

CHAPTER 1

INTRODUCTION

An estimated 500,000 maternal deaths occur in the world every year. The majority of these deaths occur in less developed settings; many are preventable. While new methods have been developed and used to obtain population-based estimates of maternal mortality, less attention has been given, until recently, to measurement of maternal morbidity.

The Safe Motherhood Survey (SMS) Project began in December 1992 with the goal of developing a survey instrument to gather badly needed information on the health status of women focusing on reproductive issues. Much earlier discussions, between those involved with the Demographic and Health Surveys (DHS) program¹ and the World Health Organization (WHO), about the potential advantages of the DHS infrastructure for implementing such a project, planted the seed resulting in this work.

The process of developing the SMS questionnaire used in the Philippines involved many individuals, institutions, organizations, and activities, all of which contributed to the survey conducted in late 1993. The SMS in the Philippines was the first instance of a follow-on survey being conducted in conjunction with a DHS survey. The DHS survey in the Philippines—the National Demographic Survey (NDS)—was carried out in early 1993 (NSO and MI, 1994). The Philippines was a prime choice as the first country to implement a Safe Motherhood Survey as a follow-on to a DHS survey because of the high level of national interest in maternal morbidity and mortality issues and the likelihood that findings would be well utilized in decisionmaking and program planning. This report describes the setting in which the SMS was implemented, the survey design, the process of developing the questionnaire, and the major survey results. It is hoped that this overview of study findings will spur further in-depth analysis of this rich data source.

1.1 Philippine Geography, History, and Economy

The Philippine archipelago is composed of about 7,100 islands and lies strategically within the arc of nations that sweeps southeastward from mainland Asia to Australia. It has a total land area of 300,000 square kilometers, 92 percent of which is found on the 11 largest islands. The country can be grouped geographically into the three major islands groups: Luzon, Visayas, and Mindanao. Accounting for 47 percent of the total land area, Luzon is the largest island group and is situated in the north. Mindanao, the second largest group is located in the south and occupies 34 percent of the total land area, while the Visayas is a group of smaller islands between Luzon and Mindanao comprising the remaining 19 percent of land area.

¹ The DHS Program, currently in its third phase, has been funded by the U.S. Agency for International Development (USAID) since its inception in 1984. The DHS program aims to provide assistance to developing countries in implementing surveys to provide estimates of fertility, contraceptive knowledge and use, infant and child mortality, maternal and child nutrition, and child health.

In 1993 the Philippines was divided administratively into 15 regions as follows:

LUZON

- National Capital Region (NCR)
- Cordillera Administrative Region (CAR)
- Region 1 - Ilocos
- Region 2 - Cagayan Valley
- Region 3 - Central Luzon
- Region 4 - Southern Tagalog
- Region 5 - Bicol

VISAYAS

- Region 6 - Western Visayas
- Region 7 - Central Visayas
- Region 8 - Eastern Visayas

MINDANAO

- Region 9 - Western Mindanao
- Region 10 - Northern Mindanao
- Region 11 - Southern Mindanao
- Region 12 - Central Mindanao
- Autonomous Region in Muslim Mindanao - ARMM

The next lower administrative units are provinces/subprovinces, cities and municipalities, and barangays. In 1990, there were 73 provinces, 2 subprovinces, 60 cities, 1,537 municipalities and some 41,000 barangays. Classification of urban and rural areas are made at the barangay level using the 1970 Census urban-rural definitions (see Appendix A).

Diverse topography and climate characterize the different areas in the country. While mountain ranges traverse the major islands, adjacent valleys and plateaus provide a sharp contrast. The climatic conditions and degree of weather disturbances differ among the provinces because of their varied topography and geographic location. The provinces in northeastern Luzon and the Bicol Region are generally wet and more vulnerable to typhoon than the rest of the country. The Visayan regions have generally more rainy days than Luzon and Mindanao. Mindanao, on the other hand, is almost free from typhoon which makes agriculture a very important industry on that island.

The Philippines became a republic in 1946. Under different presidential successions, a favorable political, social, and economic climate in the country was achieved. However, in the late 1960s, several political and social problems caused by ideological and ethnic differences beset the Marcos regime. The threat of communist takeover and student unrest precipitated Marcos' declaration of Martial Law in 1972. The political and economic situation was worsened by rebellions led by the Muslim leftist groups. Under the shroud of Martial Law, Marcos extended his leadership for two decades. The ouster of Marcos in 1986 brought new hope for political stability and economic recovery. After President Aquino came into power in 1986, the government underwent political and economic reforms. Several coup attempts to topple the Aquino government failed. In 1992, a democratic presidential election was held, six years after the downfall of the government of Marcos. This election brought Fidel V. Ramos, a former Defense Secretary of Marcos and a leading figure in the 1986 People Power Revolution, to the presidential seat. Under the Ramos administration, sporadic encounters between government forces and both leftist and rightist groups continue. However, these are considered to pose less of a threat as the government directs itself toward the attainment of Newly Industrialized Country status by the year 2000.

The economic performance of the country was on the upturn after the Second World War; even under Martial Law in the 1970s, the Philippine economy registered a growth rate higher than the world average for developing countries. During the period 1972-80, real GNP increased at an average rate of 6.2 percent annually. The 1980 real GNP of P 92.6 billion was more than ten times the 1946 level of P 8.8 billion. However, during the 1980s the Philippine economy grew at an average of less than one percent per year. This slower growth has continued into the 1990s.

In the 1980s, international markets for Philippine exports became weak, which adversely affected the trade and industrial sectors. The accelerated outflow of short-term capital and the unwillingness of some creditors to extend new credit lines resulted in widening the balance of payment deficit. The debt servicing capacity of the country was strained by both the high cost of borrowing and the difficulty of earning foreign exchange. Agriculture propelled economic growth in the 1980s, but agricultural output was affected by the eight-month drought which struck the country in late 1982. The worsening employment situation in the country was partially offset by overseas deployment of workers and implementation of the National Livelihood Program, which provided capital and technological assistance to individuals and families in setting up home industries, livelihood projects, and other self-employment activities.

In 1991, an economic crisis was once again felt as a result of the Gulf War which disrupted employment in the Middle East where many overseas Filipinos work. Millions of US dollars from overseas remittance were lost. In the same year, two natural disasters hit the country. Damage from continued eruption of Mt. Pinatubo and flash floods in Ormoc City created added problems for the Philippine economy. The economic slowdown was manifested in all major sectors, posting lower growth rates over the previous year.

Even in times of growth, there has been inequitable distribution of wealth. A large percentage of the nation's wealth remains concentrated in the hands of a few families in the highest income group. Economic development has also favored some regions more than others over the years and is reflected in the present economic status of these areas. The economic and social policies of past administrations have been biased toward Metropolitan Manila for geo-political reasons—its fine harbor and role as the seat of government and the center of commerce and industry—resulting in rapid development of that region. An overspill of economic development was observed later in the neighboring provinces. Rural-to-urban migration was a response to unbalanced development and perceived economic opportunities in urban centers. This continued influx of migrants has exerted pressure on the urban resources and environment.

Social development, like economic development, has not been equitably distributed among geographic units of the country. Pockets of illiteracy are still prevalent in remote *barangays* of nearly all provinces, in spite of improvement in the overall literacy rate, from 83.4 percent in 1970 to 93.5 percent in 1990 (for persons aged 10 years and over). The present government policy aims to eradicate illiteracy by the year 2000 by providing education for all.

The Ramos administration is committed to three fundamental pillars of development, namely, increasing global competitiveness, human resource development, and sustainable development. It is committed to strengthening the national will and capability for self-reliant development through a conscious effort to raise productivity and attain self-sufficiency.

1.2 Population Growth

The total population in the 1990 Census of Population was 60.7 million, up by 12.6 million persons over the last decade. This represents an average annual growth rate of 2.35 percent during the period 1980-1990, down by 0.4 percentage points from 2.75 percent during the period 1970-80. About 29.6 million or 48.7 percent of the population lived in urban areas, an increase of 11.3 percentage points from 1980.

The Philippines population is unevenly distributed over the 15 regions. In 1990, the National Capital Region (NCR) which accounted for only 0.2 percent of the total land area shared 13 percent of the total population, surpassed only by Southern Tagalog which registered 14 percent of the population. These two regions, together with Central Luzon, accounted for more than a third of the country's population. The six least populated regions are Cordillera Administrative Region (CAR), Cagayan Valley, Eastern Visayas, Western Mindanao, Central Mindanao and Bicol, which are at the same time the least developed regions.

The overall population density increased from 122 persons per square kilometer in 1970 to 160 in 1980, and 202 in 1990. The average population density in 1990 ranged from 12,498 persons per square kilometer in Metro Manila to 30 in Kalinga-Apayao in CAR.

A slackening decline in fertility and mortality levels has been observed in the last two decades. In 1970, the crude birth rate (CBR) was estimated at 39 births per 1,000 population, dropping slightly to 36 in 1980 and 29 in 1990. The total fertility rate (TFR) for women 15-49 years dropped by about one child in two decades, from an estimated level of 5.1 children in 1970 to 4.7 in 1980. Based on the results of the 1993 National Demographic Survey (NDS), the TFR is estimated at 4.1 (see Table 1.1). The 1993 NDS also estimated the level of current contraceptive use among women 15-49 years at 40 percent for all methods and 25 percent for modern methods.

Table 1.1 Health indicators, Philippines 1993

National health indicators from the 1993 Philippines National Demographic Survey

Indicator

Total Fertility Rate (women 15-49)	4.1
Median age at first birth (women 25-49)	22.8
Maternal mortality (0-7 yrs before survey)	
Ratio (per 100,000 live births)	209
Rate (per 1000 women 15-49)	.273
Childhood mortality (0-4 yrs before survey)	
Neonatal mortality	18
Postneonatal mortality	16
Infant mortality	34
Child mortality	21
Under-five mortality	54

The Population Program for the period 1993-98 seeks to achieve a TFR of 3.57 in 1998 (POPCOM, 1993). It aims to reduce CBR to 25.1 births per 1,000 population in 1998. To achieve this fertility target, the plan will pursue programs to increase the contraceptive prevalence rate (CPR) to 51.6 percent in 1998.

After a substantial decline in the overall mortality level during the period from 1948-60, the pace has slowed since 1960. The crude death rate (CDR) was estimated at 10.2 deaths per 1,000 population in 1970, declining to 6.9 in 1990. Likewise, the infant mortality rate (IMR) which hovered around 63 per 1,000 live births during the period 1977-1986, improved slightly to 57 in 1990, according to officially recognized figures based on indirect estimates. Direct estimation of the IMR from NDS and other national surveys over the past 15 years have consistently produced lower estimates. The reason for these differences is not clear. Direct estimates from the 1993 NDS give a much lower IMR of 34 per 1,000 live births, for the five-year period preceding the survey. The same survey estimated the neonatal mortality rate at 18 per 1,000 live births and the probability of dying between birth and the fifth birthday at 54 per 1,000 live births during the same period. The maternal mortality ratio, estimated using the sisterhood method in the 1993 NDS, was 209 per 100,000 live births, and the maternal mortality rate was .273 per 1,000 women aged 15-49.

Variations in mortality levels among population subgroups have also been observed over time. Higher mortality risks are associated with low education, low-status occupations, and rural residence, while relatively low mortality risks are associated with more education, high-status occupations, and urban residence (DRDF, 1988).

1.3 Health Policies and Programs

The mission statement of the Department of Health is "to ensure equity, quality, and access to health care in partnership with the people" (DOH, 1993). In carrying out this mission, primary health care, with its focus on prevention and health promotion, is placed in the forefront as a service delivery policy. The DOH strategy also aims to improve the accessibility of quality health services, particularly to the poor, unserved, underserved, and high risk groups. It focuses on the integration and promotion of individual and collective responsibility for health, self-reliance, preventive actions, the status of women, environmental sanitation and workers' safety.

The priority health programs include the Expanded Programme on Immunization, Women's Health and Safe Motherhood, Family Planning, Nutrition, Growth Monitoring and Promotion, and Control of Childhood Diseases.

The 1993 Safe Motherhood Survey (SMS) was conducted to provide information needed for policymaking and program planning in the area of safe motherhood and women's health. This report describes the survey and its major findings.

1.4 Objectives of the Survey

The 1993 SMS was a national survey of ever-pregnant women of reproductive age designed to collect data on maternal health and nutrition and service utilization.

More specifically, the objectives of the SMS were to collect nationally representative data on:

- the proportion of women who experience symptoms of serious health problems during pregnancy, childbearing, and during the postpartum period;

- the use and content of antenatal, delivery, and postpartum care for women giving birth in the past three years;
- the proportion of ever-pregnant women of reproductive age with symptoms of chronic and other reproductive morbidities;
- the use of services for these health problems;
- the proportion of women who report domestic violence;
- the nutritional anthropometry of ever-pregnant women of reproductive age, namely, height, weight, and mid-upper arm circumference.

An additional objective of the SMS was to explore the feasibility of conducting a follow-on survey of women interviewed in a DHS-type survey to measure indicators of women's reproductive health. One major advantage of such a follow-on survey is that a nationally representative sample of women was identified during the DHS survey in the Philippines (1993 NDS) obviating the expense of selecting a new sample for the SMS. The follow-on design also allows use of the extensive data collected during the initial NDS in further analysis of the findings from the SMS, as well as providing an opportunity to validate the results of the NDS.

1.5 Institutions Supporting and Implementing the Survey

The SMS was implemented by the National Statistics Office with training assistance from the Department of Health. The survey was funded by the Rockefeller Foundation and USAID through the MotherCare Project of John Snow, Inc. Technical support was provided by the Demographic and Health Research Division of Macro International Inc.

1.6 Sample Design and Implementation

The sample for the SMS was chosen to be a nationally representative sample of ever-pregnant women of reproductive age. The SMS sample included all women successfully interviewed who had reported at least one pregnancy outcome in the NDS. Eligible respondents for the individual interview in the NDS were all female members and female visitors of the sample households aged 15 to 49 years, regardless of marital status. Eligible female visitors included those who were not regular household members who slept in the sample household the night prior to the day of interview.

The NDS sample, which was nationally representative with a total size of 15,029 women aged 15-49 years, was chosen using the sample for the Integrated Survey of Households (ISH) developed in 1980 as a sample frame. The latter is comprised of a sample of primary sampling units (PSUs) or *barangays* systematically selected and with a probability proportional to size in each of the 14 regions. The PSUs were re-selected in 1991, using the 1990 Population Census data on population size, but retaining the maximum number of PSUs selected in 1980.

The NDS household sample is self-weighted in each of the 14 regions, but not at the national level.² It was selected using a two-stage sample design; the first is the selection of *barangays*, and the second is the selection of households in the sampled *barangays*. The total household sample in each *barangay* is desig-

²The weights in the SMS are the same as those in the NDS, adjusted for nonresponse.

nated as a *cluster*. *Barangays* are the smallest political subdivisions. In general, the *barangay* corresponds to a census enumeration area. However, they vary widely in size, some covering more than 1,000 households. In cases where the *barangay* was too large, it was segmented into several enumeration areas.

In the 1993 NDS, no separate sample was drawn for the fifteenth region, the Autonomous Region of Muslim Mindanao (ARMM), due to the recent formation of this region. Instead, estimates are provided for each of the original 14 regions. For further information on the NDS sample design see the final report for the 1993 National Demographic Survey (NSO and MI, 1994).

Questionnaires

The SMS questionnaire was developed in English and then translated into and printed in the six major dialects, namely: Tagalog, Cebuano, Ilocano, Hiligaynon, Bicol and Waray. Translation verification was done by reverse translation from the individual dialects back into English. A full description of how the SMS questionnaire instrument was developed is given in Chapter 2 of this report; Appendix B provides a schedule of activities.

Training and Fieldwork

Training for the survey fieldwork was conducted in two stages. The first stage was a training of trainers and lasted two weeks. The second stage, training of interviewers, lasted two weeks and was conducted by 10 trainers who were all female statisticians from the NSO central office. None of the trainers had backgrounds in medicine, nursing, or public health, however, many had conducted training of interviewers for the NDS, and two had also participated in the SMS pretest. Anthropometric training included didactic lectures, review of measurement methods, in-class practice, and a modified standardization procedure. The guidelines presented in the United Nations manual "How to Weigh and Measure Children," were adapted for the training of how to obtain accurate anthropometric measurements of adults. Height was measured using a wooden board, similar to the one described in the UN manual. A portable electronic bathroom-style scale, which reads weight to within 100 grams, was used to weigh the respondents.

The fieldwork for the SMS was carried out by 25 teams. Each team consisted of one supervisor, one field editor, and four or five interviewers. Many of the team supervisors, field editors, and interviewers were the same ones involved in conducting the NDS fieldwork. The Regional Administrators of NSO served as field coordinators during the data collection phase of the survey. Though all team members were trained in conducting anthropometric measurements, the team editor was responsible for taking the measurements with the assistance of an interviewer. During the first two weeks of fieldwork, statisticians from the NSO central office who had conducted the training went on field trips to observe and guide the teams in their initial interviews. Fieldwork was carried out from October to December 1993.

Data Processing

Editing of the questionnaires was an integral part of the field data collection in the sense that questionnaires based on successful interviews were immediately edited by field editors. Further review and coding of some variables was done at the NSO central office. Machine processing was likewise done at the central office.

Data entry began two weeks after fieldwork started so that field check tables could be run on an ongoing basis. This allowed supervisors to monitor data quality and to give appropriate feedback to those in the field.

Processing of the SMS data was done with the use of ISSA (Integrated System for Survey Analysis), from data entry to tabulation. Eight microcomputers were used for data entry, data management, editing, and tabulation. Final data editing was done at Macro International.

A preliminary tabulation plan was developed and circulated for review in early 1994. Programs were then written using ISSA and tabulations for the final report were generated by mid-March 1994.

In April 1994, a meeting of the technical advisory committee was held in Manila to discuss the report of findings and to decide on final revisions.