



# POPULATION, HEALTH, AND ENVIRONMENT ISSUES IN THE PHILIPPINES

## A Profile of the National Capital Region (NCR)

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Linking population, health, and environment (PHE) issues is becoming increasingly important for the Philippines, where natural resources and public health and well-being are often negatively affected by factors such as population pressures and poverty. Understanding these connections—including the economic and social context in which they occur—and addressing PHE issues in an integrated manner is critical for achieving sustainable development.

This regional PHE profile highlights key population, health, and environment indicators and important development challenges for the National Capital Region (NCR). The profile is designed to help educators, policymakers, and community leaders identify key threats to sustainable development and explore possible approaches to addressing them. This profile is part of a series covering select regions of the Philippines, and is intended as a companion publication to the Population Reference Bureau's 2006 data sheet, *Making the Link in the Philippines: Population, Health, and the Environment*.<sup>1</sup>

### Overview of National Capital Region

The National Capital Region (NCR), also known as Metro Manila, covers the greater metropolitan area of the city of Manila. Metro Manila is facing many difficult challenges—including provision of public health services, housing, water, sewage services, garbage collection, transportation, and education—following a dramatic increase in population over the past two decades that has strained urban infrastructure. Rapid urban development in the 1980s and 1990s, along with migration to the region and natural population growth, has outpaced the ability of the government to provide adequate services. Within the region, Quezon City, Manila, and Kalookan are the most populous cities. Although NCR currently has the lowest



rate of population growth in the Philippines (1.1 percent), the population will continue to grow in the coming years.

NCR is the smallest of the country's administrative regions, yet it is the most populous and consequently, the most densely populated (see Figure 1, page 2). NCR is the only region that is entirely urban, and instead of provinces, the region is subdivided into 17 cities and municipalities. As the seat of the national government, the metropolis is characterized by the concentration of economic, social, and political activities.

The region lies on an isthmus (a narrow strip of land bordered on two sides by water and connecting two larger land masses) with an average elevation of 10 meters. Manila Bay lies to the west and Laguna de Bay to the southeast. NCR is bordered by the regions of Central Luzon to the north and



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Midwives aided in the survival of Elcarim, who was born breech. His parents chose his name, which is “miracle” spelled backward.

Figure 1

## PHE INDICATORS FOR NCR

Population (2005)	10,787,300 <sup>a</sup>
Population density (2000)	15,686 people per sq. km.
Percent urban (2000)	100
Annual population growth rate (2000)	1.1%
Lifetime births per woman (total fertility rate) (2003)	2.8
Married women ages 15–49 using contraception (2003)	49% (any method) 32% (modern methods) <sup>b</sup>
Unmet need for family planning (2003)	15%
Infant mortality rate (2006)	22 infant deaths per 1,000 live births <sup>c</sup>
Forest cover	10%
Number of threatened animal species (2004)	5
Families that obtain water from a safe water source (2002)	84%
Families with sanitary toilet (2002)	98%
Per capita gross regional domestic product at constant 1985 prices (2006)	37,955 pesos <sup>d</sup>

<sup>a</sup> National Statistical Coordination Board, *Population Projections* ([www.nscb.gov.ph/secstat/d\\_popnProj.asp](http://www.nscb.gov.ph/secstat/d_popnProj.asp), accessed Nov. 27, 2007).

<sup>b</sup> National Statistics Office and ORC Macro, *Philippines National Demographic and Health Survey* (2003).

<sup>c</sup> National Statistics Office, *2006 Family Planning Survey* ([www.census.gov.ph/data/pressrelease/2007/pr0718tx.html](http://www.census.gov.ph/data/pressrelease/2007/pr0718tx.html), accessed Feb. 5, 2008).

<sup>d</sup> National Statistical Coordination Board, *Regional Accounts* ([www.nscb.gov.ph/grdp/2006/2006concap.asp](http://www.nscb.gov.ph/grdp/2006/2006concap.asp), accessed Nov. 27, 2007).

**SOURCE:** Except where noted, data are taken from Population Reference Bureau, *Making the Link in the Philippines: Population, Health, and the Environment* (Washington, DC: Population Reference Bureau, 2006).

CALABARZON to the east and south. Its primary waterway is the Pasig River, which bisects the isthmus.

## SOCIOECONOMIC CONTEXT

- NCR has a net enrollment ratio in primary education of 97 percent, the second highest in the country, next to CALABARZON.<sup>2</sup> Simple literacy in NCR (percent of the population 10 years old and older who can read and write) is 93 percent.<sup>3</sup> Although the region is home to several popular higher educational institutions, it ranked third in having the largest share of out-of-school children (17.2 percent).<sup>4</sup>
- NCR has the highest unemployment rate nationwide at 13.1 percent.<sup>5</sup> Unemployment is even higher in depressed settlements.
- NCR has the lowest incidence of poor families, at only 5 percent. The national incidence of poor families is over four times that amount at 24 percent.<sup>6</sup>
- Eighty-four percent of families in NCR obtain water from a safe water source, which is higher than the national level of 80 percent. Almost all families in NCR (98 percent) have sanitary toilets, a level greater than the national average of 86 percent.<sup>7</sup>

## DEMOGRAPHIC AND HEALTH TRENDS

The National Capital Region has a population of 10.8 million, making it the most populous region in the Philippines, with neighboring CALABARZON a close second. Given the region's large population and small land area, its population density is the highest in the country—more than 15,000 people per square kilometer. In contrast, NCR has the lowest annual population growth rate of all the regions—1.1 percent.

- By 2040, the population of NCR is expected to increase to nearly 14 million (see Figure 2).
- While most regions in the Philippines have experienced declining fertility rates, total fertility in NCR has remained mostly stable in recent years, with a slight increase between 1998 and 2003. Married women in NCR have 2.8 children on average, the lowest fertility rate in the

Philippines. However, there is a gap between wanted fertility (2.0 children) and actual fertility (2.8 children), illustrating that women in the region would like to have fewer children.<sup>8</sup>

- The use of modern methods for contraception has slowly but steadily increased over the years, even as overall contraception use has leveled off. One in three married women between the ages of 15 and 49 in NCR uses modern contraception, which is comparable to the national average (see Figure 3).
- Fifteen percent of women in NCR have an unmet need for family planning. They would like to wait before having more children or would prefer to have no more children but are not using any method of family planning.
- The infant mortality rate is a key indicator of a country's health status. NCR has 22 infant deaths per 1,000 live births, slightly better than the national average of 24 deaths per 1,000 live births.

### NCR'S URBAN ENVIRONMENT

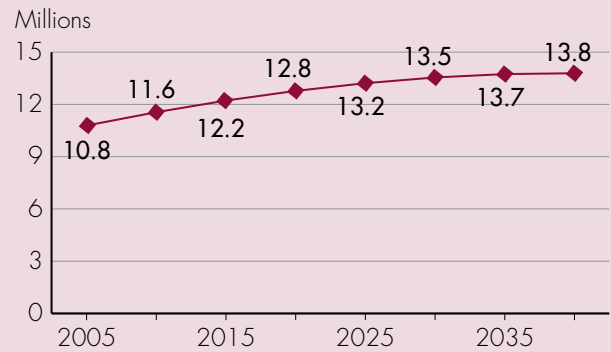
With virtually no forest cover remaining and more than 15,000 people per square kilometer, the National Capital Region is considered completely urban.<sup>9</sup> This presents unique challenges to development planners and city leaders who are charged with supplying adequate social services—such as clean air and water, health care, and education—to a growing population.

Urban residents change their environment through their consumption of food, energy, water, and land. In turn, a polluted urban environment affects the health and quality of life of the urban population. People who live in urban areas have very different consumption patterns than residents of rural areas, with urban populations consuming much more food, energy, and durable goods than their rural counterparts.<sup>10</sup> In NCR, for example, the increase in the number of motor vehicles over the past decade has caused a significant decrease in air quality, where diesel emissions from buses, jeepneys, utility vehicles, and trucks are estimated to be the largest contributor to air pollution.

Air pollution is known to contribute to cardiovascular and respiratory diseases. Since 1980, Metro Manila has been exceeding the maximum guideline value for total suspended particulates (TSP), indicating that air quality has deteriorated to alarming levels.<sup>11</sup> TSP are small solid and liquid particulates, such as dust, smoke, soot, and acid fumes, most often produced by motor vehicles and fuel-burning facilities. In 2004, the annual mean

Figure 2

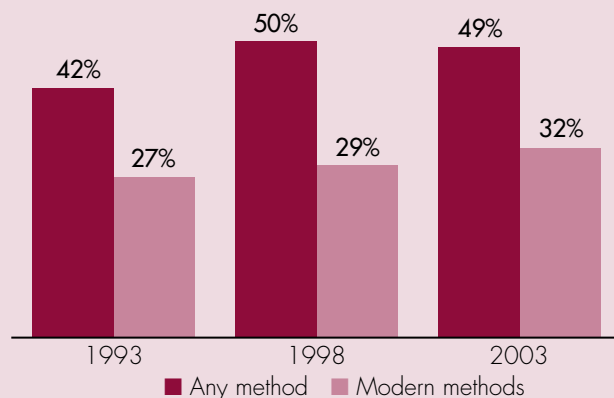
### PROJECTED POPULATION OF NCR, 2005–2040



SOURCE: National Statistical Coordination Board, *Population Projections* ([www.nscb.gov.ph/secstat/d\\_popnProj.asp](http://www.nscb.gov.ph/secstat/d_popnProj.asp), accessed Nov. 27, 2007).

Figure 3

### MARRIED WOMEN AGES 15-49 USING CONTRACEPTION, 1993, 1998, AND 2003



SOURCE: National Statistics Office and ORC Macro, *Philippines National Demographic and Health Surveys* (1993, 1998, and 2003).

concentration in Metro Manila ranged from 275  $\mu\text{g}/\text{Ncm}$  (microgram per normal cubic meter) to 105  $\mu\text{g}/\text{Ncm}$ , in comparison to the guideline value of 90  $\mu\text{g}/\text{Ncm}$  (see Figure 4). Measurements at all 10 monitoring stations exceeded the air quality guideline value.<sup>12</sup>

Urbanization also affects environments beyond the city. Regions downwind from large industrial complexes see increases in the amount of precipitation, air pollution, and the number of days with thunderstorms. Urban areas also affect water runoff patterns. Not only do urban areas generate more rain, they reduce the infiltration of water and lower the water tables. This means that runoff occurs more quickly with greater peak flows. Flood

volumes increase, as do floods and water pollution downstream.<sup>13</sup>

- According to a study by the NCR's Department of Environment and Natural Resources, about 44 square kilometers, or 7 percent of the NCR, is prone to flooding. Flooding affects about 1.9 million people and results in economic losses of about P900 million per year. These flood-prone areas are either medium or highly dense residential districts: Manila, Malabon, Navotas, Valenzuela, San Juan, Mandaluyong, Talayan-Tatalon in Quezon City, East and Upper Marikina, East Manggahan in Pasig, Taguig, and Pateros.
- In addition to flooding, local government units in the NCR also must contend with environmental risks and hazards such as saltwater intrusion, which greatly affects the availability of fresh ground water for the coastal areas of Parañaque City, Pasay City, Manila, Navotas, and Malabon, and even inland municipalities like Pateros. In Metro Manila, the water tables are being drawn at the rate of 6 meters to 12 meters a year, causing saltwater intrusion into the fresh ground water along the coastal areas.<sup>14</sup>
- The four main rivers of NCR—Marikina, San Juan, Parañaque, and Pasig—have poor water quality and are considered “biologically dead” in some areas. One key indicator of water quality is the amount of dissolved oxygen (DO) present, where fish and other aquatic life need at least 5 milligrams per liter (mg/L) of oxygen to survive.
  - In 2003, the annual average DO levels for these four rivers ranged from 2.2 mg/L to 3.7 mg/L. By 2005, the levels were worse for each river, ranging from 1.5 mg/L to 3.4 mg/L. The Parañaque and Pasig rivers experienced the greatest decreases of 34 percent and 31 percent, respectively.
  - Discharge of domestic and industrial wastes contribute to low DO levels.
- The rivers are also contaminated with heavy metals and pesticides, most likely effluents from domestic sewage and garbage; municipal wastes from public markets and slaughterhouses; untreated or partially treated wastewater from industries along these rivers; and oil spills from gasoline stations, barges, and boats.<sup>15</sup>

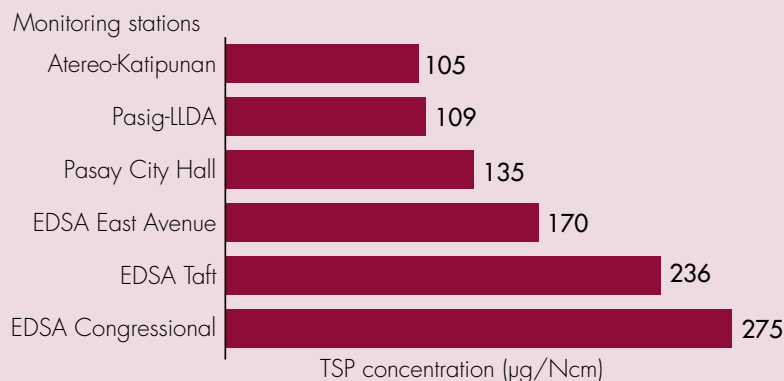
- More than 6,000 tons of solid waste are generated daily within the NCR. About 90 percent of it is collected daily and transported to dumpsites. Uncollected garbage is disposed through illegal dumping into waterways, streets, and open spaces, or through burning.<sup>16</sup> Garbage dumped in waterways contributes to poor water quality and pollution of coastal marine habitat.
- The percentage of households that had their garbage picked up by garbage truck was highest in San Juan and Marikina City (nearly 99 percent in both cities), while the percentage of households that had their garbage burned was highest in Caloocan City (14 percent).<sup>17</sup>

## RESPONDING TO CHALLENGES

NCR's economy is sound, yet it has many pressing concerns: housing, employment, public health, solid waste and wastewater management, traffic, and air and water pollution. The national and local governments develop and implement programs to address these issues, along with smaller projects by the private sector and nongovernmental organizations (see box). Opportunities for greater cross-sectoral collaboration—for example, between the Department of Health and the Department of Environment and Natural Resources—should be explored in order to more effectively address cross-cutting issues such as flooding (an environmental

Figure 4

### ANNUAL AVERAGE ROADSIDE TSP LEVELS IN METRO MANILA, 2004



SOURCE: Environmental Management Bureau, Department of Environment and Natural Resources, *National Air Quality Status Report (2003-2004)* (Quezon City, Philippines: Department of Environment and Natural Resources, December 2005).

hazard) and salt intrusion into ground water sources (a public health issue). Highlighted below are three promising initiatives in the region.

### **The City Development Strategies Project**

As a result of rapid urbanization and the problems that go with it, many of the country's urban areas struggle to address development challenges, such as overcrowding, insufficient social services and service infrastructure, poverty, environmental degradation, lack of housing, and related concerns. Four cities in the region (Makati, Marikina, Muntinlupa, and Parañaque) are currently participating in the World Bank-funded City Development Strategies Project. These cities are addressing the challenges of urbanization through the adoption of a participatory approach to identifying and implementing development interventions for the growing population in their respective local government units. For example, in Makati, activities include an urban redevelopment project, a housing development program, an urban transport integration study, a Makati heritage zone project, and a community commercial zones development project.<sup>18</sup>

### **National Public Policies Inform Department of Health Priorities**

The Department of Health administers a wide variety of public health programs, such as the cancer control program, environmental health, family planning, and malaria control. The family planning program provides information and services for couples to plan their family according to their beliefs and circumstances. These services are important for the health and welfare of mothers and children and also support efforts to achieve sustainable development.

### **Environmental Health Initiatives**

The National Capital Region, through its Department of Environment and Natural Resources (DENR), is responding aggressively to the problem of poor air quality through a number of initiatives, in line with the standards set by the Clean Air Act of 1999. The Clean Air Act establishes a set of national ambient air quality guideline values for criteria pollutants and regularly monitors total suspended particulates (TSP) in major cities. To achieve cleaner air quality in NCR, the following programs and policies have been put in place:

- The Anti-Smoke Belching Program makes use of a smoke test that identifies buses and jeepneys

## **PHE INITIATIVES IN NCR**

### *Sagip Pasig Movement*

Established in 1993 by First Lady Ming Ramos, the movement to save the Pasig River has mobilized residents, academia, markets, government units, and industries to clean and rehabilitate the biologically dead Pasig River. The movement has worked with communities to establish waste management programs and integrate local governments and industries into areas declared Clean River Zones. This unique and community-based approach has helped sustain river rehabilitation. In 2002, it expanded its program to integrate population, health, and environment by adding reproductive health service components in communities requesting these services.<sup>1</sup>

### *The Pampalusog Bata Project by Save the Children and Johnson & Johnson*

This project works in the community of Masville with residents and schools to develop strategic plans for the health and nutrition of school children. Launched in June 2004, the project has increased awareness by children and their families living in Masville of health and diseases, particularly worm infection and some reproductive health risks. Through practical skills in recognizing and preventing the spread of diseases, improving delivery of health and nutrition services, and forming partnerships for better sanitation practices, the project has inspired the community in creating a vision for healthy children living in safe and healthy environments. Since its inception, worm infections have been reduced from 50 percent in 2004 to 17 percent in 2007, according to the project. In addition, the community has improved drainage and sanitation systems and increased recycling and composting.<sup>2</sup>

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that are gross polluters and penalizes them by taking their license plates until the vehicle is fixed and imposing fines.

- The Green Vehicle Project accredits bus and jeepney owners who conduct regular preventive maintenance and/or voluntarily use clean fuels or emission control technology.
- The policy, DAO 2004-53, extends assistance to industries through tax incentives if they install pollution control devices or reduce emissions.
- In a local initiative with partial funding from the World Bank, Marikina City constructed 1.36 kilometers of dedicated bikeways on existing roads to encourage motorists to cycle instead.

More work remains to be done, however. Other criteria air pollutants—such as sulfur dioxide, carbon monoxide, and small particulate matter—should also be monitored more regularly with data made available to the public. In addition to air quality issues, DENR is focusing on achieving more effective

and efficient waste collection and disposal by implementing the Solid Waste Management Act, a policy initiated by the NCR office of DENR.

The policies and programs described in this policy brief illustrate the need for cooperation and coordination between national government, local governments, civil society, and the private sector to ensure effective, sustainable efforts to address population, health, and environment concerns.

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- <sup>7</sup> Population Reference Bureau, *Making the Link in the Philippines*.
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## Acknowledgments

Maria Corazon Guevara De La Paz, Balay Rehabilitation Center, Inc. and PRB staff Melissa Thaxton, Marya Khan, and Lisa Colson prepared this profile. PRB gratefully acknowledges the assistance of individuals who reviewed and commented on this profile, including Norma Pongan, Save the Children/US-PhFO; Marion Antonette Abuel, Conservation International-Philippines; and Richard Skolnik, PRB.

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