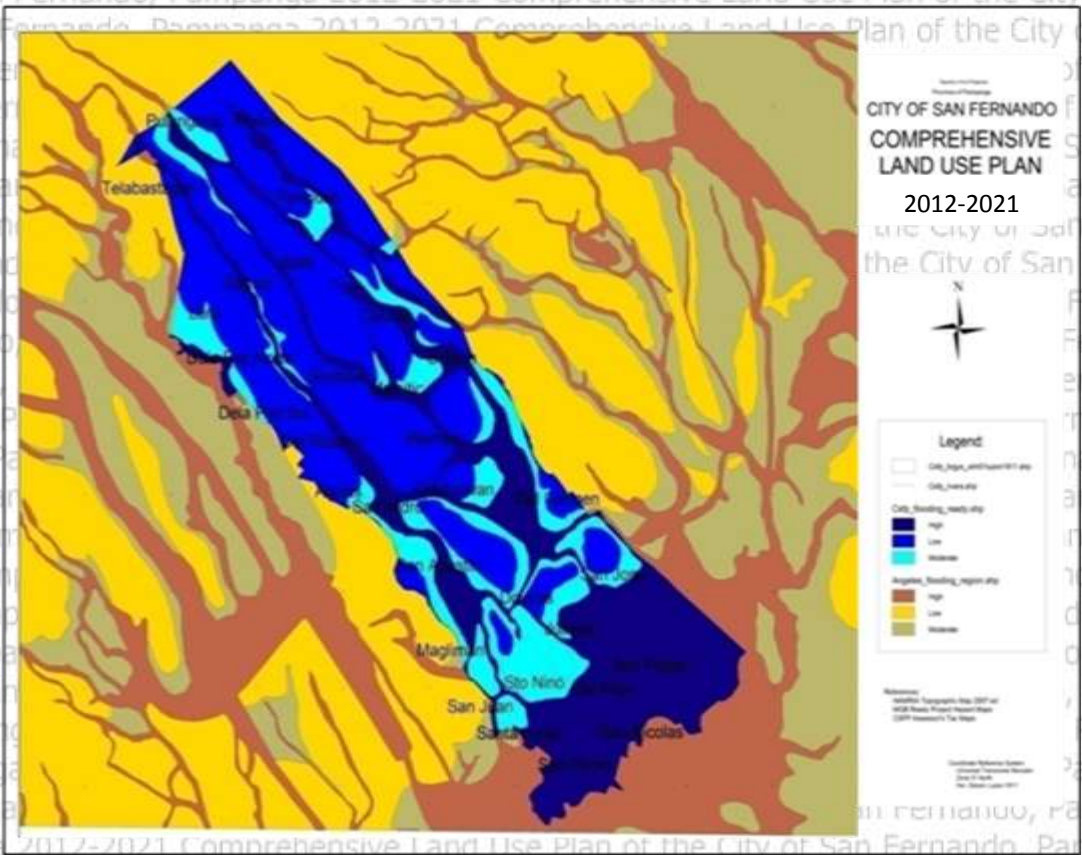
With the City's inherent role as a major economic and service center of Central Luzon together with its emerging role with the Metro Clark area, it is not surprising that its day time population is much greater than its night time population. However, its attraction as a settlement center does not diminish but continues to increase with the development of the CSEZ because of proximity, presence of tertiary services and facilities, and a relatively well-developed infrastructure and utilities backbones.

The increasing demand for lands to be used for higher order land uses to support the above trend is a major issue that the CLUP needs to contend with.

5. Disaster Risks and Climate Change

Scientists and experts say climate change is now happening as manifested by the increasing frequency of higher intensity climatic events worldwide. In the case of San Fernando, resiliency to climate change and its impacts is a major concern of the local government considering its location and large number of residents and visitors, the high value of physical capital within its territory, and the potential impact of climate change on regional economic development.

Figure 10 Flooding Map

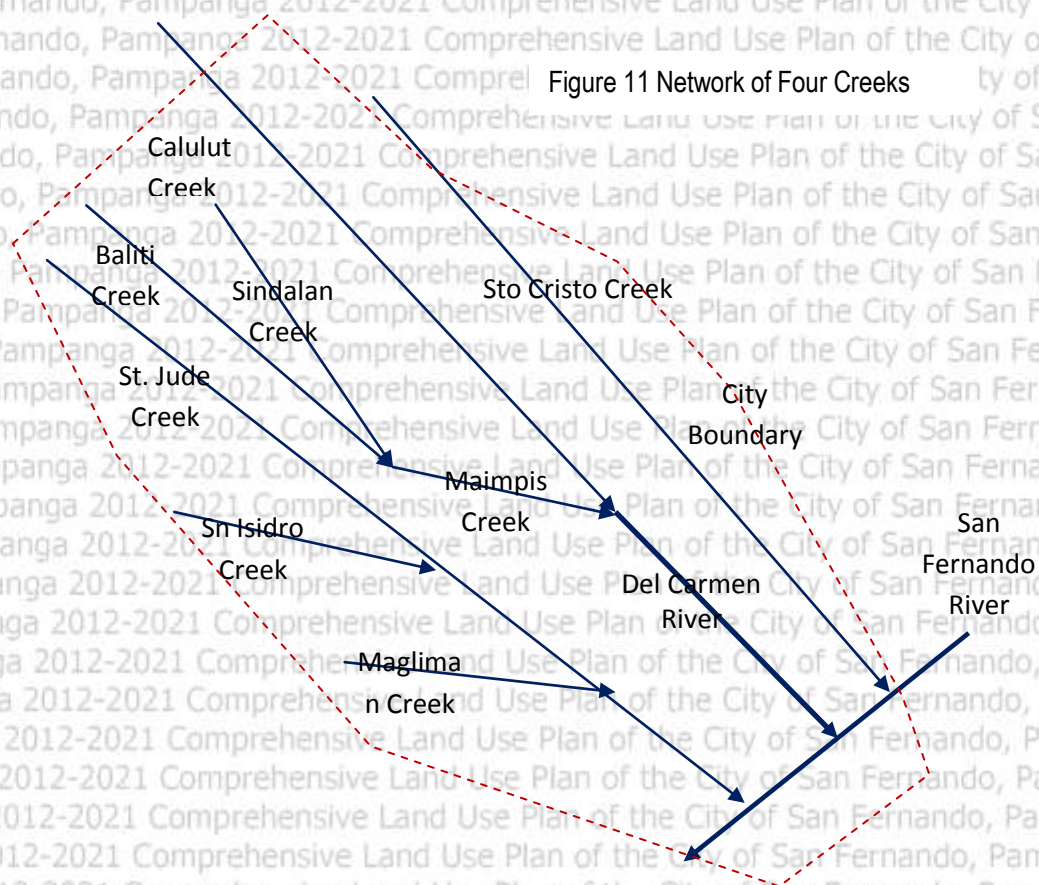


The recent study conducted by the Mines and Geosciences Bureau (MGB) of the Department of Environment and Natural Resources (DENR) through the READY Project identified the flooding susceptible areas in the City in three categories as shown in Figure 10 above. As expected, the southern portion of the City is highly susceptible including those within the vicinity of natural drainage ways such as streams and creeks. However, there are extensive areas with flooding susceptibilities that are moderate or low.

Around 30 percent of the total land area of the City is prone to flooding and even all-season roads are not spared. Despite the improvement in the drainage canals along McArthur Highway, during rainy season, the floodwaters coming from Angeles City and Bacolor and flowing down southward continuously pose as hazards to motorists forcibly slowing down vehicular motion. The situation slows down economic activities, leads to economic losses including loss of life and limbs attributed to vehicular accidents.

As earlier mentioned, San Fernando River at the southern end is the main drainage way for surface runoff and flood waters in the City. This is fed by four creeks namely St. Jude, Maimpis, Calulut, and Mapalad Creek.

Schematically, the network of creeks in the City is depicted in the following diagram:



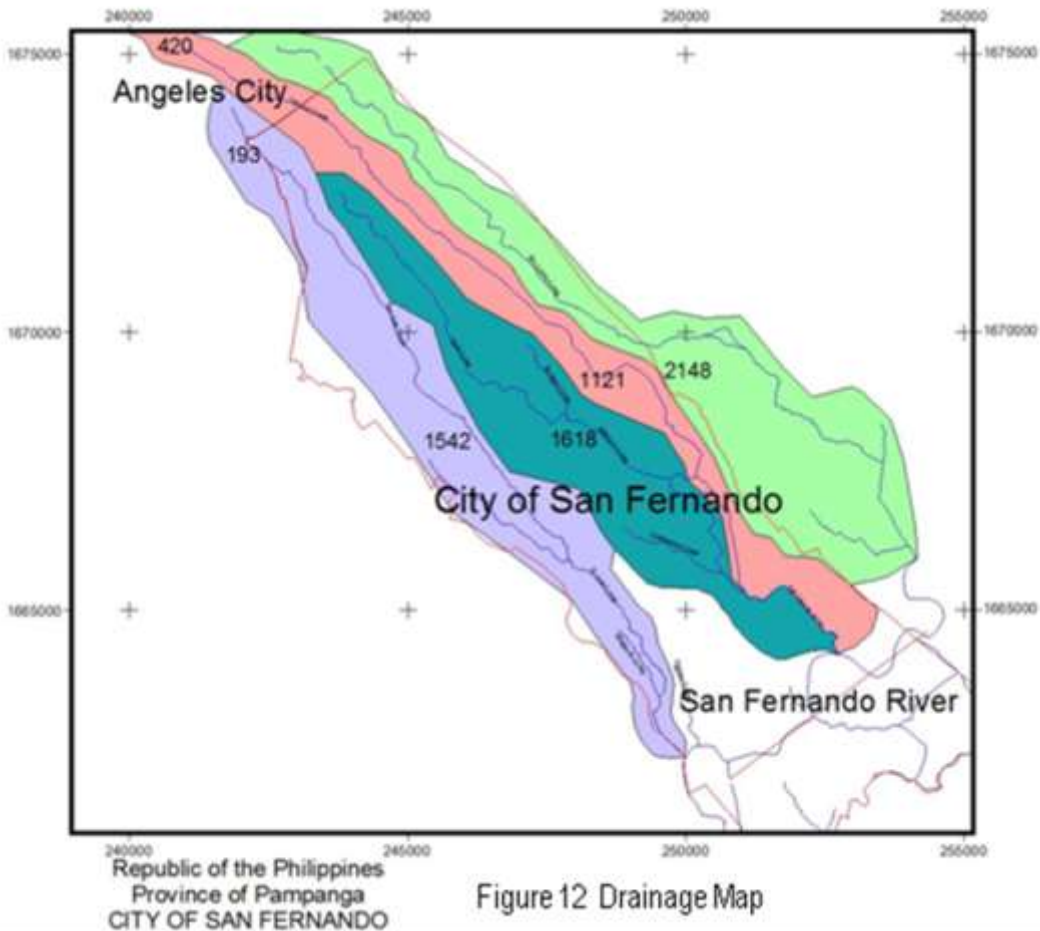
At first glance, one may easily conclude that the City is well-drained by the network of four creeks. However, as may be seen in the diagram above, the flow of these four creeks captured on a 7,000-hectare drainage area converge at San Fernando River which may be found traversing the lower portions at the south of the City.

It is worth noting that the headwaters of Calulut Creek which is a major tributary of Del Carmen River originate from Angeles City and passes through an extensive high density urban built up area of the City before it enters the bounds of San Fernando City. It is no wonder that during heavy rains, the resulting high volume flow in Calulut Creek is accompanied by solid wastes and other debris as may be seen in the picture below.

The southern part of the City serves as a catch basin for all runoff falling within the four mini watersheds shown in Figure 12. This would mean that if all of the rain that falls within the watersheds is conveyed through the drainage network, every inch of rainfall would result to volume of run-off of some 1.7 million cubic meters that shall accumulate at the southern portion of the City assuming that the run-off shall not be drained out. This is the main reason that the same areas are susceptible to siltation and flooding either recurrent or floods that last for less than a week.



Calulut Creek saddled with various wastes and debris



Much against the will of the City officials and its people, CSF is a natural recipient of floodwater generated from sources outside of the City's political boundaries. Natural causes wrought by the Pinatubo-sourced lahars exacerbated the flooding problem in mid-1990. Greater variation in natural elevation between and among CSF and its neighbors particularly Bacolor and Angeles City carry with it not only floodwater but even solid wastes and other debris which the City has to address.

To add insult to injury, public disregard of the Ecological Solid Waste Management Act leads to using the existing drainage canals of the City as sewers for their wastes. This has been impairing the integrity of even the City's newly built canals and may aggravate the flooding problem.

The City's changed natural landscape and the consequences of climate change are areas needing greater focus. The City is at the forefront of the concern to win over or mitigate the anticipated ill-effects of disasters. The challenge is not only to mainstream Disaster Risks Reduction (DRR) in planning but to ensure that what has been determined as disaster-risks reducing Projects shall be given budgetary support.

B. Internal Conditions that Bear on CSFP's Land Uses

1. CSFP's Development Vision, Goals and Development Directions

"Habitat of Human Excellence"... The end-state of all development initiatives of the City of San Fernando by year 2030 is a place of domicile for people who have attained a level of dignity and who have achieved freedom to privately appropriate goods and services and productive resources with little or no interference from government. The same people are cut above the rest as borne out by their high family incomes, free access to quality health and education services and productive assets and can freely decide on their unique contributions to the general welfare. They are a people whose independent exercise of political and civil rights is guaranteed primarily by their decent socio-economic status protected by a credible legal framework.

"Global Gateway"... In pursuing the end state, the City shall have become a global gateway by 2020 and has appreciated and knowingly used the opportunities opened by its proximity and easy access to the Subic Clark Alliance for Development Corridor. Thus, during this time, tertiary-level services and facilities are readily accessible to residents of San Fernando and the influence area of SCAD Corridor. Aside from that, the international business processes outsourcing community prefers the services of the City's

labor force due to high interconnectivity, dependability, high quality and the presence of responsive support services.

The City is physically connected to the international port of Subic and bustling international airport of Clark through a network of roads and rapid railways transport network with levels of service that keeps pace with the increasing demand.

"Gateway to North Philippines, Regional Center of Central Luzon, and Champion of Good Urban Governance"... In the immediate to the medium term, the City shall endeavor to be effective in its role in regional development as a gateway to North Philippines and seat of the regional government. At the same time, it shall have instituted governance systems and processes that support the provision of effective services to its people and clientele.

San Fernando's strategic location being on a major north-south and east-west crossroad makes it a natural gateway to all four directions of the Central Luzon. This role was a consideration in the recent approval of the widening of the Jose Abad Santos Avenue sections that traverses the city. The high traffic volume that passes through the MacArthur highway between Barangays Dolores and Telabastagan was also a key in the implementation of its widening to six lanes. However, to date, the widening project was stalled because of some environmental issues raised against the cutting of century old trees along the road right of way especially between the Baliti-Telabastagan section.

The City's initiatives in improving governance systems has already earned it several major national and international awards in recognition of their trailblazing and effectiveness in bringing the local government nearer to the people.

2. Land Area and Political Boundaries

The City is subdivided into thirty five barangays with a total land area of some 6,800 hectares (Please refer to Table 1 below for land areas for each barangay as provided by the City Assessor's Office). It is a component city that was founded in 1755 that originally included the present day towns of Bacolor and Mexico and became the capital of Pampanga in 1904. San Fernando became the 99th City of the Republic of the Philippines on February 4, 2001 by virtue of Republic Act 8990.

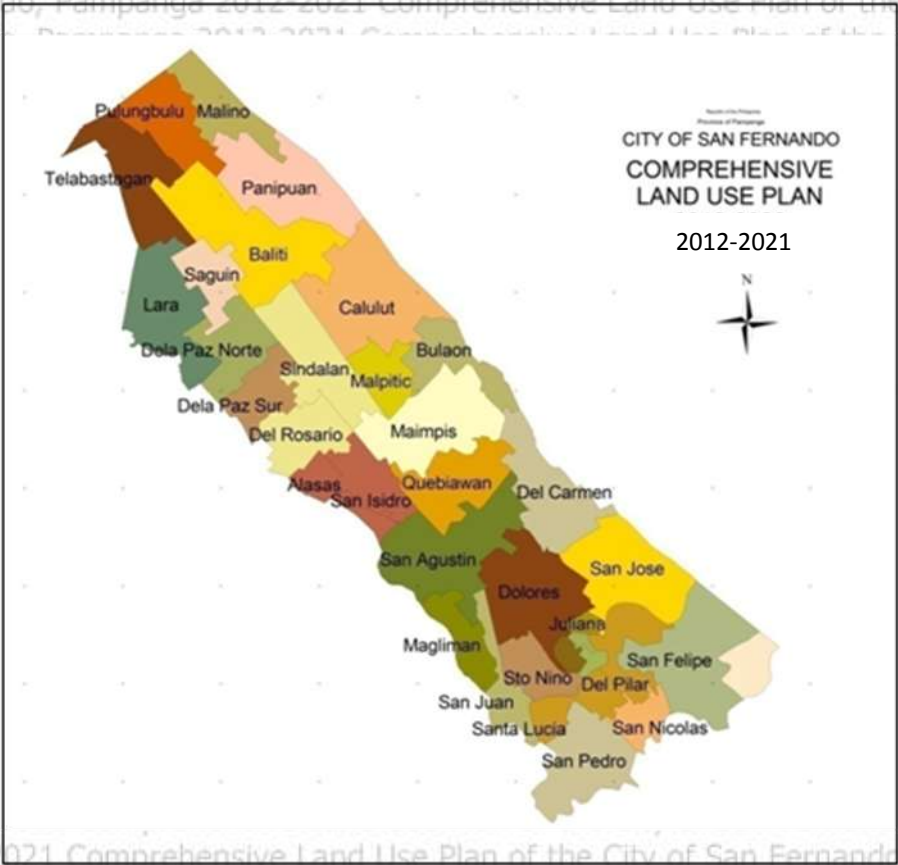
Table 1 Barangays of City of San Fernando by Land Area

Barangay	Area (has.)	Barangay	Area (has.)	Barangay	Area (has)
Alasas	127	Lourdes	51	San Isidro	140
Baliti	198	Magliman	138	San Jose	322
Bulaon	166	Maimpis	254	San Juan	241
Calulut	475	Malino	168	San Nicolas	80
Del Carmen	309	Malpitic	131	San Pedro	224
Del Pilar	71	Pandaras	167	Sta. Lucia	87
Del Rosario	165	Panipuan	436	Sta. Teresita	81
Dela Paz Norte	170	Pulung Bulu	104	Sto. Niño	136
Dela Paz Sur	157	Quebiawan	234	Sto. Rosario (Poblacion)	85
Dolores	256	Saguin	105	Sindalan	327
Juliana	52	San Agustin	295	Telabastagan	191
Lara	335	San Felipe	296	TOTAL	6,774

Source: CLUP 2001-2006

Despite the seeming completeness of barangay political boundaries, there are several barangays that are not satisfied with the current delineations. In the on-going STAR Barangay project where barangays development plans are prepared by stakeholders with the city planning office providing a catalytic role, boundary disputes have been identified as a major issue that needs to be addressed in order to sustain cooperation between and among adjacent barangays. As an example, the boundary dispute between Barangays Calulut and Sindalan has been a source of strain in inter-barangay relations.

Figure 13 Barangay Boundary Map

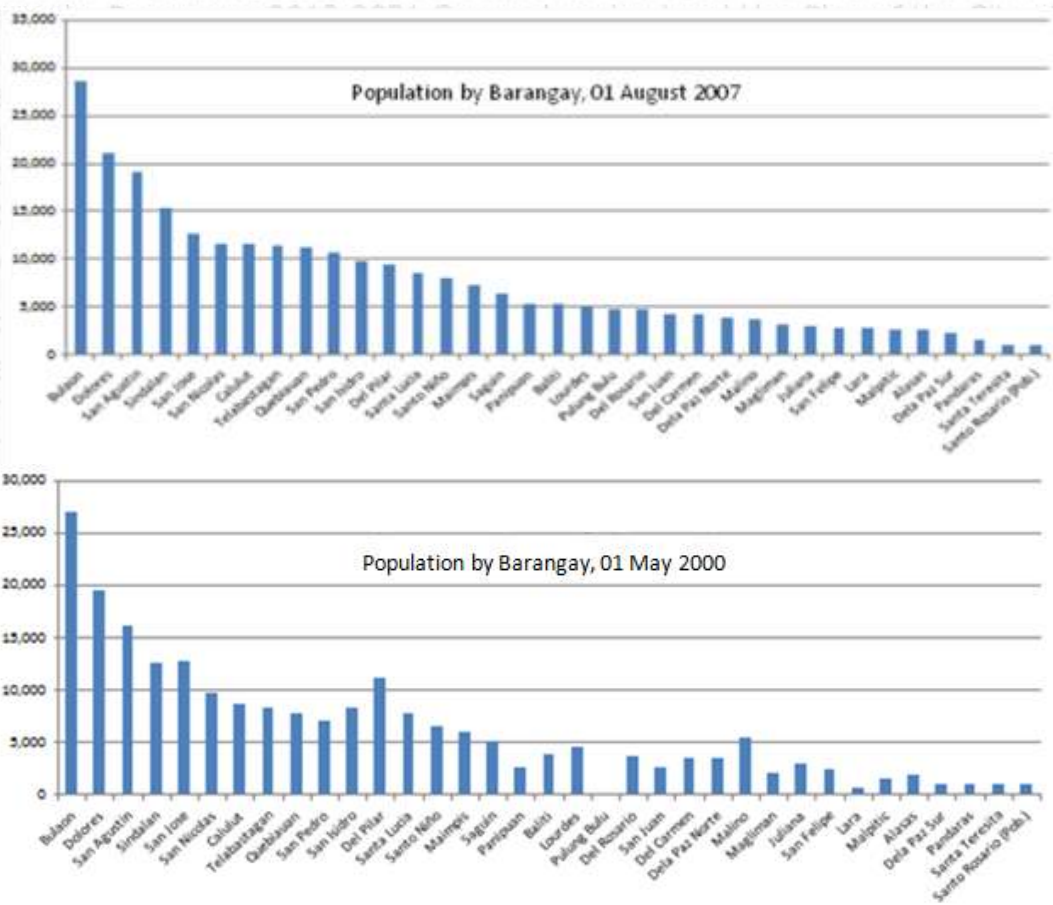


3. Population and Demographics

Population Level and Distribution. The analyses of the population of the City of San Fernando were based on results of the National Census of Population in May 1, 2000 and August 1, 2007. The urban characteristic of the City calls for a spatial distribution analyses focused on the built-up areas using estimates from the NAMRIA topographic map 2007 edition that shows high density and low density residential areas including major buildings and infrastructures. In terms of population movement, barangay level analyses were conducted using data from the local civil registrar to account for natural population components.

In August 2007, there were some 269,365 persons residing in the City of San Fernando. This represents around 14 percent of Pampanga's population and 2.8 percent of Central Luzon. In the same year and using the same census data, two out of every three residents belong to the economically active age group resulting to an economic dependency ratio of around 57 percent (Table 2). This heightens the need for higher order economic activities to generate employment for those in the economically active age group.

Figure 14 Population by Barangay, 2007 and 2000



Population levels in 2007 by Barangay show a centrality of four barangays which recorded more than 15,000 residents each (Sindalan, San Agustin, Dolores and Bulaon). The extensive resettlement site of Bulaon after the eruption of Mt. Pinatubo is the sole reason for its very high population. Through the years, it became the highest populated barangay in the City. On the other hand, the high population levels of the other three barangays may be attributed to voluntary location and their strategic location. Dolores and Sindalan are in cross roads while San Agustin is very proximate to them. (Figure 14)

Fourteen other barangays have population levels between 5,000 and 15,000 persons. Barangays in and around the old town center compose the core of these barangays.

Table 2 Population by Age Group and Dependency Ratio, August 2007

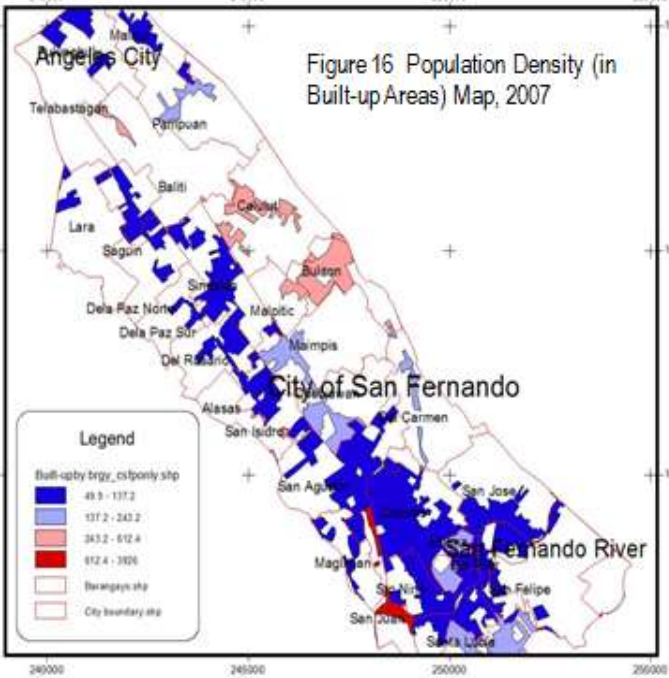
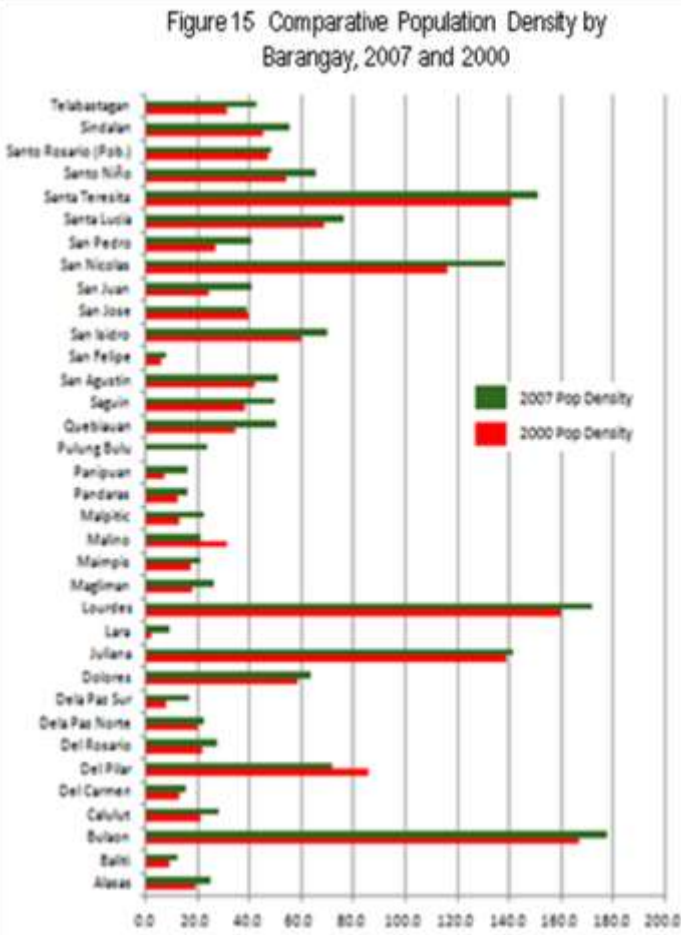
Particulars	Both Sexes	Male	Female
Population by Age Group			
0 to 14	86,712	44,657	42,055
15 to 64	170,729	85,618	85,111
65 and above	10,536	4,407	6,129
Dependency Ratio (%)	36.29	36.43	36.15

Source: 2007 Census of Population, NSO

Population Density. As may be seen in Figure 15 there is a wide variation in the densities across barangays. The five most densely populated barangays, are: Bulaon, Lourdes, Sta. Teresita, San Nicolas and Juliana. Except for Bulaon, these barangays are part of the cluster of old town center barangays. Between 2000 and 2007, except for three barangays (Del Pilar, Malino and San Jose) all registered increases in densities. San Nicolas registered the highest increase in population density.

There is an observed clustering of the medium-densities in barangays that have recently experienced built-up expansion resulting from the land use adjustments in response to the post Mt. Pinatubo eruption in 1991.

After the eruption of Mt. Pinatubo in 1991, the built-up area expanded on both sides of MacArthur Highway. Businesses opened up along the stretch of this main road going towards Angeles City. The improvements of the intersection of Olongapo-Gapan Road (now Jose Abad Santos Avenue) with MacArthur highway further served as a magnet to private investments as new



businesses including financing institutions located on the corridor. The Dolores intersection became a business node. Other complementary land uses such as residential, service establishments, and entertainment expanded from this node. This resulted to the development of the present high population density built-up areas as may be seen in Figure 16.

Population Growth Components. Household population of three barangays decreased between 2000 and 2007 as may be seen in Figure 17 which is consistent with the observed decrease in densities earlier. It should be noted that the fastest growing barangays are found in the peripheries at the west and east of MacArthur highway while the medium growth barangays are adjacent.

With the exception of Barangay Pulungbulu that was created only in 2002, eight barangays registered population increases of more than 2,000 persons each (Barangays Calulut, Lara, Panipuan, Quebiawan, San Agustin, San Pedro, Sindalan and Telabastagan).

Figure 17 Population Growth Rate by Barangay, May 2000 – August 2007

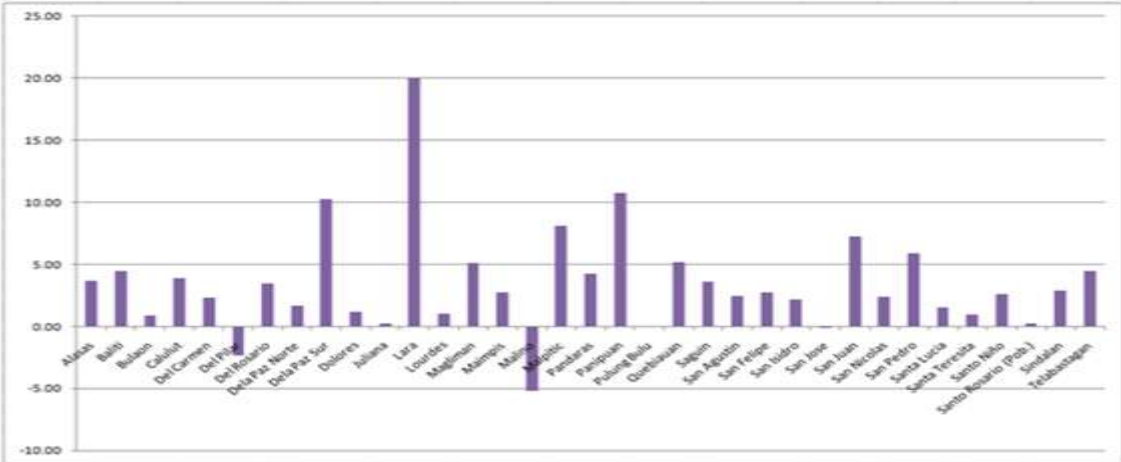
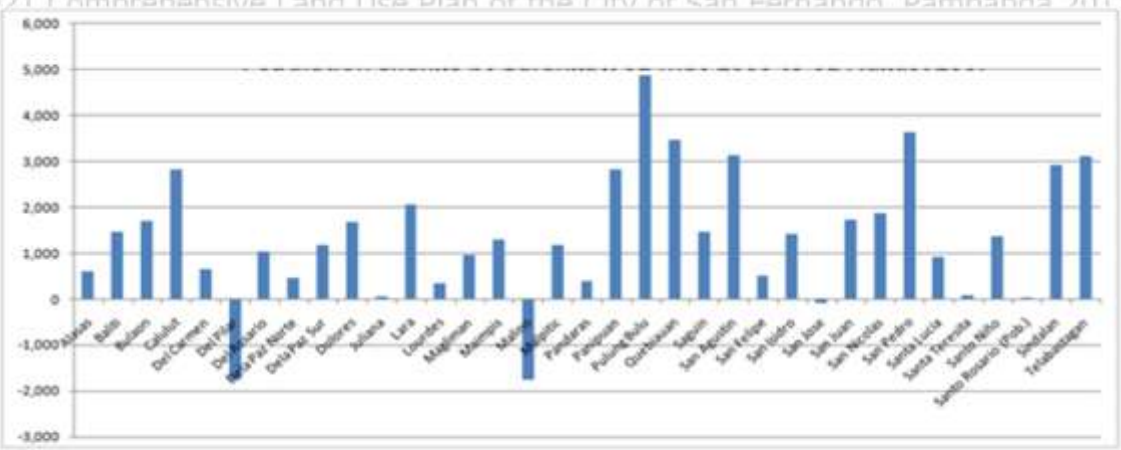


Figure 18 Population Change by Barangay, 01 May 2000 to 01 August 2007

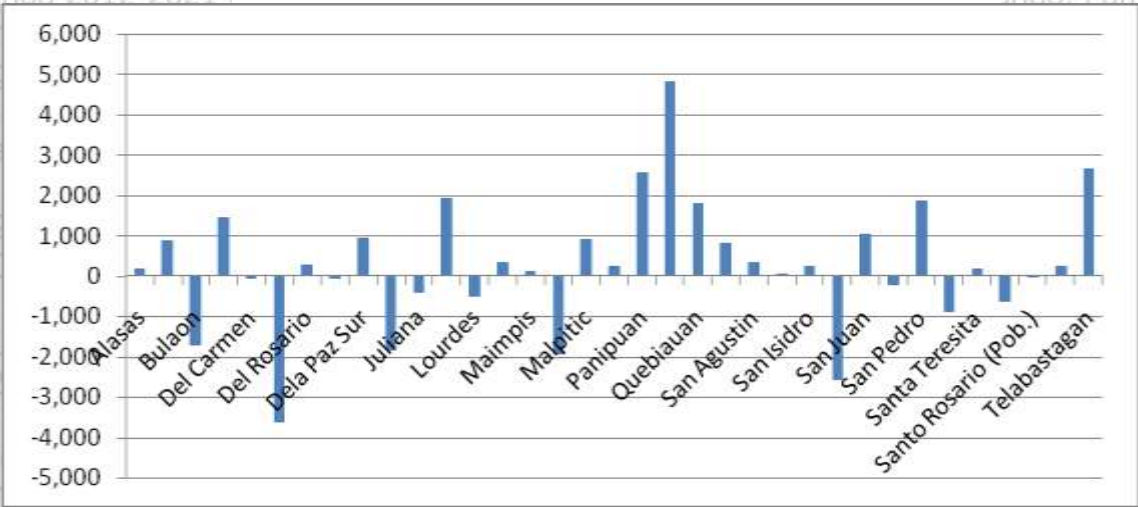


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In an effort to better appreciate the components of the population changes by barangay, the migration trends were estimated by deducting the population natural increase from the changes in population by barangay between 01 May 2000 and 01 August 2007. The results are summarized in Figure 18. Twelve of the City's 35 barangays have lost residents through migration.

The biggest net outmigration barangays are Del Pilar, San Jose, Malino, Dolores and Bulaon. The high net outmigration from Bulaon may either be a trend among those resettled from other places to be returning to their original places twenty years after the eruption of Pinatubo. It may also be an indication of economically active population going to other places in search for jobs and other opportunities. The high net outmigration from Dolores may be a result of the recent resettlement of families living informally along the right of way of the Philippine National Railways into the Northville resettlement. In the case of San Jose, the high outmigration maybe a response to economic pressures as more families need employment and livelihood opportunities.

Figure 19 Migration by Barangay, 01 May 2000 to 01 August 2007



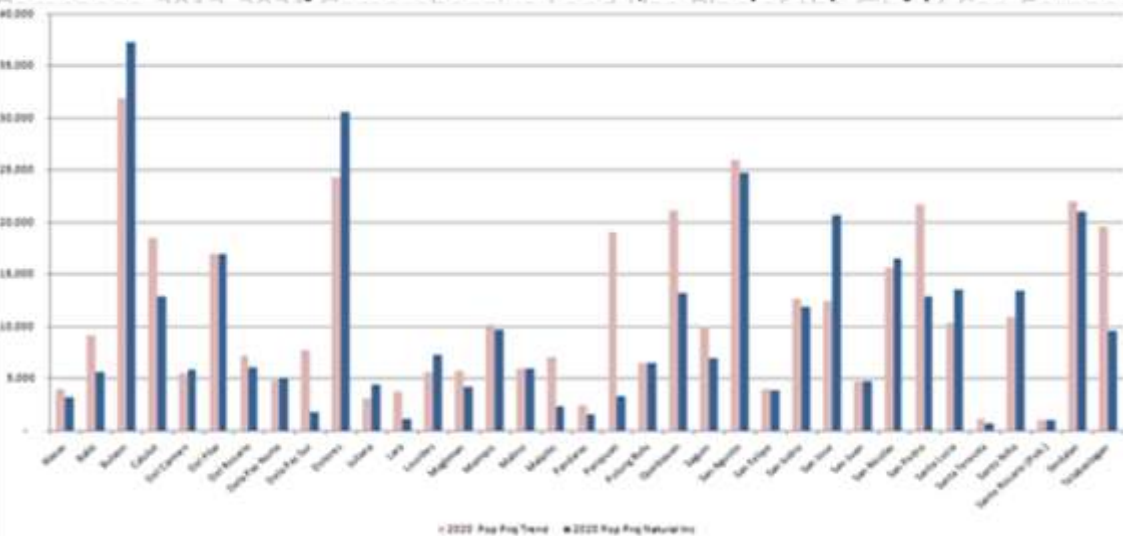
In contrast, the high net immigration into Telabastagan may be a result of its being a receiver of development spillovers of Angeles City. It has become a favored area for built development since the completion of the Telabastagan-Friendship Road was completed. It is also located adjacent to Angeles City's private industrial parks and a desired route to the built development of Bacolor.

The case of Barangay Panipuan may be a result of the location of manufacturing and agri-industrial companies in the Panipuan-Baliti area. The same may be true with Barangay Lara as new manufacturing and agri-industries have located in the vicinity of Saguin, Dela Paz Norte and Sur. Barangay Quebiawan is strategically located adjacent to the San Miguel

Corporation plant and other manufacturing industries. It is also accessible to the commercial areas of San Fernando.

2020 Population Projections. The planning team estimates that assuming the current trend of population growth shall continue until 2020, about 381,335 persons shall be residing in the City. The chart in Figure 20 shows that Bulaon shall continue to be the most populated barangay followed by San Agustin, Dolores, Sindalan, San Pedro and Quebiawan. Should the outmigration issues be reversed Barangay Dolores shall be the second most populated followed by San Agustin, Sindalan, and San Jose that shall have more than 20,000 residents each.

Figure 20 Natural and Trend 2020 Population Projection by Barangay



4. Land Resources and Physical Characteristics

Topography and Slope. The whole coverage of the City of San Fernando has almost flat topography with no distinct natural landmark except for the San Fernando River that crosses the width at the southern end.

It is shaped like a rectangle (around 4 kilometers wide by 12 kilometers long) that is inclined by 45 degrees from a south-north line. It is around 14 kilometers southwest of Mt. Arayat, the most pronounced landform in the Central Plains of Central Luzon, and adjacent to

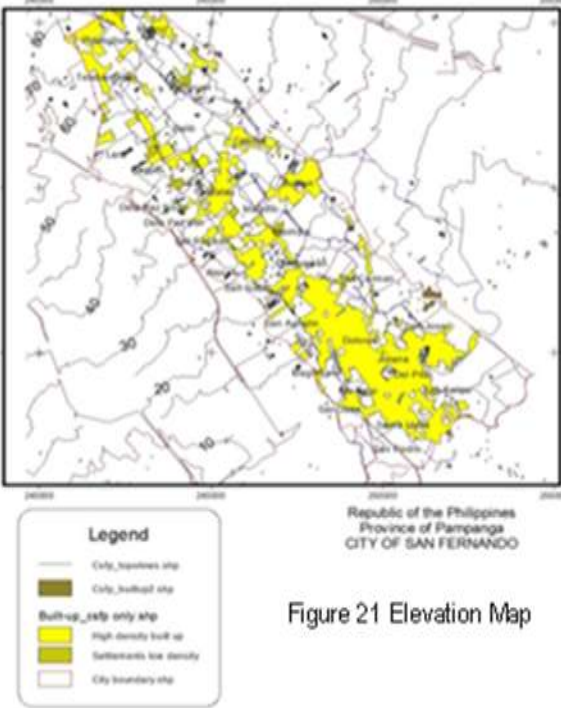


Figure 21 Elevation Map

the southeast of Angeles City. On its western side is the east Mega Dike that was built after lahar flows threatened the City in 1995.

The City is relatively in a flatland area with elevations between 70 and 5 meters above mean sea level (Figure 21) and an average slope of 0.54 percent.

Water Supply Services. The provision of adequate, clean and affordable water is one of the most important services of local governments. It falls under their responsibility through the local water districts. However, in cases where public water supply is inadequate, it is augmented by private individual sources. In other cases, commercial establishments, large industries and/or private housing subdivisions usually install their own independent systems to ensure water supply availability.

San Fernando has a population of about 270,850. At present, the City of San Fernando Water District (CSFWD) has its water service facilities available in 35 *barangays* with 28,994 total number of active connectors as of February 1, 2011. Most of the areas served by the system enjoy 24-hour water supply.

Table 3. No. of Connections, Average Consumption

Type of Consumer	No. of Connections	Average Water Consumption
Domestic	27,578	29.33 L/Hr
Commercial	1,276	50.45 L/Hr
Industrial	0	0
Others	140 (Gov't)	
Total	28,994	

Source: CSFWD

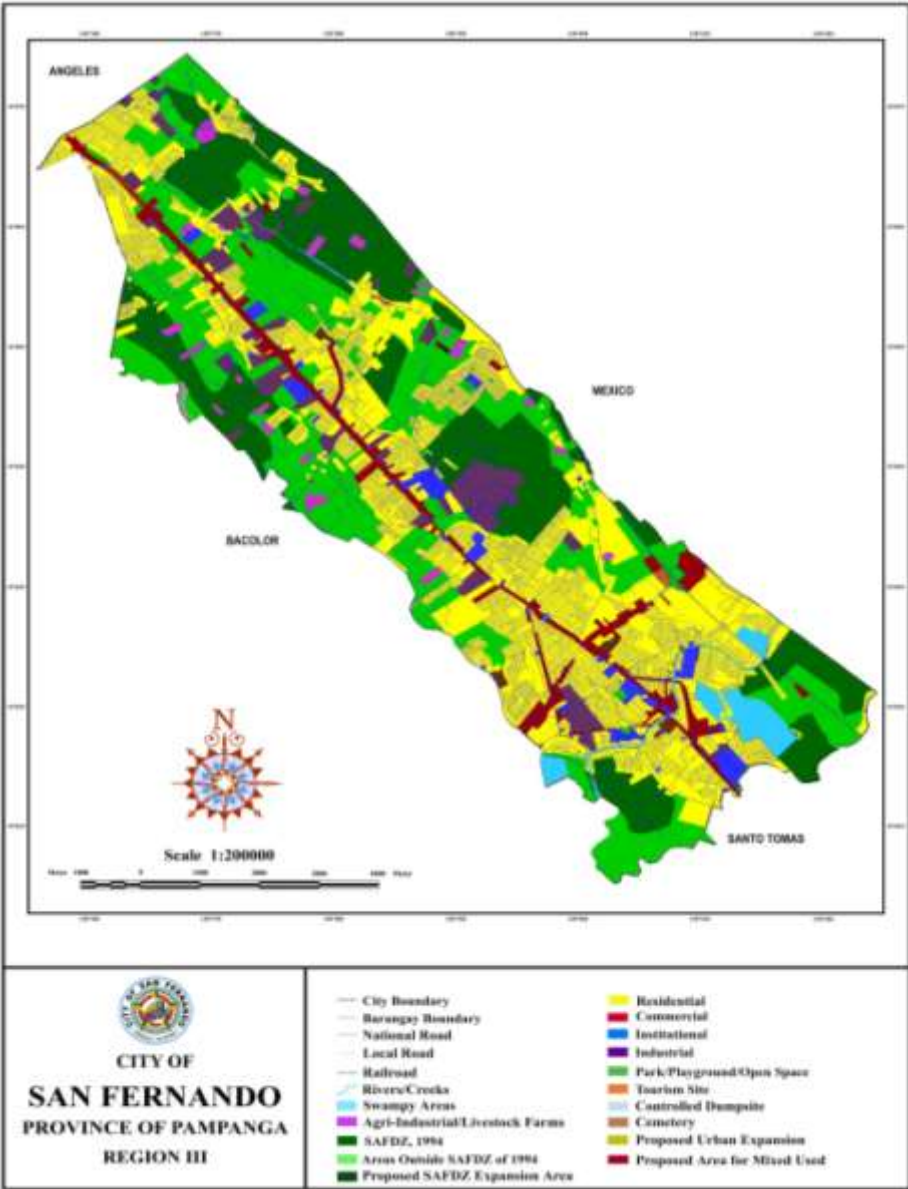
CSFWD supplies water to its concessionaires from various sources located in Moras Dela Paz, Sto. Tomas and San Matias, Sto. Tomas. Its spring sources could be found in Brgy. Dolores. There are pumping stations and booster pumps distributed within the City proper and various *barangays*. Water is distributed through a pipeline network with pipe sizes ranging from 4 inches to 12 inches in diameter. The system also includes water storage facilities.

Existing Land Uses and Land Classifications. The existing land uses in 2010 was derived by updating the land classification map prepared for the previous CLUP of San Fernando through a combination of overlaying with Google earth satellite images and field validation. The resulting existing land use map is presented as Figure 22. It shows the trend of built development on both sides of MacArthur Highway while manufacturing and agri-industries are found in areas accessible through the same highway. The agricultural lands are on the peripheries east and west of MacArthur

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Highway in addition to those in the southern part of the City. Commercial development is observed to be following immediately on both sides of the same highway. The commercial development is interspersed with institutional uses the biggest of which is the 18-hectare regional government center in Barangay Maimpis.

Figure 22 Existing Land Use Map



Soils. The Soil Map shown in Figure 23 highlights the extensive sandy areas in the City. The internal drainage of the soil is excellent and thus may not be conducive to the production of crops that require submerged conditions such as rice. Silt loam can be found in the southern portion of the City, the same area that serves as catch basin of surface runoff flowing in the San Fernando River.

The soil condition is ideal for built development although the subsoil conditions may prove otherwise. Studies conducted by the National Water Resources Board (NWRB) and the Japan International Cooperation Agency (JICA) in 2010 reveal that extensive areas in the City may not be able to support high rise building development.

Figure 23 Soil Map (2006)

26



Geology. Figures 24, 25 and shows that the underlying geologic formation in San Fernando is alluvium. The City is on top of productive aquifer. However, a study conducted in 2008 reveal that groundwater in the area is at high risk despite the present good qualities of water from various pumping stations.

Transportation and Traffic.

Transport development directly contributes to the improvement in the standard of living. Roads provide access to various institutions and connect people and resources. Urban mass transit saves time and expense. Inter-city passenger

transport makes more convenient for people to travel either for business or recreation. In addition, transport development can immediately spur economic growth, i.e., by reducing the costs of doing business.

Comprehensive Land Use Plan of the City of San Fernando, Pampanga 2012-2021

Figure 24. Geology Map

Figure 25. Hydrogeology Map

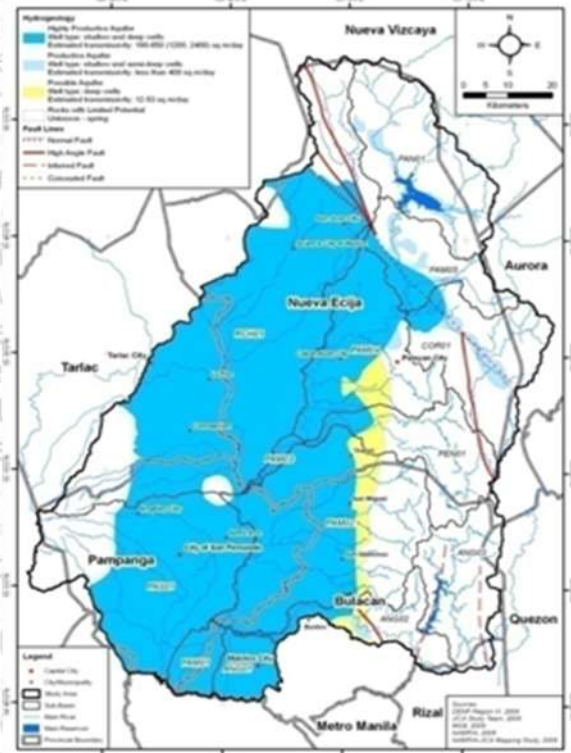
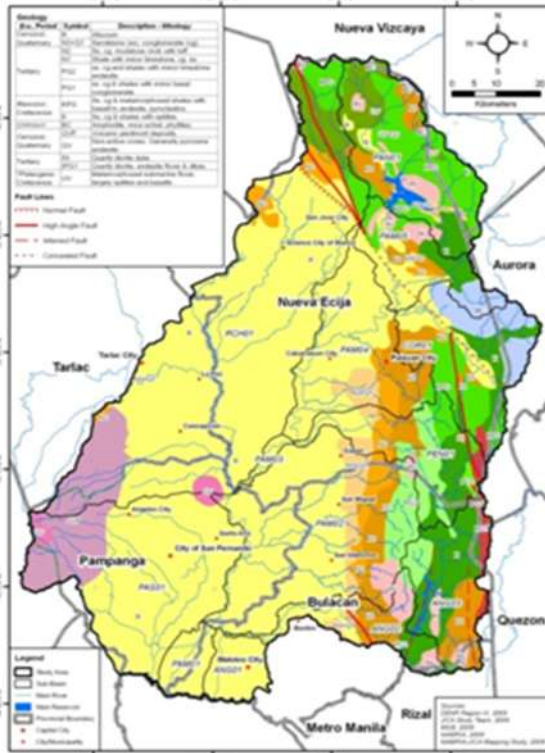
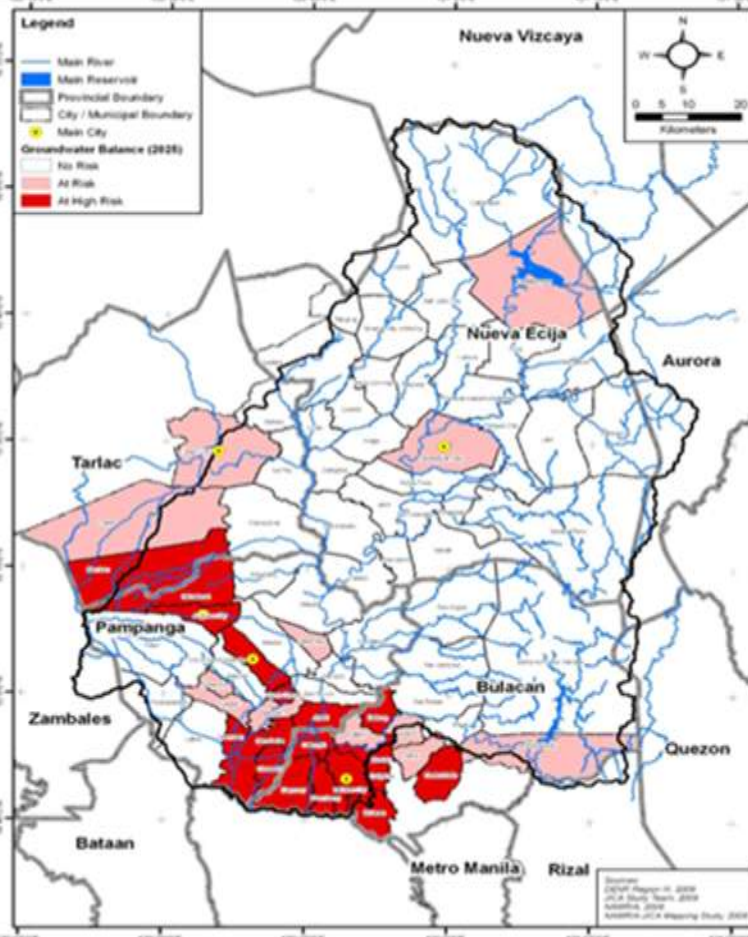


Figure 26. Groundwater Balance Map



Roads. There are two interregional arterial roads and one major east-west lateral connection passing through the City of San Fernando, namely: MacArthur

Highway or Manila North Road (MNR), North Luzon Expressway (NLEX) and the Jose Abad Santos Avenue (JASA) formerly known as Gapan–San Fernando-Olongapo (GSO) road respectively.

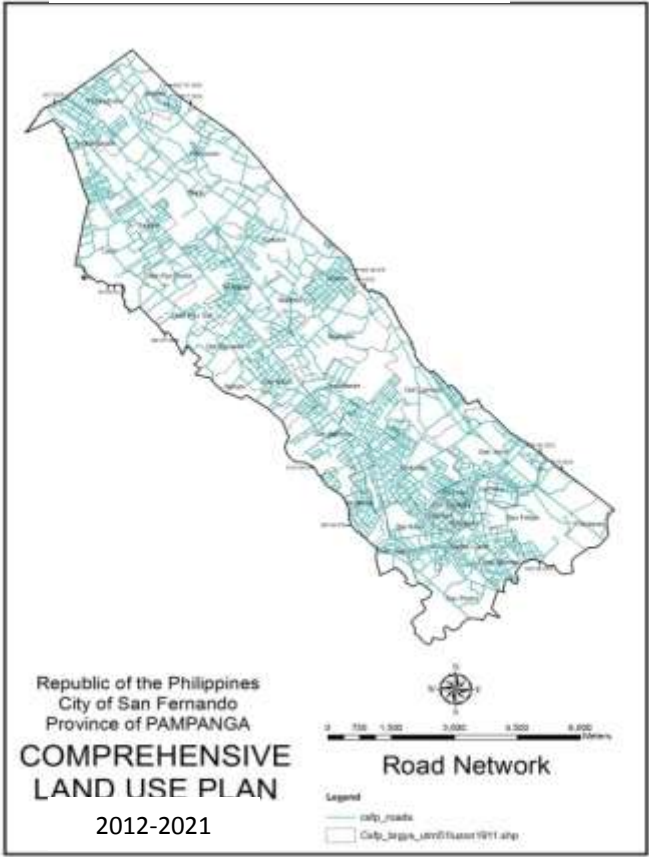
Table 4 shows the road inventory of the City of San Fernando as of October 2010. The City has a total road length of 280.13 kilometers with classified National accounting for 13.8 percent, Provincial 2.0 percent, City 1.2 percent and Barangay 83.1 percent. Except for the remaining 55.19 kms. of barangay roads, almost all of these roads are already paved, either concrete or asphalt. The local roads are regularly maintained by the City Government in coordination with the Department of Public Works and Highways (DPWH).

Table 4. Inventory of Roads as of October 2010

Administrative Classification	Total Length (in kms.)	Road Surface (in kms.)			% of Unpaved /Total
		Concrete	Asphalt	Gravel/ Earth	
National	38.67	12.01	26.65	0	0
Provincial	5.59	5.59	0	0	0
City	3.23	2.33	.90	0	0
Barangay	232.64	177.45	0	55.19	0
Total	280.13	197.38	27.55	55.19	19.7

Source: Engineering Office, CSFP.

Figure 27. Road Network Map



The road density of the City was computed at 4.14 kms. of road per km². of land which is way above the national standard of 1.00 km. per km². There are a total 33 bridges within San Fernando. Per latest assessment of the City Engineer's Office, six needs rehabilitation while another five are being proposed for construction.

Despite the high road density, it may be seen from Figure 27 and Table 4 that the road network is mainly composed of barangay roads and these have limited carriageways and often road rights of way. The built development has been concentrated on a corridor on both sides of MacArthur Highway and the barangays and other local roads connect the built-up areas to it. Jose Abad Santos Avenue is the only major road on an east-west direction despite the 12-kilometers length of MacArthur Highway.

The level of service of MacArthur Highway has increased with the recent completion of its widening from Dolores up to Baliti. The proposed widening from Baliti onwards to Angeles City was held in abeyance due to the opposition of some environmentalists as the project entails the cutting of some century-old acacia trees.

Running almost parallel east of MacArthur is the Del Carmen-Bulaon-Calulut-Baliti-Panipuan road. This road serves as an alternate north-south road although its level of service is limited by its narrow carriageway and pot hole riddled road surface. Ingress and egress to this alternate road is only through three roads in Sampaloc, Sindalan and Baliti. These access roads themselves have very limited carriageways except for the MacArthur-Baliti road which has been widened due to high volume of truck traffic.

Road Transportation Services and Facilities. The mode of public transport in the City of San Fernando is purely road-based consisting largely of jeepneys for primary routes, tricycles, pedicabs and *kalesas* for feeder routes. Buses are available for long-distance travels. There are bus companies serving the City inward to other destinations such as Victory Liner Inc., Genesis Transport Service, Inc., Bataan Transit Co., Inc. (BTCI) among others. The buses load and unload passengers in the city central terminal and in the parking area of Robinson's Starmalls (for Victory Liner buses) and the Mexico side parking area of SM Mall. Taxi service is not that well-established, however, there are some groups operating independently.

The City also serves as a terminus for jeeps plying routes from the rest of Pampanga such as Lubao-Guagua-Bacolor, Apalit, Arayat-San Juan-Mexico, Angeles, and Dau, and from neighboring provinces such as Bataan (Balanga-Hermosa-Dinalupihan), Nueva Ecija (Cabanatuan-Gapan-Cabiao), Tarlac (Tarlac City-Capas-Bamban).

The initial attempt by the city government to centralize all these inter-municipal traffic in the city central terminal was met with opposition not only from the operators of the public transport utilities but more so from the general public who raised the additional fare that costs them. Thus, the terminals of these inter-municipal jeepney routes were spread.

Sidewalks are in relatively good condition. The City Government has succeeded in its drive to clear them of various obstructions e.g., illegal vendors, particularly in the Poblacion area. Previously, with sidewalks occupied, pedestrians had to walk on roads although there are overhead pedestrian bridges built in some areas.

Traffic lights are installed in various intersections. Traffic rules or regulations are usually enforced by the Traffic Management Unit (TMG) a national support unit of the Philippine National Police (PNP), also under the LGU. Traffic management offices are scattered in different key areas of the City.

Rail. One project that will benefit the City of San Fernando once completed is the Manila Clark Rapid Railway System (MCRRS) or the North Rail. A major undertaking of the national government, the North Rail project aims to build a fast, reliable and an efficient railway system in Central and Northern Luzon. Its implementation is undertaken in several phases (I-IV). Phase I of the Project is an 82-kilometer rail line between Caloocan City in Metro Manila and the Clark Special Economic Zone (CSEZ) in Pampanga. Other phases of the project are: Phase II - Branch line to Subic Economic Freeport Zone; Phase III - Extension to Bonifacio Global City; and, Phase IV - Extension to San Fernando, La Union. Three multi-modal stations or terminals provided with park-and-ride facilities are planned to encourage car owners to use the mass transit system, namely: CSEZ, Guiguinto, Bulacan and Bonifacio Global City. There will also be in-line stations to be built in various cities/municipalities i.e., Section 1- Caloocan, Valenzuela, Marilao, Bocaue, Guiguinto and Malolos; Section 2 - Calumpit, Apalit, City of San Fernando, Dau or Angeles City and Clark/ Mabalacat.

Telecommunications Facilities. The City of San Fernando is advance in terms of telecommunication services. Communication links are sufficient. Most of the leading telecommunication companies in the country have facilities within the City like the Philippine Long Distance Telephone Co. (PLDT Co.), Digital Telecommunications Phils. (Digitel), Globe Telecom, and Smart Communications. They have vital transmission towers located in San Fernando. With regard to internet service, there are several Internet Service Providers (ISPs) offering dial-up, dedicated and DSL types of service. Over a hundred internet cafés are available in strategic areas. Availability of

inexpensive broadband access infrastructure is significant in developing a widespread information economy and facilitative of e-commerce.

There are four TV stations namely KTV Channel 12, Infomax Channel 8, CLTV 36 and ABS-CBN TV46 Pampanga. There are also two radio stations, RW 95.1 of the Radio World Broadcasting Corporation of the Philippines and the Power 92.7 of the Love Radio Network. Several local newspapers are published in the City which includes SunStar Pampanga, The Probe, Coffee Punch, Pampanga Times and the Observer.

Power. Energy, power or electricity is a necessity for everyday life, that every activity requires it. The question is how one can utilize it in a sustainable way.

San Fernando’s electricity supply is provided mainly by the San Fernando Electric Light & Power Company, Inc. (SFELAPCO). SFELAPCO has four power distribution substations namely Magdalena, Greenville, Lourdes Heights and Basa Sub-Stations with a combined capacity of 119.2 MVA. It is the seventh largest privately-owned electricity distributor in the country. It procures energy from the government-owned National Power Corporation – TransCo (NPC-TransCo) and from Hedcor, Inc., - a hydroelectric firm of the Aboitiz Group.

Table 5. Electricity Coverage as of October 31, 2010

Coverage	Total	Served with Electricity	%
Barangay	35	35	100.00
Household	52,504	52, 504	100.00

Source: SFELAPCO; Socio Economic Panorama 2009-2010, CSFP

Note: * does not include household served by Angeles Electric

Thirty four out of the 35 barangays of the City are served by SFELAPCO. Due to its proximity to Angeles City, Barangay Pulung Bulu and some portions of Telabastagan are served by the Angeles Electric Corporation. In terms of household, per account of the SPELAFCO, by February 2010, about 50,000 households in San Fernando had access to electric power service, consuming an average 10 million kilowatt-hours per month.

Solid Waste Management Facilities. Past efforts of the City government focused on ensuring that the increased economic activity will not pose serious ecological problems in the City. Thus, solid waste management and other environmental protection measures were implemented so as not to, says Mayor Oca, “create a serious disequilibrium between the people and their habitat.”

In a serious effort to implement the provisions of the Ecological Solid Waste Management Act of 2003, the government remained vigilant in maintaining the City’s cleanliness and enforced proper garbage disposal in its barangays. The conversion of the City’s open dumpsite into a controlled

one delivered the strong message of importance of garbage segregation and the consequential penalties arising from non-compliance with the law. Information and education campaigns stressed the public’s role in the successful implementation of the law.

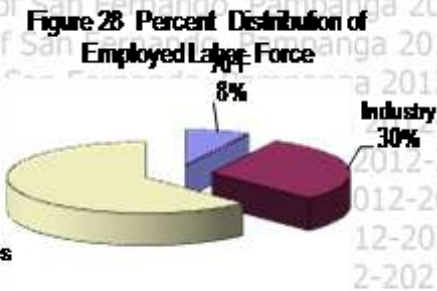
The environment conservation sector of the City were mobilized to support efforts to rehabilitate San Fernando River not only as a flood control measure but also as proud part of *Fernandinos’* heritage. In coordination with the Manila Bay Site Coordinating Committee, the water quality of the river and its tributary creeks is constantly being monitored to ensure elimination of water pollution.

5. The City’s Economy

Economic and political dynamics in the City of San Fernando are fast altering the City’s economic landscape and causing it to shed some “old skin”. With the changes come the pressure or challenge to face up to the demands presented by the opportunities brought about by said changes, and in harnessing its potentials as well as addressing the barriers to creating the desired change.

The City’s economy has taken the turn from a predominantly agricultural economy (35 years ago during Mr. Arturo Tangco’s era as Agriculture Head) to one oriented toward Industry and Services. In the survey conducted by the University of the Assumption (UA) on the socio-economic make-up of the City, employment is shown to concentrate in the Services Sector with about 75 percent of the City’s labor force accounted here. The Industry sector comes in second in employment share with 36 percent, while Agriculture, Fishery and Forestry (AFF) accounts for the least share with 9 percent.

Trading represents the single biggest share of the employed with about 18 percent, followed by Manufacturing with 15 percent, and Transportation, Communication and Storage (TCS) with 13 percent. This structural pattern of the economy mirrors that of the country, the region and the province of Pampanga.



The direction of the City’s economy is essentially influenced by its being the seat of government at the regional level and transit hub for travels north, west, east and south of the region. This pattern of growth

may well be the City's imprint in the future even as the City is taking a facelift that would encourage further investments because of the spike in real estate development. And as the City is the heart and center of the region and the province, its role would have to be as source of the services and assistance needed by the other sectors (industry and agriculture) that are the base of the other municipalities surrounding it.

Yet, even if services are shaping the local economy, the City is also known for its thriving local industries such as lantern-making, processed meat, sweets and delicacies and handicrafts. Said industries have consumers extending beyond the City's borders making these industries therefore the City's economic base along with services.

Nevertheless, micro-enterprises make up for the bulk of the City's business establishments. Sustaining these businesses so that they will continue to be viable and provide employment to local labor, that otherwise could not be employed in other industries, is a challenge that the City must attend and respond to in addition to attracting investments with high potential for expanding the local economy and creating jobs.

The City of San Fernando, however, is at the threshold of urban and industrial development, with population growth taking on a bigger turn along with non-agricultural activities. As regional capital and center, the City has been drawing people and economic activities that are now causing the city's facelift from predominantly agricultural to one that is strongly urban with a dominant service industry as economic base.

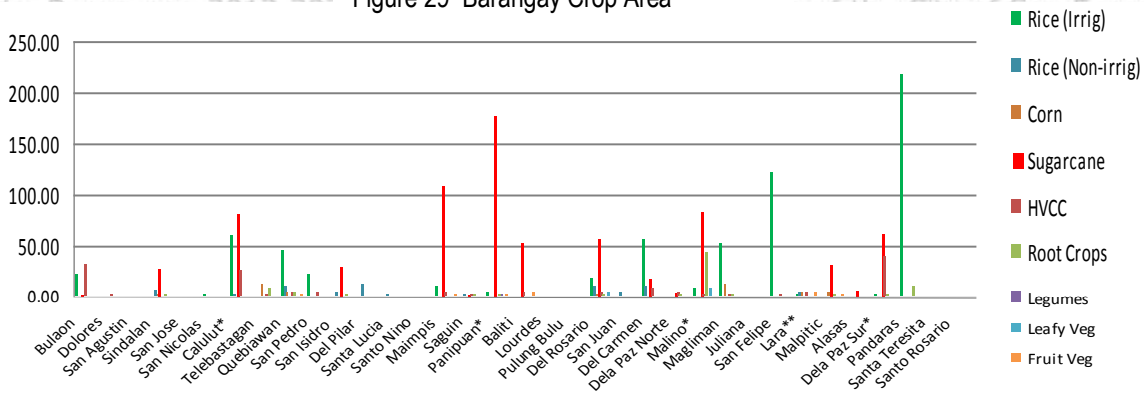
Agriculture. The City's agricultural activities while still occupying a good portion of the city's land area are now relegated in its peripheries – those parallel the megadike and the North Luzon Expressway and areas at the southern end of the City. These remaining agricultural areas are mainly planted to rice, sugarcane and HVCC, which are interspersed with livestock and poultry production and fish farming. In some areas though, especially those adjacent to populated areas, encroachment of settlements into livestock/poultry farm areas is becoming an issue because of environmental concerns.

Out of the City's 35 barangays, 26 are engaged at varying degrees in agricultural production. As per record of the agriculture office in 2010 about 35 percent of the City's total land area is agricultural land. However, based on actual area planted report of the same office, crop area accounts for 25 percent of the City's land area, while livestock and poultry for two percent. Among crops, rice and sugarcane make up for the largest land use of the

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City's crop area, with 37 percent for rice and 43 percent for sugarcane. Major crop areas in terms of extent of land use and share of barangay land area are Barangays Panipuan (53%), Malino (48%), Dela Paz Sur (45%), Del Rosario (33%), Maimpis (31%), Malpitic (26%), San Isidro (21%) and Calulut (20%) for sugarcane; Magliman (43%), San Felipe (33%), Quebiawan (20%), Del Carmen (20%), Calulut (15%), Bulaon (14%), Del Rosario (10%) and San Pedro (8%) for rice; and Barangays Dela Paz Sur (29%), Bulaon (19%), and Calulut (6%) for HVCC. Figure 29 (below) shows the crop area distribution by barangay.

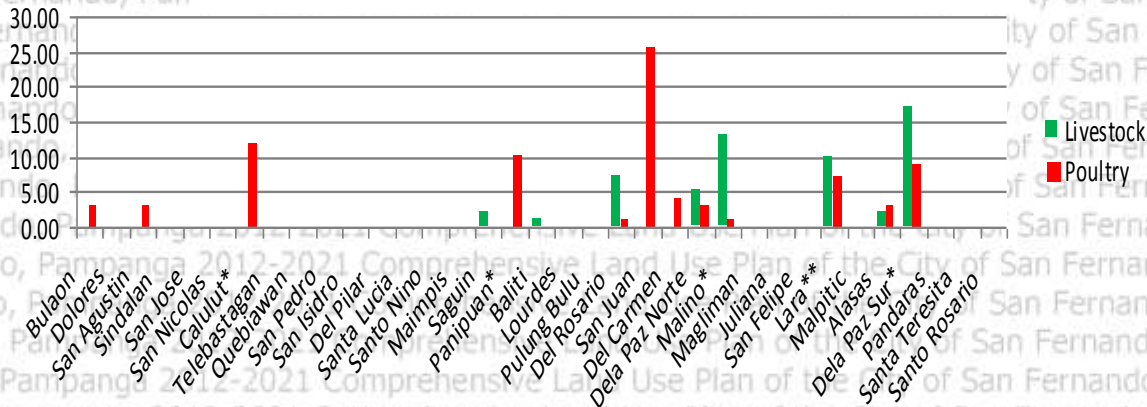
Figure 29 Barangay Crop Area



The City of San Fernando is also actively engage in livestock and poultry production, with numerous commercial livestock and poultry farms present in the City. The sector covers about 113 hectares or about 2 percent of the City's total land area and 33 commercial farms (11 for livestock and 22 for poultry). Said areas are dispersed in 13 out of the 35 barangays (Figure 30), with six barangays serving as major sites, namely, Dela Paz Sur, Malino, Lara, Calulut, Panipuan and San Juan. Said barangays have livestock and poultry farms covering areas from 10 to 26 hectares or 3 to 24 percent of the barangay land areas. Commercial poultry farms are also present, although at a lesser extent, in thickly populated barangays such as Bulaon and San Agustin. Sustaining therefore said farms in these areas would require the installation of pollution-mitigating measures that would keep farm wastes from causing undue environmental and health risk to the surrounding population. Failure to address said concern may erupt into a land use issue and possibly threaten the operation and existence of said farms, leading to settlements occupying the once agricultural areas.

Fish production, however, a minor sector is another of the land using activities of the City of San Fernando. Said sector produced in 2010 only about 68 metric tons with the yield coming from a total of 57 hectares covering 11 barangays, namely: Bulaon, Calulut, del Rosario, Lara, Maimpis,

Figure 30 Livestock and Poultry Distribution by Barangay Distribution



Pandaras, Panipuan, San Pedro, Sta. Lucia, San Juan and San Felipe. About 73 percent of the City’s fish output comes from Barangays Pandaras, Sta. Lucia and San Juan. Only San Juan and San Felipe are with swampy areas and therefore a more stable site for fish production. Similarly, as it is largely agricultural, Pandaras may well continue as a fish production site, while the other barangays with small-volume producers may find themselves more prone to conversion especially those with large settlements.

Prone as the City is to urban and industrial transformation, there are, however, rural barangays, by virtue of their being flood-prone are less vulnerable to conversion. Barangays Pandaras and San Felipe have the largest rice production areas, but are also the most prone to flooding and siltation. Unless interventions that would modify the vulnerability of these areas to said natural disturbances are taken, these areas then would have to remain serving their agricultural function so much so if population growth in these barangays remains at current levels. This means less pressure from population to use the land for settlement and other economic uses. Access is another constraint to growth in this area, particularly Barangay Pandaras because of the absence of road that would connect the barangay to the City’s commercial and financial district.

On the other hand, barangays with a good percentage of their areas utilized for agricultural production but are densely populated may, because of pressure from population, face conversion of said production areas to other uses. Barangay Bulaon is one such area having the largest population of all barangays and also the densest. Based on CAO’s record, Bulaon has about 34 percent of its land area used for rice, HVCC and poultry production, while the rest is built-up area or settlement. Its adjoining barangay – Calulut is similarly situated with population taking on an upward

trajectory, although 42 percent of its land area is still used for agricultural production, both crops and poultry. The potential for conversion in these areas is strong because of commercial and settlement growth west of said barangays particularly in Barangay Sindalan. Projections are that if commercial and population growth in these areas continues to climb this may give way to the abandonment of agriculture in the foreseeable future.

Given urban and commercial as well as industrial crawl, the City faces the challenge of striking a balance between sustaining the City's agriculture sector and providing space for more high value-adding activities and an expanding population.

Depending on the value placed by the City on agriculture would spell its fate in the short and long term. But as shifting costs to other uses may be high for some sub-sectors, such as commercial livestock and poultry production, policies that would keep other land uses from encroaching into these areas will have to be introduced, to sustain their existence and avert land using conflicts that may arise from such encroachment.

Services and Industry. As earlier mentioned, services and industry are increasingly providing for the economic anchor of the City of San Fernando. Establishments in the sectors are interspersed in areas along the MacArthur Highway, while concentrations of commercial and other service-related establishments are apparent within the area of the Olongapo-Gapan Road or Jose Abad Santos Avenue and the city center.

Wholesale and manufacturing establishments combine with retail outlets including malls, tourism-related establishments such as hotels/motels and restaurants, and financial, educational and government institutions to make up the economic base of the City of San Fernando. Commercial establishments make up for the bigger bulk of the city's businesses with malls and supermarkets dotting the city's landscape. The City is also host to quite a number of wholesale establishments many of which are in Barangays Dolores, Sindalan and San Jose. There are fewer manufacturing establishments though some are large-scale and therefore share significantly to the local economy.

The City's record of business permit issued from 2007 to July 2011 shows business to be growing in the city, an indication of its increasing attractiveness as business and investment location. The City's streamlined business permitting procedure combined with its strategic location i.e., proximity to the Clark Special Economic Zone and Metro Manila and position as the regional administrative center and travel hub all play in causing the spike in business in the City. The result, as well as indication, of the growing business is increased traffic in the city's major roads. Consequently,

pressure is now on for identifying alternative routes that would help ease traffic flow and subsequently sustain economic growth.

Service establishments and commercial activities are largely located in the Central Business District, along the Jose Abad Santos Avenue and the MacArthur Highway. Pockets of concentration are apparent in Barangays Dolores, Sindalan and San Jose. However, flooding caused by heavy rains and clogged drainage is a perennial concern in the CBD, Barangays Dolores and San Jose. Focus in these areas should then be on easing the flow of water in natural water ways and drainage system, to unburden businesses of the troubles brought about by flood and keep business interest on the city as investment location.

While not a major tourist destination, the City of San Fernando nonetheless receives its share of visitors because of its historical value and cultural attractions e.g., Giant Lantern Festival, Lenten Crucifixion, local cuisine. Sections of the CBD have been declared as historical/heritage district with its preserved historical landmarks and edifices that are meant to remind residents and visitors alike of the City's glorious past. It is also emerging as a venue for small meetings or conventions (MICE tourism) being the regional government center. Nevertheless, facilities are still wanting in this area particularly lodging amenities that could accommodate bigger events. On the other hand, restaurants are making their way along the MacArthur Highway and the JASA to accommodate or meet the needs of the City's visitors and travelers passing by particularly those wanting to get a taste of Kapampangan foods. But the City, given its space limitation and lack of natural attractions, could only go so far as enhancing its current attractions, developing food and non-food products for tourists, and establishing MICE facilities.

For manufacturing, activities in the sector are evident in populated sections or barangays of the City such as Sta. Lucia, San Isidro, Calulut, Saguin, San Nicolas and Dolores. Manufacturing is also present in barangays with a good portion still devoted to agricultural production, such as in Barangays Panipuan and Del Rosario. Some manufacturing plants are built along the MacArthur Highway while others are located off the road or mixed with settlements or agricultural activities in the barangays. Quite a number of the manufacturing plants are medium to large scale, providing for the necessary source of employment for the City's labor force and demand for the City's various products and services.

The City's proximity to the Clark Special Economic Zone and quick access to Metro Manila are opportunities for driving growth in the manufacturing sector. With its business-friendly investment environment the possibility of the City attracting more investment is not remote and as

such it must come prepared with the infrastructure and space appropriate for such investments. Ideally, this should be in areas with facility of movement and not too densely populated to minimize any possible negative impact on population. One such potential impact is from the wastes and discharges of the manufacturing plants or facilities. This could be avoided or mitigated with provisions for solid waste management and waste water treatment. Ensuring these must be among priorities of the City if it were to achieve its objective of becoming a habitat for human excellence and quality living.

Providing space for IT-related businesses or establishments is also an emerging concern as the City gears up or positions itself as the regional hub for ICT and knowledge center. The City must be able to provide the necessary space – including facilities and manpower – if it is to attract investors in the said sector. This the City must do if it were to take advantage of the opportunity presented by a flourishing ICT industry. It is not unlikely for the City to meet said needs given time and the City's improving business climate.

Figure 31 Business Establishment Distribution by Barangay

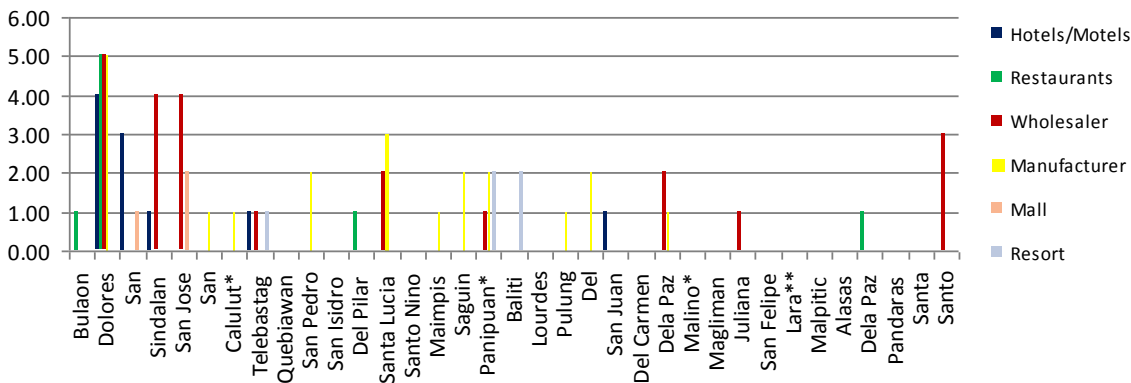


Table 6. Barangay Economic Profile Based on Land Use

Name of Barangay	Population	Land Area (has.)	Pop. Density	Characterization
Bulaon	28,757	166	178	<ul style="list-style-type: none">most populous and most dense34% of land area is planted to rice and HVCC; another 3 hectares is used for poultry production
Dolores	21,188	256	64	<ul style="list-style-type: none">no agricultural activityhas the concentration of restaurants and hotelshas the most number of trade and industry establishments
San Agustin	19,293	295	59	<ul style="list-style-type: none">business establishments consist of commercial, service (trade and hotels) and a few manufacturing enterprises
Sindalan	15,487	327	56	<ul style="list-style-type: none">13 percent of land area is planted to

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				<ul style="list-style-type: none"> crops mainly sugarcane has in site a number of wholesaling establishments
San Jose	12,730	322	40	<ul style="list-style-type: none"> core area for large commercial and wholesaling establishments no agricultural activity
San Nicolas	11,706	80	138	<ul style="list-style-type: none"> 2% of area planted to rice a small number of trade and manufacturing establishments 5th most dense barangay
Calulut	11,593	475	29	<ul style="list-style-type: none"> 42% of land area used for crop production with rice and sugarcane as primary crops large area used for poultry among the least dense barangays
Telebastagan	11,522	191	43	<ul style="list-style-type: none"> 20 has. or 8% of land area planted to crops mainly corn few establishments engaged in tourism-related activities and wholesaling
Quebiawan	11,370	234	51	<ul style="list-style-type: none"> 28% of land area planted to crops mainly rice with few wholesalers
San Pedro	10,718	224	41	<ul style="list-style-type: none"> 8% of land area planted to crops mainly rice 8 hectares of fishery area site of Lenten crucifixion
San Isidro	9,806	140	70	<ul style="list-style-type: none"> 27% is crop area with sugarcane as primary crop 2 manufacturing establishments located here
Del Pilar	9,426	71	72	<ul style="list-style-type: none"> 9% of land area planted to rice (rainfed) within the central business district
Santa Lucia	8,655	87	77	<ul style="list-style-type: none"> large area used for fishery 1% rice crop area manufacturing and wholesaling establishments located here
Santo Niño	8,001	136	66	<ul style="list-style-type: none"> historical landmarks located here no agricultural activity
Maimpis	7,313	254	21	<ul style="list-style-type: none"> 36% of land area planted to crops largely sugarcane site of San Miguel Brewery
Saguin	6,538	105	50	<ul style="list-style-type: none"> 5% planted to mixed crops 2 hectares used in livestock production 2 manufacturing establishments located here
Panipuan	5,406	436	16	<ul style="list-style-type: none"> large crop area (56% of BLA) primarily planted to sugarcane 10 hectares poultry area

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				<ul style="list-style-type: none"> ○ presence of manufacturing and wholesaling establishments ○ presence of resorts
Baliti	5,397	198	13	<ul style="list-style-type: none"> ○ 14% crop area primarily planted to sugarcane ○ presence of 2 resorts
Lourdes	5,045	51	172	<ul style="list-style-type: none"> ○ among small and most dense barangays ○ within CBD
Pulung Bulu	4,869	104	24	<ul style="list-style-type: none"> ○ one manufacturing establishment recorded ○ no agricultural activity on record
Del Rosario	4,803	165	28	<ul style="list-style-type: none"> ○ 57% of land area planted to crops largely sugarcane and rice ○ 8 hectares of poultry farms ○ presence of 2 manufacturing establishments
San Juan	4,354	241	41	<ul style="list-style-type: none"> ○ 3% rainfed rice area ○ 25 hectares fishery area ○ convention center site
Del Carmen	4,231	309	16	<ul style="list-style-type: none"> ○ 92 hectares or 34 % of land area planted to crops with rice and sugarcane as primary crops ○ 4 hectares used for livestock production
Dela Paz Norte	4,004	170	23	<ul style="list-style-type: none"> ○ 4% of land area or 7.7 hectares are used for crop production ○ 8 hectares used for livestock and poultry production ○ with one manufacturing and two wholesalers on record
Malino	3,714	168	21	<ul style="list-style-type: none"> ○ 82% of land area planted to largely sugarcane and root crops ○ 13 hectares are used for livestock production
Magliman	3,171	138	27	<ul style="list-style-type: none"> ○ 57% of land area planted to crops with rice and corn as major crops
Juliana	3,135	241	142	<ul style="list-style-type: none"> ○ one of the small barangays within the CBD ○ one wholesaler located here
San Felipe	2,927	296	8	<ul style="list-style-type: none"> ○ 34% of land area planted mainly to rice ○ around one hectare fishery area
Lara	2,813	335	10	<ul style="list-style-type: none"> ○ small area equivalent to 6% used for crop production ○ 17 hectares of livestock and poultry farms
Malpitic	2,710	131	23	<ul style="list-style-type: none"> ○ 33% planted to crops with sugarcane as main crop
Alasas	2,612	127	25	<ul style="list-style-type: none"> ○ Only 6% (6.5 has.) of the total land area of the barangay is being used for

				crop production, in particular sugarcane <ul style="list-style-type: none">○ Livestock and poultry production occupy 5 hectares of the BLA○ One of the least populous with population density of 25 persons/hectare
Dela Paz Sur	2,336	157	17	<ul style="list-style-type: none">○ 75 percent planted to crops of largely sugarcane and HVCC○ 26 hectares used by livestock and poultry farms
Pandaras	1,532	167	17	<ul style="list-style-type: none">○ extensive rice area and 10 hectares of fishponds
Santa Teresita	1,103	81	151	<ul style="list-style-type: none">○ has the smallest land area within CBD
Santo Rosario	1,100	85	49	<ul style="list-style-type: none">○ commercial area○ heritage site

6. Education, Health, Recreation and Protective Services

Education. Most people readily identify education as the most important public service because it demonstrates care for children and leads to strong communities. Schools also consume a considerable portion of public expenditures and their locations also define access by the general school age population to this basic social service although economics is a most often cited cause of high dropout rates.

Elementary education, as of school year 2009 – 2010 was provided by 37 public and 28 private schools. Gross elementary participation (enrolment) rate in public schools stood at 82.89 percent in SY 2008- 2009. This is an improvement from the 81.79 percent level in SY 2004 – 2005 but still below the regional average. Similarly net participation rate which stood at 71.66 percent (SY 2008 – 2009) has increased from the level five years ago but below the regional average and far from the Department of Education (DepEd) and Millennium Development Goal (MDG) of complete basic education coverage.

Low completion rates and high dropout rate remain problems at both elementary and secondary levels. Economic difficulty was cited as the primary reason for the high dropout rate. Another factor that contributes to low completion and high dropout rates are lack of interest of students and parents.

The results of the National Achievement Tests (NAT) show that the students in general are not acquiring the required mastery of subject contents in English, Science, Mathematics, Filipino and *Araling Panlipunan*. The mean performance scores obtained by students are way below the 75 percent minimum standard of the DepEd. The situation is true for elementary and secondary levels and at both public and private schools.

The reasons held for the poor performance are shortages of teachers, classrooms, textbooks and furniture in public schools. The teacher-pupil ratio in SY 2009-2010 was 1:42 for elementary level and 1: 38 for secondary level. The classroom-pupil ratio stood at 1:47 for elementary and 1:60 for secondary. Against the standard of the DepEd, there is a need to increase the number of teachers and classrooms in elementary public schools. Meanwhile, although there are enough teachers at the secondary level, there is an acute shortage of classrooms. At the same time, wide disparities at the school level exist. For example, the teacher-pupil ratio in different schools ranges from 23.3 to 66.3. The same is observed in pupil classroom and furniture ratios.

Additionally, low achievement tests scores of pupil were attributed to poor reading skills of students and poor nutritional and health status. The DepEd counted 1,105 students, Grades 2 to 6 (SY 2009-2010) who are non-readers. Almost one-in-five elementary pupil is malnourished.

There are 16 tertiary level schools scattered in the City, all of which except one are privately owned. Starting academic year 2009-2010, the City College of the City of San Fernando, the very first government-run Higher Education Institution (HEI) was opened to provide access to higher education to poor but deserving *Fernandino* students. The HEIs offer a variety of courses ranging from 2-year technical courses and 4-5 year degrees in Education, Business Administration, Information Technology, Computer Programming and other related courses. *Fernandino* students also availed of state-subsidized tertiary education at Don Honorio Ventura Technological State University (DHVTSU) in the Municipality of Bacolor that is only a few minutes away from the City's CBD.

Health Status and Facilities. Key health indicators in the City of San Fernando reveal no particular pattern in the last five years since 2005 and

Table 7. Key Health Indicators, 2005-2009

Year	CBR	CDR	IMR	CMR	MMR
2005	20.55	4.12	1.53	3.26	0.19
2006	19.02	4.05	1.75	3.71	0.00
2007	19.41	4.55	1.73	6.28	0.22
2008	19.23	4.24	1.49	0.64	0.64
2009	20.32	4.75	3.97	2.98	0.40

reflect the attainment of the City’s millennium development goals of reducing child and maternal mortality, crude death, and crude birth rates as may be seen in Table 7.

Majority of the causes of morbidity recorded in the City are all communicable. However, the leading causes of mortality are mostly non-communicable and are lifestyle related diseases. These can be attributed to the growing number of malls, fastfood chains, and decreased open lots for sports and exercise. In-migration is also a definitive contributing factor since there are more than 7,000 commercial establishments in the City. The daytime population of the City is one million. Influx of transient and informal settlers availing health services is also contributory to both leading causes of morbidity and mortality (Table 8).

As to the leading causes of mortality, non-communicable diseases like diseases of the heart, cancer all forms, CVA, Diabetes Mellitus and its consequent complication like chronic renal failure are consistently in the top 10. This is the same as in the national situation. Efforts to address lifestyle diseases need to be augmented though the CHO has maintained budgetary allocation for diagnosis, management, referral and rehabilitation of cases. Hataw Fitness campaigns and No Smoking interventions were also launched. A Wellness Program starting with City Employees is in the initiative package for the next three years.

Table 8. Leading Causes of Mortality, 2006-2009

2006			2007			2008			2009		
Cause	No. of Cases	Rate	Cause	No. of cases	Rate	Cause	No. of cases	Rate	Cause	No. of Cases	Rate
Diseases of the heart	195	8.10	Diseases of the heart	199	8.34	Diseases of the heart	304	1.24	Diseases of the heart	317	1.28
Cancer	133	5.53	Cancer all	187	7.83	Cancer	181	0.74	CVA	129	0.52

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all forms			forms			all forms					
Pneumonia all forms	123	5.11	Pneumonia all forms	120	5.03	Cardiovascular diseases	114	0.47	Cancer all forms	118	0.48
DM Nephropathy	90	3.74	CVA	89	3.73	Pneumonia all forms	99	0.40	Kidney Failure	81	0.33
CVA	75	3.12	Hypertension	83	3.48	Chronic renal failure	68	0.28	Pneumonia all forms	71	0.29
Hypertension	74	3.07	Renal failure	61	2.56	COPD	51	0.21	Pulmonary TB	59	0.24
PTB	61	2.53	Diabetes Mellitus	51	2.14	Multiple organ failure	34	0.14	Sepsis	38	0.15
COPD	43	1.79	Multiple Organ Failure	50	2.09	Accident	32	0.13	Hypertension	26	0.10
Vehicular Accident	18	0.75	COPD	46	1.93	Diabetes Mellitus	29	0.12	Multiple organ failure	25	0.10
Pancreatitis	18	0.75	PTB	43	1.8	PTB	25	0.10	Vehicular Accident	24	0.10

The good overall health status of the City may be attributed to the presence of 11 hospitals operating in the City of San Fernando, two public hospitals and 9 private hospitals. The two public hospitals are tertiary and secondary namely Jose B. Lingad Memorial Regional Hospital (JBLMRH) with a 250-bed capacity hospital and Ricardo P. Rodriguez Memorial District Hospital which is a 42-bed capacity hospital. The 9 private hospitals have a combined capacity of 551 beds, which brings the total number of hospital beds in the City to 843. This translates to a combined bed-to-population ratio of 2.90 which is a relatively high ratio compared to the other towns of Pampanga. Though there is a high hospital bed to population ratio, majority of these come from private hospitals thus there is now increasing trend of request for medical assistance in order for the patients to be discharged.

Complementing the 11 hospitals are two poly clinics located in St. Ferdinand Ong Yu Building. The Pampanga Medical Society who has 830 members has 60 percent actively practicing in the different hospitals and private clinics in the City. There are four Rural Health Units and 42 Barangay Health Centers which serve the public health needs of the City's constituency. The CHO in 2010 has one male and five female doctors, one male and two female dentists, 33 female midwives, 3 female nutritionists, 8

sanitary inspectors, 12 nurses, 135 project based nurses, 357 BHWs, and 55 BNSes.

Cemeteries and Memorial Parlors. Cemeteries and memorial parlors as per Code on Sanitation of the Philippines or PD 856 could pose health problems if not properly maintained specifically the sanitation of their areas. There are four public cemeteries in the City located in Baliti, Sta. Lucia, Mansgold, and Calulut. The poor sanitary conditions of the cemeteries in San Fernando Catholic and Mansgold Cemetery which is also prone to flooding and dumped with garbage pose health hazards to the community nearby. Contamination of ground water is not a remote possibility in the current state of the said cemeteries.

On the other hand, five out of eight private cemeteries (Chinese Cemetery, Santuario, Calulut Memorial Garden, St. Joseph Memorial Park and Christ the King) have to comply with health certificate requirements, while three out of eight have good sanitary condition.

It is imperative that a comprehensive sanitation plan be drafted for the next three years to follow the new IRR on disposal of dead persons.

7. Peace and Security

As component of political stability, peace and order is a factor considered crucial by business. Thus, the type of crimes committed and the areas where they are committed are critical information and development challenges that would require immediate attention. Safety from natural and manmade disasters is an equally important consideration in investment decision-making.

Crime Incidence. In 2007, the most number of crimes committed in the City pertains to illegal drugs. For 2008, recorded at 33.09 percent, the highest crime incidence was on theft. Data do not show whether or not those involved in theft were under the influence of drugs.

To reinforce the City's efforts at combating illegal drugs, the *Sangguniang Panlungsod (SP)* passed a resolution for the City Mayor to enter into a Memorandum of Agreement (MOA) with the Philippine Drug Enforcement Agency (PDEA) to consolidate their resources and synchronize their efforts for a more effective anti-drug drive. Compared with 2007, Rape and Illegal Gambling experienced the highest incidence increase.

The City Government's resolve to reduce, if not eliminate crimes against property was clearly demonstrated when in October 2008 its SP enacted an Ordinance requiring all banks, malls, money changers, pawnshops and supermarkets and other similar establishments to install Close Circuit Television Monitors (CCTV) within their premises.

Despite this initiative, in 2009, theft recorded at 47.46 percent had the highest incidence ratio among all the crimes reported. Unclassified crimes obtained the highest increase in occurrences for 2009. Based on the geographic comparison of crime statistics for Region III in 2009, CSFP was the most peaceful city as regards theft, robbery and physical injury; Olongapo City was the best performer as far as murder and homicide or crimes against person. To further boost the City's PNP capability to fight criminality, in the same year, the City appropriated funds for the provision of patrol cars, ammunitions and communications equipment to the Philippine National Police and provided for the donation of lot that could be developed as Type "A" City Police Station.

Amidst the breakthrough in the prevention of crimes against property borne out by the strong collaboration between the PNP and the City government, prevention of crimes against persons remains a critical development challenge. It is natural for business persons to think more seriously of their personal safety than for their properties. CSFP has to perform better both on crimes against persons and property for it to become a preferred destination by private investment.

Fire Incidence. While a strong property insurance system can transfer losses from fire incidences, there are additional concerns which adversely affect business operations. To make the City more investment-friendly, it needs to strengthen its capability and this would require a careful profiling of fire hazards within its jurisdiction.

For 2007-2009, the most number of fire incidents occurred in Barangay Dolores and the type of structures most commonly damaged is residential. The usual cause of the fire identified is electrical short circuit.

In 2007 the highest fire incidence was recorded in Dolores and the most number of physical structures affected are residential houses. The same situation obtained in 2008, the only difference was that the structures affected were mostly commercial. Again, the identified culprit was electrical short circuit.

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For 2009, residential houses in the same barangay were most frequently visited by fire. For this year, however, unlike in 2008, the most common cause of fire was inattention to children playing with combustible materials. In 2010, residential houses of Barangay San Nicolas substituted for those in Dolores as the most favorite site of fire. Electrical short circuit again was pinpointed as cause.

The City's initiative in the SP Resolution requesting the City Mayor to immediately conduct inspection of old, dilapidated and unused buildings was well-intentioned but it still needs to be reduced to concrete results.