



# Policy Brief

SENATE ECONOMIC PLANNING OFFICE

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## National Land Use Policy: Enhancing Urban Concentration

*With the doubling of the population in about 40 years, the most important question to face our nation may well be: How can we sustainably accommodate 200 million people nationwide, with about 40 million in the Greater Manila Area? A national land use policy of enhancing urban concentration may be the answer.*

### 1. Introduction

Enhancing urban concentration essentially refers to the spatial policy of maximizing existing urban spaces or settlement areas through density intensification, or mixed-use, compact pattern development. This generally would: (1) promote economies of agglomeration, which affirms the economic efficiency of concentrating people, capital, and resources in key urban centers; (2) contain urban sprawl, which consumes significant amounts of land, causes the loss of prime agricultural lands and critical open spaces, and entails increased infrastructure and transportation cost; and (3) improve urban resilience, given that higher density settlements are more resilient to disaster and climate change risk.

Given its objectives and benefits, enhancing urban concentration ultimately seeks to enhance the potential of urban growth to create more jobs and reduce poverty, without compromising national food security and environmental integrity. Thus, the principles of urban concentration should explicitly be reflected in the proposed National Land Use Act (NaLUA),<sup>1</sup> which also aims to optimize the use of land, and accommodate the need to balance economic, environmental and social development objectives.

To better appreciate the need to incorporate urban concentration in NaLUA's provisions on settlements development, this paper aims to: (1) provide a brief understanding of the hierarchy of settlements or the spatial distribution of the population; (2) highlight the benefits of adopting a policy that facilitates the concentration of urban growth and development in existing settlement areas; and (3) point out components of a concentration policy that would address issues on urban capacity, urban efficiency and connectivity, and urban resilience.



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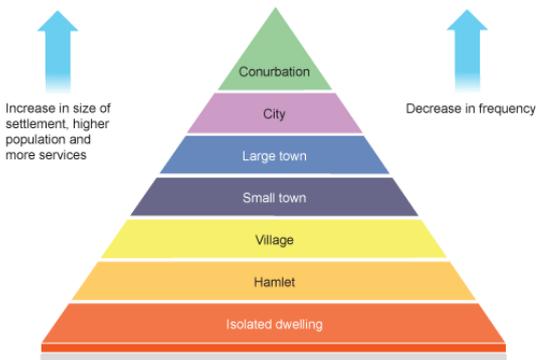
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<sup>1</sup> Unless specified, this paper will refer to the proposed NaLUA or just NaLUA as any of the following: (1) priority bills filed in the 16<sup>th</sup> Congress, specifically Senate Bill Nos. (SBNs) 7, 63, 150 and House Bill No. (HBN) 4382; (2) substitute bills filed in the 15<sup>th</sup> Congress, i.e., SBN 3091 and HBN 6545; and (3) Executive Branch's version of the NaLUA prepared by the NEDA Board-National Land Use Committee in 2010.

## 2. Understanding the Hierarchy of Settlements

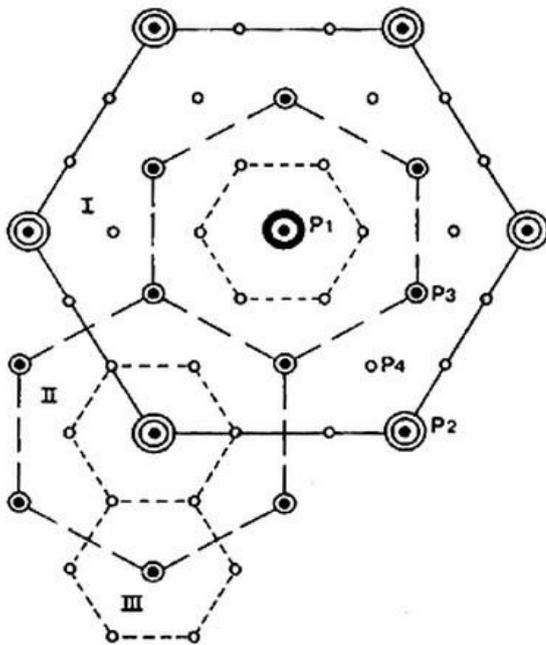
Figure 1. Hierarchy of Settlements (Pyramid)



Source: *Settlement Characteristics*, BBC 2014

Settlements are comprised of the built-up areas where people live and work; hence they reflect how a population is distributed across a country, region, or locality. A settlement hierarchy is a way of grouping and arranging these settlements into a hierarchy, thereby reflecting their rank based on one of the following criteria: (1) area and population, i.e., size of the settlement; (2) range and number of facilities and services within each settlement; and (3) relative sphere of influence<sup>2</sup> of each settlement. The resulting hierarchy tends to be pyramid in shape as shown in Figure 1. It may also be depicted spatially as shown in Figure 2 and Annex 1. It may be referred to other terms such as “urban hierarchies,” “national system of settlements,” “central place systems,” or simply “settlement patterns.”

Figure 2. Hierarchy of Settlements



- P1  Higher order central places
- P2  Lower order central places
- P3  Lowest order central places
- P4  Auxiliary central places

Source: Adapted from Christaller

Generally, the growth and development of individual settlements are planned as part of a national hierarchy of settlements. This is to take into consideration the holistic public expenditure and land use requirements that would support the development goals envisioned for the population, specifically with respect to housing, employment, and infrastructure development. Hence, national government agencies in the Philippines such as the National Economic and Development Authority (NEDA) refer to the term “hierarchy of settlements” in the guidelines they issue for local development and land use planning.<sup>3</sup> NEDA even proposed various provisions incorporating the hierarchy of settlements in its version of the NaLUA in 2010.

Though the NaLUA bills filed in the 16<sup>th</sup> Congress do not explicitly refer to the term “hierarchy of settlements,” they still infer to it through the provisions on the generic term “settlements development.” As defined in the NaLUA bills, settlements development also involves: (1) the spatial distribution of population; (2) identification of the roles and functions of key urban centers; and (3) determination of relationships among settlement areas. Note that all these elements are similar to the settlement hierarchy criteria mentioned earlier. They essentially characterize ways to describe and understand the existing structure of the network of settlements for land use planning purposes. Such structure is typically and simply described as a hierarchy because of the apparent hierarchical pattern it naturally forms. Calling it as the hierarchy of settlements would not just be politically correct, but would also be more appropriate and practical because it can clearly and easily be referenced to when discussing other related matters.

<sup>2</sup> Sphere of influence is defined as the area served by a particular settlement. It is the area around a central place in which it distributes services, recruits labor and takes in school children.

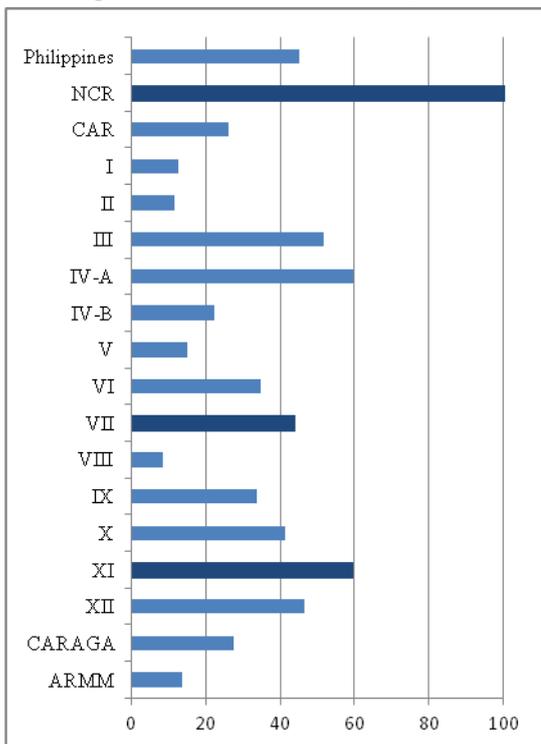
<sup>3</sup> NEDA-ADB Guidelines on Provincial/Local Planning and Expenditure Management.

**Table 1. Number of City/Municipality, Population, and Land Area by Region**

REGION	City/Municipality (2014)	Population (2010)	Land Area (km <sup>2</sup> )
<b>Philippines</b>	<b>1,634</b>	<b>92,337,852</b>	<b>300,000.00</b>
NCR	17	11,855,975	619.54
CAR	77	1,616,867	19,611.10
I	125	4,748,372	12,974.09
II	93	3,229,163	28,265.20
III	130	10,137,737	22,014.63
IV-A	142	12,609,803	16,644.03
IV-B	73	2,744,671	29,620.87
V	114	5,420,411	18,139.08
VI	133	7,102,438	20,794.18
VII	132	6,800,180	15,885.97
VIII	143	4,101,322	23,253.95
IX	72	3,407,353	17,046.64
X	93	4,468,563	20,496.02
XI	49	2,933,743	20,357.42
XII	50	4,109,571	22,436.51
CARAGA	73	2,429,244	21,412.98
ARMM	118	3,256,140	33,511.29

Source: 2010 Census of Population and Housing, Philippine Statistics Authority (PSA); 2010 Land Area of the Philippines Masterlist, Land Management Bureau

**Figure 3. Level of Urbanization, 2010**



Source: PSA In Navarro 2014, 5

There have been studies describing and prescribing the hierarchy of settlements in the Philippines (e.g., Pernia et al. 1983, 40). The most recent of which is provided in Corpuz (2013, 7), wherein Philippine cities and municipalities are collectively and individually referred to as settlements. These settlements were then grouped and described as a hierarchy that is dominated by a primate metropolitan center—Metro Manila, followed by several large regional centers, dozens of medium-sized local or provincial centers, and a vast majority of smaller settlements (Corpuz 2013, 4). It is important to note however that actual settlement areas of cities and municipalities do not necessarily encompass the entire administrative boundaries of city and municipal governments. They naturally are comprised of the built-up areas, but they also include non-built-up areas that have been reclassified and converted to urban use. They exclude agricultural and forest lands, particularly protected open spaces, but include rural settlements situated within these areas. Counting metropolitan areas as one, Corpuz (2013, 57) grouped the cities and municipalities of the Philippines as follows: (1) metro regional centers; (2) regional centers; (3) sub-regional centers; (4) provincial centers; and (5) local centers.

Metro regional centers generally serve areas beyond their own regions. These are the urban regions of Metro Manila, Metro Cebu and Metro Davao, each serving as the key economic and administrative centers of the three main island groups of the country. These centers have direct international linkages as indicated by the presence of international airports, and major central business districts that serve national or international business establishments. The dominance of these centers in their respective island groups is still recognizable even in the regional disaggregation of data on population, land area (Table 1), level of urbanization (Figure 3), and number of establishments (Table 2).

Regional centers, on the other hand, serve primarily their region. They are not necessarily the official centers of the administrative regions, and may consist of city clusters that may be considered as emerging metropolitan areas. They serve as regional markets and service centers to several provinces. Most have direct linkages to the three metro regional centers. In this category, Corpuz (2013, 59) included metropolitan areas of Dasmariñas, Antipolo, Calamba, Malolos, Laoag, Tuguegarao, Baguio, Dagupan, San Fernando, Angeles, Cabanatuan, Batangas, Lucena, Calapan, Naga, Legazpi, Kalibo, Iloilo, Bacolod, Tacloban, Dipolog, Cagayan de Oro, Butuan, Zamboanga, Cotabato, General Santos, Puerto Princesa and Jolo. The hierarchical status of these centers, as well as the rest of the settlement groups, can be substantiated by the city and municipal disaggregation of Tables 1 and 2.

**Table 2. Number of Establishments by Employment Grouping and by Region (2012)**

REGION	Total	MSMEs	Large
<b>Philippines</b>	<b>945,004</b>	<b>940,921</b>	<b>4,083</b>
<b>NCR</b>	<b>212,408</b>	<b>210,595</b>	<b>1,813</b>
CAR	18,244	18,203	41
I	48,751	48,696	55
II	28,406	28,376	30
III	105,580	105,334	246
IV-A	145,518	144,817	701
IV-B	27,432	27,409	23
V	34,410	34,369	41
VI	53,907	53,747	160
<b>VII</b>	<b>66,053</b>	<b>65,636</b>	<b>417</b>
VIII	27,496	27,461	35
IX	31,378	31,318	60
X	36,209	36,091	118
<b>XI</b>	<b>45,201</b>	<b>45,005</b>	<b>196</b>
XII	37,942	37,860	82
CARAGA	16,576	16,521	55
ARMM	9,493	9,483	10

Source: 2012 List of Establishments, PSA

The next settlement group are sub-regional centers. They are relatively large settlements that form the market catchments of regional centers. They also function as service centers of smaller provincial and local centers. Provincial centers, on the other hand, are typically a major city or municipality of a province. Their role is similar to regional centers but in a smaller and more limited scale. These centers serve the local centers within their host province. Forming the base of the hierarchy are local centers, which generally cater to one or two localities. Corpuz (2013, 61) considered all other cities or municipalities, that are not included in the higher levels, as local centers.

The details on the hierarchy of settlements and the analysis of its growth patterns and development issues (Corpuz 2013, 32) would serve as the primary basis in pursuing a national land use policy on enhancing urban concentration. These would identify specific settlement areas where urban growth and development would provide more impact on job creation and poverty reduction, and less impact on agricultural land use conversion and forest land degradation. Policies to facilitate urban concentration in these settlement areas would therefore complement the national land use policy on protecting prime agricultural lands and critical open spaces (SEPO 2014, 4). Emphasizing the importance of the hierarchy of settlements and urban concentration in the NaLUA would dismiss the commonly held notion that it is anti-urban and anti-metropolitan. With its conversion provisions (SEPO 2014, 5), the NaLUA in essence is simply recognizing the reasons and benefits of concentrating urban development in existing settlement areas.

### 3. Reasons and Benefits of Urban Concentration

Enhancing urban concentration will take advantage of the benefits associated with urbanization, specifically in: (1) promoting economies of agglomeration, which affirms the economic efficiency of concentrating people, capital, and resources in key urban centers; (2) containing urban sprawl, which consumes significant amounts of land and entails various economic costs such as those resulting from increased private-automobile dependence, i.e., traffic congestion, and loss of prime agricultural lands and critical open spaces; and (3) improving urban resilience, given that higher density housing are more resilient to disaster and climate change risk.

#### 3.1. Promoting Economies of Agglomeration

Concentrating urban development in existing settlement areas, particularly in key urban centers, further promotes agglomeration economies. In urban economics, the term “economies of

**Table 3. Population Density, GDP per Capita, Labor Productivity by Region**

REGION	Pop. Density (2010)	GDP per capita (2014, Current PhP)	Labor Productivity
<b>Philippines</b>	<b>308</b>	<b>126,579</b>	<b>327,100</b>
NCR	19,137	365,629	986,681
CAR	82	132,612	306,790
I	366	77,926	194,091
II	114	68,317	157,788
III	460	104,081	278,599
IV-A	758	141,891	395,309
IV-B	93	72,041	164,255
V	299	45,798	114,450
VI	342	66,757	158,014
VII	428	113,391	267,127
VIII	176	59,654	247,597
IX	200	70,074	183,614
X	210	104,242	241,045
XI	220	107,479	266,736
XII	183	77,662	202,511
CARAGA	113	59,941	140,159
ARMM	97	30,602	82,133

Source: 2014 National and Regional Accounts, Labor Force Survey, PSA

**Table 4. Population Density, Average Family Income, and Real Wage by Region**

REGION	Pop. Density (2010)	Ave. Family Income (*000 PhP)	Real Wage* 2015 (PhP)
<b>Philippines</b>	<b>308</b>	<b>235</b>	<b>207.96</b>
NCR	19,137	379	365.78
CAR	82	257	203.28
I	366	204	187.69
II	114	195	176.47
III	460	259	245.77
IV-A	758	284	260.60
IV-B	93	179	192.97
V	299	162	179.19
VI	342	202	203.75
VII	428	209	235.46
VIII	176	166	171.28
IX	200	162	182.29
X	210	190	207.57
XI	220	194	213.32
XII	183	163	182.36
CARAGA	113	180	168.45
ARMM	97	130	159.13

Source: 2012 Family Income and Expenditure Survey (FIES), PSA; National Wages and Productivity Commission, DOLE

\*Non-agriculture

agglomeration” is used to describe the benefits that come when firms and people locate near one another (Glaeser 2010, 1). These benefits include: (1) reduced cost of moving goods and people over space; (2) increased income, productivity, and consumption; (3) labor market pooling and interaction; and (4) knowledge or human capital spillovers (Glaeser 2010, 7; MIER 2015, 21).

Economies of agglomeration in turn, further enhances urban concentration, attracting the population from rural and small urban settlements of the hierarchy to migrate to larger urban centers. This cycle ultimately paves the way for the formation and growth of functional cities, metropolitan areas, or city clusters. The more these settlements grow, in terms of sustainably and efficiently accommodating population and economic growth in the least amount of built-up land, the more the agglomeration economies are maximized. This is supported by studies showing the strong relationship between city size and productivity increases; density and high wages; geology and prosperity (Glaeser 2010, 3-4). A doubling of the populations in large cities, in particular, would lead to 20 to 35 percent increase in real output per worker (Henderson 2009, 8); and a 3.5 to 8 percent increase in total factor productivity (OECD 2010, 40). These are just among the many indications showing how cities, or similar areas with high degree of urban concentration, become important facilitators of economic growth, increased productivity, and rising incomes in developed and developing countries alike (Quigley 2008, 116).

In the Philippines, urban areas have been accounting for 75 to 85 percent of the country’s gross domestic product (GDP) since 2000, with Metro Manila alone contributing 33 percent of total GDP (Navarro 2014, 14; Naik Singru and Lindfield 2014, 33). Assuming a 49.3 percent level of urbanization in 2014, a rough estimate of the GDP per capita for all urban areas is PhP192,564. This is three times as much as the GDP per capita for rural areas, and 1.5 times as much as the national average. As the most urbanized region, Metro Manila has a per capita GDP of PhP365,629, which largely stems from a very productive pool of human capital that generated a labor productivity of PhP986,681 (see OECD 2010, 46). Both these figures are three times as much as the national average (Table 3).

In terms of average family income, urban areas have 2.4 times as much as rural areas (PSA 2014, 2-11). In 2012, Metro Manila’s average family income of PhP379,000 is 1.61 times as much as the national average of PhP235,000 (Table 4). Compared to the least urbanized region in Luzon, Visayas, and Mindanao (Figure 3), Metro Manila’s average family income is: (1) 1.86 times and 1.94 times as much as Regions I and II, respectively; (2) 2.28 times as

*“Thanks to the benefits of agglomeration economies, most metropolitan regions with more than 1.5 million inhabitants feature a higher GDP per capita, a higher labor productivity and higher employment levels than their national average.”  
–OECD 2010, 36*

much as Region VIII; and (3) 2.92 times as much as the Autonomous Region in Muslim Mindanao (ARMM). The detailed results of the 2012 Family Income and Expenditure Survey (FIES) further show that the total income of families in Metro Manila is PhP1.1 trillion, comprising 22.0 percent of the total income for the country at PhP5.0 trillion (PSA-NCR 2014).

Analysis of city and municipal disaggregation of data would reveal that other metropolitan regional centers (i.e., Metro Cebu, Metro Davao) and some regional centers (e.g., Metro Baguio, Metro Angeles, Metro Iloilo, Metro Cagayan de Oro, and those forming Mega Manila) have higher GDP per capita, labor productivity, and family income levels than the national average. Such differentials can be attributed to the urban concentration and agglomeration economies that have accumulated in these settlements through the years. For Metro Manila, it reaped these benefits by hosting the concentration of 12.84 percent of the total population in only 619.54 square kilometers or 0.207 percent of the country’s total land area. These figures translate to a population density of 19,137 persons per square kilometer, which is 62 times as much as the national average; and nearly nine times and 34 times as much as those of Metro Cebu and Metro Davao, respectively (Corpuz 2013, 5; PSA 2010; LMB 2010).<sup>4</sup>

It should be noted, however, that Metro Manila’s dominance is not unusual (Corpuz 2013, 5). In many countries, for example, one single metropolitan area also produces one-third of the national GDP, e.g., Oslo, Auckland, Prague, Tokyo, Stockholm, London and Paris. Some even produce one-half of the national GDP, e.g., Budapest, Seoul, Copenhagen, Dublin, Helsinki and Brussels (OECD 2010, 36). Policies therefore to facilitate, not inhibit, urban concentration based on hierarchical roles of settlements are likely to improve economic conditions in the Philippines.

### **3.2. Containing Urban Sprawl**

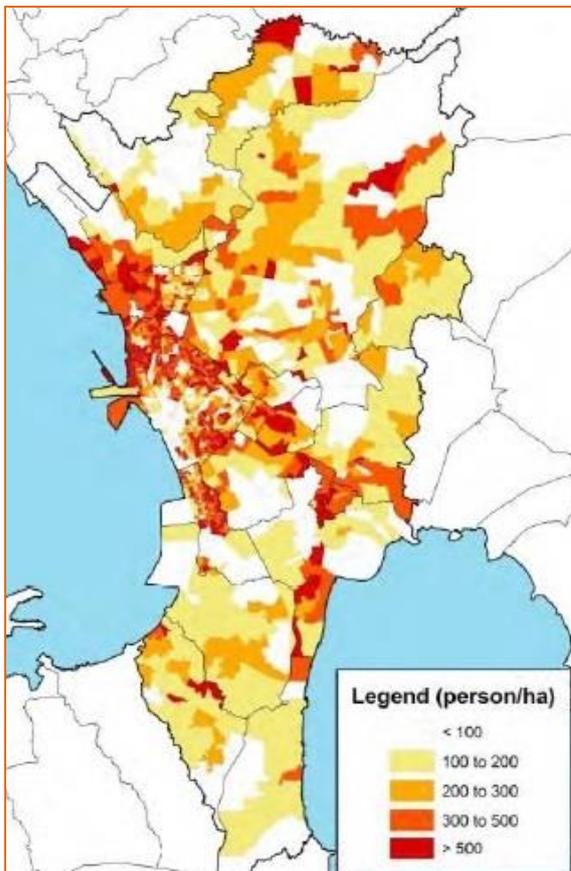
By its very nature, concentrating urban development in existing settlement areas will contain urban sprawl. Urban sprawl is characterized by: (1) leapfrog or scattered development; (2) commercial strip development; and (3) large expanses of low-density or single-use development, such as suburban residential subdivisions (OECD 2010, 60).

The formation and expansion of settlements in the Philippines are highly characterized as urban sprawl. Figure 4, for example, shows

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<sup>4</sup> Using urbanized area density or urban density would reduce the huge disparity between Metro Manila and other metro regional centers, particularly Metro Davao. Urban density, unlike population density, is a very specific measurement of the population of an urbanized area, excluding non-urban land uses such as open space, i.e., parks, forest and agricultural lands, and water-bodies. Unfortunately, data on urbanized area of cities and municipalities are not readily available.

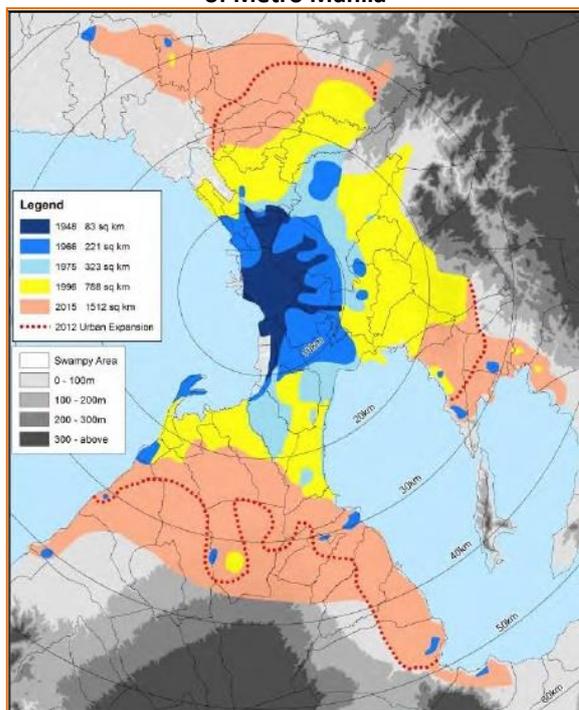
**Figure 4. Population Density by Barangay, 2010**



Source: JICA Study Team In JICA 2014, 3-2

that not every area in Metro Manila is densely developed or densely populated. The densest areas are in the City of Manila, which has an overall density of 66,140 persons per square kilometer. Next are areas in Pasay City and Mandaluyong City, which have an overall density of 47,944 and 35,382 persons per square kilometer, respectively (PSA 2014, 1-5). Neighboring areas north of Manila such as those in Navotas, Malabon and Caloocan are also densely populated. While most of these areas host formal, high-density residential developments, some of the same areas also accommodate large informal settlement communities. In contrast, areas with less population density, not counting central business and institutional districts, represent vast and scattered patches of suburban areas. These are mostly comprised of numerous low-density residential subdivisions. BF Homes Subdivision, for example, encompasses a sizable portion of Parañaque, Las Piñas, and Muntinlupa. It is referred to as the biggest subdivision in Asia with a land area of 7.65 square kilometers and an estimated 75,000 residents (BFHI 2015). It is even bigger than the entire area of San Juan City, which encompasses 5.95 square kilometers and hosts 121,430 residents (PSA 2014, 1-5).

**Figure 5. Trend in Urban Area Expansion of Metro Manila**



Source: JICA Study Team In JICA 2014, 2-3

Living in these gated communities and/or “villages” which comprise single detached, duplex or row houses was the prevalent choice since the years following the Second World War (Camba 2009, 3). In 2010, single houses made up 86.5 percent of the total occupied housing units in the country (PSA 2013a). Not until recently did many of the urban population, mostly from the upper and middle class, consider living in a high- or medium-rise condominium buildings. While it may have been the appropriate type of housing in the past, low-density housing development, formal and informal alike, is unsustainable and very costly.

Because of its dispersed characteristics, urban sprawl consumes significant amounts of land and entails various economic costs. These include: (1) increased public infrastructure and service costs, i.e., longer distances covered, relatively fewer people served; and (2) increased transport costs, e.g., consumer costs, traffic congestion (due to high private-automobile dependence of suburban communities), accidents, pollution emissions, all of which undermine agglomeration benefits (Litman 2015, 1; OECD 2010, 60). Urban sprawl, for example, costs the United States economy more than US\$1 trillion annually. These costs include greater spending by at least 10 to 40 percent on infrastructure, public service delivery and transportation. The most sprawled US cities, spend an average of US\$750 on infrastructure per person each year; while the least sprawled cities spend close to US\$500 (Litman 2015, 1-5, 28). In the absence of a comprehensive study comparable to those of Litman (2015) and Burchell et al. (2002),

the cost of urban sprawl in the Philippines may be expected to at least include the cost of traffic congestion in Metro Manila and adjoining provinces, which is estimated to be at PhP2.4 billion and PhP1 billion a day, respectively (JICA 2014, 3-6). This already translates to at least PhP1.2 trillion annually.

The cost of urban sprawl also includes reduced agricultural and ecological productivity (Litman 2015, 1; OECD 2010, 60). A review of data from the Department of Agrarian Reform (DAR) would show that suburban residential sprawl is the main cause of agricultural land use conversion in the Philippines. The suburban or peri-urban expansion of Metro Manila alone has already extended to former agricultural areas of Bulacan, Rizal, Laguna, and Cavite (Figure 5). With the current population and settlement growth trajectory, urban sprawl may convert up to 8,644 square kilometers of additional agricultural lands in 40 years (Corpuz 2013, 27-28). Such land area is equivalent to 14 times the size of Metro Manila. Agricultural lands, particularly those in areas where there is an intensive mixture of urban and rural land use (i.e., *desakota* areas; McGee 1991, 6), are very much prone to land use conversion or abandonment. Murakami (2005, 182), for example, found that subdivision development increases the vulnerability of surrounding areas to frequent flooding, thereby causing the abandonment of adjacent agricultural lands and increasing the number of undeveloped, vacant lands.

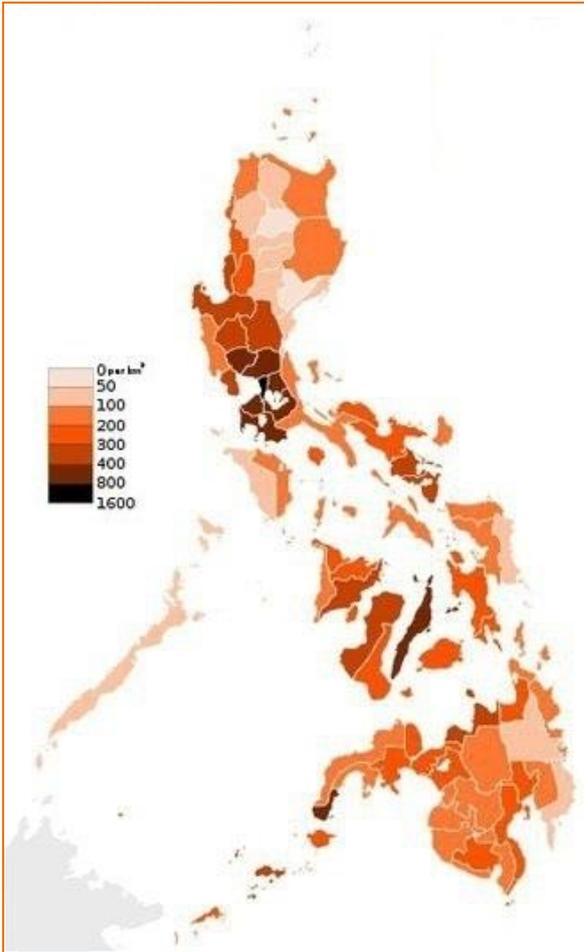
Aside from reducing huge infrastructure and transport costs, containing urban sprawl will also preserve the economic and social significance of existing prime agricultural lands and critical open spaces (SEPO 2014, 2-3), especially those within the administrative boundaries of urbanizing municipalities and cities, e.g., Cabanatuan, Tarlac, Batangas, Iloilo, Cagayan de Oro and Davao. Instead of fully urbanizing the areas within administrative boundaries, policies on enhancing urban concentration in these settlements must focus on improving the existing, functional urban conglomeration shared by different local government units.

### 3.3. Improving Urban Resilience

Lastly, concentrating urban development in existing settlement areas can improve urban resilience by reducing the exposure and vulnerability of the population to natural hazards and climate change. Containing or correcting urban sprawl, for example, will remove exposed population from high-risk areas. Higher density development will provide structurally-engineered, medium- to high-rise residential buildings that can withstand intense hazards (Klemencic 2014). Unleashing economies of agglomeration, on the other hand, will improve coping and adaptive capacities and

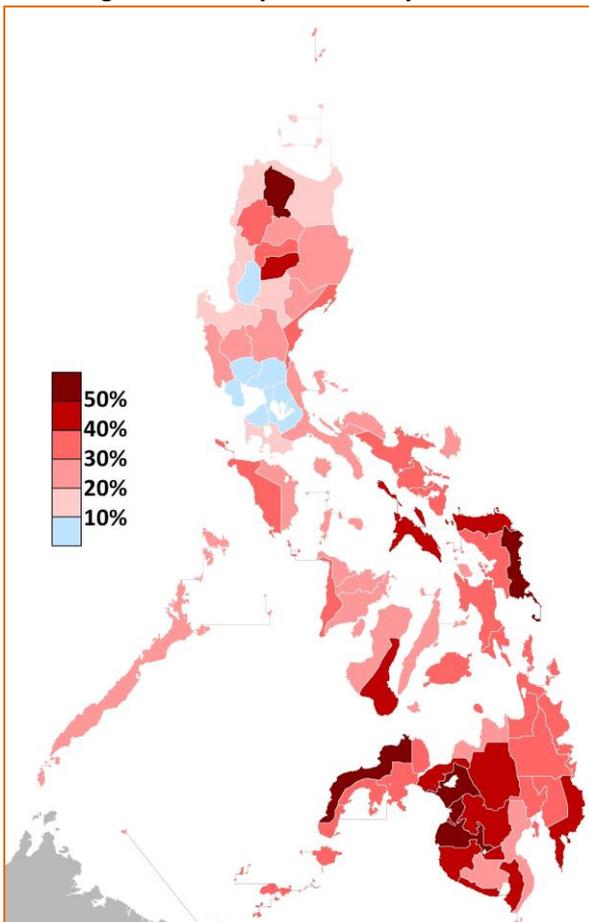
*“There is no such thing as ‘natural disasters.’ Natural hazards—floods, earthquakes, landslides and storms—become disasters as a result of human and societal vulnerability and exposure, which can be addressed by decisive policies, actions and active participation of local stakeholders.”*  
-UNISDR 2011, 1

**Figure 6. Population Density by Province**



Source: PSA 2009 In Wikimedia.org

**Figure 7. Poverty Incidence by Province**



Source: PSA 2012 In Wikimedia.org

provide sufficient economic resources to construct efficient disaster-risk mitigating infrastructure.

Various studies have already indicated that Philippine settlements are extremely vulnerable to natural hazards or extreme climate events (e.g., World Bank 2013, 20). Typhoon Yolanda alone ravaged nine regions, killed 6,300 people, displaced 3.4 million families, destroyed 489,613 houses, damaged 595,149 homes, and caused Php89.6 billion in damages (Sabillio 2015). To promote and build resilient and adaptive settlements, much attention has been given to recognizing key determining factors of vulnerability. One major factor that has been acknowledged to clearly aggravate or affect the level of exposure and vulnerability, regardless of the type of hazard or location, is poverty (Cardona et al. 2012, 70-72). Hence, the most exposed and vulnerable group of the population, even for non-extreme climate events, will always be the poor (Philip and Rayhan 2004, 12; Mendoza et al. 2014, 1).

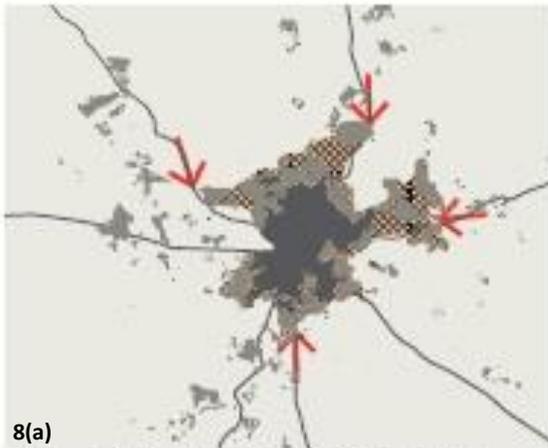
In 2012, poverty incidence among families in the Philippines was estimated to be at 19.7 percent. The provinces with the highest poverty incidence are Eastern Samar, Lanao del Sur, Maguindanao, Masbate, Northern Samar, Sarangani, Zamboanga del Norte, Camiguin, Lanao del Norte, North Cotabato and Western Samar. In Ballesteros (2012, 4), four of these provinces were included in the ten most vulnerable provinces, Masbate being the most vulnerable. At the individual or community level, however, the most impoverished provinces would consist of the settlements with the most vulnerable population (i.e., assuming each has the same level of hazard exposure).

In the same respect, settlements with the least vulnerable population are those in the areas or provinces with the least poverty incidence. These include Metro Manila, and the provinces of Bataan, Benguet, Bulacan, Cavite, Laguna, Pampanga, Rizal and Ilocos Norte (PSA 2013b). Note that these provinces host densely populated metropolitan areas and almost all have functional regional centers. Except for Benguet and Ilocos Norte, these provinces also host the settlements that make up the Greater Manila Area.

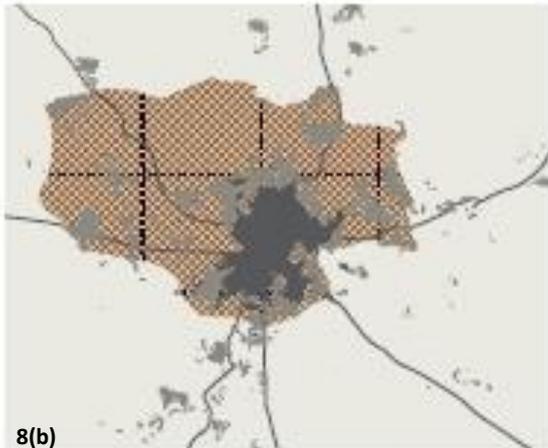
Comparing Figures 6 and 7 would show how the low density of provinces mirrors their high poverty incidences and, hence, vulnerability and risk potential. This essentially shows that urban agglomerations, like Metro Manila, are primary venues not only for poverty reduction (Corpuz 2013, 17), but also for building resilience to disaster and climate change risks in the Philippines.

#### 4. Implementing an Urban Concentration Policy

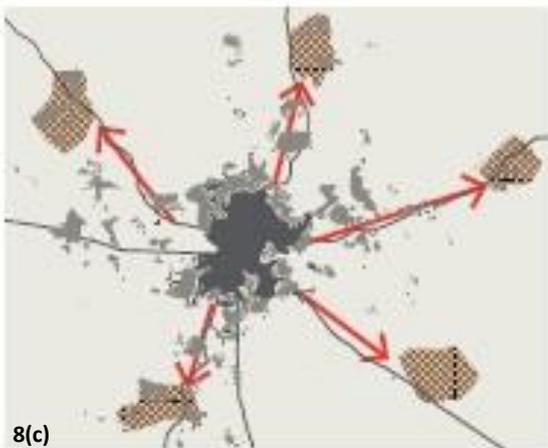
Figure 8. Urban Spatial Structure



8(a)  
Intensify the density of existing built-up areas



8(b)  
Extend the city at the fringes of the built-up area.



8(c)  
Multiply nodes by building satellite towns

Implementing a national land use policy on enhancing urban concentration would require purposeful land use planning and persistent implementation of land use plans and regulations by both national and local governments. These interventions are necessary to intensify the density of existing built-up areas (Figure 8a), rather than letting inefficient and distorted land market forces extend the city or city center at the fringes of the built-up area (Figure 8b). Furthermore, instead of multiplying nodes by building new satellite towns within local administrative boundaries (Figure 8c), local governments may opt to consider existing and neighboring settlements as their satellite towns and pursue shared provision of local public services.

Enhancing urban concentration, however, is not just about limiting suburban expansion and intensifying population or urban densities. It primarily involves increasing investments in infrastructure that would support higher levels of concentration, particularly those that cannot be provided by the private sector. Specifically, it would entail policy provisions on the following public infrastructure: (1) medium-rise public housing; (2) multimodal public transport system; and (3) urban flood mitigation. Including these policy components in the NaLUA will address issues on urban capacity, urban efficiency and connectivity, and urban resilience.

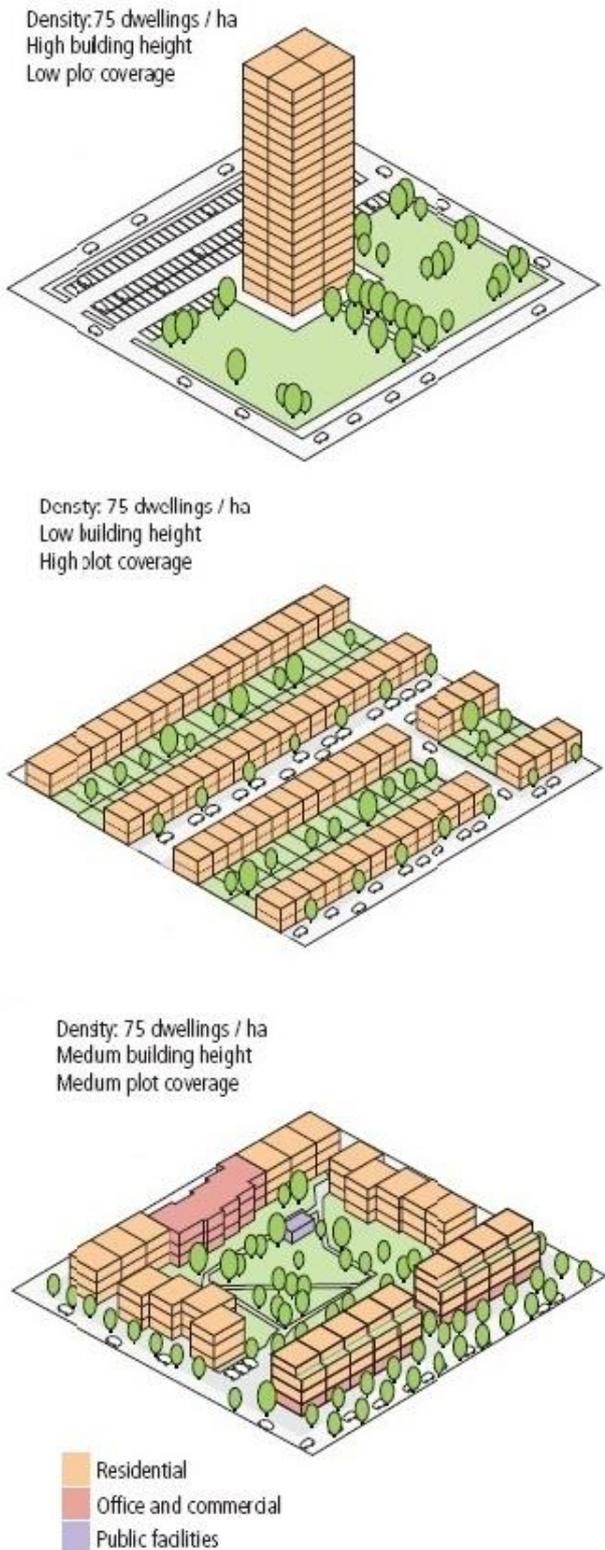
##### 4.1. Medium-Rise Public Housing

Enhancing urban concentration would require land use planning interventions on urban renewal to: (1) facilitate the redevelopment of residential suburban sprawl; and (2) accommodate the development of more higher-density housing. These would increase the capacity of settlements in the hierarchy to accommodate the exponential growth of the population.

But even without purposeful government planning (Rau and Corpuz 2012, 1093), the private sector has been leading in such higher-density initiative by providing clusters of medium to high-rise residential condominium buildings, filling in vacant or brown field lands, or replacing low-density industrial complexes. High-density, mixed-use clusters in Metro Manila, for example, are incrementally and naturally emerging in the proximity of: (1) central business districts; (2) rail transit stations; (3) airport terminals; (4) key establishments such as universities; and (5) shopping malls, which serve as urban and civic centers (Rau and Corpuz 2012, 1098-1100).

Source: UN-Habitat 2013, 27.

**Figure 9. Density Configuration on One Hectare**



Source: Javier Mozas, Aurora Fernandez Per (2006), *Density: New Collective Housing In: UN-Habitat 2013*, 3.

However, an increasing number of urban households, particularly the poor, cannot afford even the most minimal dwelling that the private sector has to offer. Using 2010 census data to estimate poverty in shelter, Tan (2015, 15) showed that about 7.321 million families or 36.29 percent of the total households in the Philippines are slum dwellers or shelter poor, living in makeshift shanties or small shelters of less than 10 to 19 square meters. In Metro Manila, 763,400 families or 27.66 percent of the total households is estimated to live in such informal settlements (PSA 2014, 1-39).

Numerous approaches can be pursued in solving such urban housing problems (UN-Habitat and UNESCAP 2008, 22-24). Extending the benefits of urban concentration to the poor and marginalized, however, would mean that the government should relocate the poor households from informal settlement areas and resettle them in medium-rise residential buildings at suitable or strategic in-city locations. This can be achieved through subsidized housing programs wherein the government can act as both developer and landlord; or through public-private partnerships. Given the considerable implications on land use, the NaLUA may include provisions that would incorporate medium-rise buildings<sup>5</sup> in the definition and coverage of socialized housing, thus amending Republic Act No. 7279 or the Urban Development and Housing Act (UDHA).

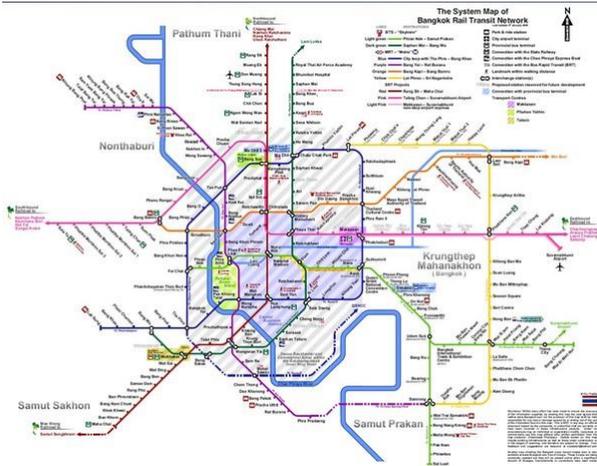
On financing the resettlement of poor households living in informal settlements, Tan (2015, 21) pointed out the following sources of funding that could be readily tapped: (1) savings from reducing corruption; (2) perennial unspent budget of the national and local governments; (3) reallocation of the budget to favor housing for the poor; (4) more efficient collection of real estate taxes; (5) adopting a progressive property tax; and (5) capital gains from the clearing of slum and squatter areas.

Tan (2015, 21) further asserts that simply allocating 10 percent of the 2016 and succeeding national budgets for housing would suffice to eradicate the nation's slums in 10 years' time. The 2015 housing budget was PhP10.23 billion or only 0.39 percent of the 2.6 trillion national budget.

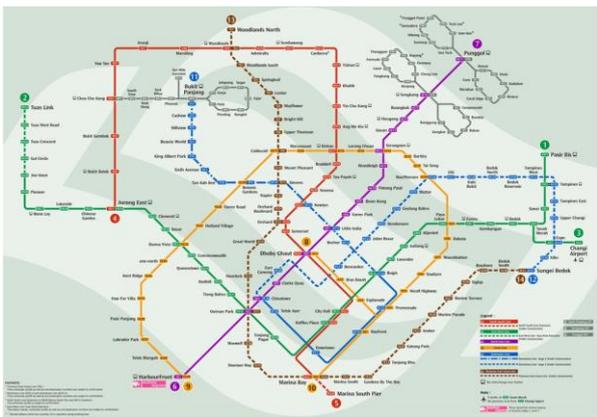
Tan (2015, 21) elaborated that if the approximate construction cost per square meter is PhP20,000, a 20-square meter apartment would cost PhP400,000. Housing 763,400 informal settlement families in Metro Manila in such apartments would therefore cost PhP305 billion. Replacing 7.321 million slum dwellings for the

<sup>5</sup> A medium-rise building may simply be defined as a building with multiple dwelling units, and has at least three storeys, but fewer storeys than a high-rise building. This avoids using the term "low-rise building," which technically also refer to single or duplex-type houses, the proliferation of which causes urban sprawl and counters urban concentration.

**Figure 10. Selected Rail Transit Maps**



*Bangkok, Thailand*



*Singapore*



*Metro Manila, Philippines*

whole country would cost PhP2,928 billion. Spreading the construction over 10 years would entail an annual cost of PhP293 billion (Tan 2015, 22). If the construction cost for multi-storey apartments is greater by 45 percent (i.e., PhP580,000 per 20-square meter; In: HUDCC 2014, 26), then the annual cost would be PhP425 billion or equivalent to 15 percent of the PhP 3 trillion 2016 national budget. It is important to note that such investment in medium-rise public housing is more economical and cost-efficient in the long run, given the medium land area or plot coverage involved (Figure 9).

To address affordability issues, the NaLUA may also include provisions on promoting rental housing as an important part of the medium-rise housing stock. This type of housing is more affordable to poor households currently residing in informal settlements. Many of such households, after all, would prefer to rent rather than own their house. Some may prefer to remain mobile particularly when employment opportunities become available in other locations. Public-led development of medium-rise rental housing might be a way towards a more inclusive and balanced housing policy, particularly in highly urbanized areas where most jobs are generated (UN-Habitat 2012, 34; UN-Habitat and UNESCAP 2008, 23; Ballesteros 2004, 17).

**4.2. Multimodal Public Transport System**

Enhancing urban concentration would require multimodal public transport planning; and should entail more emphasis on modern and efficient modes of transport such as rail and bus rapid transit. As density increases due to agglomeration economies, uncoordinated privately-provided automobile transport must evolve and be replaced by such modes of transport. This would improve the efficiency and connectivity of settlements and prevent diseconomies of scale (i.e., overcrowding, congestion).

Metro Manila, in particular, needs to dramatically upgrade its rail transit system. JICA (2014, 5-3) has proposed an urban rail that would be comprised of 6 main lines with combined length of 246 kilometers and 5 secondary lines measuring 72 kilometers. This translates to a total of 318 kilometers of modern mass-transit system. This would include the development of two north-south rail lines (i.e., commuter railway and subway line), and the expansion and extension of existing lines (i.e., light and metro rail transit lines) to serve the growing peri-urban areas in the adjoining provinces that make up the Greater Manila Area. When fully built, these lines are expected to capture as much as 9.1 million person trips per day compared to the current level of 1.5 million. JICA (2014, 5-4) also proposed the provision of bus rapid transit in the appropriate corridors where public transport demand is high and appropriate space is available. JICA (2014,6-1)

emphasizes that the overall goal is to move more people, not vehicles. This principle should also serve as a guide to the urban concentration of other settlements in the hierarchy.

For its part, the NaLUA should include a provision for the establishment of a strategic multimodal transport network that provides connectivity within the entire hierarchy of settlements, not just the Greater Manila Area. Such connectivity should include linkages among existing priority urban centers, rural areas, production hubs and tourism zones, distribution centers and markets, and key international points of entry. It should be developed to promote network efficiency and social service delivery to catalyze areas identified as critical for economic growth, while minimizing negative impacts to environmentally-critical and protected areas (NEDA 2010, 23).

The national hierarchy of settlements should serve as the framework of the transportation network. The network should be designed and implemented to provide seamless connectivity among the various modes of transportation, similar to the JICA transport study. The physical framework or land use plans at the regional, provincial, and city/municipal levels should focus on the transportation network that corresponds to their respective jurisdictions, i.e., internal integration; while maintaining consistency with the overall national networks, i.e., external linkages (NEDA 2010, 23).

### **4.3. Urban Flood Mitigation**

Climate change and the occurrence of intense typhoons come with a higher likelihood of flood events. This makes flooding the most frequent among all natural hazards. While the population of large urban centers may have more coping and adaptive capacities, extreme flooding in these areas still needs to be properly managed or reduced. Otherwise, it would lead to further loss of lives, disturbance of key economic activities, and damages to property (World Bank 2012, 21).

The country's experiences in severe flooding are partly attributable to: (1) urban sprawl, i.e., poorly or unplanned urban or settlements development in low-lying flood plains; and (2) lack of medium-rise public housing, resulting to the growth of informal settlements in waterways easements; and (3) lack of or ill-maintained drains and flood control infrastructure that would support the growing concentration of urban development in settlement areas.

To enhance urban concentration and further improve urban resilience, the government needs to adopt a more strategic, innovative, and integrated approach to managing flood risk. This may be accomplished by selecting and combining: (1) non-structural management measures, e.g., awareness campaigns, flood zoning, early warning systems; and more importantly, (2) structural, hard-engineered measures, e.g., improving drainage systems, and building dikes, dams, pumping stations, flood storage and defenses, and alternative spillways or drain tunnels, all of which would improve the discharge and carrying capacity of the current flood control network (World Bank 2012, 32).

The proposed NaLUA already includes provisions on the protection of waterways easements and flood plains. It aims to reiterate Presidential Decree No. 1067 or the Water Code of the Philippines, preventing structures of any kind to be built in waterways easements. Thus, even if NaLUA is still pending in Congress, government may already undertake, for example, the clearing and resettlement of an estimated 20,000 informal settlers residing along eight major waterways in Metro Manila. This actually forms part of a flood management master plan for Metro Manila and surrounding areas that the government has already prepared. This plan also recommended, among others, 11 long-term structural mitigation measures with an estimated cost of around PHP351.72 billion. These measures are envisioned to be implemented until 2035.

*The geographical and sectoral pattern and distribution of economic growth will largely determine the degree to which growth translates into job creation and poverty reduction.*  
- ILO 2008, 44; IFC 2013, 5.

## 5. Conclusion

Settlements development is driven by the basic need of the population to have a space to live and work. Housing, in particular, is a human right and is the single-most important economic and survival asset most households invest in (UN-Habitat). As long as there are people, housing and urban development will happen even without a national land use policy or purposeful land use planning by the government. If left poorly planned or regulated, however, such development will happen anywhere, even in areas where lives are put at risk and economic and social progress are severely disrupted.

The growth and development of individual settlements, as a matter of policy, should be planned as part of a national hierarchy of settlements, emphasizing: (1) the different roles and functions each settlement has to perform; (2) the existing population they need to serve and the additional population they need to accommodate; and (3) the public expenditure and land use regulations they need to finance and implement to support national development goals.

To support the attainment of the country's development vision of inclusive growth, a national land use policy should be in place to enhance urban concentration in identified settlement areas where urban growth and development would: (1) provide more impact on job creation and poverty reduction; and (2) less impact on agricultural land use conversion and forest land degradation.

To enhance urban concentration, the government needs to adopt a more strategic, innovative, and integrated approach to managing risk to flooding, the most frequent among all natural hazards. This may be accomplished by selecting and combining: (1) non-structural management measures, e.g., awareness campaigns, flood zoning, early warning systems; and more importantly, (2) structural, hard-engineered measures, e.g., improving drainage systems; and building dikes, dams, pumping stations, flood storage and defenses, and alternative spillways or drain tunnels, all of which would improve the discharge and carrying capacity of the current flood control network.

To accommodate the concentration of people in denser urban centers, policy provisions for the establishment of strategic multimodal transport network and other infrastructure facilities is required. This will influence a more rational pattern of development and will enhance the physical connectivity among rural areas, urban centers, key cities and municipalities, production hubs, and distribution centers and markets, hence maximizing economies of agglomeration.

Lastly, and more importantly, enhancing urban concentration would require policy provisions on urban renewal to facilitate the development of more higher-density housing, and redevelopment of residential suburban sprawl. This would address issues on the capacity of settlements to accommodate more population seeking better economic opportunities. The provision of medium rise public housing, on the other hand, is necessary to extend the benefits of urban concentration to the poor and marginalized, which cannot afford the most minimal dwelling that the private sector has to offer. All in all, these initiatives would contain urban sprawl, which consumes significant amounts of land, causes the loss of prime agricultural lands and critical open spaces, and entails increased infrastructure and transportation cost.

Emphasizing in the proposed NaLUA these policy components that would facilitate urban

concentration based on hierarchical roles of settlements would dismiss the commonly held notion that this pending legislative measure is anti-urban and anti-metropolitan. With its conversion provisions (SEPO 2014, 5), the NaLUA in essence is simply recognizing the reasons and benefits of concentrating urban development in existing settlement areas.

A national land use policy on enhancing urban concentration ultimately seeks to enhance the potential of urban growth to create more jobs and reduce poverty, without compromising national food security and environmental integrity. It will not only complement the protection of prime agricultural lands but will also promote the preservation or provision of critical open spaces. This will be discussed in the next iteration of a national land use policy brief.

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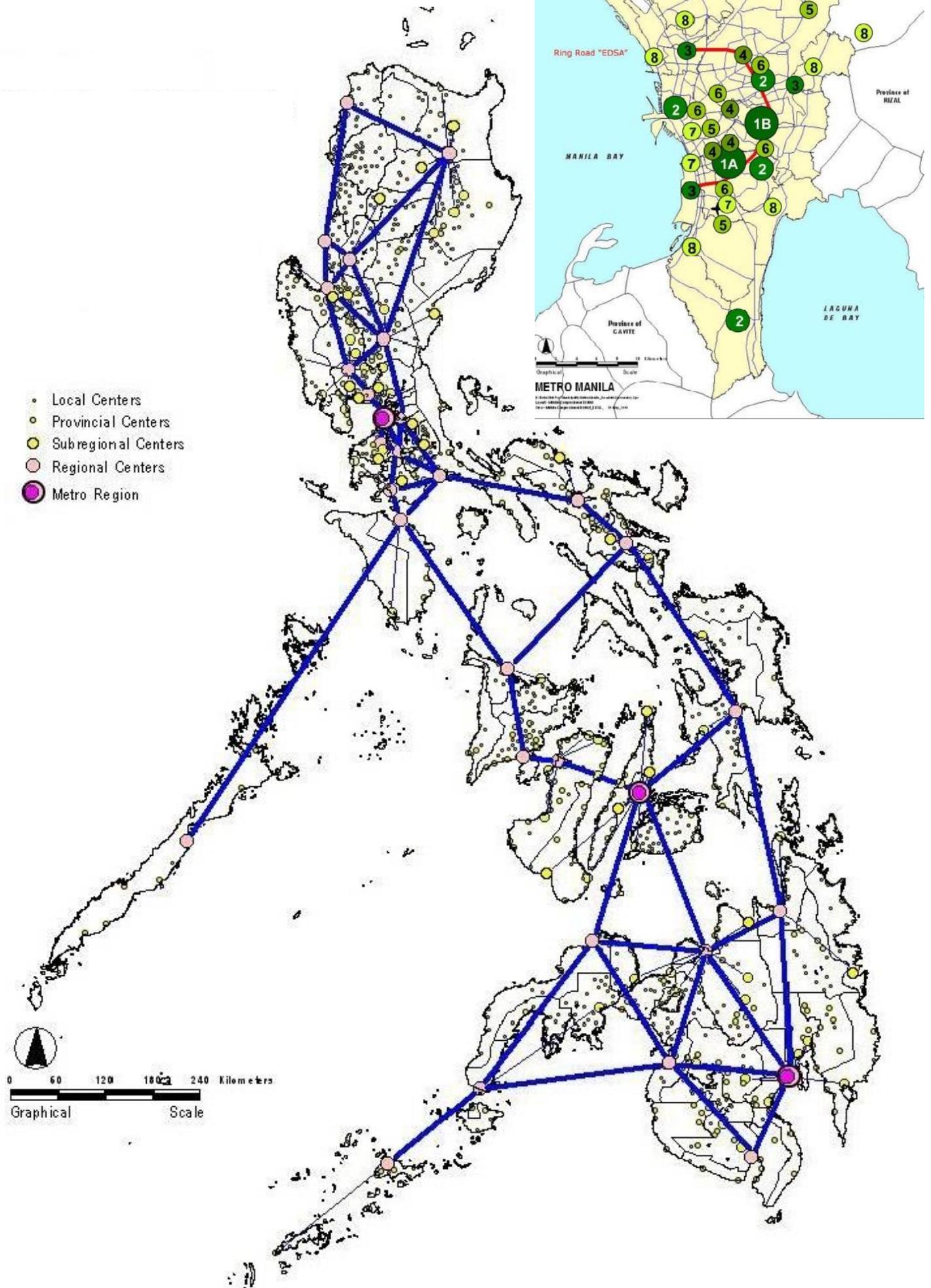
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The views and opinions expressed herein are those of the SEPO and do not necessarily reflect those of the Senate, of its leadership, or of its individual members. For comments and suggestions, please e-mail us at [sepo@senate.gov.ph](mailto:sepo@senate.gov.ph).

Annex 1. Hierarchy of Settlements



Source: Figure 27 In: Corpuz, Arturo G. (2013, 62) and Image 5 In: Rau and Corpuz (2012, 1098)