03 Overlay of Economic Growth, Demographic Trends, and Physical Characteristics

Chapter 3

Overlay of Economic Growth, Demographic Trends, and Physical Characteristics

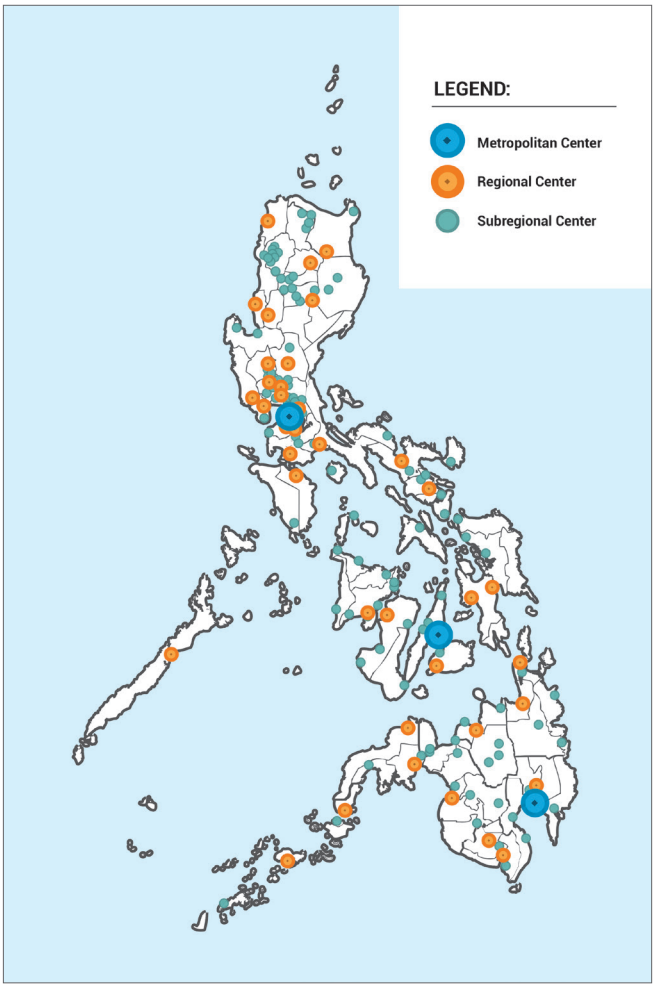
The PDP 2017-2022 recognizes that social and economic development occurs over a geographic space. If development is unchecked, it can lead to overcapacity which then caps development itself and worsens the quality of life. The National Spatial Strategy (NSS) defines the country's desired spatial structure and sets the direction of future growth based on trends in population, economic activities, and services. It recognizes the increasing role of cities as drivers and venues of economic growth and poverty reduction, and recommends sustainable human settlements coupled with efficient and effective production and service delivery systems.

The NSS thus seeks to address these challenges with three core strategies: (1) regional agglomeration, (2) connectivity, and (3) vulnerability reduction.

Regional agglomeration. The NSS promotes concentration, building on the efficiencies, and maximizing the benefits of scale and agglomeration economies. It recognizes the current population trend showing the emergence of a three-tiered network of settlements composed of (a) Metropolitan Centers, namely, Metro Manila, Metro Cebu, Metro Davao, and by 2025, Metro Cagayan de Oro; (b) Regional Centers; and (c) Sub-regional Centers. Given this, the NSS seeks to manage growth such that cities and regional centers function efficiently and that the benefits are maximized and spread to outlying areas.

Connectivity aims to connect the centers to form an efficient network and improve linkages between and among production areas and settlement/market areas. It seeks to equalize opportunities across space and address socioeconomic inequities through physical infrastructure linking lagging regions with leading ones (thus increasing access to social services) and through investments in human capital that will improve people's mobility.

Figure 3.1 Average Regional Share in GDP, 2010-2015



Lastly, *vulnerability reduction* seeks to protect environmentally-constrained or hazard prone areas, control settlements in these areas, and ensure safety of the population through specific strategies that are best defined at the regional and local levels.

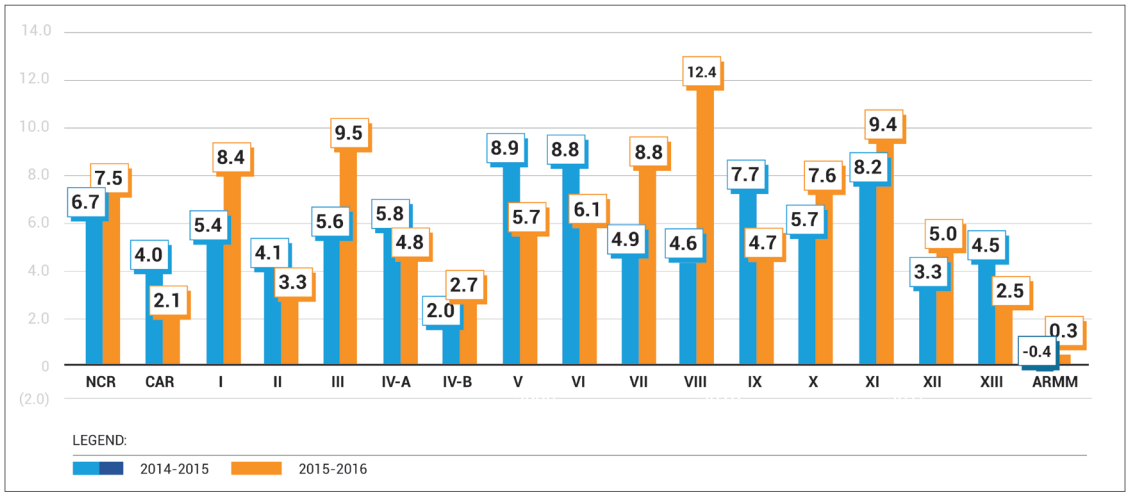
Gross Regional Domestic Product Trend 2016

In the recent national output data, the National Capital Region (NCR) continued to have the largest share of the country's gross domestic product (GDP) at 36.6 percent, followed by CALABARZON with 16.8 percent and Central Luzon with 9.5 percent.

While this is the case, the regional economies likewise provided a promising performance in 2016. All regions posted a positive economic growth from 2015-2016, with Eastern Visayas having the fastest growth rate at 12.4 percent, exceeding its previous year's recorded growth of 4.6 percent. This is fueled by the expansion in Construction and Manufacturing subsectors of the region. Its Industry sector accounted for the largest share of 44.3 percent, followed by Services at 40.6 percent and Agriculture, Hunting, Forestry and Fishing (AHFF) at 15.1 percent.

Central Luzon trailed behind Eastern Visayas at 9.5 percent growth, which is attributed to its Industry sector with 46.4 percent, Services at 38.6 percent and AHFF at 15 percent. Davao Region followed at 9.4 percent growth due to the acceleration of its Services and Industry sectors with 51.1 percent and 36.7 percent, respectively, while its AHFF sector accounts to 12.2 percent.

Figure 3.2 Growth Rates of Regional Economies, 2014-2015 and 2015-2016

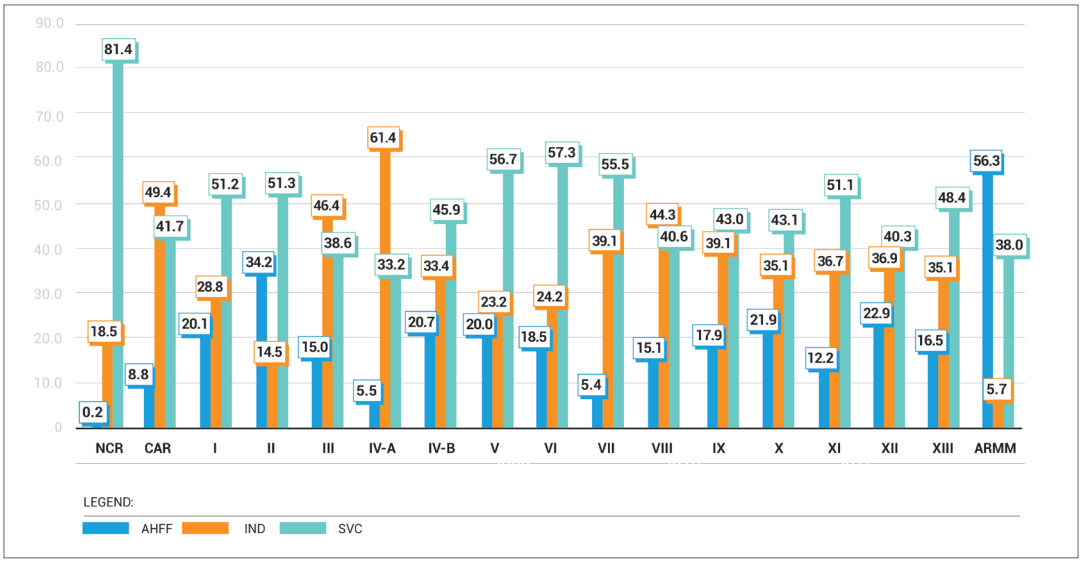


Other regions that followed increased growth trend are Central Visayas at 8.8 percent, Ilocos Region at 8.4 percent, Northern Mindanao at 7.6 percent, NCR at 7.5 percent, SOCCSKSARGEN at 5 percent, MIMAROPA at 2.7 percent and ARMM at 0.3 percent. Other regions also grew but at a slower pace, like Western Visayas at 6.1 percent, Bicol Region at 5.7 percent, CALABARZON at 4.8 percent, Zamboanga Peninsula at 4.7 percent, Cagayan Valley at 3.3 percent, Caraga at 2.5 percent, and Cordillera Administrative Region (CAR) at 2.1 percent.

Figure 3.4 demonstrates the possible complementarity of the different regions looking at the distribution of gross regional domestic product (GRDP) by sector. NCR economy remains concentrated in the Services sector, accounting for 81.4 percent of its GRDP, followed by Western Visayas, Bicol Region, and Central

Visayas with 57.3 percent, 56.7 percent and 55.5 percent, respectively. The Industry sector remains dominant in CALABARZON with 61.4 percent of GRDP, followed by CAR with 49.4 percent, Central Luzon with 46.4 percent, Eastern Visayas with 44.3 percent, and Zamboanga Peninsula with 39.1 percent. On the other hand, ARMM continues to rely heavily on AHFF accounting for 56.3 percent of GRDP, Cagayan Valley with 34.2 percent, and the rest of the regions at around 20 percent down to 5 percent.

Figure 3.3 GRDP Sectoral Distribution by Region, 2016



Accomplishments

Consistent with the NSS, the Public Investment Program (PIP) 2017-2022 identifies projects, particularly for infrastructure, directed to address efficiency and mobility and to ensure safety and resilience.

To achieve spatial efficiency and connectivity, the government has embarked on a massive infrastructure program, the Build, Build, Build (BBB) Program which aims to (a) improve regional connectivity, (b) ease the cost of doing business thereby increasing the Philippines' growth potential and competitiveness, and (c) link production areas to growth centers through an efficient transportation network.

The National Economic Development Authority (NEDA) Board Committee on Infrastructure and the Investment Coordination Committee (ICC) identified 75 high-impact infrastructure flagship projects (IFPs) as part of the BBB. The NEDA Board adopted the list on June 27, 2017. The IFPs consist of projects on transportation (roads and bridges, railways, mass transit, airports, and seaports), power, flood control, irrigation, and water supply. Fifty-three (53) of these 75 IFPs have an estimated budget of ₱1.579 trillion.

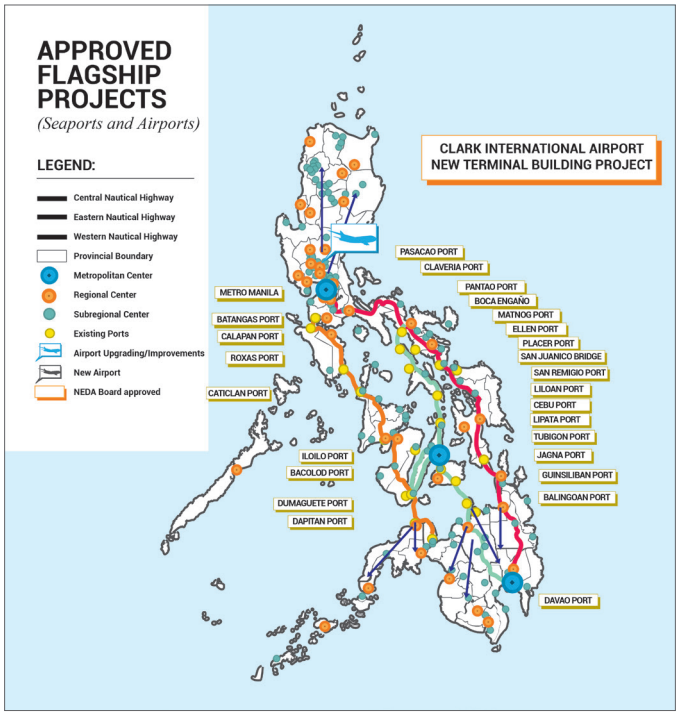
In 2017, the NEDA Board approved nine (9) transport infrastructure projects aimed to improve linkages among metropolitan centers and other regional centers (*See Table 3.1*).

Table 3.1. Approved Transport-related IFPs in 2017

	Project Title	Region	Timeframe
1	PNR North 2 (Malolos-Clark Airport-Clark Green City Rail)	NCR, Region III	2018-2024
2	Clark International Airport New Terminal Building Project	Region III	2018-2020
3	MRT-LRT Common Station Project	NCR	2017-2018
4	Mindanao Rail Project (Phase 1) – Tagum Davao Digos Segment	Region XI	2018-2022
5	PNR South Commuter Line (Tutuban-Los Baños)	Region IV-A, NCR	2018-2022
6	PNR South Long-haul (Manila-Bicol)	NCR, Region IV-A, Region V	2018-2022
7	Metro Manila Subway Project (Phase 1)	NCR	2018-2025
8	Binondo-Intramuros Bridge	NCR	2018-2021
9	Estrella-Pantaleon Bridge	NCR	2018-2020

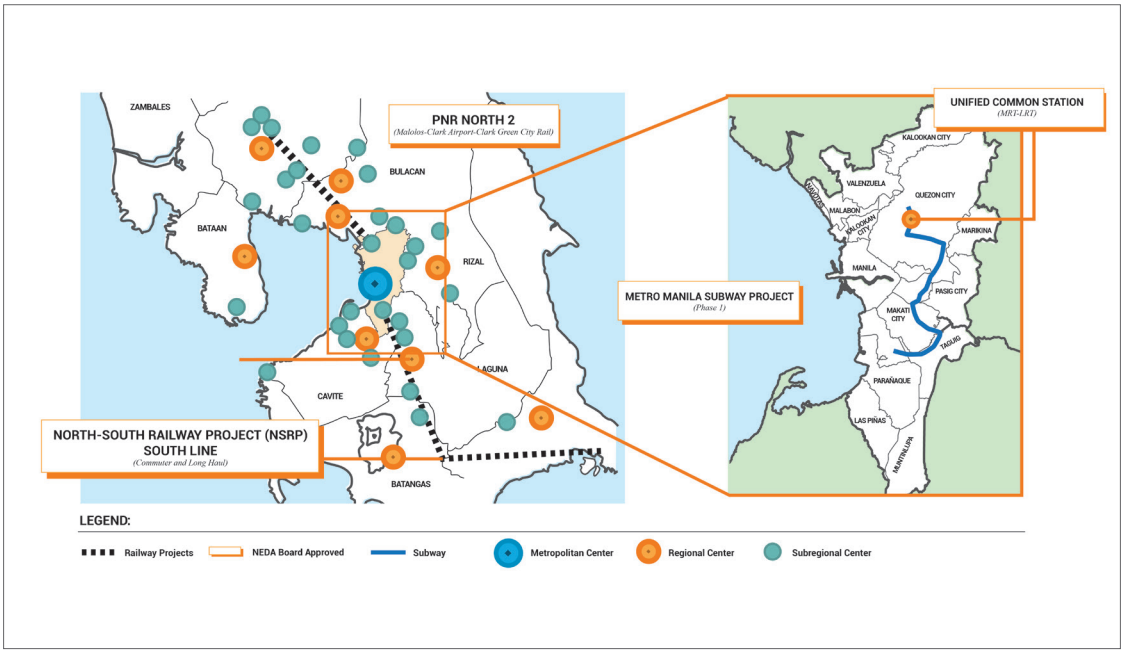
Airports. The Clark International Airport Expansion Project entails construction of a new passenger terminal building designed for eight (8) million passengers per year, with a floor area of 82,600 sqm. The increased capacity of the Clark International Airport will help lessen congestion in the Ninoy Aquino International Airport in Manila.

Figure 3.4 Location of Approved Airport IFP



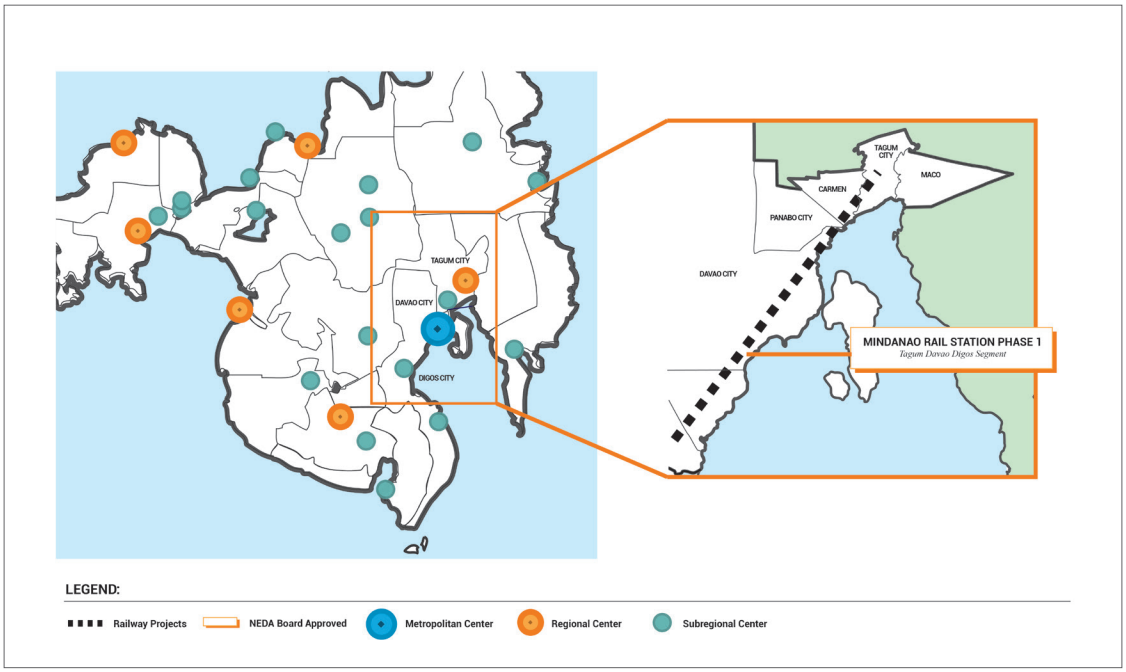
Mass transportation. Mass transportation projects will enhance personal mobility, lessen traffic congestion in urban roadways and highways, and reduce fuel consumption. The PNR North 2 (Malolos-Clark Airport-Clark Green City Rail), PNR South Commuter Line, and PNR Long Haul projects are seen to improve connectivity to and from Central Luzon, CALABARZON, and Bicol Region to Metro Manila. The MRT-LRT Common Station and Metro Manila Subway Project (Phase 1) will improve inter-city connectivity in Metro Manila. (*Figure 3.5 shows the mass transportation projects in Greater Capital Region [GCR]).*

Figure 3.5 Location of Approved Mass Transportation IFPs



Roads and bridges. The Binondo-Intramuros Bridge and Estrella-Pantaleon Bridge are two of the 12 new bridges along Pasig River which will link tourism areas, market centers, schools, and institutions. The Binondo-Intramuros Bridge will provide alternative linkage between the busy commercial establishments and restaurants in Binondo and the historical sites in Intramuros. Meanwhile, the construction of the Estrella–Pantaleon Bridge will replace the existing bridge connecting Mandaluyong City and Makati City's Rockwell Center which is expected to ease traffic congestion in the two areas.

Figure 3.6 Location of Approved IFP in Mindanao



Meanwhile, the Mindanao Railway Project (Tagum-Davao-Digos segment) will establish a 102.28km commuter railway from Tagum City to Digos City. This is part of the first phase of the proposed 830km Mindanao Railway Project loop envisioned as an efficient, reliable, and affordable mode of transport to boost tourism and the overall economic development of Mindanao.

Flood control and other vulnerability-reduction projects. The infrastructure development program includes specific projects for disaster risk reduction (DRR) focusing mainly on flood control. Eleven (11) projects on vulnerability reduction are in the pipeline for submission to ICC for processing and approval. These include the construction of dams and floodway components to address perennial flooding in these areas while addressing other needs of the provinces in terms of power, irrigation, and water supply (*See Table 3.2*).

Table 3.2. Vulnerability Reduction-related IFPs for Submission to ICC

	PROJECT TITLE	REGION	TIMEFRAME
1	Aqueduct No. 7 (AQ-7)	Region III, NCR	TBD
2	Ipo Dam No. 3	Region III, NCR	TBD
3	Improvement of remaining sections along Pasig River from Delpan Bridge to Napindan Channel	NCR	2018-2020
4	Gregorio del Pilar Impounding Project	Region I	2019-2023
5	Ilocos Norte Irrigation Project, Stage 2	Region I	2019-2026
6	Tumauini River Multipurpose Project	Region II	2019-2021
7	Panay River Basin Integrated Development Project	Region VI	2018-2025
8	Bohol Northeast Basin Multipurpose Project	Region VII	2019-2023
9	Balo-i Plains Flood Control Project	Region X	2020-2023
10	Asbang Small Reservoir Irrigation Project	Region XI	2019-2025
11	Ambal Simuay Sub-Basin of the Mindanao River Basin Flood Control and River Protection Project	Region XII	2018-2023

In addition, the Metro Manila Flood Control Project, a joint project of the Department of Public Works and Highways and Metro Manila Development Authority with assistance from the World Bank approved in September 2017, is set to start in 2018. This will include the rehabilitation of 36 existing pumping stations and construction of 20 new pumping stations in Metro Manila.

Further, the Cabinet Cluster for Climate Change Adaptation and Mitigation and Disaster Risk Reduction,[1] with the Presidential Management Staff as lead, started discussions on the formulation of an implementation plan for "Disaster Resiliency Measures for Metro Manila and its Surrounding Areas." The proposed plan will indicate programs, activities, and projects to be implemented by various government agencies to reduce the risks and enhance the resilience of Metro Manila and its surrounding provinces in preparation for an earthquake with a magnitude of at least 7.2 (the "Big One").

[1] Presidential Management Staff, Office of the Executive Secretary, HUDCC, DBM, NEDA, DFA, DICT, DOF, DOST, DILG, DPWH, DSWD, DA, DAR, DOE, DND, MMDA, Presidential Communications Operations Office, Presidential Legislative Liaison Office, and National Security Council

NEDA, together with the World Bank, in March 2017 launched the development of Socioeconomic Resilience Assessment Methodology, an analytical tool that can be used to identify the appropriate geographic focus of interventions, policies, and investment priorities aimed at reducing losses and managing the socioeconomic and fiscal impacts of disasters. This is useful in providing information on risk to assets and socioeconomic resilience at the national and provincial levels. The methodology is set to be completed in September 2018.

Moving Forward

Agglomeration and urban efficiency

The country's major growth centers, namely, Metro Manila, Metro Cebu, and Metro Davao, are faced with the following urban challenges:

a. **Traffic congestion in major roads**. Traffic volume has already exceeded road capacities in urban road sections of Metro Manila. Influx of investments, poor traffic enforcement, illegal parking on streets, and outdated traffic signals have also contributed to road congestion in Metro Cebu and Metro Davao.

b. **Lack of mass transit system**. This has contributed to road congestion in the metropolis. An unreliable mass transit system forces people to use private vehicles to reach their destinations. The absence of a railway system for goods and passengers also affects the metropolitan centers' ability to sustain its economic growth.

c. **Encroachment into hazard-prone areas**. As of 2010, the number of informal settler families in Metro Manila is more than half a million, about 20 percent of its total households. Most of these informal settlements are located in hazard-prone areas (*Refer to Chapter 12*).

d. **Exposure to natural hazards**. The Valley Fault System of Metro Manila makes the region and its surrounding provinces prone to earthquake-related hazards (e.g., faulting rupture, ground shaking, liquefaction, tsunami, fire, and landslide). Flood is also common in metropolitan centers due to poor drainage system. Metro Cebu is highly susceptible to flooding and storm surges, while portions of Metro Davao are highly susceptible to flooding as well as rain-induced landslides (*See Figures 3.7 to 3.11 for the hazard maps of Metro Manila, Metro Cebu, and Metro Davao*).

e. **Increasing demand for water and energy**. Growth entails higher demand for water and energy. Efficient and sustainable power generation and distribution, as well as water resource management, will thus be important.

f. **Pollution and waste management issues**. These affect livability and sustainability of cities and thus need to be addressed in a holistic manner, necessitating cooperation among national and local governments.

These challenges reduce the efficiency of cities to be engines of growth, and therefore need to be addressed in a sustainable manner. Considering that these cities are already built-up, the solutions will require "out-of-the-box" thinking. For instance, the solution to traffic congestion and the lack of transport may not be more roads, but ample provision for walking; telecommuting may also be encouraged. Considering other locations (e.g., New Clark City) as alternative site for government operations may also be pursued as a form of redundancy measure.

Regional connectivity

The GCR, given its contribution to the country's GDP, is seen to continue its role as the political and financial capital of the Philippines. This does not mean, however, that economic activities will only be concentrated in the region. While most infrastructure projects in the GCR aim to ease traffic congestion and enhance access to and from the regions, infrastructure in metropolitan and regional growth centers outside the GCR will also be developed to boost the economic development in the regions. This will be achievable with the complementation of the IFPs and infrastructure projects under the PIP 2017-2022.

To foster the enhancement of inter- and intra-regional connectivity in the country, the following are recommended:

a. Fast-track implementation of approved infrastructure projects by addressing bottlenecks in the implementation process, which include: contracting of capable consultants/project teams; procurement issues; and simplification of approval process and requirements.

b. Promote projects that enhance linkages between production areas to market centers.

c. Construct new local roads for road network redundancy which allows the creation of alternative routes to increase accessibility between localities for trade and tourism, and disaster response and evacuation.

d. Further encourage public-private partnerships in implementation or operation and maintenance of projects.

Vulnerability reduction

While other areas are exposed to natural hazards and are prone to disasters, vulnerability reduction measures are necessarily focused on Metro Manila because of the concentration of establishments and settlements in the national capital, exacerbated by uncontrolled and inefficient development and encroachment into hazard-prone areas. Based on the 2004 Metro Manila Earthquake Impact Reduction Study and the Greater Metro Manila Area Risk Analysis Project, a 7.2 magnitude earthquake in Metro Manila could injure 100,000 people, kill 34,000 people, and result in about ₱2.269 trillion in economic losses. Hence, losses in property, income, and fatalities during disasters will have a substantial effect not just in Metro Manila, but also in the country given the significant share of Metro Manila to GDP.

DRR strategies are best formulated at the regional and local levels. This ensures that hazards are properly delineated on the ground and programs and projects are appropriately identified and prioritized. However, big-ticket projects that address inter-regional concerns such as dams, nationwide early warning system, and hazard and risk mapping may be implemented at the national level due to high cost and impact of the projects.

To further reduce vulnerability, the following are recommended:

a. Complete the probabilistic hazard mapping and vulnerability and risk assessment for all areas in the country. Risk assessment will help prioritize areas for intervention. Probabilistic mapping and assessment should also include delineating on the ground and identifying exposed elements and their adaptive capacities.

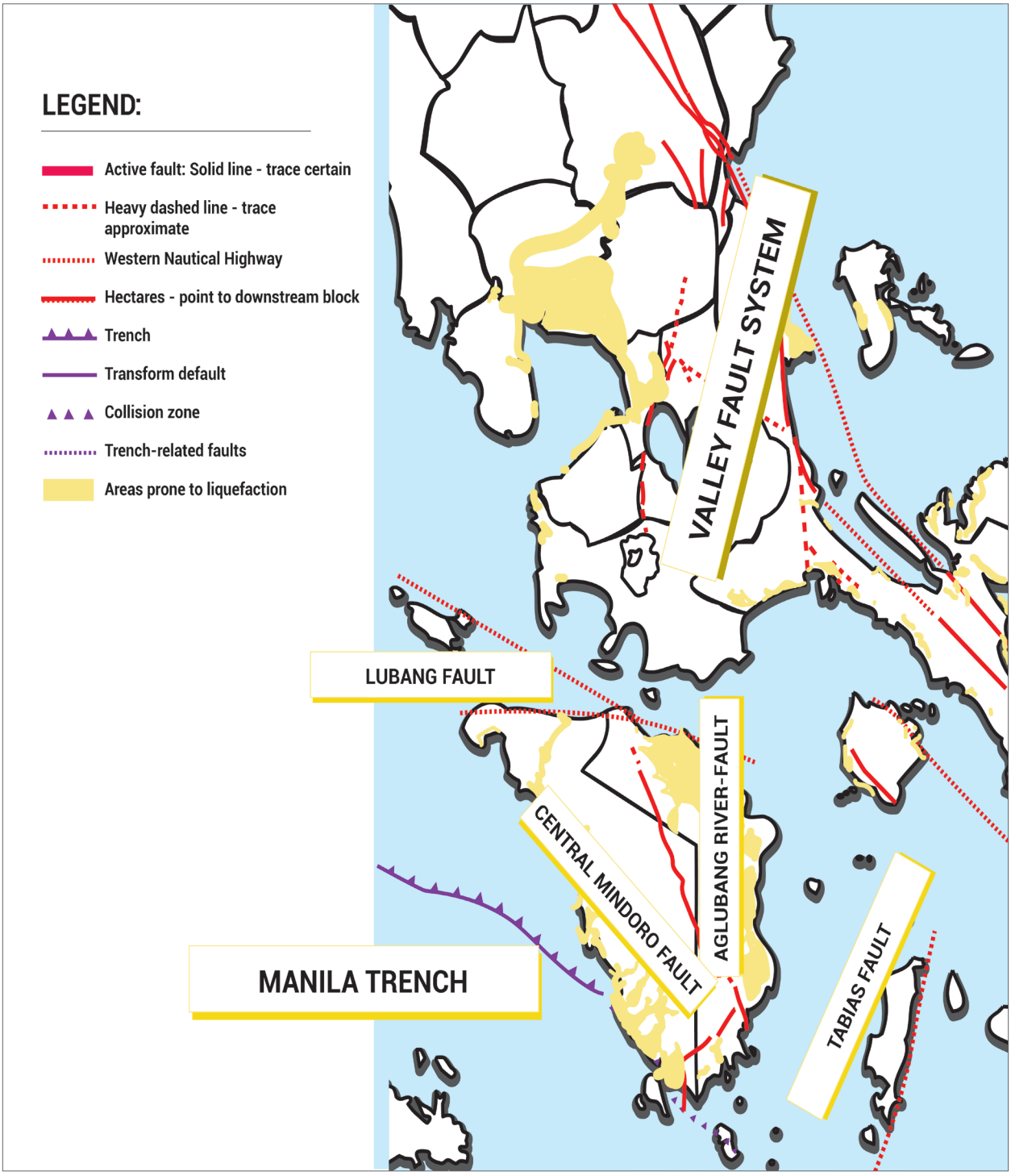
   Information and education campaign for local government units on using the maps and conducting risk assessment for planning and other DRR-related activities are equally important. This will also be used as a basis for identifying appropriate programs and projects to address the risks, as well as the appropriate level of governance these projects are best implemented.

b. Conduct Carrying Capacity Study for metropolitan centers to help guide local chief executives and planners in determining the centers' population and ecological limits. With this knowledge, location and design of infrastructure and settlements can be adjusted to ensure ecological soundness.

c. Improve the vertical integration and enforcement of the physical and land use plans. This will ensure the harmonized and complementing efforts in all levels of governance. The strategies on vulnerability reduction may also be incorporated in sectoral plans to ensure the safety and resiliency of communities. The enforcement of plans should determine the appropriate land use activities in the identified hazard-prone area and also include penalties and/or incentives.

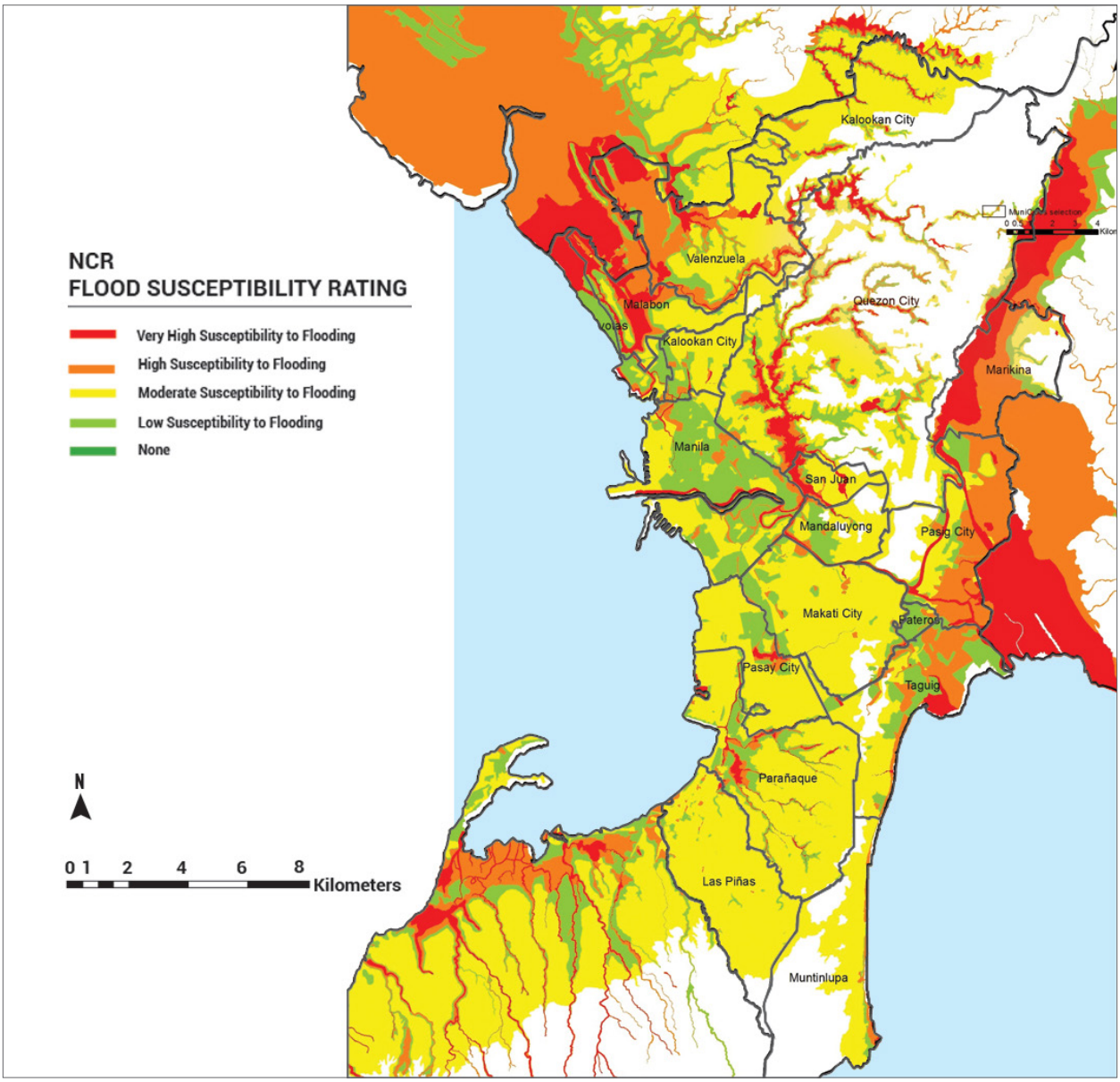
Hazard Maps of Metro Manila, Metro Cebu, and Metro Davao

Figure 3.7 Fault Line Map of Metro Manila



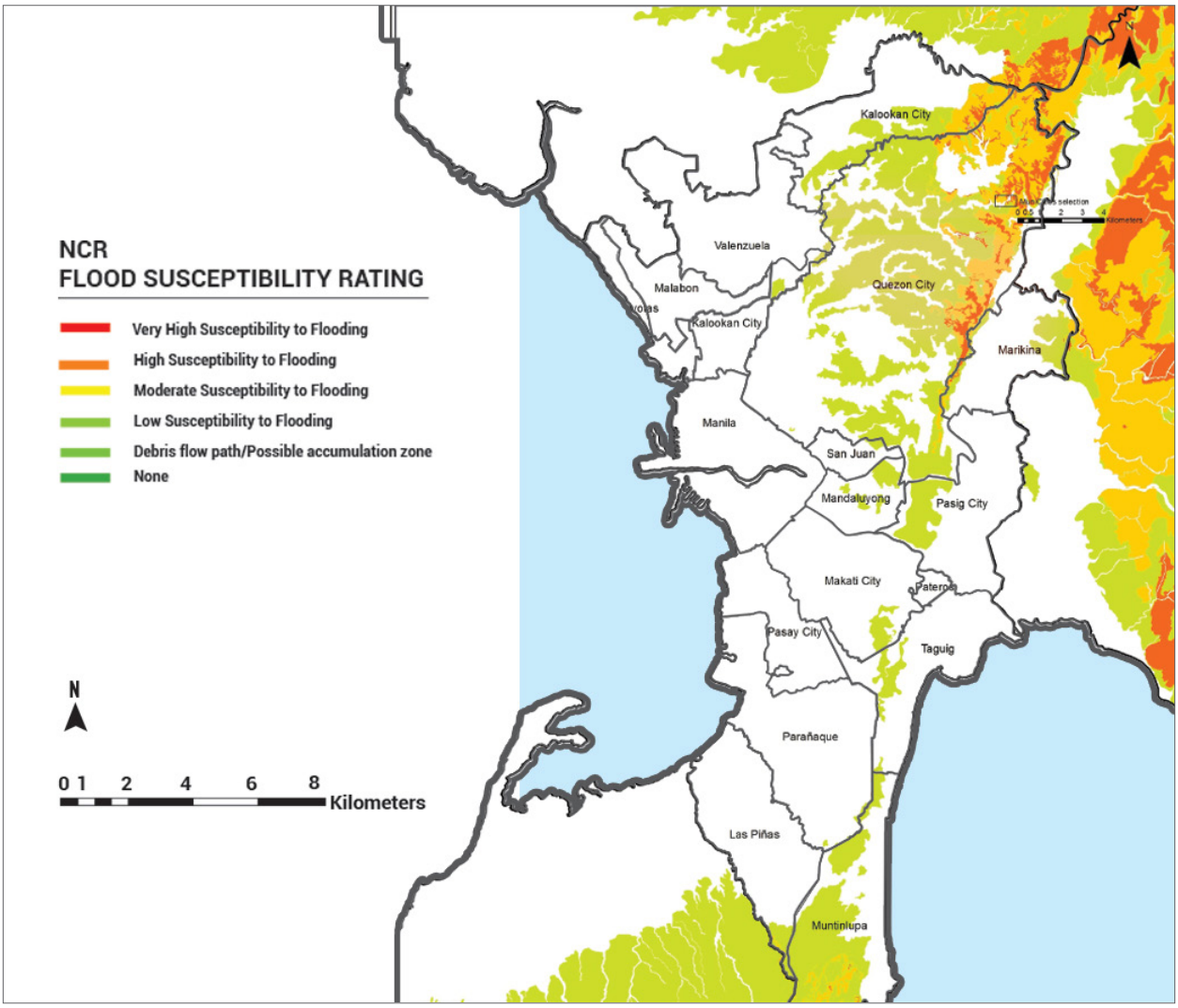
Source: Department of Science and Technology -Philippine Institute for Volcanology and Seismology (DOST-PHIVOLCS)

Figure 3.8 Flood Susceptibility Map of Metro Manila



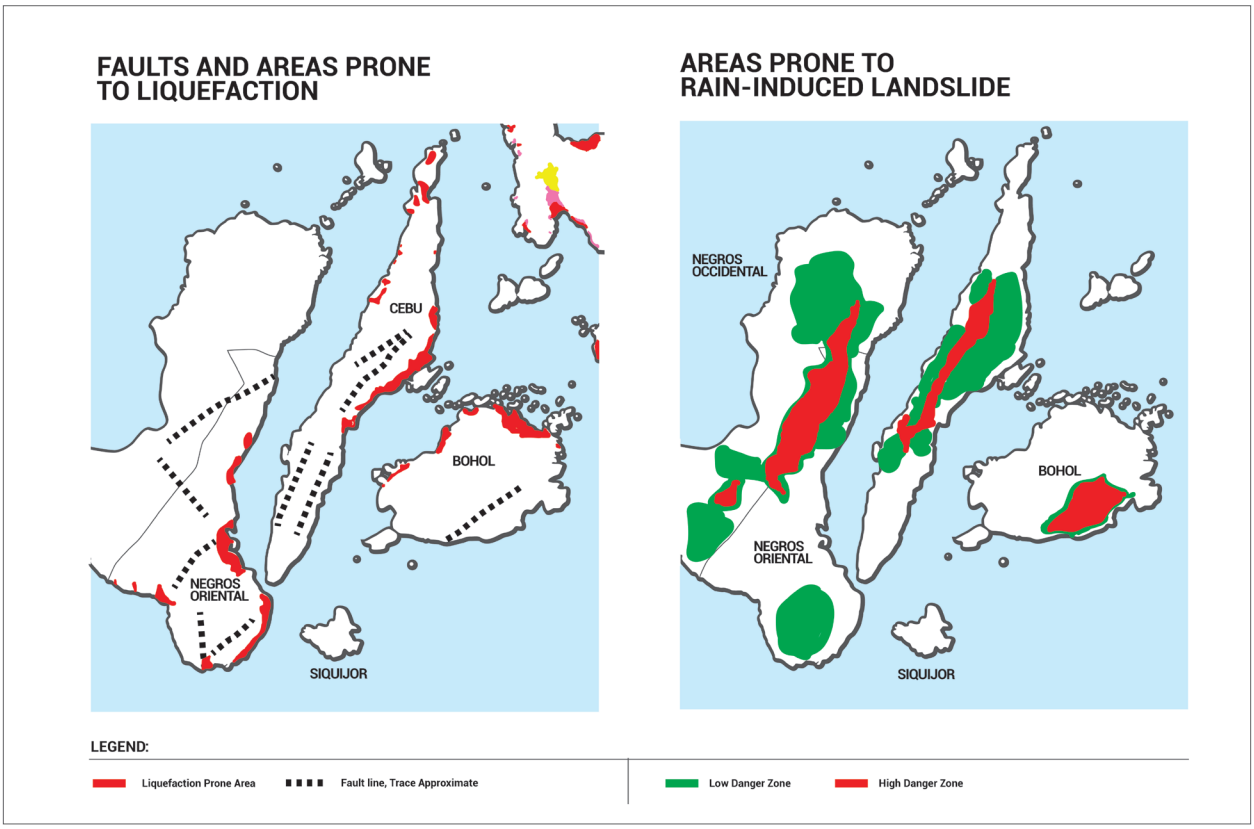
Sources: Department of Environment and National Resources-Mines and Geosciences Bureau (DENR-MGB)
National Mapping and Resource Information Authority (NAMRIA)

Figure 3.9 Landslide Susceptibility Map of Metro Manila



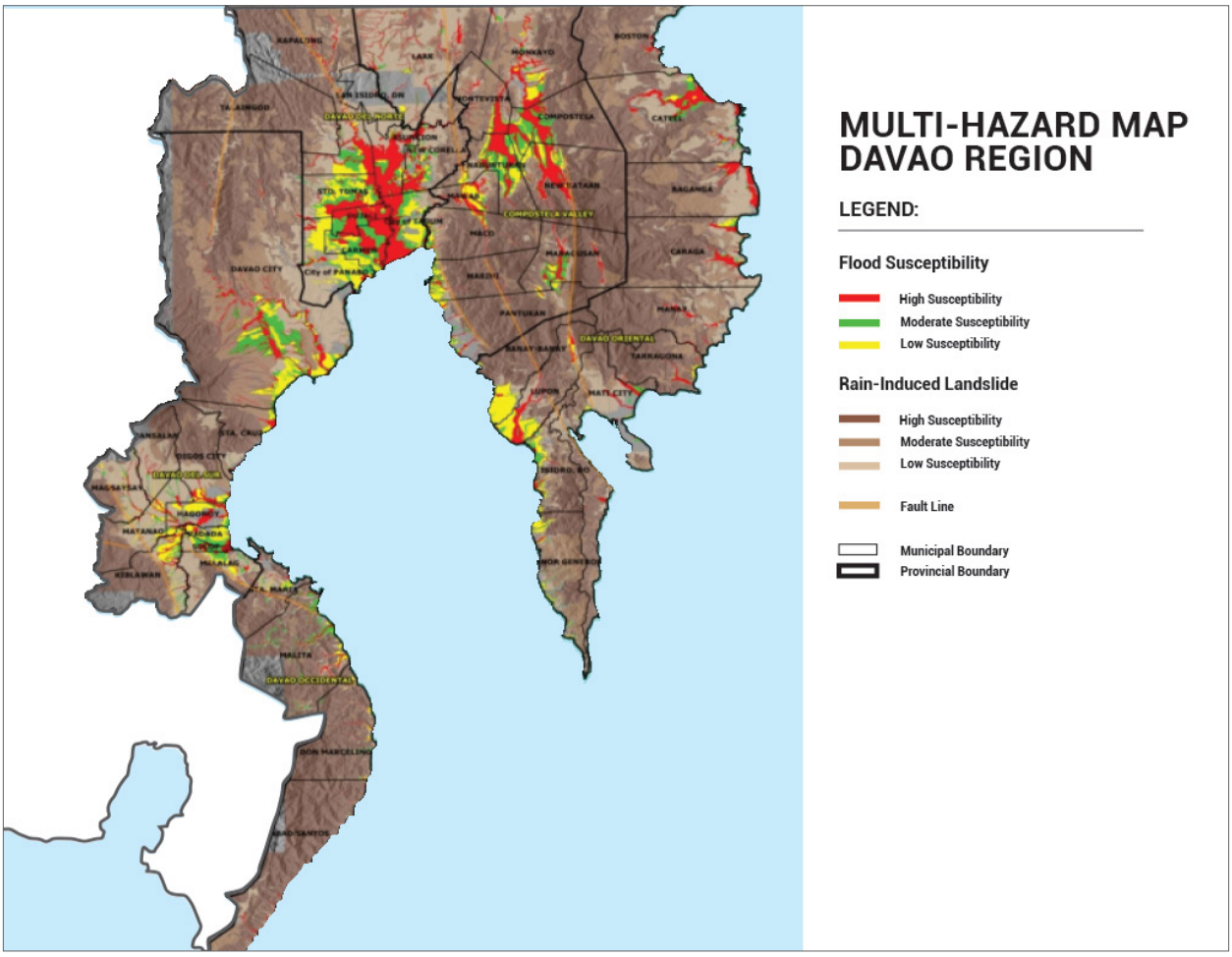
Sources: *DENR-MGB*
NAMRIA

Figure 3.10 Fault Line, Liquefaction, and Rain-induced Landslide Susceptibility Maps of Cebu



Source: Visayas Spatial Development Framework, 2016-2045

Figure 3.11 Multi-hazard Map of Davao



Sources: *DENR-MGB XI*
DOST-PHIVOLCS