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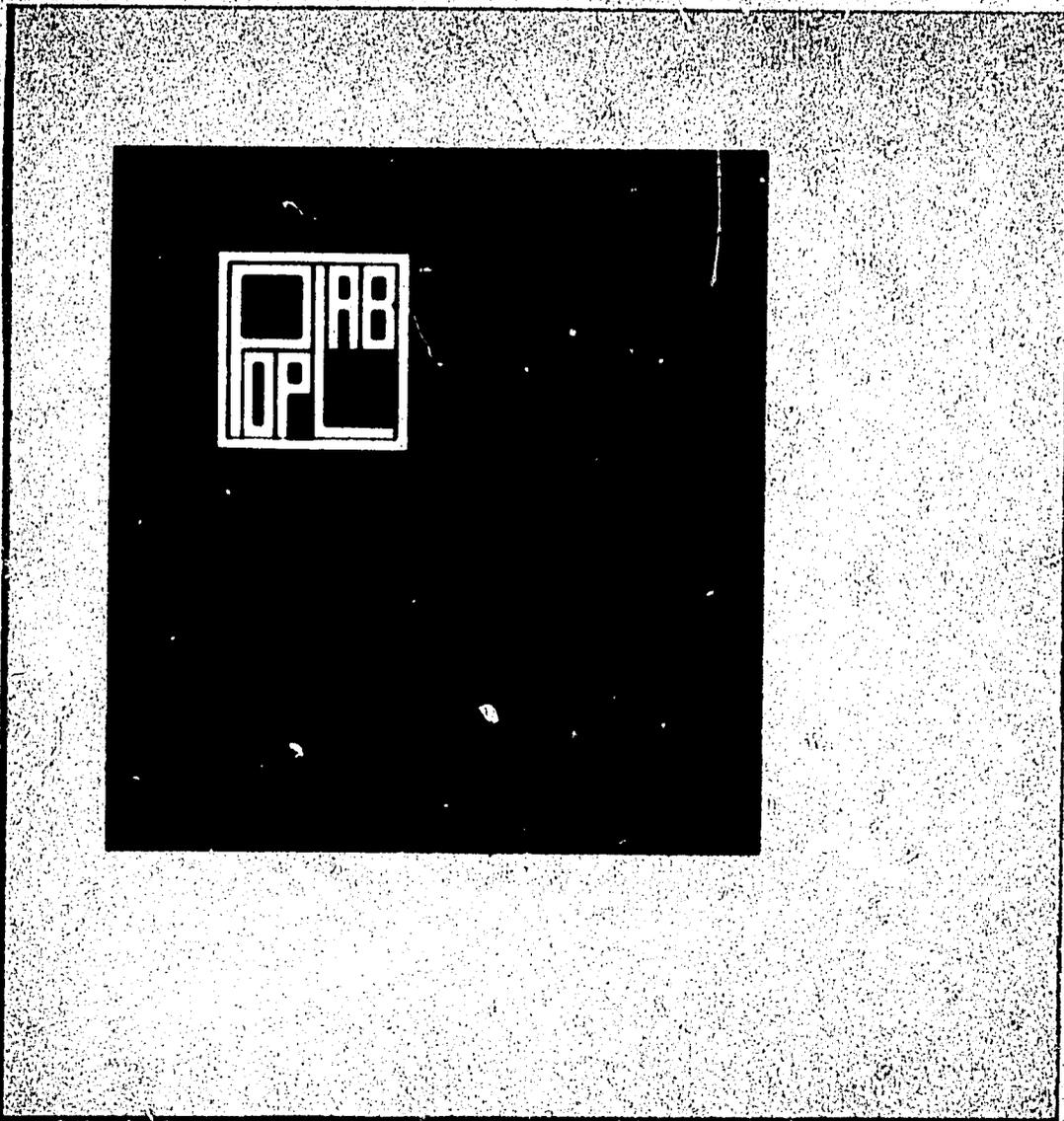
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9. ABSTRACT

This project ought to improve the vital registration system in the Philippines so it could produce reliable demographic statistics needed by public and private planning agencies. Information on the future size and structure of a population is needed for sound socio-economic planning. At present, civil registration is inadequate due to a lack of interest among parents, ignorance about the law requiring compulsory registration of birth and death, customs among cultural minorities, the distance from place of occurrence to the registration center, and the common belief that baptism is registration. The report describes the sample registration scheme, the National Census and Statistics Office's project to develop a sample registration system, field and office procedures, and an analysis of the results. The project used the dual record system and was organized into ten regions. Within each region a stratified multistage sample design was used to select the sample enumeration districts. The first element of the project's dual record system was the continuous reporting system. It used local civil registration data in the sample areas in combination with a complementary reporting scheme whereby barrio captains supplied information about vital events occurring every month in their respective sample areas. The data from these two sources were combined through a matching procedure to obtain the total events recorded under the continuous reporting system. The other element was a periodic household enumeration which collected vital events during the preceding 12 months and also produced the base population used to compute vital rates. Only three of the ten regions reached the desired goal of 91% coverage of both births and deaths by the civil registration system.

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Development and Maintenance of a Sample Vital Registration System in the Philippines

by Tito A. Mijares

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REPUBLIC OF THE PHILIPPINES
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to our readers || à nos lecteurs || a nuestros lectores

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Un résumé en français est donné à la fin de cette publication.
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**THE DEVELOPMENT AND MAINTENANCE OF A SAMPLE
VITAL REGISTRATION SYSTEM
IN THE PHILIPPINES***

By

TITO A. MIJARES**

I. INTRODUCTION

Population statistics play a vital role in the preparation of national and regional development plans of a country. The future size and structure of a population, for example, are basic information required for sound socio-economic planning. For this and other obvious reasons there is a universal pressing need for reliable, accurate and up-to-date demographic data as well as for analysis of such data. Increasing world-wide interest in the study of population dynamics has led to the realization that existing sources of demographic data are inadequate to provide the much needed accurate and up-to-date demographic statistics, and because of this, developing countries especially are hampered in their effort to develop population policies consistent with their economic growth.

A. The Sources of Demographic Data

1. **Population Censuses.** — The main source of demographic data are population censuses. Unfortunately, population censuses are usually undertaken after a long span of time, not to mention the fact that processing also takes a long time because of the great volume of data involved. When these much needed statistics on population are finally available, they may no longer be very useful in the assessment of current population changes. Changes in population characteristics would necessitate readjustment of national plans.
2. **Vital Registration.** — Another source of vital statistics is the civil registration system in a country, if it exists. However, in many developing countries like the Philippines, vital statistics derived from civil registration are so inadequate that they can hardly even serve to measure accurately levels of fertility and mortality nor trends at a given period of time. This is due to one or more of the following factors:
 - (a) lack of funds for a continuous information drive to educate the people on the importance of civil registration;
 - (b) illiteracy and lack of motivation among the masses; and,
 - (c) to some extent, also lack of motivation among local registrars.

Clearly, for the less developed countries, the building up of a reliable vital registration is both an expensive and necessarily protracted process.¹ For the Philippines, in particular, it may yet take a long time before the Vital Registration System can be fully utilized to measure the vital rate of the country.

*This is the final printed copy of mimeographed report on "The Development and Maintenance of Sample Vital Registration System in the Philippines" on November 14, 1974.

**Project Director, POPCOM/NCSO Project. Acting Executive Director, National Census and Statistics Office. The assistance of Mr. Francisco V. Nazaret, Mrs. Nelia R. Marquez, Miss Luisa T. Engracia, all members of the Technical Working Committee of the Project, is gratefully acknowledged.

¹Henry S. Shryock, Jacob S. Siegel and Associates, *The Methods and Materials of Demography*, U.S. Government Printing Office, Washington D.C. 1971, p. 833.

3. **Sample Surveys.** – A third approach usually employed to arrive at estimates of demographic characteristics is the sample survey. Needless to say, this too, is not sufficient to meet the heavy demands for various population statistics because of financial and/or technical constraints.
4. **Population Registers.** – Some countries, mostly the more developed ones, maintain population registers as a continuous source of current demographic data. On account of the intricacies and financial cost involved in maintaining population registers, the method is still unpopular among the less developed countries.

B. Estimates of Vital Rates in the Philippines from Various Studies

In the Philippines, the direct measurement of vital rates from the Civil Registry Records is not feasible due to the incompleteness of registration. Efforts during the past decade to improve vital registration have been hampered by many factors. The biggest drawback is lack of funds to conduct a continuing information drive to improve the level of civil registration on a nationwide scale. With limited funds government programmes in the form of sporadic seminars have been held all over the country in the past years to upgrade the level of civil registration. The active participation of civic and religious organizations had been solicited in educational campaign on civil registration.

With all these efforts, the crude rates derived from the civil registry records are observed to be still short of expectations. Table A shows the crude birth and death rates derived from the civil registration system during the past two decades.

Table A. Crude Birth and Death Rates in the Philippines Based on the Civil Registration Records

<i>Year</i>	<i>Crude Rates per 1000 Population</i>		
	<i>Births</i>	<i>Deaths</i>	<i>Growth</i>
1950-1954	30.4	10.8	19.6
1955-1959	30.2	8.6	21.6
1960-1964	28.4	7.1	21.3
1965-1969	26.9	7.1	19.8
1970	26.2	6.4	19.8
1971	25.4	6.6	18.8
1972	24.8	7.3	17.5

Some demographers had estimated the level of registration of vital events to be as low as 60 per cent of actual occurrences. This was also the finding in a study made at the National Census and Statistics Office in 1965 which showed the level of registration of vital events at 60.3 per cent for birth and 70.0 per cent for death.² It was noted in this study that birth registration is more deficient than death registration. This same situation is observed to be common to countries with inadequate civil registration systems.

Because of their importance in population analysis, there have been many attempts made to estimate crude birth and death rates during the past years. All these studies came out with very much higher rates than those compiled from registry records. Some results of these studies on fertility and mortality rates are shown in Table B.

²Bureau of the Census and Statistics, Birth and Death Registration, Release No. 13, Series of 1965.

Table B. Comparative Crude Rates Obtained from Different Sources

Author	Year	Crude Rate per 1,000 Population		
		Birth	Death	Growth
UN-RP Joint Study ³	1947-1952	47.0-53.0	20.0	27.0-33.0
Basilio Aromin ⁴	1948-1960	49.0	17.0	31.8
Elvira M. Pascual ⁵	1950-1955	50.0	18.0	32.0
Bu. of the Census and Statistics ⁶	1950-1955	48.55	17.98	30.57
Frank S. Morrison ⁷	1955-1960	46.53	15.96	30.57
	1954	41.4	19.9	29.5
Francis Madigan et al ⁸	1955	43.5	11.2	32.30
	1960	50.0	16.0	34.0
Yun Kim et al ⁹	1960-1965	41.54	11.42	30.12
	1965-1969	45.06	14.94	30.12
K.V. Ramachandran et al ¹⁰	1960-1965	50.78	14.27	36.51
	1965-1970	49.23	11.06	38.17
Frank Lorimer ¹¹	1960-1965	46.6	13.3	32.30
	1965-1970	43.9-45.5	11.9-12.0	32.0-33.5
Luisa T. Engracia ¹²	1970	41.82	10.37	31.45

Although the figures show a condition of high fertility in the Philippines, the estimates are varied. What then is the true level of fertility and mortality in the Philippines? Each of the above mentioned studies had used indirect methods of estimation, either from census, survey or registration data or their combinations. Clearly, each study is subject to the limitations of the assumption made by each researcher or entity so that a dilemma arises as to what rates to adopt. This condition necessitates a more careful and detailed investigation of the demographic conditions in the Philippines. In the absence of more reliable estimates, figures shown in Table B may serve as indicators of the magnitude of fertility and mortality in the country.

C. The Sample Registration Scheme

It was seen that not one of the above mentioned sources of vital statistics could wholly and

³Population Growth and Manpower in the Philippines. A joint study by the United Nations and the Government of the Philippines, ST/SOA/Series A/32, page 3.

⁴"The Trend of Mortality in the Philippines, 1930 to 1960", *The Statistical Reporter, Volume V*, No. 3, July 1961.

⁵"Reinvestigation of Birth and Death Statistics in the Philippines", *The Philippine Statistician*, Volume XI, No. 4, December 1962.

⁶"Population Projection of the Philippines: 1960-1975", Mimeographed by the Demography Division.

⁷"A Study of Vital Statistics in the Philippines for 1954 and 1955 and their Relation to Annual National Population Increase", Mimeographed report of the International Conference Administration, Manila.

⁸"Philippine Fertility and Mortality with Special Reference to the North Mindanao Region: A critique of recent estimates" Research Institute for Mindanao Culture, Xavier University, Cagayan de Oro City.

⁹"New Population Projections by Age and Sex for the Philippines and each Province, 1970-2000", Bureau of the Census and statistics, Manila.

¹⁰"Population Projection for the Philippines, 1960-1980", *The Philippine Statistician*, Volume XII, No. 4, December 1963, Manila.

¹¹"Analysis and Projection of the Population of the Philippines", *First Conference on Population, 1965*, Published for the Population Institute, Manila.

¹²"An Estimate of the Life Functions for the Philippines in 1970", Paper presented at the Annual Conference of the Philippine Statistical Association, Manila, July 26, 1974.

reliably provide the necessary demographic information indispensable for development planning. For this reason, demographers and other investigators tried to develop more innovative procedures to obtain estimates of vital rates and other population characteristics. One of these procedures is to adopt a sample registration system in place of, or in addition to the usual civil registration system. The rationale behind it is that with sample areas, better administrative and technical control can be extended; hence, better results may necessarily emanate from the effort and statistics derived from the sample registration areas may then be used to estimate regional and even national rates. Shryock and Siegel noted that "if the sample is scientifically designed, it can be taken as representative of the entire population, and vital rates observed in the sample may be used to estimate vital rates for the entire population within quantifiable error".¹³

It is nevertheless realized that solely, the sample registration is not capable of giving detailed information of demographic processes. There are certain types of data which can be derived only from censuses or surveys and not from the registration system. An ideal course is, therefore, to conduct a periodic survey covering about the same time element in those areas where the sample registration scheme has been set up for the purpose of complementing the information gathered in the registration.

This method, which is more commonly known as the Dual Records System, has been found to be essentially effective for estimation of vital rates in countries which are statistically underdeveloped. Among those countries which have already implemented the Dual System are as follows:

1. *India* – An application of the Dual Records System in India¹⁴ was jointly sponsored by the United Nations and the Government of India in 1951-1952 under the direction of Chandrasekhar. It included cross checking of births and deaths for the same period in the sample areas and checking of reports obtained in an attitude survey to correct omissions.
2. *Pakistan* – The Population Growth Estimation (PGE)^{15,16,17} experiment was instituted in Pakistan in 1963 to test a dual system of independent registration and enumeration of vital events in a sample areas. The two independent reports were matched and combined to arrive at an estimate which included allowance for those events missed by both systems.
3. *Brazil* – The United Nations and the Government of Brazil conducted jointly in 1961 a sample survey in the State of Guanabara to test the use of sample surveys to obtain vital events.¹⁸ This project utilized the concept of exposure time wherein the exact period during which the population was exposed to the occurrence of the vital events was carefully taken into consideration. Guanabara was chosen for this study because the official registration was believed to be complete. The total number of births and deaths and the rates obtained from the survey were compared with those obtained from the official registrars.
4. *Thailand* – Following a plan similar to the PGE in Pakistan but utilizing the official registration system in sample areas in lieu of an independent corps of registrars, the government of Thailand established an experimental sample survey in 1964.^{19,20} The main

¹³*Ibid.* Shryock and Siegel.

¹⁴United Nations and the Government of India, "The Mysore Population Study" (ST/SOA/Series A/34, New York: United Nations, 1961).

¹⁵Pakistan Institute of Development Economics, *Report of the Population Growth Estimation Experiment. Description and some results for 1962 and 1963.*

¹⁶Mohammad Hafiz Sheikh, "An Evaluation of the Population Growth Estimation Project of Pakistan". Paper presented to the Seminar on Civil Registration and Vital Statistics, Copenhagen, Denmark, 1968, Doc. No. ASTAT/CRVS/9 Add. 5.

¹⁷Nazir Ahmed and Karol J. Krotki, "Simultaneous Estimation of Population Growth", *Pakistan Development Review. Vol. 3 No. 1* (Spring, 1963).

¹⁸United Nations, Guanabara Demographic Pilot Survey. (ST/SOA/Series A/35). New York: United Nations, 1964.

¹⁹Amuri Chintakananda and Patience Lauriat, "Technique to Measure Population Growth: Survey of Population Change in Thailand". Paper presented to the World Population Conference, Belgrade, 1965, Doc. No. B. 6/BE/507.

objectives of the project were to estimate birth and death rates and to measure underregistration of births and deaths by the official registration system. The Thai study was based on a national sample of rural and urban areas, and one of the procedures in the design was to match individual events reported in the household survey with those registered by the official system.

5. *Turkey* – The Turkish Demographic Survey was initiated in 1964 with a major purpose: to provide the Ministry of Health and Social Welfare with accurate and current natality and mortality statistics on a regional and nationwide basis.²¹ The basic procedure was to take annual censuses asking about births and deaths during the preceding year. In one-fifth of the sample areas, a sub-sample was taken and a part-time registrar who lived in the area recorded all births and deaths that occurred during the year. Data collected under these two systems were compared on a gross basis and in the sub-sample areas, individual events were matched.
6. *Liberia* – The Liberian Population Growth Survey (PGS)²² is a continuing activity to measure birth and death occurrences by “dual” method. This operation utilizes a local part-time registrar in the collection of vital events. Monthly visits are made to each household in the sample area.

II. THE POPCOM/NCSO PROJECT

Underregistration of vital events in the Philippines is still a major problem that hinders the estimation of vital rates. The seriousness of the problem is made more so because the extent of underregistration cannot be readily ascertained. Realizing the need for reliable, if not accurate vital crude rates, the Bureau of the Census and Statistics, now known as the National Census and Statistics Office (NCSO), undertook a nationwide project under POPCOM/NEDA/USAID/NCSO Subagreement No. 492-11-570-220(003) (POPCOM/NCSO Project) to develop a sample registration system from which estimates of vital crude rates, both at the national level and regional levels, may be reliably obtained.

A. Objectives of the Project

The main objective of the project was to be able to arrive at reliable estimates of birth and death rates in the country – both at the regional and national levels. This could be achieved by developing and maintaining a good civil registration system in the sample registration areas so as to attain a level of registration coverage of at least 90 per cent, a corollary objective of the Project. Not only did the Project aim to estimate vital rates, it also hoped to detect regional variations in birth and death rates, if any. Moreover, the scheme was such as to make possible estimates of migration pattern and other demographic characteristics of the population.

B. Organization

The Project was formally organized in September, 1970. A Technical Working Committee (TWC) composed of NCSO personnel, was formed to assist the Project Director in various phases of the work. The initial phase of the work was devoted to the preparation of questionnaires, forms, interviewer's and supervisor's manuals.

Almost simultaneously, ten regional offices all over the country were set up. Except for Regions I

²⁰National Statistical Office, Office of the Prime Minister, Government of Thailand, Report: *The Survey of Population Change, 1965-1967*.

²¹School of Public Health, Ankara, Turkey. *The Turkish Demomethods and Implementation, 2nd edition, 1966*.

²²H. Bradley Wells, "Dual Record System for Measurement of Fertility Change", Working Paper No. 13, for the East-West Population Institute, East-West Center, Honolulu, Hawaii, 1971, pp. 23-26.

and V, which were under the direct supervision of the Central Office Staff, the eight regional offices were established in cooperating universities and colleges. The ten regional offices are as follows:

<i>Region</i>	<i>Location of Regional Offices</i>	<i>Cooperating Universities/Colleges</i>
I – Manila & Suburbs	Manila (NCSO)	–
II – Ilocos and Mt. Province	Baguio City	University of Baguio
III – Cagayan Valley and the Batanes	Tuguegarao, Cagayan	Cagayan Teachers College
IV – Central Luzon	Dagupan City	Luzon Colleges
V – Southern Tagalog and Islands	Manila (NCSO)	–
VI – Bicol	Legazpi City	Divine Word College
VII – Western Visayas	Iloilo City	Central Phil. University
VIII – Eastern Visayas	Cebu City	University of San Carlos
IX – Northern Mindanao	Cagayan de Oro City	Xavier University
X – Southern Mindanao	Cotabato City	Notre Dame University

The selection of these regional centers was determined in accordance with the design of the Project. (See Figure 1)

At the start of the Project, agreements were entered into between the NCSO and the cooperating Universities/Colleges which have provided, among other things, the following:

1. The services of a qualified faculty member to be appointed as the Project's Junior Specialist for the region;
2. Adequate and suitable office space for the regional staff within the premises of the school for which the Project would pay rent of not more than one hundred pesos per month, including light and water; and,
3. Free access to data gathered for studies and researches at the university/college subject to the confidentiality rule as provided in Commonwealth Act 591 and upon clearance from the Project Director.

The regional office was headed by a Junior Specialist. His staff consisted of three staff enumerators and a clerk-typist. Casual employees (daily wage worker) were also hired in each region, the number of which depended on the volume of work.

Since the Project involved civil registration, the organization necessarily included the Local Civil Registrars (LCRs) in the sample registration municipalities and cities. Barrio Captains (BCs)/Special Reporters (SRs) for each sample ED also formed part of the registration phase. Consolidating the reports of the LCRs and the Barrio Captains/Special Reporters was a Municipal Liaison Man (MLM). A schematic diagram of the organizational set-up of the Project is shown in Figure 2.

C. The Dual Records System

Like projects of other countries with incomplete vital registration statistics, the Project adopted the Dual Records System of gathering vital events, a system of recording vital events, such as births, deaths, from two separate and independent reporting schemes. One reporting scheme were reports

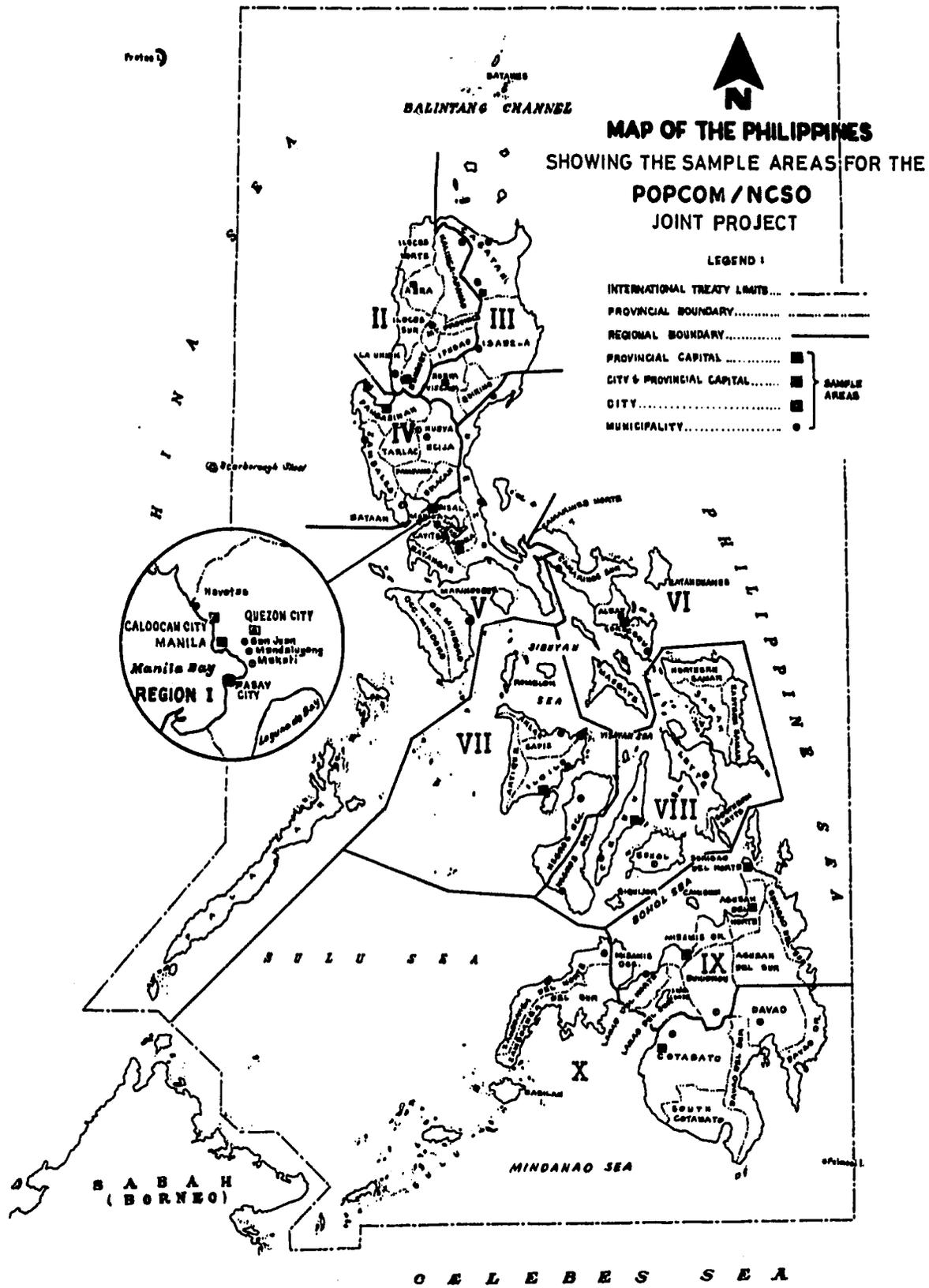
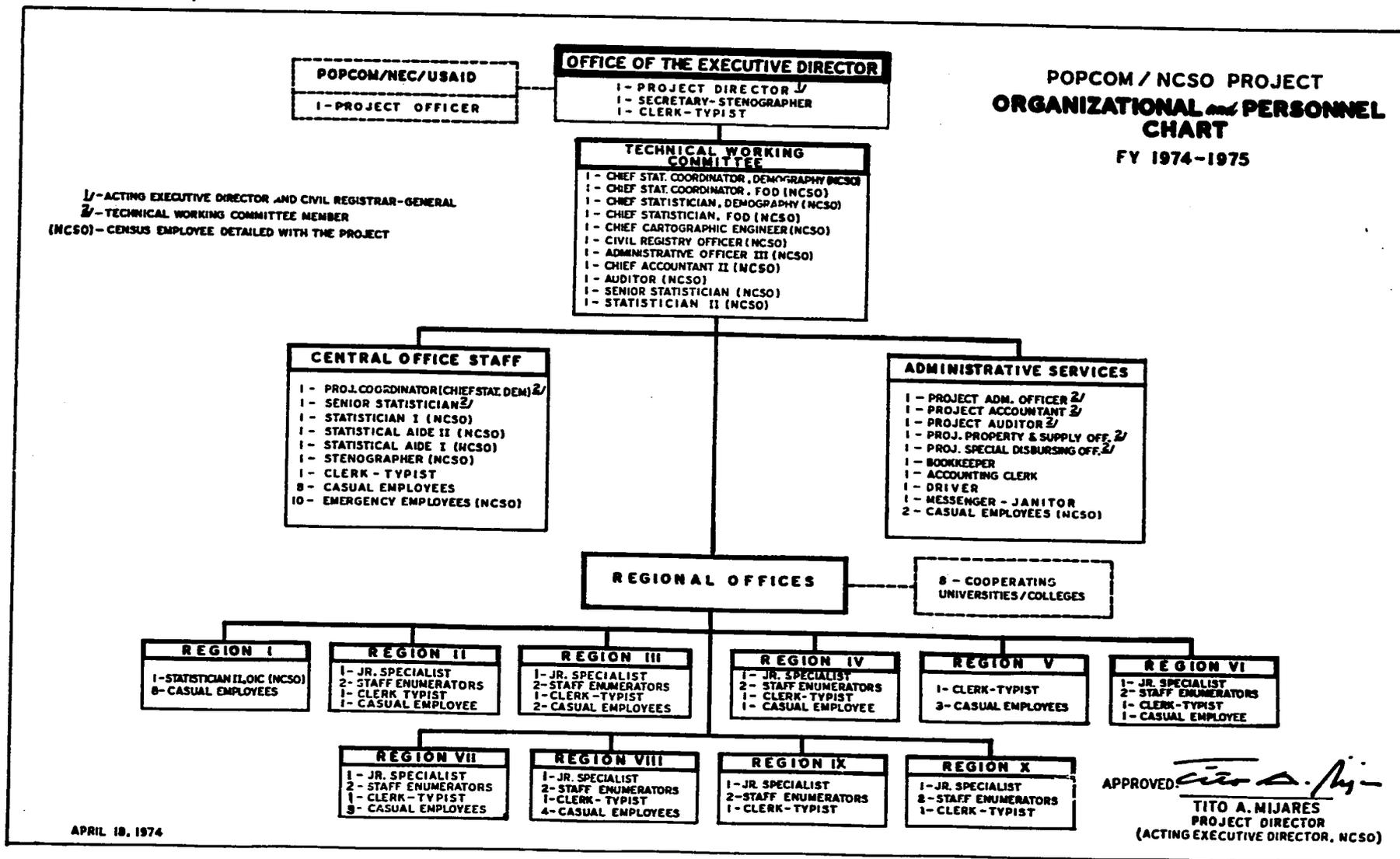


Figure 2. POPCOM/NCSO PROJECT – ORGANIZATIONAL AND PERSONNEL CHART
FY 1974 – 1975



coming from a sample registration system which is continuous in nature. The other reporting scheme were reports coming from a periodic household enumeration usually conducted once or twice a year. Events recorded in one system were matched against those reported in the other and on the basis of such matching, the total events, births or deaths, covering a particular time period were determined.

There are two elements required²³ in a Dual Records System:

1. Two independent means of obtaining data on individual events in the sample areas;
2. The events recorded by each means of measurement must be identified accurately enough to establish a "match" of the two records of the same events.

The two independent records generally are:

- (a) either an improved legal civil registration system or a wholly new registration scheme; and,
- (b) a periodic household survey

Except for Thailand which adopted its legal civil registration system as one of the independent sources of vital events, all the other countries which had adopted the Dual Records System sought to establish their own registration schemes. Retrospective surveys or periodic household enumerations were generally adopted as the other leg of their Dual Records System

In the Philippines, the two independent systems of recording vital events established in sample registration areas were:

1. The Continuous Reporting System (CRS)
2. Periodic Household Enumeration System (PHE)

The model that we have adopted is similar to that of Thailand wherein the legal registration system of the country was used as the first leg of the Dual Records System. The only difference is that the Philippines, in addition to civil registration records, has set up a complementing reporting scheme by using Barrio Captains in sample areas to report vital events occurring every month among residents of sample registration areas. In the absence of Barrio Captains in sample enumeration districts, special reporters were hired to do the work. The supplementary reporting of Barrio Captains was designed to ensure the complete area coverage of the Continuous Reporting System.

A brief discussion of two legs of the system follows:

1. *The Continuous Reporting System (CRS)*

This system made use of the Book of Register of the Local Civil Registrar (LCR) in the sample registration areas. The LCR in each sample registration area submitted monthly reports on registered vital events occurring among household residents of sample enumeration districts (EDs) located in the municipality of his jurisdiction. In addition to the LCR's reports, there were monthly reports of Barrio Captains (BCs)/Special Reporters (SRs) on occurrences of births and deaths in their respective areas of assignment. These two reports were combined through a matching procedure to obtain the total events recorded under the CRS.

2. *The Periodic Household Enumeration (PHE) System*

The periodic household enumeration system represented the other leg of the two independent systems of recording vital events. During the first year of operation, the Project conducted a complete enumeration of household residents of all sample EDs in sample registration areas for the purpose of establishing the base population from which changes in population composition were observed. In the succeeding years, the periodic household survey included the collection of demographic characteristics of the residents of the sample

²³Ansley J. Coale, "The Design of an Experimental Procedure for obtaining Accurate Vital Statistics", POPLAB, Reprint Series No. 3 of the Laboratories for Population Statistics, North Carolina: December, 1971.

EDs as well as the collection of vital events. The base population, as determined from the survey, was used by both CRS and PHE in the computation of the vital rates.

The Chandrasekhar-Deming Formula

In the Dual Records System, the events gathered under the two independent systems are matched to determine, more or less, the total number of events that have occurred among the residents of the sample areas. It would be highly ambitious to expect that all events could be gathered by both systems. Either one or both schemes may miss one or several events. Therefore, after matching, all events will fall in either one of the following categories:

- a. events reported by both CRS and PHE.
- b. events reported by CRS only.
- c. events reported by PHE only.
- d. events reported by neither system.

Clearly, the total number of events is the sum of all these four types of events but the problem is in estimating the events missed by both systems.

C. Chandrasekhar and W. Edwards Deming devised a formula for estimating the totally missed events on the basis of the results of matching applied to the events gathered under the two independent systems.

The formula for finding the number of missed events, X, is given as follows:

$$X = \frac{N_1 N_2}{C}$$

where: N_1 = the number of events recorded by registration only.

N_2 = the number of events recorded by survey only.

C = the number of events recorded in both registration and survey.

Hence, an estimate of the total number of events, N, in the area is:

$$N = C + N_1 + N_2 + \frac{N_1 N_2}{C}$$

When applying the above formula to estimate the total number of events, three necessary conditions must be fulfilled:

- a. the two systems of recording events must be completely independent from each other;
- b. events recorded by both systems must be properly matched; and,
- c. only those events considered as "in-scope" with respect to the population, area and time, must be recorded by either or both the systems.

Independence of the two systems is to be maintained so that the probability or the chance of an event being reported by one system is independent of the chance of its being reported also by the other system. This is possible if the persons involved in the two systems work independently of the other and there is no collusion in reporting of events. However, even if there is indeed no collusion in reporting of the two systems, certain situations in practice can affect the independence of the reporting schemes.

As far as matching is concerned, the efficiency depends upon the number of criteria to be used. Too many criteria may result in less matched events than there normally are; that is, some events may be classified as unmatched when, in fact, they really are matched. On the other hand, the use of a few criteria may lead to more matches with some non-matching events classified as matched. From the Chandrasekhar-Deming Formula, it is clear that a

large number of matched events tends to pull down the estimate of the total number of events, whereas few matches inflate the estimates of the total. Careful considerations must therefore be taken in deciding the number and type of criteria to be used.

The third condition necessitates that the sample must be clearly delineated, time reference must be duly defined, the population to be investigated must be properly identified and such should be clear to both groups of persons doing the reporting of events in order that "out-of-scope" events are minimized, if not totally eliminated. In actual experience, these technicalities often pose serious problems that greatly affect the whole mechanics of the system.

From the above discussion, it is clear that the validity of the Chandrasekhar-Deming Formula is subject to the above conditions and any deviations from them may seriously affect the final results.²⁴

D. The Concept of Permanent Residence

A great deal of difficulty could be encountered in matching procedures. Even if one were to be lax in using matching criteria, still a large number of mis-matches may result because of differences in the reporting of important identifying characteristics like sex of the new-born baby or of the deceased, name of his mother, his relationship to the head of the household, etc. What even augments more the non-matches are events occurring to out-migrant or in-migrant households and these cases have been found to be rather significant. The nature of the Dual Records System is such that the reports of the two legs of the system may be affected by the migratory pattern of the area. As for instance, an event may be recorded in the registration phase but may not be recorded in the survey for the reason that the household, to which the event occurred, had already moved out of the area by the time the field worker came to interview. On the other hand, the survey may catch an event that has occurred to an in-migrant but which was not registered in the sample area. As was explained in an earlier section, mis-matches of events could seriously distort the estimates of crude vital rates.

Another important concept that is affected by migration is the average population exposed to risk. It might be recalled that in the usual estimation of crude rates, the total number of events, births or deaths, in a year is divided by the total man-years lived by the population for that year. The denominator of this ratio is estimated by the average of the population at the beginning and end of a calendar year which is equivalent to the assumption that each death, birth, in- and out-migrant of the original population contributes half a year, and the rest, a full year to the total man-years. Unfortunately, experience, at least in the Philippines, does not show that migrants stay in the area for half a year, on the average. There is also a peak season for migration which is largely dependent on the agricultural activities in the rural areas and which does not coincide with the mid-year period. This fact therefore distorts the average man-years concept usually employed in estimating crude birth and death rates.

During the first two years of observation (1971 and 1972), we used the usual formula for computing crude rates which uses the average population in the denominator. We observed, however, that our estimates were very unstable especially at the lowest level of estimation which is the enumeration district (ED). All records were therefore examined to be able to identify the causes of this distortion. A closer look at the data that went into our estimates showed that in-migrants and out-migrants were contributing to the instability of our estimates at the ED Level.

To do away with this difficulty, it was therefore decided to prepare estimates for permanent residents and migrants separately. For the purpose of this Project, a permanent resident is defined as an individual who resides continuously in the sample area for the entire year for which a rate is computed,

²⁴William Seltzer and Arjun Adlakha, "On the Effect of Errors in the Application of the Chandrasekar-Deming Technique", Reprint Series No. 14, Laboratories for Population Statistics, University of North Carolina, Chapel Hill.

that is, he must be in the ED from January 1 to December 31, of the particular year. Moreover, the vital rate is computed simply as the ratio of the total number of events that occurred to permanent residents in a year to the number of such residents. In symbols:

$$R_r = \frac{E_r}{P_r}$$

where: R_r = birth or death rate for residents only in a given year.

E_r = number of events that occurred to these residents from January 1 to December 31 of that year.

P_r = number of permanent residents in the area.

E. Sampling Design

At the start of the Project, crude national averages, for the years 1960 through 1969, of births and deaths were calculated from registered events at civil registry offices. These came out at 26.7 per 1,000 population for the birth rate and 7.8 per 1,000 for the death rate. These rates were estimated by using the number of registered birth and death events over the period of ten years as the numerators and the average population between 1960 and 1970 as the denominator. The 1970 population figures used came from preliminary reports of the municipal census supervisors during the 1970 Population and Housing Census because final tabulations of census returns were not yet available at the time. Similar calculations of birth and death rates were done for each municipality and city. On the basis of these calculations, the stratification of the enumeration units were done.

1. Stratification -

Within each region, municipalities and cities were grouped into five (5) strata as follows:

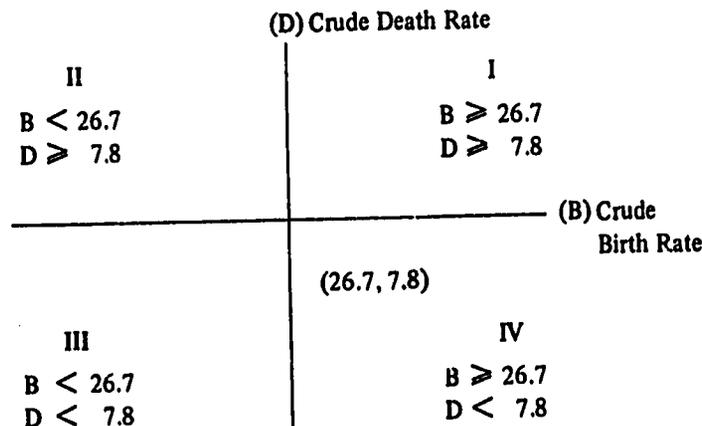
Stratum I consisted of municipalities in the region that have crude birth and death rates which are either equal to or greater than the national average; that is, the first quadrant in the diagram shown below where: $B \geq 26.7$, $D \geq 7.8$;

Stratum II consisted of municipalities in the region belonging to the second quadrant: $B < 26.7$, $D \geq 7.8$;

Stratum III consisted of municipalities in the region belong to the third quadrant: $B < 26.7$, $D < 7.8$;

Stratum IV consisted of municipalities in the region belonging to the fourth quadrant: $B \geq 26.7$, $D < 7.8$

Stratum V consisted of all chartered cities in the region.



2. *Selection of Sample Enumeration Districts (EDs)*

One sample municipality was selected at random from each of the first four strata with probability proportional to the 1970 population size. From each sample municipality, a simple random sample of enumeration districts (EDs) was chosen with equal probability and with a sampling fraction of approximately 30 per cent.

In Stratum V, the largest city in the region which is also the site of the regional office, was picked as the sample area. The EDs located in the sample cities of Baguio, Tuguegarao, Dagupan, Legazpi City, Cagayan de Oro City, and Cotabato City were selected at random with equal probability and a sampling fraction of 20 per cent. Those in Iloilo and Cebu were chosen with equal probability and a sampling fraction of 10 per cent. Whereas, those of Manila and Suburbs had a sampling fraction of 3 per cent.

The sample municipalities selected in each region are indicated on the map in Figure 1. The distribution of sample EDs by sample municipalities is shown in Table C.

Table C. Distribution of Sample Enumeration Districts
in the Sample Registration Areas, by Region

<i>Region/City/Municipality</i>	<i>No. of Sample EDs</i>	<i>Region/City/Municipality</i>	<i>No. of Sample EDs</i>
PHILIPPINES			<u>464</u>
I	Manila and Suburbs		<u>55</u>
II	Ilocos & Mt. Province		<u>30</u>
	Baguio City		12
	Bangued, Abra		9
	Sta. Marcela, Kalinga-Apayao		2
	Sagada, Mt. Province		4
	Burgos, La Union		3
III	Cagayan Valley and the Batanes		<u>36</u>
	Tuguegarao, Cagayan		7
	Solana, Cagayan		9
	Bayombong, Nueva Vizcaya		6
	Sta. Teresita, Cagayan		3
	San Mateo, Isabela		11
IV	Central Luzon		<u>61</u>
	Dagupan City, Pangasinan		15
	Cuyapo, Nueva Ecija		15
	Guimba, Nueva Ecija		21
	Pilar, Bataan		4
	Masinloc, Zambales		6
V	Southern Tagalog & Islands		<u>37</u>
	San Pablo City, Laguna		17
	Muntinlupa, Rizal		4
	Pinamalayan, Oriental Mindoro		8
	Taguig, Rizal		3
	General Nakar, Quezon		5
VI	Bicol		<u>56</u>
	Legazpi City, Albay		11
	Irosin, Sorsogon		9
	San Jacinto, Masbate		6
	Ragay, Camarines Sur		17
	Camalig, Albay		13
	Western Visayas	VII	<u>56</u>
	Iloilo City, Iloilo		21
	Panay, Capiz		12
	Murcia, Negros Occidental		5
	Barotac Viejo, Iloilo		11
	Balasan, Iloilo		7
	Eastern Visayas	VIII	<u>66</u>
	Cebu City, Cebu		21
	Burauen, Leyte		22
	Badian, Cebu		8
	Sta. Catalina, Negros Oriental		6
	Carmen, Bohol		9
	Northern Mindanao	IX	<u>32</u>
	Cagayan de Oro City		13
	Cabadbaran, Agusan del Norte		10
	Sison, Surigao del Norte		3
	Dangcagan, Bukidnon		3
	Kauswagan, Lanao del Norte		3
	Southern Mindanao	X	<u>35</u>
	Cotabato City, Cotabato		9
	Liloy, Zamboanga del Norte		8
	Mutia, Zamboanga del Norte		3
	Pigcawayan, Cotabato		8
	Asuncion, Davao del Norte		7

III. FIELD AND OFFICE PROCEDURES --**A. Field Operations****1. CRS Field Procedures.--****a. Monthly Collection of Vital Events**

The procedures presently being followed under the CRS in gathering vital events have evolved from many procedures introduced during the past three years of field operations. During the first year, the Local Civil Registrar (LCR) of the sample municipality supervised the work of the barrio captains (BCs) and Special Reporters (SRs). The map of the sample enumeration districts (EDs) was given to each barrio captain and special reporter as their guide in making a monthly house-to-house canvass of birth and death occurrences. The LCR was also furnished a municipality map wherein the sample EDs were indicated. He used separate forms in reporting birth and death events, while BC/SR used different sets in recording these events and another form for in- and out-migration. A meeting with the LCRs of all sample municipalities was held in Manila in June, 1971 to emphasize to them the objectives of the Project and their supervisory functions.

A mid-year survey was conducted in 1971 where it was noted that the quality of data compiled from the reports of the LCRs and BCs/SRs seemed to be inadequate. In some instances, the LCR's reports were the exact copies of those of the BCs/SRs or vice versa. The number of vital events recorded in the CRS was very low in comparison with the returns of the mid-year periodic household enumeration (PHE) which made up the other leg of the Dual Records System. As a consequence, the estimated crude birth and death rates yielded very poor results.

There was need then to monitor closely the work of reporters to improve the quality of the data gathered under the CRS. Thus, municipal liaison men (MLM) were hired sometime in October, 1971. The job of the municipal liaison man was to collect the reports of the LCRs and BCs/SRs, match them and verify any such event reported only by either of the LCR or BCs/SRs.

During the last three months of 1971, the MLM were not able to improve much the coverage of reporting due to the difficulty of locating the residences of households where events occurred as reported by both the LCR and the BCs/SRs. Verification of events was very difficult as they could not be easily traced to household residents listed during the January, 1971 Survey.

To resolve the problem, all reporters were furnished with names of household heads listed in each sample ED during the January 1972 periodic survey, and given the instruction that all events they gathered should bear the household serial number and the building number identification. The reporting forms were likewise revised to include these additional information. Instead of using two forms for birth and death, an integrated one was to be used by the LCR.

The revisions in the reporting forms necessitated another meeting with the LCRs and BCs/SRs. However, the revised reporting forms revealed further inadequacies as the maps did not always carry accurate listings of households that were furnished to the LCRs/BCs/SRs and MLM. The MLM still encountered difficulty in locating particular households on the map for purposes of resolving discrepancies.

In the June 1972 periodic household enumeration, each reporter (LCR/BC/SR) was given a copy of new revised maps and the June 1972 listing of households as

guides in reporting events occurring every month. It was only at this stage that we were able to identify easily an event occurring in a particular household. Field verification was, therefore, facilitated with the new improved maps.

b. Improved of Coverage and Level of Registration

The "hilots"¹ were good sources of information regarding births in the locality. To improve the coverage of reporting vital events, the MLM contacted the "hilots" in the locality for birth occurrences. He verified whether such events were registered or not. If unregistered, he prepared a birth certificate and filed it with the Office of the Local Civil Registrar for registration purposes. A list of pregnant women or expectant mothers in the sample ED was also maintained by the reporters every month. This list served as reference in their monthly collection rounds. The Barrio Captain, being the head of the barrio, was also asked to establish his own reporting scheme by inquiring from barrio councilmen or his friends to report to him any occurrences of births and deaths in the barrio.

One positive way which contributed to the improvement of the level of registration in sample registration areas was the registration of events that occurred in these areas which were found to be unregistered for one reason or another by our reporters/MLM. The Project furnished the BCs/SRs and MLM with Municipal Form 102 for birth registration and Municipal Form 103 for death registration.

2. Field Operation of the Periodic Household Survey

The periodic household enumeration phase of the Dual Records System is usually undertaken twice a year. The first survey was conducted in January 1971 and this was used to establish the base population of the sample registration areas.

A mid-year survey was conducted in May 1971 to update the 1971 base population and at the same time to gather events occurring among residents between January 1, 1971 and April 30, 1971. Ideally, mid-year surveys were to be conducted in July so that events for the past six months could be collected. However, there were problems of logistics and fiscal years begin in July and budgetary releases, according to experiences, are generally made later. Besides, July is a rainy month and field operations conducted during this month would have more serious problems.

The second annual survey for updating the baseline population was conducted in January 1972. During this survey, all events occurring in 1971 were recorded as well as those that had been gathered in the May 1971 Survey. The overlap in coverage of four months made possible a study on the problems of memory recall among respondents. It was found that almost all events gathered during the May 1971 Survey were also caught in the January 1972 Survey, for those households that had remained in the sample areas for the reference period. This result indicated that the respondent's memory recall was hardly affected in an interval of at least one year.

The second mid-year survey, which was conducted in June 1972, had given special attention to the updating and improvement of the ED maps. In this survey, a separate period was allotted for mapping operations. The new maps prepared showed the exact location of buildings with the corresponding names of household heads residing in these buildings. The household serial numbering had been revised in such a way that a household could easily be related to the building where it resided. Single-type and multi-type housing were also shown on the map. This improved map was also given to reporters of the CRS to improve the area coverage.

The third annual survey was conducted in January 1973. However, the mid-year

¹"hilots" are traditional birth attendants and include practical midwives without formal training.

survey of 1973 was cancelled. There was instead a massive verification of all events gathered in the CRS and PHE. Discrepancies in vital events for 1971 and 1972 in the two systems – such as registration, date of births, date of deaths, residence status of mother, etc. resulting in non-matches – were studied and resolved.

The fourth and last annual survey was undertaken in January 1974 to gather vital events occurring in 1973 among residents of sample registration areas and to update the base population as of January 1, 1974. Again, the mid-year survey was no longer conducted among reporters of the CRS which was to form part of an evaluation of the data so far gathered during the last four years. A seminar on this evaluation was held in April 1975.

B. Office Processing Procedures

1. Continuous Reporting System (CRS).

The reports of the LCRs and BCs/SRs which formed the CRS were combined by matching events reported in each. All births reported by both the LCRs/BCs/SRs were indexed. These indexed events were verified using the master index file (base population file) and classified as either in-scope or out-of-scope. Non-matched events were indexed only after they were verified by the MLM to be in-scope.

A birth index file under the CRS were also being maintained every month. A master list of births collated from the LCRs and BCs/SRs reports were further prepared under three categories each using different forms:

- a. matched birth events reported by both the LCR and the BCs/SRs.
- b. unmatched birth events reported by the LCR only.
- c. unmatched birth events reported by the BCs/SRs only.

A master list of birth events were being maintained for each sample ED to facilitate location of records. Updating of this master list was done every month. Events reported in previous months as unmatched and verified to have occurred in later months were considered a match, were indexed in the form for matched birth events and cancelled from either forms for unmatched birth events where they were initially recorded. At the end of the calendar year, a general master list of events gathered in the CRS was compared with the results of the retrospective annual survey.

In the case of a death event, the index card of the deceased person was taken out of the master index file of the base population. The death index file under the CRS was also being maintained and updated every month in the same way as the birth index file. At the end of the year, a master list was also prepared and maintained to identify death events gathered under the CRS with categories as follows:

- a. matched death events reported by both the LCR and the BCs/SRs.
- b. unmatched death events reported by the LCR only.
- c. unmatched death events reported by the BCs/SRs only.

These master lists were prepared in duplicate at the regional centers, with the originals sent to the central office for collation of data at regional levels.

Tabulations of events under the CRS were made from the index cards of vital events gathered from this system. In turn, crude rates were estimated using the tabulated events and the pertinent base population as determined in the annual survey.

2. Periodic Household Enumeration (PHE) System.

The Household Questionnaire (Form 2) was the schedule used in annual surveys. The

information gathered in this questionnaire was to be the basis for updating the base population.

Originally, each person enumerated as of January 1, 1971 was indexed in a master file for the base population. This master file was updated after every annual survey by removing the cards for those who have already died or out-migrated and adding the cards for births and some immigrants of the previous calendar year.

The birth and death events enumerated in the survey were likewise indexed and filed separately from those events obtained in the continuous registration system. To distinguish the PHE file from that of the CRS, cards of different colors were used; white for CRS and other colors for the PHE, though both contain the same information. As in the CRS, using the index cards on file at ED level, tabulations of vital events were made and were summarized later for the sample municipality. Crude rates from the PHE System were similarly estimated using the tabulated events and the base population.

3. Matching of CRS and PHE Events.

The events gathered separately in the CRS and PHE were combined through matching. Since tabulation were at the ED level, matching was done at the ED level. Both CRS and PHE birth index files were alphabetically arranged according to the married name of the mother if there were many events reported in an ED. Cards of matching events were stapled together. The remaining unmatched white cards were events observed in the CRS alone and the remaining unmatched colored cards were those gathered during the PHE survey only. These sets of cards were then counted and recorded in a tabulation worksheet.

When the matching of events in all sample EDs in the sample municipality was completed, all non-matches were rearranged alphabetically to see if there were non-matched events in one sample ED which matched with events recorded in another sample. This would also remove duplications of events reported.

IV. ANALYSIS OF RESULTS

Presented in this report are summary tables based on our final computations using results of the first three (3) years of operation – 1971, 1972 and 1973. The appendix tables are estimates based on permanent resident population, which consisted of about 90 per cent of the total population in our sample registration areas as shown in Table D.

The rates presented in Tables 2 to 4 are estimates based on the Dual Records (Unadjusted); i.e., without adjustments for events supposedly missed by both legs of the system. In other words, they include only those events recorded by either the CRS or PHE. Separate estimates for the two systems

Table D. Percentage Composition of Permanent Residents
in the Total Population in Sample Registration
Areas, Philippines: 1971-1973

Year	Population as of January 1		
	Both	Urban	Rural
1971	90.16	88.55	91.0
1972	88.74	87.42	89.52
1973	89.96	86.52	92.04

are also presented. Tables 11, 12 and 13 show the estimates of the vital rates after the Chandrasekhar-Deining Formula for estimating the number of events missed by the two systems has been applied.

A national summary of estimated vital rates based on permanent residence concept is shown in Table 1. This table shows that based on the Dual Records System (unadjusted) the birth rate in 1971 was 37.91 per thousand. In 1972, the rate dropped to 35.30 and went down further to 33.87 in 1973. One may observe from this table that the birth rate is declining. The decline is gradual, not abrupt, as others expected it to be. The same trend may be observed in both the urban and rural areas although a faster decline seems to occur in the urban sector.

The decline in the birth rate is to be expected because of the country's full support of family planning programmes. Dr. Concepcion of the Population Institute, University of the Philippines, disclosed recently that at the end of 1973, 720,000 new acceptors were recorded and reported in 1,805 family planning clinics. This number of acceptors represented a 19 per cent increase over that of 1972.²⁵ This achievement in the government's family planning program could have contributed to the decrease in the level of fertility in the Philippines.

Table 1 also shows that the estimates of the birth rate based on the Periodic Household Enumeration System were consistently much higher than those obtained by the Continuous Reporting System. This condition has led us to question the efficiency of the CRS. Normally, it should be the CRS which is able to record more events considering the frequency by which it is done. At any rate, it is hoped that the recently concluded Evaluative Survey could shed light on this unusual case. A downward trend in the fertility levels is similarly noted in the results of the PHE, whereas, as the CRS shows a rise and fall in the birth rates from 1971 to 1973.

The death rates on the other hand, seem to have remained at constant levels after 1971. This is true for both CRS and PHE.

The estimated growth rates derived by subtracting death rate from the birth rates declined from 31.36 per thousand in 1971 to 26.64 in 1972 and 25.24 in 1973.

At the regional level, Northern Mindanao (Region IX) registered the highest birth rate of 42.44 in 1971, as shown in Table 2. For the same period, the lowest was noted in Southern Mindanao, (Region X) with only 31.86 births per 1,000 residents, followed by Ilocos and Mt. Province (Region II) with 32.29 births per thousand population. In 1972, the highest and lowest birth rates were noted in Cagayan Valley and the Batanes (Region III) and Manila and Suburbs (Region I), respectively. However, in 1973, the highest was Region IX with 38.74 while the lowest was Region II with 29.15.

Urban-Rural differences in fertility are manifestly large, especially so in the more fertile regions like Northern Mindanao and the Cagayan Valley and Batanes. For instance in 1971, Northern Mindanao had an estimated over-all birth rate of 42.44 which was due largely to a high rural rate of 47.84 whereas the urban rate was a mere 21.37. Similarly, for Cagayan Valley and the Batanes, its urban rate was only 21.34 as against 41.67 in the rural sector. The rest of the regions manifested the same urban-rural differences. We are of the opinion that those observed large differentials really exist and they are not merely spurious situations due to differences in coverage.

The behavior of the death rates at regional level appears quite unstable over the three-year period of observation. In 1971, Southern Mindanao (Region X) registered the lowest death rate. This, however, is hardly credible. It is suspected that the peace and order situation may have affected the coverage of both PHE and CRS in this region, which perhaps explains also why its birth rate is lowest in 1971 for both PHE and CRS (Table 5 and Table 8).

Expectedly, Manila and Suburbs has very low death rates because as general observations indicate, industrialization and urbanization go hand in hand with low fertility and mortality levels.

²⁵*Studies in Family Planning*, The Population Council, Volume 5, Number 5, May 1974, Table 1, p. 160.

Analysis of Results

Attempts were also made to estimate vital rates including events supposed to be missed by both the CRS and PHE by using the Chandrasekhar-Deming Formula. These estimates are shown in Tables 11, 12 and 13. In 1971, the over-all estimate of the birth rate for the Philippines is 41.86 per thousand which implies that about ten per cent of the total births were not reported by both systems. In 1972, however, the adjusted estimate of the birth rate is 35.82 per thousand, just about 1.47 births per thousand more than the unadjusted estimate. The adjusted birth rate of 1973, which is 36.67 per thousand implies that about 8.27 per cent of the birth were unrecorded. The adjusted death rates, on the other hand, are 7.58, 8.97 and 9.55 as against 6.55, 8.66 and 8.63 unadjusted rates for 1971, 1972 and 1973, respectively.

The 1971 estimates of the missed events seem quite large. This is not surprising, however, if we consider the fact that this was the first year of the Project and the Dual System was yet on an experimental stage. As such, it was quite possible that a significant number of vital events were not properly reported by both CRS and PHE resulting in a large proportion of non-match events, either through inclusion of out-of-scope events in one system, or use of too stringent matching criteria so that the estimates of the "missed events" became inflated.

In 1972, possible collusion between the two systems of the Dual Records could explain the apparently low "missed" rate of about 2 per cent for that year. During the January 1973 Household Survey, the interviewers were required to bring with them the list of the 1973 vital events which have been gathered under the CRS. In this manner, independence between the two systems was not maintained although the aim of the procedure was really to ensure more coverage for the two systems combined.

The estimated missed rate for 1973 vital events appear quite reasonable. It might be recalled that during the January 1974 household survey, extra care was taken to ensure independence between the CRS and the PHE. By that time, the area boundaries of our sample households were suitably identified so that out-of-scope events have been minimized.

Looking at the adjusted estimates of birth rates at the regional level (Table 11), and comparing them with the unadjusted estimates shown in Table 2, it is apparent that in 1971, except for Regions II and VIII, the estimates of the missed events are significantly large. The highest adjustment was observed in Region X, Southern Mindanao, and Region VII, Western Visayas, wherein about 18 per cent of the births were unreported by both systems. Other regions had about 4 to 10 per cent unreported births.

In 1972, the adjusted and unadjusted estimates of the vital rates are almost identical with each other for all regions except Regions V and VII. This condition, as already explained, is possibly due to a collusion between the CRS and PHE, as shown in Table 19.

The above comparison of the adjusted and unadjusted rates points out the deficiency of the Chandrasekhar-Deming Formula. Originally, the missed rate should decline over the years as improvement in field procedures are effected in both legs of the system. But, our results do not show this primarily because the conditions embodied in the formula are too ideal for practical purposes. It is thus suggested that the adjusted rates should be taken only as upper limits of the unadjusted rates.

Table 14 shows the percentage level of birth and death registration of permanent residents from 1971 to 1973. As mentioned earlier, it is the objective of the Project to come out with an acceptable level of registration coverage of at least 90 per cent. During the first year of the Project, only Region III and Region I attained the levels of at least 90 per cent for birth and death, respectively. In 1972, Regions II, III and IV attained the 90 per cent or more level of registration for birth and deaths. In 1973, only three regions (II, III and IX) maintained the required level for both birth and death registration. Region IV declined from 91.52 per cent in 1972 to 78.66 per cent in 1973. However, Region IX attained the 92.62 per cent level in 1973. Other regions showed declines but Regions VI, VII and VIII were way below the 90 per cent level.

As additional information to gauge better the nature of data collection for this Project, Tables 18,

19 and 20 are presented to show the percentage of matched birth and death events as recorded in the Dual Records System without adjustments. High match rate in both the birth and death events were observed in Regions III and VIII in 1971; Region III, and VI in 1972; and, in Region II and III in 1973. Lowest match rates were observed in Regions I, VII and X from 1971 to 1973.

High matching rate may suggest several things: first, the two legs of the system may be highly and equally efficient as means of data collection; second, that the matching criteria may be too loose as to classify a "match" events which are actually non-matches; and thirdly, it may suggest collusion between the two systems especially when the magnitude of the rates are below expectations. On the other hand, the low matching rate may suggest too stringent matching criteria or inefficiency of either one of the systems.

The results of an Evaluative Survey, the first part of which was conducted last June and the second in September, will be investigated. Hopefully, we will be able to throw light on the magnitudes or levels of crude rates that we have established. Then, we can make more definite statements on the limitations of our data and at the same time confirm the reliability of our estimates. These will form part of the final report.

V. CONCLUDING OBSERVATIONS

Despite various problems and technical drawbacks, the Project, in its effort to produce demographic rates, was able to yield results apparently more satisfactory and useful than would otherwise be obtained from legal civil registration alone. At any rate, it is still the aim of the Project to improve the vital registration system to the point where it can independently produce reliable demographic statistics needed by various planning agencies – both public and private.

As it is, Civil Registration, particularly the registration of births and deaths, is still inadequate because of the following reasons:

1. Lack of interest among parents;
2. Ignorance about the law requiring the compulsory registration of birth and death events;
3. Customs not to register vital events especially among cultural minorities;
4. Distance from place of occurrence to the registration center; and,
5. Common belief that baptism is already registration.

Thus, it is clear that the attainment of a satisfactory Civil Registration System is still a long way off. Massive educational campaign, that entails considerable time, effort and money, has to be effected if the objective is to be reached. Indeed, the improvement of Civil Registration is a long-term goal. For any short-term effort, this will have to remain a worthwhile hope.

Table 1. Summary of National Crude Birth Rates of Permanent Residents in Sample Registration Areas Obtained from Different Sources, Philippines: 1971-1973

Source	Crude Rates per 1,000 Population								
	1971			1972			1973		
	Birth	Death	Growth	Birth	Death	Growth	Birth	Death	Growth
I – Dual Records System (Unadjusted)	<u>37.91</u>	<u>6.55</u>	<u>31.36</u>	<u>35.30</u>	<u>8.66</u>	<u>26.64</u>	<u>33.87</u>	<u>8.63</u>	<u>25.24</u>
Urban	33.46	5.48	27.98	27.76	6.96	20.80	28.39	7.32	21.07
Rural	39.99	7.05	32.94	38.81	9.45	29.36	36.43	9.24	27.19
II – Periodic Household Enumeration System (PHE)	<u>33.64</u>	<u>5.19</u>	<u>28.45</u>	<u>33.86</u>	<u>8.03</u>	<u>25.83</u>	<u>29.14</u>	<u>7.07</u>	<u>22.07</u>
Urban	30.17	4.70	25.47	26.36	6.41	19.95	24.18	5.99	18.19
Rural	35.26	5.42	29.84	37.35	8.78	28.57	31.45	7.58	23.87
III – Continuous Reporting System (CRS)	<u>24.65</u>	<u>4.68</u>	<u>19.97</u>	<u>26.96</u>	<u>6.59</u>	<u>20.39</u>	<u>25.84</u>	<u>6.68</u>	<u>19.16</u>
Urban	19.30	3.34	15.96	20.62	5.06	15.56	20.95	5.28	15.67
Rural	27.14	5.31	21.83	29.94	7.31	22.63	28.12	7.33	20.79

Table 2. Estimated Crude Birth Rates of Permanent Residents in Sample Registration Areas Obtained from the Dual Records System (Unadjusted), by Urban-Rural Classification, by Region, Philippines: 1971-1973

Region	1971			1972			1973		
	Both Areas	Urban	Rural	Both Areas	Urban	Rural	Both Areas	Urban	Rural
PHILIPPINES	<u>37.91</u>	<u>33.46</u>	<u>39.99</u>	<u>35.30</u>	<u>27.76</u>	<u>38.81</u>	<u>33.87</u>	<u>28.39</u>	<u>36.43</u>
I – Manila and Suburbs	35.46	35.46	–	26.76	26.76	–	29.51	29.51	–
II – Ilocos & Mt. Province	32.29	24.41	33.98	28.93	22.91	30.23	29.15	20.32	31.05
III – Cagayan Valley and the Batanes	38.58	21.34	41.67	42.22	22.27	45.80	36.08	11.42	40.50
IV – Central Luzon	40.64	34.24	43.21	33.60	31.70	34.37	37.07	36.24	37.41
V – Southern Tagalog and Is.	38.69	37.37	39.60	34.75	29.38	38.48	35.74	26.72	42.00
VI – Bicol	38.51	30.79	40.35	40.85	32.78	42.77	33.38	26.10	35.11
VII – Western Visayas	34.79	32.01	35.77	36.92	29.63	39.49	35.04	33.23	35.68
VIII – Eastern Visayas	39.96	31.31	42.72	34.54	23.31	38.12	35.42	26.35	38.52
IX – Northern Mindanao	42.44	21.37	47.84	38.12	29.67	40.29	38.74	28.71	41.31
X – Southern Mindanao	31.86	24.98	33.55	37.29	22.68	40.88	29.82	24.57	31.11

Table 3. Estimated Crude Death Rates of Permanent Residents in Sample Registration Areas Obtained from the Dual Records System (Unadjusted), by Urban-Rural Classification, by Region, Philippines: 1971-1973

<i>Region</i>	<i>1971</i>			<i>1972</i>			<i>1973</i>		
	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>
PHILIPPINES	<u>6.55</u>	<u>5.48</u>	<u>7.05</u>	<u>8.66</u>	<u>6.96</u>	<u>9.45</u>	<u>8.63</u>	<u>7.32</u>	<u>9.24</u>
I – Manila and Suburbs	4.11	4.11	–	5.96	5.96	–	5.83	5.83	–
II – Ilocos & Mt. Province	7.52	3.14	8.46	11.25	7.28	12.10	8.52	5.67	9.13
III – Cagayan Valley and the Batanes	8.90	10.59	8.60	13.02	5.46	14.37	10.99	7.11	11.69
IV – Central Luzon	6.86	6.33	7.07	8.78	9.17	8.62	9.21	9.10	9.26
V – Southern Tagalog & Is.	6.25	4.62	7.39	7.34	5.58	8.57	9.16	6.40	11.08
VI – Bicol	8.41	11.06	7.78	9.49	8.71	9.67	11.01	12.00	10.78
VII – Western Visayas	6.33	8.11	5.70	8.72	9.53	8.43	8.23	9.78	7.68
VIII – Eastern Visayas	9.34	6.44	10.26	9.70	8.03	10.23	10.64	7.95	11.50
IX – Northern Mindanao	5.65	2.76	6.39	8.99	7.34	9.41	7.43	6.04	7.79
X – Southern Mindanao	3.90	4.00	3.88	7.55	6.52	7.80	7.02	7.18	6.98

Table 4. Estimated Crude Growth Rates of Permanent Residents in Sample Registration Areas Obtained from the Dual Records System (Unadjusted), by Urban-Rural Classification, by Region, Philippines: 1971-1973

Region	1971			1972			1973		
	Both Areas	Urban	Rural	Both Areas	Urban	Rural	Both Areas	Urban	Rural
PHILIPPINES	<u>31.36</u>	<u>27.98</u>	<u>32.94</u>	<u>26.64</u>	<u>20.80</u>	<u>29.36</u>	<u>25.24</u>	<u>21.07</u>	<u>27.19</u>
I – Manila and Suburbs	31.35	31.35	–	20.80	20.80	–	23.68	23.68	–
II – Ilocos & Mt. Province	24.77	21.27	25.52	17.68	15.63	18.13	20.63	14.65	21.92
III – Cagayan Valley and the Batanes	29.68	10.75	33.07	29.21	16.81	31.43	25.09	4.31	28.81
IV – Central Luzon	33.78	27.91	36.14	24.82	22.53	25.75	27.86	27.14	28.15
V – Southern Tagalog and Is.	32.44	32.75	32.21	27.41	23.80	29.91	26.58	20.32	30.92
VI – Bicol	30.10	19.73	32.57	31.36	24.07	33.10	22.37	14.10	24.33
VII – Western Visayas	28.46	23.90	30.07	28.20	20.10	31.06	26.81	23.45	28.00
VIII – Eastern Visayas	30.62	24.87	32.46	24.84	15.28	27.89	24.78	18.40	26.82
IX – Northern Mindanao	36.79	18.61	41.45	29.13	22.33	30.88	31.31	22.67	33.52
X – Southern Mindanao	27.96	20.98	29.67	29.74	16.16	33.08	22.80	17.39	24.13

Table 5. Estimated Crude Birth Rates of Permanent Residents in Sample Registration Areas Obtained from the Periodic Household Enumeration System (PHE), by Urban-Rural Classification, by Region, Philippines: 1971-1973

<i>Region</i>	<i>1971</i>			<i>1972</i>			<i>1973</i>		
	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>
PHILIPPINES	<u>33.64</u>	<u>30.17</u>	<u>35.26</u>	<u>33.86</u>	<u>26.36</u>	<u>37.35</u>	<u>29.14</u>	<u>24.18</u>	<u>31.45</u>
I – Manila and Suburbs	29.47	29.47	–	26.14	26.14	–	27.14	27.14	–
II – Ilocos & Mt. Province	31.38	23.89	32.99	28.76	22.88	30.02	29.11	20.28	31.01
III – Cagayan Valley and the Batanes	34.06	18.74	36.81	42.16	22.27	45.72	30.76	10.82	34.33
IV – Central Luzon	33.43	29.42	35.05	31.40	29.18	32.30	27.76	24.74	28.97
V – Southern Tagalog & Is.	34.68	35.42	34.16	34.27	28.38	38.37	32.69	24.28	38.54
VI – Bicol	34.50	29.03	35.80	39.14	31.80	40.88	28.74	23.51	29.98
VII – Western Visayas	29.84	28.52	30.30	33.08	26.88	35.27	27.98	23.66	29.51
VIII – Eastern Visayas	37.80	29.91	40.32	32.43	20.35	36.29	32.16	24.21	34.70
IX – Northern Mindanao	35.78	14.75	41.17	37.19	28.18	39.50	36.27	25.96	38.91
X – Southern Mindanao	28.92	23.55	30.24	37.01	22.68	40.53	23.59	17.01	25.21

Table 6. Estimated Crude Death Rates of Permanent Residents in Sample Registration Areas Obtained from the Periodic Household Enumeration System (PHE), by Urban-Rural Classification, by Region, Philippines: 1971-1973

Region	1971			1972			1973		
	Both Areas	Urban	Rural	Both Areas	Urban	Rural	Both Areas	Urban	Rural
PHILIPPINES	<u>5.19</u>	<u>4.70</u>	<u>5.42</u>	<u>8.03</u>	<u>6.41</u>	<u>8.78</u>	<u>7.07</u>	<u>5.99</u>	<u>7.58</u>
I – Manila and Suburbs	3.37	3.37	–	5.65	5.65	–	4.63	4.63	–
II – Ilocos & Mt. Province	6.74	3.03	7.54	10.67	7.25	11.40	8.51	5.67	9.12
III – Cagayan Valley and the Batanes	7.01	10.50	6.38	12.88	5.46	14.21	9.70	7.05	10.17
IV – Central Luzon	5.01	5.46	4.83	8.07	7.79	8.18	6.84	6.37	7.03
V – Southern Tagalog & Is.	5.22	4.26	5.88	7.09	4.95	8.57	8.42	5.84	10.22
VI – Bicol	6.78	9.97	6.02	8.71	8.23	8.82	8.03	10.55	7.43
VII – Western Visayas	4.37	5.62	3.93	7.45	9.12	6.86	6.31	6.90	6.10
VIII – Eastern Visayas	7.99	5.73	8.71	9.09	7.34	9.65	9.80	7.24	10.62
IX – Northern Mindanao	4.23	1.60	4.90	8.61	6.60	9.13	6.05	4.21	6.52
X – Southern Mindanao	2.86	3.61	2.67	6.80	6.52	6.87	4.88	4.57	4.95

Table 7. Estimated Crude Growth Rates of Permanent Residents in Sample Registration Areas Obtained from the Periodic Household Enumeration (PHE), by Urban-Rural Classification, by Region, Philippines: 1971-1973

Region	1971			1972			1973		
	Both Areas	Urban	Rural	Both Areas	Urban	Rural	Both Areas	Urban	Rural
PHILIPPINES	<u>28.45</u>	<u>25.47</u>	<u>29.84</u>	<u>25.83</u>	<u>19.95</u>	<u>28.57</u>	<u>22.07</u>	<u>18.19</u>	<u>23.87</u>
I – Manila and Suburbs	26.10	26.10	–	20.49	20.49	–	22.51	22.51	–
II – Ilocos & Mt. Province	24.64	20.86	25.45	18.09	15.63	18.62	20.60	14.61	21.89
III – Cagayan Valley and the Batanes	27.05	8.24	30.43	29.28	16.81	31.51	21.06	3.77	24.16
IV – Central Luzon	28.42	23.96	30.22	23.33	21.39	24.12	20.92	18.37	21.94
V – Southern Tagalog & Is.	29.46	31.16	28.28	27.18	23.43	29.80	24.27	18.44	28.32
VI – Bicol	27.72	19.06	29.78	30.43	23.57	32.06	20.71	12.96	22.55
VII – Western Visayas	25.47	22.90	26.37	25.63	17.76	28.41	21.67	16.76	23.41
VIII – Eastern Visayas	29.81	24.18	31.61	23.34	13.01	26.64	22.36	16.97	24.00
IX – Northern Mindanao	31.55	13.15	36.27	28.58	21.58	30.37	30.22	21.75	32.39
X – Southern Mindanao	26.06	19.94	27.57	30.21	16.16	33.66	18.71	12.44	20.26

Table 8. Estimated Crude Birth Rates of Permanent Residents in Sample Registration Areas Obtained from the Continuous Reporting System (CRS), by Urban-Rural Classification, by Region, Philippines: 1971-1973

<i>Region</i>	<i>1971</i>			<i>1972</i>			<i>1973</i>		
	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>
PHILIPPINES	<u>24.65</u>	<u>19.30</u>	<u>27.14</u>	<u>26.98</u>	<u>20.62</u>	<u>29.94</u>	<u>25.84</u>	<u>20.95</u>	<u>28.12</u>
I – Manila and Suburbs	21.29	21.29	–	20.46	20.46	–	23.85	23.85	–
II – Ilocos & Mt. Province	21.89	10.79	24.28	25.23	16.31	27.15	26.01	13.53	28.69
III – Cagayan Valley and the Batanes	30.21	14.17	33.09	32.67	10.86	36.58	28.20	5.70	32.23
IV – Central Luzon	30.84	24.40	33.43	29.45	25.29	31.12	31.77	30.41	32.32
V – Southern Tagalog & Is.	24.07	17.11	28.91	26.71	19.59	31.66	26.71	18.28	32.57
VI – Bicol	26.45	17.27	28.63	32.31	24.02	34.28	25.82	17.13	27.88
VII – Western Visayas	16.89	16.93	16.88	29.21	23.36	31.28	24.35	23.88	24.51
VIII – Eastern Visayas	31.10	24.91	33.08	27.27	20.43	29.45	27.83	17.40	31.16
IX – Northern Mindanao	28.10	15.18	31.41	29.23	22.86	30.86	28.00	19.19	30.26
X – Southern Mindanao	16.53	13.14	17.36	22.29	15.63	23.93	19.76	19.33	19.87

Table 9. Estimated Crude Death Rates of Permanent Residents in Sample Registration Areas Obtained from the Continuous Reporting System (CRS), by Urban-Rural Classification, by Region, Philippines: 1971-1973

<i>Region</i>	<i>1971</i>			<i>1972</i>			<i>1973</i>		
	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>
PHILIPPINES	<u>4.68</u>	<u>3.34</u>	<u>5.31</u>	<u>6.59</u>	<u>5.06</u>	<u>7.31</u>	<u>6.68</u>	<u>5.28</u>	<u>7.33</u>
I – Manila and Suburbs	2.05	2.05	–	3.68	3.68	–	3.82	3.82	–
II – Ilocos & Mt. Province	4.29	1.49	4.89	9.42	5.48	10.27	6.93	2.85	7.81
III – Cagayan Valley and the Batanes	6.73	7.94	6.51	9.86	2.68	11.15	8.71	4.44	9.48
IV – Central Luzon	5.36	4.92	5.54	8.00	8.09	7.97	7.93	7.80	7.98
V – Southern Tagalog & Is.	4.21	1.98	5.76	5.30	3.85	6.30	7.62	4.39	9.86
VI – Bicol	6.72	7.50	6.54	7.32	5.87	7.66	8.58	7.84	8.75
VII – Western Visayas	3.57	5.34	2.95	6.44	6.15	6.54	5.87	8.32	5.01
VIII – Eastern Visayas	7.82	5.13	8.68	8.20	6.49	8.74	8.39	5.40	9.35
IX – Northern Mindanao	4.58	2.15	5.10	6.84	6.47	6.93	5.15	4.51	5.31
X – Southern Mindanao	2.53	2.21	2.60	4.30	5.84	3.92	5.42	5.64	5.37

Table 10. Estimated Crude Growth Rates of Permanent Residents in Sample Registration Areas Obtained from the Continuous Reporting System (CRS), by Urban-Rural Classification, by Region, Philippines: 1971-1973

Region	1971			1972			1973		
	Both Areas	Urban	Rural	Both Areas	Urban	Rural	Both Areas	Urban	Rural
PHILIPPINES	<u>19.97</u>	<u>15.96</u>	<u>21.83</u>	<u>20.39</u>	<u>15.56</u>	<u>22.63</u>	<u>19.16</u>	<u>15.67</u>	<u>20.79</u>
I – Manila and Suburbs	19.24	19.24	–	16.78	16.78	–	20.03	20.03	–
II – Ilocos & Mt. Province	17.60	9.30	19.39	15.81	10.83	16.88	19.08	10.68	20.88
III – Cagayan Valley and the Batanes	23.48	6.23	26.58	22.81	8.18	25.43	19.49	1.26	22.75
IV – Central Luzon	25.48	19.48	27.89	21.45	17.20	23.15	23.84	22.61	24.34
V – Southern Tagalog & Is.	19.86	15.13	23.15	21.41	15.74	25.36	19.09	13.89	22.71
VI – Bicol	19.73	9.77	22.09	24.99	18.15	26.62	17.24	9.29	19.13
VII – Western Visayas	13.22	11.59	13.93	22.77	17.21	24.74	18.48	15.56	19.50
VIII – Eastern Visayas	23.28	19.78	24.40	19.07	13.94	20.71	19.44	12.00	21.81
IX – Northern Mindanao	23.52	12.63	26.31	22.39	16.39	23.93	22.85	14.68	24.95
X – Southern Mindanao	14.00	10.87	14.76	17.99	9.79	20.01	14.34	13.69	14.50

Table 11. Estimated Crude Birth Rates of Permanent Residents in Sample Registration Areas Obtained from the Dual Records System (Adjusted), by Urban-Rural Classification, by Region, Philippines: 1971-1973

Region	1971			1972			1973		
	Both Areas	Urban	Rural	Both Areas	Urban	Rural	Both Areas	Urban	Rural
PHILIPPINES	<u>41.86</u>	<u>36.77</u>	<u>44.24</u>	<u>35.82</u>	<u>28.22</u>	<u>39.37</u>	<u>36.67</u>	<u>30.72</u>	<u>39.44</u>
I – Manila and Suburbs	41.00	41.00	–	26.95	26.95	–	30.16	30.16	–
II – Ilocos & Mt. Province	33.05	25.11	34.76	28.93	22.91	30.23	29.17	20.32	31.07
III – Cagayan Valley and the Batanes	40.33	23.62	43.32	42.22	22.27	45.80	38.48	12.22	43.19
IV – Central Luzon	44.66	37.66	47.48	33.68	31.82	34.43	39.49	40.10	39.25
V – Southern Tagalog & Is.	41.99	40.23	43.22	35.13	30.31	38.48	37.24	28.30	43.46
VI – Bicol	42.08	33.79	44.05	41.49	33.32	43.43	35.16	27.14	37.06
VII – Western Visayas	42.56	36.18	44.81	39.12	30.36	42.22	43.22	41.28	43.90
VIII – Eastern Visayas	40.61	31.58	43.50	34.94	23.59	38.57	37.89	27.29	41.27
IX – Northern Mindanao	47.50	26.29	52.93	38.62	30.42	40.72	39.63	30.41	41.99
X – Southern Mindanao	37.54	27.45	40.01	37.56	22.68	41.21	34.79	30.65	35.81

Table 12. Estimated Crude Death Rates of Permanent Residents in Sample Registration Areas Obtained from the Dual Records System (Adjusted), by Urban-Rural Classification, by Region, Philippines: 1971-1973

Region	1971			1972			1973		
	Both Areas	Urban	Rural	Both Areas	Urban	Rural	Both Areas	Urban	Rural
PHILIPPINES	<u>7.5</u>	<u>6.43</u>	<u>8.12</u>	<u>8.97</u>	<u>7.17</u>	<u>9.81</u>	<u>9.55</u>	<u>8.06</u>	<u>10.24</u>
I – Manila and Suburbs	5.91	5.91	–	6.15	6.15	–	6.69	6.69	–
II – Ilocos & Mt. Province	7.87	3.23	8.87	11.58	7.28	12.50	8.52	5.67	9.13
III – Cagayan Valley and the Batanes	9.75	10.59	9.60	13.02	5.46	14.38	11.43	7.14	12.20
IV – Central Luzon	7.80	7.32	8.00	8.84	9.25	8.68	9.95	10.08	9.90
V – Southern Tagalog & Is.	6.64	5.03	7.76	7.49	5.94	8.57	9.51	7.04	11.22
VI – Bicol	9.95	12.04	9.45	9.96	8.87	10.22	12.27	12.74	12.16
VII – Western Visayas	7.82	10.15	7.00	9.13	9.81	8.89	9.81	11.25	9.30
VIII – Eastern Visayas	10.40	6.58	11.62	9.96	8.18	10.53	11.70	8.27	12.80
IX – Northern Mindanao	6.97	3.09	7.96	9.09	7.34	9.54	8.69	6.95	9.14
X – Southern Mindanao	4.51	4.78	4.44	8.22	6.52	8.64	7.91	7.74	7.95

Table 13. Estimated Crude Growth Rates of Permanent Residents in Sample Registration Areas Obtained from the Dual Records System (Adjusted), by Urban-Rural Classification, by Region, Philippines: 1971-1973

<i>Region</i>	<i>1971</i>			<i>1972</i>			<i>1973</i>		
	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>
PHILIPPINES	<u>34.28</u>	<u>30.34</u>	<u>36.12</u>	<u>26.85</u>	<u>21.05</u>	<u>29.56</u>	<u>26.97</u>	<u>22.66</u>	<u>28.98</u>
I – Manila and Suburbs	35.09	35.09	–	20.80	20.80	–	23.47	23.47	–
II – Ilocos & Mt. Province	23.18	21.88	25.89	17.35	15.63	17.73	20.65	14.65	21.94
III – Cagayan Valley and the Batanes	30.58	13.03	33.72	29.20	16.81	31.42	27.05	5.08	30.99
IV – Central Luzon	36.86	30.34	39.48	24.84	22.57	25.75	29.54	30.02	29.35
V – Southern Tagalog & Is.	35.35	35.20	35.46	27.63	24.57	29.91	27.73	21.26	32.24
VI – Bicol	32.13	21.75	34.60	31.53	24.45	33.21	22.89	14.40	24.90
VII – Western Visayas	34.74	26.05	37.81	29.99	20.55	33.33	33.41	30.03	34.60
VIII – Eastern Visayas	30.21	25.00	31.88	24.98	15.41	28.04	26.19	19.02	28.47
IX – Northern Mindanao	40.53	23.20	44.97	29.53	23.08	31.18	30.94	23.46	32.85
X – Southern Mindanao	33.03	22.67	35.57	29.34	16.16	32.57	25.90	22.91	26.63

Table 14. Percentage Level of Vital Registration of Permanent Residents in Sample Registration Areas, Philippines: 1971-1973

<i>Region</i>	<i>Level of Registration in Per Cent</i>					
	<i>Birth</i>			<i>Death</i>		
	<i>1971</i>	<i>1972</i>	<i>1973</i>	<i>1971</i>	<i>1972</i>	<i>1973</i>
PHILIPPINES	<u>67.13</u>	<u>80.45</u>	<u>79.37</u>	<u>70.51</u>	<u>79.36</u>	<u>77.01</u>
I – Manila and Suburbs	81.47	92.14	90.33	90.56	91.08	80.42
II – Ilocos & Mt. Province	89.42	97.51	97.12	76.34	89.11	91.85
III – Cagayan Valley and the Batanes	90.54	94.46	94.80	85.10	87.93	91.77
IV – Central Luzon	78.47	91.52	78.66	73.70	85.64	71.26
V – Southern Tagalog & Is.	76.68	87.47	84.37	69.61	83.70	88.56
VI – Bicol	76.29	84.53	65.80	82.69	85.15	60.04
VII – Western Visayas	44.75	71.74	60.85	62.70	76.44	69.33
VIII – Eastern Visayas	57.68	69.31	68.14	60.36	67.84	70.41
IX – Northern Mindanao	63.02	77.92	92.62	82.50	78.06	91.36
X – Southern Mindanao	42.42	61.65	88.24	37.15	59.84	77.76

Table 15. Percentage Level of Vital Registration of Permanent Residents in Sample Registration Areas, Philippines: 1971

<i>Region</i>	<i>Estimated Level of Registration in Per Cent</i>							
	<i>Birth</i>				<i>Death</i>			
	<i>Total Events</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>	<i>Total Events</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>
PHILIPPINES	<u>1374680</u>	<u>67.13</u>	<u>76.72</u>	<u>62.41</u>	<u>233121</u>	<u>70.51</u>	<u>75.68</u>	<u>68.15</u>
I – Manila and Suburbs	115397	81.47	81.47	–	13392	90.56	90.56	–
II – Ilocos & Mt. Province	67132	89.42	85.20	89.87	16698	76.34	93.17	75.60
III – Cagayan Valley and the Batanes	49781	90.54	96.03	90.26	12491	85.10	95.29	83.88
IV – Central Luzon	205564	78.47	82.62	77.19	34174	73.70	73.37	73.82
V – Southern Tagalog & Is.	205514	76.68	79.39	67.59	28139	69.61	60.27	89.88
VI – Bicol	117101	76.29	87.14	74.28	27751	82.69	81.50	83.08
VII – Western Visayas	157512	44.75	63.53	39.32	29305	62.70	86.82	50.51
VIII – Eastern Visayas	182355	57.68	60.40	56.62	38438	60.36	74.17	55.62
IX – Northern Mindanao	113473	63.02	52.28	63.68	16341	82.50	79.37	82.62
X – Southern Mindanao	160851	42.42	68.33	40.64	16392	37.15	43.52	36.38

Table 16. Percentage Level of Vital Registration of Permanent Residents
in Sample Registration Areas, Philippines: 1972

<i>Region</i>	<i>Estimated Level of Registration in Per Cent</i>							
	<i>Birth</i>				<i>Death</i>			
	<i>Total Events</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>	<i>Total Events</i>	<i>Both Areas</i>	<i>Urban</i>	<i>Rural</i>
PHILIPPINES	<u>1202646</u>	<u>80.45</u>	<u>87.05</u>	<u>77.61</u>	<u>295627</u>	<u>79.36</u>	<u>85.25</u>	<u>76.88</u>
I – Manila and Suburbs	80832	92.14	92.14	–	18004	91.08	91.08	–
II – Ilocos & Mt. Province	58684	97.51	91.30	98.14	22871	89.11	91.08	88.98
III – Cagayan Valley and the Batanes	53379	94.46	97.61	94.28	18911	87.93	100.00	87.50
IV – Central Luzon	169167	91.52	91.53	91.51	44727	85.64	81.15	87.49
V – Southern Tagalog & Is.	165199	87.47	88.87	83.53	33040	83.70	84.57	81.62
VI – Bicol	121283	84.53	91.13	83.31	28296	85.15	91.07	83.87
VII – Western Visayas	139840	71.74	79.82	69.58	35584	76.44	88.74	71.42
VIII – Eastern Visayas	153048	69.31	71.44	68.54	38111	67.84	77.20	64.13
IX – Northern Mindanao	99253	77.92	76.02	78.09	24905	78.06	67.42	79.02
X – Southern Mindanao	161961	61.65	85.05	60.14	31178	59.84	86.88	57.15

Table 17. Percentage Level of Vital Registration of Permanent Residents
in Sample Registration Areas, Philippines: 1973

Region	Estimated Level of Registration in Per Cent							
	Birth				Death			
	Total Events	Both Areas	Urban	Rural	Total Events	Both Areas	Urban	Rural
PHILIPPINES	<u>1137110</u>	<u>79.37</u>	<u>80.33</u>	<u>78.91</u>	<u>279724</u>	<u>77.01</u>	<u>79.21</u>	<u>75.97</u>
I – Manila and Suburbs	89715	90.33	90.33	–	17800	80.42	80.42	–
II – Ilocos & Mt. Province	57177	97.12	87.38	97.94	17588	91.85	80.58	92.65
III – Cagayan Valley and the Batanes	50358	94.80	92.70	94.86	16421	91.77	94.46	91.62
IV – Central Luzon	179122	78.66	79.33	78.42	40136	71.26	73.66	70.38
V – Southern Tagalog & Is.	163222	84.37	87.82	76.58	39237	88.56	88.58	88.51
VI – Bicol	97306	65.80	50.12	68.53	32011	60.04	52.10	62.27
VII – Western Visayas	135844	60.84	74.40	56.69	32799	69.33	94.49	59.24
VIII – Eastern Visayas	163761	68.14	52.09	74.07	45171	70.41	61.97	73.28
IX – Northern Mindanao	98673	92.62	92.08	92.67	20427	91.39	86.73	91.92
X – Southern Mindanao	101932	88.24	83.09	88.92	18134	77.76	81.62	76.98

Table 18. Percentage of Matching of Birth and Death Events, Recorded in the Dual Records System (Unadjusted), by Urban-Rural Classification, by Region, Philippines: 1971

Region	Births					Deaths				
	Total Events Recorded	Percentage of Coverage				Total Events Recorded	Percentage of Coverage			
		Total	Matched Both Systems	PHE only	CRS only		Total	Matched Both Systems	PHE only	CRS only
PHILIPPINES	<u>19318</u>	<u>100.00</u>	<u>52.50</u>	<u>35.04</u>	<u>12.46</u>	<u>3268</u>	<u>100.00</u>	<u>47.92</u>	<u>30.75</u>	<u>21.33</u>
Urban	9365	100.00	49.48	38.93	11.59	1478	100.00	46.21	37.69	16.10
Rural	9953	100.00	55.34	31.38	13.28	1790	100.00	49.33	25.03	25.64
I – Manila and Suburbs (All Urban)	<u>3378</u>	<u>100.00</u>	<u>43.16</u>	<u>39.97</u>	<u>16.87</u>	<u>392</u>	<u>100.00</u>	<u>31.63</u>	<u>50.26</u>	<u>18.11</u>
II – Ilocos & Mt. Province	<u>777</u>	<u>100.00</u>	<u>54.57</u>	<u>41.70</u>	<u>3.73</u>	<u>138</u>	<u>100.00</u>	<u>47.83</u>	<u>42.03</u>	<u>10.14</u>
Urban	429	100.00	46.16	49.88	3.96	38	100.00	44.74	44.74	10.52
Rural	348	100.00	64.94	31.61	3.45	100	100.00	49.00	41.00	10.00
III – Cagayan Valley and the Batanes	<u>1477</u>	<u>100.00</u>	<u>69.26</u>	<u>19.97</u>	<u>10.77</u>	<u>283</u>	<u>100.00</u>	<u>59.72</u>	<u>21.55</u>	<u>18.73</u>
Urban	180	100.00	56.11	31.67	12.22	37	100.00	62.16	29.73	8.11
Rural	1297	100.00	71.09	18.35	10.56	246	100.00	59.35	20.33	20.32
IV – Central Luzon	<u>2390</u>	<u>100.00</u>	<u>52.47</u>	<u>27.57</u>	<u>19.96</u>	<u>423</u>	<u>100.00</u>	<u>42.79</u>	<u>24.82</u>	<u>32.39</u>
Urban	1096	100.00	53.92	31.21	14.87	199	100.00	49.25	33.17	17.58
Rural	1294	100.00	51.24	24.50	24.26	224	100.00	37.05	17.41	45.54

Table 18. (continued)

Region	Births					Deaths				
	Total Events Recorded	Percentage of Coverage				Total Events Recorded	Percentage of Coverage			
		Total	Matched Both Systems	PHE only	CRS only		Total	Matched Both Systems	PHE only	CRS only
V – Southern Tagalog and Is.	2269	100.00	47.02	40.68	12.30	344	100.00	46.22	35.76	18.02
Urban	1409	100.00	43.08	51.03	5.89	189	100.00	35.98	52.91	11.11
Rural	860	100.00	53.49	23.72	22.79	155	100.00	58.71	14.84	26.45
VI – Bicol	2080	100.00	57.36	32.45	10.19	444	100.00	56.31	25.22	18.47
Urban	374	100.00	50.53	42.25	7.22	130	100.00	56.15	31.54	12.31
Rural	1706	100.00	58.85	30.31	10.84	314	100.00	56.37	22.61	21.02
VII – Western Visayas	1856	100.00	39.12	47.79	13.09	363	100.00	33.88	40.50	25.62
Urban	925	100.00	43.68	44.00	12.32	193	100.00	41.45	36.27	22.28
Rural	931	100.00	34.59	51.56	13.85	170	100.00	25.30	45.29	29.41
VIII – Eastern Visayas	2422	100.00	73.53	22.59	3.88	494	100.00	68.62	16.80	14.58
Urban	1329	100.00	74.34	22.12	3.54	260	100.00	69.62	16.92	13.46
Rural	1093	100.00	72.55	23.15	4.30	234	100.00	67.52	16.67	15.81
IX – Northern Mindanao	1517	100.00	48.32	34.54	17.14	262	100.00	43.13	23.28	33.59
Urban	111	100.00	47.75	24.32	27.93	20	100.00	55.00	10.00	35.00
Rural	1406	100.00	48.36	35.35	16.29	242	100.00	42.15	24.38	33.47
X – Southern Mindanao	1152	100.00	41.93	50.78	7.29	125	100.00	33.60	46.40	20.00
Urban	134	100.00	33.58	58.21	8.21	20	100.00	40.00	45.00	15.00
Rural	1018	100.00	43.03	49.80	7.17	105	100.00	32.38	46.67	20.95

Table 19. Percentage of Matching of Birth and Death Events, Recorded in the Dual Records System (Unadjusted), by Urban-Rural Classification, by Region, Philippines: 1972

Region	Births					Deaths				
	Total Events Recorded	Percentage of Coverage				Total Events Recorded	Percentage of Coverage			
		Total	Matched Both Systems	PHE only	CRS only		Total	Matched Both Systems	PHE only	CRS only
PHILIPPINES	<u>17043</u>	<u>100.00</u>	<u>73.00</u>	<u>23.19</u>	<u>3.81</u>	<u>4243</u>	<u>100.00</u>	<u>70.47</u>	<u>23.07</u>	<u>6.46</u>
Urban	7536	100.00	70.70	24.83	4.47	1891	100.00	65.26	28.18	6.56
Rural	9507	100.00	74.82	21.89	3.29	2352	100.00	74.66	18.96	6.38
I – Manila and Suburbs (All Urban)	<u>2366</u>	<u>100.00</u>	<u>74.18</u>	<u>23.54</u>	<u>2.28</u>	<u>527</u>	<u>100.00</u>	<u>56.55</u>	<u>38.33</u>	<u>5.12</u>
II – Ilocos & Mt. Province	<u>633</u>	<u>100.00</u>	<u>77.41</u>	<u>21.96</u>	<u>0.63</u>	<u>194</u>	<u>100.00</u>	<u>67.53</u>	<u>29.38</u>	<u>3.09</u>
Urban	316	100.00	69.62	30.06	0.32	70	100.00	58.57	40.00	1.43
Rural	317	100.00	85.17	13.88	0.95	124	100.00	72.58	23.39	4.03
III – Cagayan Valley and the Batanes	<u>1557</u>	<u>100.00</u>	<u>81.82</u>	<u>17.92</u>	<u>0.26</u>	<u>469</u>	<u>100.00</u>	<u>78.25</u>	<u>20.04</u>	<u>1.71</u>
Urban	176	100.00	67.61	32.39	–	37	100.00	62.16	37.84	–
Rural	1381	100.00	83.63	16.08	0.29	432	100.00	79.63	18.52	1.85
IV – Central Luzon	<u>2332</u>	<u>100.00</u>	<u>76.07</u>	<u>20.33</u>	<u>3.60</u>	<u>587</u>	<u>100.00</u>	<u>77.68</u>	<u>13.63</u>	<u>8.69</u>
Urban	1138	100.00	73.20	24.16	2.64	306	100.00	72.55	18.63	8.82
Rural	1194	100.00	78.81	16.67	4.52	281	100.00	83.27	8.19	8.54

Table 19 (Continued)

Region	Births					Deaths				
	Total Events Record- ed	Percentage of Coverage				Total Events Record- ed	Percentage of Coverage			
		Total	Matched Both Systems	PHE only	CRS only		Total	Matched Both Systems	PHE only	CRS only
V – Southern Tagalog & Is.	1889	100.00	69.56	27.90	2.54	435	100.00	70.11	25.06	4.83
Urban	1066	100.00	59.85	36.12	4.03	235	100.00	58.72	32.34	8.94
Rural	823	100.00	82.14	17.25	0.61	200	100.00	83.50	16.50	–
VI – Bicol	2066	100.00	74.10	22.12	3.78	477	100.00	71.28	21.38	7.34
Urban	379	100.00	70.45	27.18	2.37	98	100.00	64.29	30.61	5.10
Rural	1687	100.00	74.93	20.98	4.09	379	100.00	73.09	19.00	7.91
VII – Western Visayas	1689	100.00	70.99	22.14	6.87	452	100.00	67.03	24.56	8.41
Urban	785	100.00	71.85	22.93	5.22	253	100.00	66.01	29.64	4.35
Rural	904	100.00	70.24	21.46	8.30	199	100.00	68.34	18.09	13.57
VIII – Eastern Visayas	2024	100.00	71.69	18.77	9.54	536	100.00	76.68	14.74	8.58
Urban	1076	100.00	71.28	14.31	14.41	295	100.00	75.25	14.58	10.17
Rural	948	100.00	72.15	23.84	4.01	241	100.00	78.42	14.94	6.64
IX – Northern Mindanao	1419	100.00	71.95	24.24	3.81	363	100.00	72.73	18.46	8.81
Urban	123	100.00	79.68	17.07	3.25	38	100.00	86.84	7.90	5.26
Rural	1296	100.00	71.22	24.92	3.86	325	100.00	71.08	19.69	9.23
X – Southern Mindanao	1068	100.00	59.18	39.42	1.40	203	100.00	56.65	38.42	4.93
Urban	111	100.00	60.36	39.64	–	32	100.00	84.38	15.62	–
Rural	957	100.00	59.04	39.39	1.57	171	100.00	51.46	42.69	5.85

Table 20. Percentage of Matching of Birth and Death Events, Recorded in the Dual Records System (Unadjusted), by Urban-Rural Classification, by Region, Philippines: 1973

Region	Births					Deaths				
	Total Events Recorded	Percentage of Coverage				Total Events Recorded	Percentage of Coverage			
		Total	Matched Both Systems	PHE only	CRS only		Total	Matched Both Systems	PHE only	CRS only
PHILIPPINES	<u>16972</u>	<u>100.00</u>	<u>63.44</u>	<u>22.30</u>	<u>14.26</u>	<u>4272</u>	<u>100.00</u>	<u>56.98</u>	<u>25.56</u>	<u>17.46</u>
Urban	7845	100.00	61.44	24.53	14.03	1918	100.00	50.47	31.13	18.40
Rural	9127	100.00	65.16	20.39	14.45	2354	100.00	62.28	21.03	16.69
I – Manila and Suburbs (All Urban)	<u>2632</u>	<u>100.00</u>	<u>72.80</u>	<u>19.19</u>	<u>8.01</u>	<u>520</u>	<u>100.00</u>	<u>45.00</u>	<u>34.42</u>	<u>20.58</u>
II – Ilocos & Mt. Province	<u>583</u>	<u>100.00</u>	<u>79.07</u>	<u>19.73</u>	<u>1.20</u>	<u>171</u>	<u>100.00</u>	<u>70.76</u>	<u>28.66</u>	<u>0.58</u>
Urban	265	100.00	74.34	25.28	0.38	59	100.00	57.63	42.37	—
Rural	318	100.00	83.02	15.09	1.89	112	100.00	77.68	21.43	0.89
III – Cagayan Valley and the Batanes	<u>1357</u>	<u>100.00</u>	<u>68.61</u>	<u>18.13</u>	<u>13.26</u>	<u>408</u>	<u>100.00</u>	<u>72.06</u>	<u>19.12</u>	<u>8.82</u>
Urban	129	100.00	51.16	33.34	15.50	41	100.00	63.41	31.71	4.88
Rural	1228	100.00	70.44	16.53	13.03	367	100.00	73.02	17.71	9.27
IV – Central Luzon	<u>2430</u>	<u>100.00</u>	<u>56.17</u>	<u>16.91</u>	<u>26.92</u>	<u>614</u>	<u>100.00</u>	<u>51.79</u>	<u>21.01</u>	<u>27.20</u>
Urban	1205	100.00	53.69	18.84	27.47	297	100.00	47.81	25.25	26.94
Rural	1225	100.00	58.61	15.02	26.37	317	100.00	55.52	17.04	27.44

Table 20 (Continued)

Region	Births					Deaths				
	Total Events Recorded	Percentage of Coverage			Total Events Recorded	Percentage of Coverage				
		Total	Matched Both Systems	PHE only		CRS only	Total	Matched Both Systems	PHE only	CRS only
V – Southern Tagalog & Is.	1943	100.00	66.13	24.09	9.78	477	100.00	63.31	24.53	12.16
Urban	1074	100.00	57.91	31.94	10.15	251	100.00	51.39	36.26	12.35
Rural	869	100.00	76.29	14.38	9.32	226	100.00	76.55	11.50	11.95
VI – Bicol	1779	100.00	61.89	24.62	13.49	538	100.00	54.83	23.61	21.56
Urban	297	100.00	55.89	32.32	11.79	129	100.00	51.94	36.43	11.63
Rural	1482	100.00	63.09	23.08	13.83	409	100.00	55.75	19.56	24.69
VII – Western Visayas	1812	100.00	46.58	28.20	25.22	450	100.00	46.89	25.78	27.33
Urban	903	100.00	42.53	27.13	30.34	250	100.00	48.80	20.80	30.40
Rural	909	100.00	50.61	29.26	20.13	200	100.00	44.50	32.00	23.50
VIII – Eastern Visayas	2193	100.00	66.62	24.94	8.44	609	100.00	65.35	26.27	8.38
Urban	1126	100.00	63.14	29.75	7.11	311	100.00	60.77	31.19	8.04
Rural	1067	100.00	70.29	19.87	9.84	298	100.00	70.13	21.14	8.73
IX – Northern Mindanao	1365	100.00	69.96	21.91	8.13	286	100.00	58.39	23.43	18.18
Urban	116	100.00	63.79	28.45	7.76	27	100.00	48.15	29.63	22.22
Rural	1249	100.00	70.54	21.30	8.16	259	100.00	59.46	22.78	17.76
X – Southern Mindanao	878	100.00	51.03	27.90	21.07	199	100.00	47.24	35.17	17.59
Urban	98	100.00	37.76	30.61	31.63	33	100.00	36.37	30.30	33.33
Rural	780	100.00	52.69	27.57	19.74	166	100.00	49.40	36.14	14.46

ABSTRACT

Development and Maintenance of a Sample Vital Registration System in the Philippines

This report describes a project set up in the Philippines in 1970 to develop a Sample Vital Registration System for the purpose of deriving reliable estimates of birth and death rates on national as well as regional levels. A corollary objective was to develop and maintain a good civil registration system in the 10 sample areas so as to attain a level of registration coverage of at least 90 percent.

Alternative sources of vital rates in the Philippines were found to be inadequate. Some estimates indicate that civil registration covers only about 60 percent of vital events, with coverage of deaths higher than of births. The numerous sample surveys carried out have produced varied estimates of births, deaths, and growth rates; also, since these rates have been estimated by indirect methods, they are subject to the limitations of the assumptions required in applying these methods.

The project, which utilized the dual record system, was organized into 10 regions, each with a regional office headed by a junior specialist who was a faculty member on leave from the cooperating university/college of that region. Within each region, a stratified multistage sample design was used to select the sample enumeration districts. The first element of the project's dual record system was the Continuous Reporting System (CRS) which used local civil registration data in the sample areas in combination with a complementary reporting scheme whereby "Barrio Captains" and "Special Reporters" (in areas without Barrio Captains) supplied information about vital events occurring every month in their respective sample areas. The data from these two sources were combined through a matching procedure to obtain the total events recorded under the CRS. Municipal liaison personnel hired by the project did the matching and verified the nonmatched

events, contacted local midwives, and submitted unregistered events they discovered to the local civil registrar.

The other element of the project's dual record system was a Periodic Household Enumeration (PHE) which collected vital events during the preceding 12 months and also produced the base population used to compute vital rates. After an initial baseline survey in January 1971, three annual retrospective surveys were held in January 1972, 1973, and 1974. In addition, two midyear surveys were held in May 1971 and June 1972.

Matching of vital events from the CRS and the PHE was done at the enumeration district level. Due to migration fluctuations, vital rates estimates were very unstable, especially at the lowest level of estimation. Therefore, these rates were calculated for permanent residents, i.e., those who resided continuously for an entire year in the sample enumeration area.

Results indicated that vital rates based on the PHE were consistently higher than those obtained by the CRS. Birth rates based on both systems unadjusted by the Chandrasekaran-Deming formula showed a gradual decline over the three years. Death rates, on the other hand, seemed to have remained at constant levels. Urban-rural fertility differentials were large.

After applying the Chandrasekaran-Deming adjustment formula, the crude birth rate estimates for the Philippines were approximately 42 in 1971, 36 in 1972, and 37 in 1973. Adjusted death rates for the same three years were about 8, 9, and 10 per 1,000. Only 3 of the 10 regions reached the desired goal of 90 percent coverage of both births and deaths by the civil registration system. Thus, a satisfactory countrywide registration system for the Philippines has not yet been attained and remains a long-term goal.

RÉSUMÉ

Création et fonctionnement d'un système d'enregistrement d'état civil par sondage aux Philippines

Ce rapport est la description d'un projet entrepris aux Philippines en 1970, afin d'obtenir des estimations fiables des taux de natalité et de mortalité tant au niveau national que régional. En conséquence directe, ce projet avait pour objectif de créer un système valable d'enregistrement de l'état civil dans dix zones échantillons, et d'en assurer le fonctionnement afin de parvenir à un taux de couverture des enregistrements d'au moins 90%.

Les autres sources de taux démographiques, aux Philippines, s'étaient révélées peu satisfaisantes. Selon certaines estimations, les enregistrements de l'état civil ne couvriraient que 60% des événements naturels, la couverture des décès étant supérieure à celle des naissances. Les nombreuses enquêtes par sondage effectuées ont donné des estimations variables des taux de natalité, de mortalité et d'accroissement de la population; en outre, ces taux ayant été évalués par des méthodes indirectes, il s'y attache les limitations propres aux hypothèses de départ de ces méthodes.

Le projet, qui appliquait la méthode de double collecte, a été mis en oeuvre dans 10 régions; il y avait dans chaque région un bureau régional avec, à sa tête, un jeune spécialiste, membre du corps enseignant et détaché par l'université ou le "college" de la région qui coopérait à l'opération. Dans chaque région, le choix des districts de recensement de l'échantillon a été effectué à partir d'un plan de sondage stratifié à plusieurs degrés. Le premier élément du système de double collecte était constitué par le système d'enregistrement permanent (Continuous Reporting System—CRS) qui fait intervenir à la fois le système local d'enregistrement de l'état civil et un système complémentaire de recensement dans lequel des responsables de quartier ("Barrio Captains") et, dans les zones dépourvues de ceux-ci, des "enquêteurs spéciaux" fournissent des renseigne-

ments sur les événements naturels qui se sont produits chaque mois dans la zone échantillon de leur ressort. Les données provenant de ces deux sources ont été combinées par un procédé de collationnement pour donner le total des événements enregistrés par le système d'enregistrement permanent. Des agents de liaison communaux, engagés dans le cadre du projet, ont assuré le collationnement et vérifié les événements non concordants, ils ont pris contact avec les sages-femmes locales et ont fait part à l'officier de l'état civil des événements non enregistrés qu'ils avaient découverts.

Dans ce projet, le second élément du système de double collecte était un dénombrement périodique des foyers (Periodic Household Enumeration—PHE) qui rassemblait les données d'état civil des douze mois précédents et faisait apparaître aussi la population de base ayant servi au calcul des taux démographiques. Après une enquête initiale de référence en janvier 1971, trois enquêtes rétrospectives annuelles ont été effectuées en janvier 1972, 1973 et 1974. De plus, deux enquêtes ont eu lieu en milieu d'année: en mai 1971 et juin 1972.

On a procédé au collationnement des données d'état civil à partir du système d'enregistrement permanent et du dénombrement périodique des foyers, dans le cadre du district de recensement. En raison des fluctuations dues aux migrations, les estimations des taux démographiques étaient très instables, particulièrement au niveau inférieur d'estimation. Ces taux ont donc été calculés pour les résidents permanents, c'est-à-dire ceux qui ont résidé sans interruption pendant toute une année dans la zone échantillon de recensement.

D'après les résultats, les taux démographiques calculés à partir du dénombrement périodique des foyers ont été régulièrement supérieurs à ceux obtenus par le système d'enregistrement permanent. Les taux de natalité

obtenus par les deux méthodes et non corrigés par la formule Chandrasekaran-Deming ont mis en évidence un déclin progressif au cours des trois années. Par contre, les taux de mortalité semblent s'être maintenus à des niveaux constants. Des différences importantes dans la fécondité se manifestent entre les villes et les campagnes.

Après application de la formule de correction de Chandrasekaran-Deming, les estimations des taux bruts de natalité pour les Philippines

étaient d'environ 42 en 1971, 36 en 1972 et 37 en 1973. Pour ces mêmes trois années, les taux de mortalité corrigés étaient d'environ 8, 9 et 10 pour 1,000. Dans trois seulement des dix régions, le système d'état civil a permis d'atteindre l'objectif souhaité d'une couverture à 90% des naissances comme des décès. Ainsi, il n'existe pas encore aux Philippines de système satisfaisant d'enregistrement à l'échelle du pays et ce système demeure donc un objectif à long terme.

RESUMEN

Desarrollo y Mantenimiento de un Sistema Muestral de Registro Civil en las Filipinas

Este informe describe un proyecto establecido en las Filipinas en 1970 para desarrollar un Sistema Muestral de Registro Civil con el fin de poder derivar estimaciones confiables de las tasas de natalidad y mortalidad a nivel nacional y regional. Un objetivo adicional fue el de desarrollar y mantener un buen sistema de registro civil en las 10 áreas muestrales, a fin de obtener una cobertura de registro de por lo menos 90 por ciento.

Las otras fuentes de estadísticas vitales en las Filipinas han resultado ser inadecuadas. Algunas estimaciones indican que el registro civil cubre solamente alrededor del 60 por ciento de los eventos vitales, con una mayor cobertura de muertes que de nacimientos. Las encuestas muestrales realizadas han producido diversas estimaciones de nacimientos, muertes y tasas de crecimiento; además, dado que estas tasas han sido estimadas por métodos indirectos, están sujetas a limitaciones derivadas de los supuestos necesarios para aplicar estos métodos.

El proyecto, que utilizó el sistema de doble registro, fue organizado en 10 regiones, cada una de las cuales contaba con una oficina regional encabezada por un especialista que era miembro en licencia de alguna facultad universitaria de la región que estaba cooperando en el proyecto. Para la selección de los distritos muestrales de enumeración se utilizó, dentro de cada región, una muestra estratificada multietápica. El primer elemento del sistema de doble registro del proyecto fue el Sistema de Registro Continuo (SRC), que utilizó los datos de los registros civiles locales de las áreas muestrales, en combinación con un sistema complementario de recolección de información en el cual "Capitanes de Barrio" y "Reporteros Especiales" (en áreas donde no habían Capitanes de Barrio) proporcionaban información sobre los eventos vitales ocurridos cada mes en sus respectivas áreas muestrales. Los datos de ambas fuentes se com-

binaron por medio de un procedimiento de confrontación para obtener el total de eventos registrados mediante el SRC. El personal municipal recrutado por el proyecto llevó a cabo la confrontación de los datos y verificó los eventos no pareados, contactó a las matronas locales y comunicó al oficial del registro civil local los eventos que no habían sido registrados.

El otro elemento del sistema de doble registro del proyecto fue una Enumeración Periódica de Hogares (EPH), en la que se recolectó información acerca de los eventos vitales ocurridos durante los 12 meses precedentes y la que también proporcionó la población base utilizada para calcular las tasas vitales. Luego de una encuesta de base inicial realizada en Enero de 1971, se llevaron a cabo tres encuestas retrospectivas anuales en 1972, 1973 y 1974. Además, se hicieron dos encuestas a medio año en Mayo de 1971 y Junio de 1972.

La confrontación de los eventos vitales obtenidos a través del SRC y de la EPH se llevó a cabo a nivel del distrito de enumeración. Las estimaciones de las tasas vitales fueron muy inestables, especialmente en los niveles más bajos de estimación, debido a fluctuaciones por migración. Por lo tanto, se calcularon estas tasas sólo para los residentes permanentes, es decir, aquéllos que residieron continuamente durante un año en el área muestral de enumeración.

Los resultados indican que las tasas vitales basadas en la EPH fueron consistentemente más altas que aquéllas obtenidas a través del SRC. Las tasas de natalidad basadas en ambos sistemas, sin ajustarlas mediante la fórmula de Chandrasekaran-Deming, mostraron una disminución gradual a lo largo de tres años. Las tasas de mortalidad, por otra parte, parecieron mantenerse en un nivel constante. Los diferenciales urbano/rurales de fecundidad fueron altos.

Luego de aplicar la fórmula de ajuste de Chandrasekaran-Deming, la tasa cruda de nata-

lidad para las Filipinas se estimó aproximadamente en 42 para 1971, 36 para 1972 y 37 para 1973. Las tasas de mortalidad ajustadas para los tres mismos años fueron alrededor de 8, 9 y 10 por 1000. Solamente 3 de las 10 regiones alcanzaron la meta deseada de una cobertura

del 90 por ciento, tanto para nacimientos como para muertes, con el sistema de registro civil. De este modo, aun no se ha logrado en las Filipinas un sistema nacional de registro satisfactorio, permaneciendo su logro como una meta a largo plazo.

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