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Operations research for program planning and management

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THE POPULATION COUNCIL

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CONTENTS

LIST OF ACRONYMS

BHS	Barangay Health Station
BHW	Barangay Health Worker
BSPO	Barangay Supply Point Officer
CHO	City Health Officer
CPO	City Population Officer
DMPA	Depo Medroxy Progesterone Acetate (Depo Provera)
DOH	Department of Health
FPORTP	Family Planning Operations Research and Training Program
HRN	Health Research Network
LGU	Local Government Unit
MCH	Maternal and Child Health
MHO	Municipal Health Officer
NGO	Non-Governmental Organization
OR	Operations Research
PIDS	Philippine Institute for Development Studies
PPA	Philippine Population Association

OPERATIONS RESEARCH FOR PROGRAM PLANNING AND MANAGEMENT

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I. INTRODUCTION

A. Background

The Family Planning Operations Research and Training Program (FPORTP) of the Philippines was established in October 1992 to strengthen the nation's capacity to carry out and utilize operations research for program planning and management. To date, it has sponsored training workshops and funded a number of operation research studies on priority issues to both national and local program managers. These activities have been initiated as a first step towards institutionalizing OR-based program planning and management.

Such institutionalization requires sustained efforts in several directions. First, on the part of program managers, there is a need for them to appreciate the usefulness of research in program planning and management, and subsequently to strengthen their capability to utilize research findings for decision-making. Secondly, on the part of the researchers, there is a need for them to develop an interest in operations research, and subsequently to strengthen their capability to undertake valid and timely research useful to program managers. Thirdly, there is a need for effective mechanisms to formalize the interactions between program managers and researchers in identifying management and operations issues, developing information bases, and evaluating decisions on the basis of research and analysis.

The recent activities of the FPORTP, culminating in the National Research Utilization Conference held on September 1994, were designed to assist in the institutionalization processes described above. It identified a core group of researchers that could respond to the operation research needs of program managers, it brought to the attention of program managers the potential benefits of research-based decision-making, it brought together these program managers and researchers to jointly define program issues and research approaches and later to discuss and evaluate the implications of the research findings for improving management and operations. However, much more needs to be done both in terms of determining how these processes of institutionalization will actually work in specific national and local government agencies and academic and research institutions, and how to support and sustain the processes that do work.

B. Objectives

To get a sense of where we are now in the institutionalization process, there is a need to answer a few prior questions. First, on the program managers' side, how much importance do they place on research to guide their decision-making, given that research has both monetary and time

costs? What experience do they have on actual research-based decision-making? In particular, to what extent have the findings from operations research generated by FPORTP been actually utilized for decision-making? Secondly, on the part of the researchers, to what extent are they be willing and able to meet the potential demand for operations research in their localities? How could their willingness and capabilities be enhanced? Finally, on the issue of mechanisms for bringing decision makers and researchers together, what sorts of interaction have taken place, and how far can these interactions be sustained?

The proposed study is intended to answer some of these questions as a basis for determining ways to promote and sustain operations research in the Philippines. Specifically, the study aims to:

1. Review the experience of recent research activities (i.e., those sponsored by FPORT Program as well as by other agencies) with attention to the three aspects of the institutionalization process, namely: (a) developing capacity for research-based decision making among program managers; (b) building local capacity for conducting operations research; and, (c) establishing mechanisms for the interactions between program managers and researchers in the determination of issues and research approaches, the widest dissemination of research findings, and the utilization of these findings for program planning and management; and

2. On the basis of the above review, identify specific issues to be addressed and some concrete steps to be taken in the institutionalization process both at the national and local levels, taking into account the context of devolution.

II. TOWARDS INSTITUTIONALIZATION OF OPERATIONS RESEARCH FOR DECISION-MAKING: BASIC FRAMEWORK AND RECENT EXPERIENCE

A. Framework

Operations research for decision-making will be undertaken on a sustained basis if there is a demand for such research by program managers and there is a supply of researchers willing and able to do operations research. The amount of operations research that will be undertaken and utilized will depend upon the interaction of demand (program managers) and supply (researchers).

Based on this simple demand-supply framework, the tasks that need to be undertaken to institutionalize operations research for decision-making would revolve around the following: (1) creating and sustaining demand for operations research; (2) developing and maintaining research capacity; and (3) establishing mechanisms that promote the interaction of program managers and researchers.

1. Creating Demand for Operations Research

The demand for operations research by program managers is derived from their demand for information needed to make decisions. This demand in turn depends on their capacity to make decisions based on good information and on their perception of the usefulness of operations research for decision making. Furthermore, to make this demand effective, program managers must have the resources to finance operations research. Hence, effective demand depends also on program managers' capacity to mobilize such resources.

The demand for operations research will be low if program managers have limited capacity to use information for decision making. This can happen if program managers at the lower levels of the delivery system have very little to decide on with respect to operational strategies because the program has been designed and managed centrally. However, with the devolution of health and family planning services to local governments, we expect that program managers at the local levels will increasingly be called upon to make decisions previously made at the central level.

Even if program managers have a wide range of decisions to make at their level in the delivery system, they may not use information from operations research if they are not convinced about the usefulness of such research for decision making. This in turn may be due to limited experience with operations research.

Finally, even if program managers are convinced of the usefulness of operations research, they may be too preoccupied with the pressures of daily work that they cannot easily get an overall perspective of potential operational problems that might require research to properly diagnose and correct.

To develop the capacity to use information for decision making, there is a need to demonstrate to program managers how research can aid in decision-making and to regularly disseminate information on success stories, i.e., actual experiences of how research had made a difference in the quality of decisions among program managers.

On the other hand, in the context of devolution, program managers must be able to defend their programs (including the research component of such programs) and obtain the necessary resources to implement them both from the local government budget and from outside sources, particularly funding agencies. To further develop program managers' capacity to mobilize resources, there is a need, on the one hand, to upgrade their skills in proposal development and, on the other, to update their information on potential donors.

2. Developing Research Capacity

There is a need to develop and maintain national and local capacity to serve the research needs of program managers at different levels of decision-making. Such capacity depends on existing stock of researchers found in universities and research institutes including in-house research units in various government agencies, and the addition to such stock through training. For such potential supply to become effective, there is a need to deal with a number of factors that have been thought

to have hindered the development of supply in the past. These include (1) the perception that operations research is a "quick and dirty" type of research rather than a scientific undertaking; (2) the lack of time to undertake operations research by researchers in academic institutions because of the heavy teaching responsibilities imposed by these institutions.

To create a favorable environment for operations research, there is a need to correct both researchers' and program managers' mistaken perception that operations research is not scientific research. Secondly, there is a need for academic and research institutions to modify their incentive structures to allow their staff time-off from usual responsibilities to undertake operations research when a demand for such research materializes.

3. Mechanisms for Encouraging Greater Interaction Among Program Managers and Researchers

The interaction of demand by program managers and the supply by researchers results in the utilization of operation research for decision making. The interaction of program managers and researchers, however, must occur at all stages of the operation research process (which should be construed as an interactive process rather than a linear one with different possible starting points and loops). These stages include: (1) identification of decisions requiring information that can be provided by operations research; (2) translation of these information needs into researchable questions; (3) design of research to obtain the required information; (4) conduct of the studies; (5) translation of research results into actionable recommendations; (6) design of the action or intervention program; (7) implementation of the action or intervention program; (8) design of the monitoring and evaluation of the action program; (9) conduct of monitoring and evaluation; (10) translation of monitoring and evaluation results into decisions regarding the action program (i.e., to continue, modify or abandon).

In each of these stages of the operations research process, there is a need for close consultation among program managers and researchers, and more importantly, agreement on the research problem to be addressed, and the research design and the types of information (and their meaning for the program) to be obtained, for both the diagnostic and the action parts of the study.

4. Managing the Institutionalization Process: Main Intervention Areas

It follows from the above framework that the DOH and funding agencies concerned with the institutionalization of operations research for decision-making should address the above three elements of the institutionalization process. First, they could create demand for operations research among program managers at various levels of decision-making. It could do this principally by addressing two key concerns: (1) developing capacity for research-based decision-making among program managers; and (2) developing capacity for mobilizing resources for operations research from various sources.

Secondly, they could facilitate the development and maintenance of research capacity. It could do this by assisting institutions to consider and adopt alternative incentive structures to make

operations research an attractive undertaking by their staff and to free up time for operations research. Moreover, it could, by requiring that operations research meet the rigors of scientific inquiry, modify researchers' attitudes about operations research.

Finally, they could facilitate the interaction of program managers and researchers in all phases of the operations research. First, it could provide information to program managers of a list of researchers and their qualifications and experience. Second, it could provide researchers with a list of concerns that program managers commonly face that require research. Third, it could establish mechanisms for these two groups to come into frequent contacts through seminars and workshops and through information dissemination of operations research issues and results.

B. Some Observations from Selected Research Programs

1. The FPORT Program

1.1 Activities

The FPORT Program has undertaken several activities that serve to heighten demand, improve research capacity and encourage further interaction among program managers and researchers. These activities included workshops involving program managers and researchers, conduct of collaborative research, research dissemination, and support for utilization of research results (See Population Council, *Final Report: National Research Utilization Conference*, 1994).

The first workshop in October 1992 provided an introduction to operations research in family planning. It brought together 35 family planning program managers and researchers to discuss program constraints and priority issues and oriented the participants to the concepts, techniques and usefulness of operations research.

The second workshop in January 1993 brought together the same participants to review the problem areas identified in the first workshop, enhanced skills in the preparation of research proposal, and finalized research proposals for funding. Five proposals were subsequently endorsed by the DOH and funded by the FPORT Program.

The five operations research projects were then implemented by researchers in close collaboration with program managers in their respective localities. After each study was completed, a local dissemination/utilization workshop was conducted. The participants included local government executives, program managers, NGO representatives, other service providers, and members of the academic community.

In September 1994, a national research utilization conference was held to disseminate the results of the five operations research studies and to discuss the implications of the findings for operations. Further dissemination was done with the preparation of the final reports of the studies and

the publication of summaries of each study's findings and recommendations as well as initial actions taken by program managers on the findings and recommendations.

1.2 Some Notable Features

One notable feature of the program is the close interaction among program managers and researchers. In comparing their experiences in this program with that of another research program involving the DOH, the researchers revealed that under the FPORT program there was greater interaction among program managers and researchers from the conceptualization of the research, to the implementation of the research, and to the discussion of findings and implications for decision-making. In contrast, the interaction among program managers and researchers in the other DOH research program (Health Research Network Program to be described later) was limited to the preparation of a research agenda and the presentation of research findings in a regional seminar. In between the researchers developed the research proposals based on the agenda very much on their own. Once funded, the researcher conducted the research, again, very much on their own.

Another notable feature of the program is how quickly study findings were acted upon. The following illustrates the nature of the findings and the actions that followed (as contained in Population Council *Research News*, statements of program managers in the September 1994 National Research Utilization Conference, and partly verified in interviews):

In the study of factors affecting the performance of volunteer workers in the delivery of family planning services in Iloilo City, the following were uncovered: (1) the BSPOs and BHWs needed training especially as family planning motivators and communicators; (2) the BSPOs were not widely known in their barangays; (3) supervision was inadequate; and (4) coordination between the City Health Office (CHO) and the City Population Office (CPO) was weak. As a result of these findings, the City Government, through the City Health Office and City Population Office undertook the following activities: (1) training of BSPOs in community organization and basic family planning; (2) provision of all BSPOs with sign boards for easy identification and, hence, facilitate access to them by the residents; (3) conduct of dialogues, team building sessions and monthly conferences among CHO and CPO personnel, together with volunteer workers, to facilitate better coordination between the two offices; (4) as a result of better coordination, setting up of a referral system jointly drawn up by the CHO and CPO to facilitate referral of family planning clients to appropriate clinic services; and (5) development of a proposal for a family planning management and supervision course for population program officers and clinic personnel for implementation under the LGU Performance Program Plan (Source: Report of the CPO to the City Mayor contained in a letter dated August 23, 1994 and from interview with CPO).

In the study of the implementation of the DOH Training Course for Family Planning Providers in Region II and the Cordillera Autonomous Region, it was reported that the findings led to the restructuring of the DOHs training program, specifically to shorten the duration of training in the Preceptor Training Module and to reduce the number of IUD insertions required in the training of clinician/midwife providers in the Basic/Comprehensive Training Module. Moreover, issues of quality

of care were made an explicit part of the Basic/Comprehensive Training Module where previously it had only been a part of the Preceptor Training Module (Population Council *Research News*).

In the study of factors affecting the family planning drop-out rates in Bukidnon, the findings and recommendations regarding quality of care, logistics, supervision and focus of IEC on husbands also rather than on wives only were reported to have led to the following activities: (1) full utilization of FP clinical standards and the manual as a guide for FP service providers on their day- to-day operations in the clinic; (2) emphasized during training and monitoring the importance of informing the clients about side effects, complications, and the advantages and disadvantages of specific methods; (3) put in place the logistics system; (4) intensified supervision to include on-the-job coaching; and (5) conducted program reviews with local government units. In this last activity, the MHO reported on the MCH and FP programs in their respective municipalities based on their records and discussed constraints to the program. As a result of this program review, additional problems were uncovered including: (1) there is demand for DMPA and natural family planning among clients but FP workers were trained only in the other methods; (2) some RHU did not have basic supplies and as a result, the MHO's were asked by the respective local government executives to submit budget proposals for consideration. The program review was believed to have help convince some LGUs to fully support the program. (Remarks by FP Coordinator, Region 10 contained in September 1994 Conference *Final Report*, and from interview with the Regional FP Coordinator).

In the diagnostic study of the DOH volunteer health workers program conducted in four provinces (Davao del Sur, Davao del Norte, Lanao Norte, Lanao Sur), the findings and suggestions for upgrading the BHW program were made with respect to incentives, support services, clarifications in the role of volunteer health workers, and training and recruitment patterns. During the research utilization workshops held in Davao City and Iligan City, the program managers strongly recommended and planned for the training of BHWs. Such training were to include role clarifications and record keeping. Moreover, the Governor of Davao del Norte and provincial administrator of Davao del Sur supported the need to strengthen the incentive system for volunteers. In the case of Davao del Norte, the Governor assured the participants that the cost of incentives will be financed from the provincial budget (Source: Lacuesta, et. al. in September 1994 Conference *Final Report*).

The experience of FPORT program shows that in a short span of two to three years, much can be accomplished in bringing together program managers at the local level and researchers in the same localities to identify priority issues, develop and implement operations research to address these issues, and to draw up action plans based on research findings.

1.3 The Need for Monitoring and Evaluation of Actions Taken

While this research program can be noted for the quick action taken on the basis of the findings, there was strong feeling both among program managers and researchers that there is a need

to go further, that is, to find out the effects of the actions undertaken. In other words, there was a perceived need for monitoring and evaluation of the actions taken, again jointly by researchers and program managers, thus continuing the interaction started out during the identification of the problem to be studied. The involvement of the researchers in the monitoring and evaluation is deemed important by program managers to ensure that the evaluation is not biased.

1.4 Other Observations

There were certain characteristics of the actors that affected the performance of the program in certain areas. First, the quick action response in Iloilo City to the research findings was partly due to favorable support of the local chief executive to the family planning program, the presence of an active Population Office with good relations with the chief local executive, and a previously established close relationship between researchers and program managers. The presence of City Population Office (CPO) independent of the City Health Office (CHO) and with strong support from the local chief executive is probably a single major factor that distinguished Iloilo City from other areas. For one, the family planning program is given more attention since the CPO can concentrate on this program while leaving the larger health program to the CHO. Moreover, the fact that the city government has direct and full control over the implementation of the health and family planning programs is also a plus factor. This is not the case for provincial governments where the implementation of action programs would usually require further coordination with municipal governments, which implement these programs through the Rural Health Units and Barangay Health Stations under their jurisdiction.

Good relations between local government executives and health personnel, particularly the Provincial Health Office, is perceived to facilitate the implementation of the family planning program and operations research. Very often, however, this is not the case. There is perception among devolved health personnel that local government executives place very low priority on family planning if not health services, and much lower priority still on operations research..

Finally, something must be said with respect to how some program managers viewed the usefulness of operations research. As a head of a city population office insightfully observed: while operations research does not always arrive at findings that are surprising, (1) it does serve to confirm that a suspected problem actually exists, (2) it provides a more accurate measure of the extent of the problem, (3) it makes the findings more credible than if the problems were simply articulated based on gut feel, and perhaps more importantly, (4) it gives a sense of urgency to all concerned so that solutions to the problem are formulated and acted upon quickly.

2. Health Research Network Project

2.1 Activities

The Health Research Network (HRN), a project of the Department of Health and the Philippine Population Association (PPA), was officially launched in September 1990, The objectives of the HRN project, among others, were (1) to develop among health managers an awareness of the importance of research as a decision-making tool; (2) to promote and support research aimed at assessing the factors that influence the effective implementation of local health programs; and (3) to build the capabilities of local research institutions in health research.

The HRN project undertook a number of activities. The first was the forming of the nationwide network of institutions that can undertake health research in the regions. Local research institutions have been identified to constitute the local HRNs. The HRN had likewise provided training on research methodology and proposal writing for health personnel and the staff of the research institute-affiliates.

Moreover, regional research agenda have been formulated through consultative dialogues involving regional DOH officials and researchers. A total of 25 research studies were supported (See Annex B). The findings were disseminated through the publication of the HRN newsletter and the conduct of research utilization workshops in the regions.

2.2 Some Observations

One notable feature of the project was the establishment of a mechanism for interaction between the DOH and researchers at the regional level through the Regional HRN. Thus research activities were decentralized to the regional level to be more responsive to regional and local level needs. Secondly, a peer review process was established where research proposals and completed research from the regions are reviewed and recommended for approval/acceptance by an HRN Steering Committee composed on representatives of PPA, the DOH, and the regional research institute-affiliates.

The utilization of the research undertaken under the HRN program, however, was considered poor. The Project Coordinator for DOH identified several reasons. First, in some cases, the subject of the research was not relevant to the decision maker, that is, the research addressed questions that were not the most pressing problems facing the decision maker at that time. Secondly, in other cases, the proper body or decision maker who can use the research results was not properly identified. Thirdly, in still other cases, those who requested the research studies were not oriented on how to interpret the results for decision making. In sum, the lack of research utilization was due either to the fact that the problem being addressed by the research was not relevant, or if relevant, the user of the research was not properly identified and therefore the research results were not brought to his or her direct attention, or if both the research was relevant and the user was properly identified, the user did not have the capability to interpret the results for decision making.

A preliminary report of an evaluation of the HRN project corroborated the above observations (Planning and Development Research Foundation, Inc., *Health Research Network (HRN) Project: An External Evaluation Report*). The evaluation study found, among others, that while the project

has generally been successful in forming a nationwide network of research institutions that have some capacity for undertaking health research, it has been less successful in using research findings for policy formulation and program management at the regional level. This lack of utilization was attributed in part to certain shortcomings in the research agenda formulation process that were partly responsible for the lack of relevance of some of the research topics. These were (1) inadequate preparation among DOH personnel; (2) lack of participation from other sectors such as women's groups, labor and NGOs; and (3) weak information base at the regional health office).

In addition, the evaluation noted that there is still a long way to go with respect to research capacity building at the regional level. The research institutes in the network varied greatly with respect to research capabilities and in was found that only a few have participated in research. Of the 81 research institute affiliates, only 17 have thus far been involved in research project implementation.

The DOH and PPA are currently reviewing past efforts and the possibility of extending the project to another phase (four-year time frame). The HRN project was started prior to the implementation of the devolution, hence, the new phase will take into account the new realities associated with the devolution. The program will also take into account new structures within DOH such as the establishment of the Essential National Health Research Unit, which supports research and capability-building efforts at the national, regional and local levels.

3. DOH-PIDS Research Program on Baseline Information for Health Sector Reform

3.1 Activities

This program, launched in 1991, was implemented by the Philippine Institute for Development Studies (PIDS). It involved the conduct of baseline studies on a wide range of issues related to the development of health care financing reforms. These issues revolving around six major topics: (1) beneficiary profile and behavior; (2) provider profile and behavior; (3) evaluation of the current Medicare Program; (4) financial resource base for the health care financing system; (5) evaluation of the health care financing environment; and (6) planning models for health care financing. The research program involved researchers from various disciplines and institutions.

3.2 Some Observations

Several notable features may be noted. The first is the management structure of the research program. At the top was a steering committee chaired by the Undersecretary for Health and concurrently the Chief of Staff who provided overall guidelines. The project director based at PIDS provided technical guidance on all phases of the project supported by an ad hoc research advisory group and was also in charge of synthesizing all of the research findings. Peer review was implemented through seminar presentations of work in progress and final reports to other researchers, policy makers at the DOH, and representatives of various health sector stakeholders. In such presentations, the scientific aspects of the research were evaluated by fellow researchers while the proper interpretation and relevance of the findings were commented on by the policy makers and

representatives of stakeholders. Before the research was finalized for publication, it was again reviewed by a referee.

Secondly, survey data were collected on a number of concerns which provided the common source of data for researchers addressing various issues, particularly on beneficiary profile and behavior, provider profile and behavior, and the evaluation of the Medicare program. This was important for ensuring that interrelated issues are addressed coherently based on a common data set that described the reality at a given point in time rather than different aspects of the reality at different points in time. The results of the different research under the program, therefore, can be cumulated to provide a consistent large picture of the health care financing environment and performance. This could not be easily obtained from independent studies using different data sets. In order words, the results of the individual research add up to the large and integrated picture. This feature had important implication for the utilization of research. The research has provided a rich source of basic information and analysis that could address new issues as they arise. Indeed, many of the analyses required for developing the technical details of the national health insurance program called for by the National Health Insurance Act of 1995 drew upon the data and analyses of this research program.

In summary, the two notable features of this program are: (1) the research is linked directly to the user at the highest level of decision making at the DOH: the Secretary of Health through the Chief of Staff, and (2) the research produced a rich source of information that could be drawn upon for analysis of emerging issues beyond the lifetime of the research program in question. Based on this second feature, one probably needs to suspend final judgement regarding the lack of research utilization under the HRN program. The studies conducted under the HRN, if synthesized into a consistent body of information, could still provide a basis for analysis of current and emerging policy and program issues.

4. DOH-UPecon Health Policy Development Program

This on-going program, which aims to develop a research-based health policy formulation and evaluation, involved a number of activities. These included (1) development of a national health accounts data base; (2) research capacity building in health economics through a fellowships program; and (3) research and technical assistance program in the areas of health care financing, devolution, and health sector planning, among others.

Several features of the program may be noted. First, the program is directly linked to the Secretary of Health through the Chief of Staff. There is regular program formulation and benchmark review processes involving the DOH, the UPecon Foundation (the private institution whose sole aim is to support the activities of the University of the Philippines School of Economics) and the funding agency (USAID) to ensure consistency of priorities and timely completion of activities for input into the decision making process. The direct link between the researchers and providers of technical assistance, on the one hand, and the decision makers at the DOH, on the other hand, facilitated adequate consideration and effective utilization of findings and recommendations.

Secondly, while the DOH leadership is the primary client of the program, the information produced by the program are made available to the other decision making units of government, notably the legislature, and to the various stakeholders of the health sector through publication, briefings, and the establishment of the Multi-Sectoral Health Policy Forum.

Finally, the program produces two types of information. One is general in nature and which is available to everybody and is, therefore, useful to any of the stakeholders for whatever analysis they might wish to make. This is the national health accounts, which provide information on national health care expenditures and sources of financing. The second type of information is specific. The DOH leadership expresses a need for specific information or technical assistance. Such specific needs that are of operational in nature include request for assistance to study and make recommendations on DOH reorganization, logistics, incentives to local governments to deliver critical primary health care services, etc. The program responds by providing technical assistance or by commissioning research. The other specific needs that are broader in scope include assistance in the design of the implementing rules and regulations for the national health insurance system that was recently established by law. Responding to this need required reviewing past research and international experience on designing health insurance, analysis of available data regarding beneficiary and provider behavior under an insurance regime, and constant dialogue with the DOH and other users of the information.

C. Summary of Basic Issues

Below are some of the basic issues that arose from the above review of recent experience in both operations research and in other types of research.

1. Utilization of Research

A perennial issue is that of utilization of research results for planning and management. On the basis of the recent experience, it appears that several factors account for this observed lack of utilization. The first is the relevance of the research to the concerns of the program manager. Obviously, if the research question being addressed is not the question the program manager wants answered, (s)he will not be interested in the research itself, much less the results. This was a major observation with respect to the HRN project in general. This was also the experience in one research project in FPORT program, where the misunderstanding between researcher and program manager regarding the questions to be answered persisted up to the end of the research. As a consequence, the program manager did not find the research relevant. The program manager went on to commission another study, and fortunately found the results useful for improving the current strategy.

A second factor is that the recommendations from the research are too general to be acted upon directly without further specifying what really needs to be done or can be done (e.g., such recommendations as improve logistics or improve BHS facilities). A third factor is that the recommendations from the research are beyond the decision making authority of the program manager to whom the recommendations are being addressed (e.g., recommendations to develop infrastructure such as roads and water supply as a means to help control acute respiratory infections).

Finally, some program managers do not know how to interpret the results of the research for decision making. This is in turn could be due to the program manager's lack of training in the basic discipline used by the research and to the researcher's inability to translate technical findings into a language the program manager can readily relate. In this case there is a need for further processing of the research results by both program managers and researchers before these can be useful for decision making.

2. Building Capacity to Synthesize and Utilize Research

As the completed studies from a research program cumulate, there is a need to synthesize the various findings and transform them into a consistent set of recommendations. Very often the capacity to synthesize findings from cumulated research for decision making is lacking, both from the program manager's side and from the researcher's side. Each research study is treated only as a single independent study and of concern only to the area where the study was done while similar studies that could provide further insights into a particular problem in a specific area are not considered in formulating recommendations.

3. Planning and Funding the Complete Operations Research Cycle

There is general agreement on the desirability of monitoring and evaluating the action program implemented as a result of the of research. The idea is to find out if, indeed, the action program is making a difference in addressing the problem under consideration so that further action can be taken if necessary. However, what happens in most cases is that the monitoring and evaluation part of the entire cycle of research is not planned for and, therefore, not funded. Thus, once the diagnostic part of the research is completed and the results presented and discussed, the research is considered finished. The researcher then returns to his or her institution to undertake another research or engage in other activities. The program manager might in fact go ahead and implement some of the recommended actions, but more often than not, he or she also moves on to attend to other concerns.

One way to ensure that the entire research cycle is completed is to plan and to provide the necessary resources for undertaking it. Of course, there is an element of uncertainty in this approach since it is possible that the diagnostic part of the research does not yield any urgent need to take new action. To minimize the effect of this uncertainty in the funding of research, it might be useful to consider a separate funding (separate from but contingent on the diagnostic part of the cycle) for the activities that would include the development of the necessary action program arising from the research findings, and the monitoring and evaluation of this program for further decision making. In this way, the interaction between researcher and program manager continues up to the end of the cycle.

4. Further Research Capacity Building in the Regions

As observed by the external evaluation of HRN, the research capacity among institutions in the regions vary considerably. Both the HRN and the FPORTP have undertaken activities to upgrade

research capacity through training programs in research methods and proposal development. These efforts, however, are not adequate to train new crops of researchers who can do high quality research in the various disciplines. The training of such researchers takes time, and usually requires as a minimum the completion of graduate studies at the masters level. Support for such training programs is likely to be beyond the scope of activities of FPORTP, although the proposed extension of the HRN might consider including into its overall program a graduate fellowships program for candidates coming from regional academic institutions. In any case, there is a need to tap other, and perhaps larger, programs that support long-term training to address this supply problem. Hence, there is a need to coordinate with other programs to ensure that research capacity building go hand in hand with the promotion of research for decision making in the regions.

5. New Challenges Arising from Devolution

With the devolution of the delivery of health and family planning services to local government units, new realities emerge that must be taken into account in the institutionalization process. First, the priority given to family planning and to research vary greatly among local government units. Secondly, the capabilities of local program managers to initiate, undertake and utilize research for decision making also vary greatly. Thirdly, while operations problems requiring research often manifest themselves at the lowest level of decision making, the initiative and the capability for undertaking the necessary research are often the most lacking at this level of decision making. Finally, the dynamics of planning and budgeting vary greatly among local government units and are influenced among others by the personalities of local government executives, local planning officers, local legislators, the DOH regional staff and devolved health personnel.

III. MANAGING THE INSTITUTIONALIZATION OF OPERATION RESEARCH

A. Developing the Infrastructure

1. Creating Demand for Operations Research

1.1 New Skills and Perspectives

There is a need for new skills and attitudes attendant to the changes brought about by devolution. As the DOH central and regional managers move away from their traditional service

delivery function, they must increasingly develop their capacity to perform the roles of coordinator, catalyst, advocate, and provider of technical assistance. Moreover, they must develop skills to work effectively with the different local government units in the planning, implementation and funding of operations research. To do this they need to understand the LGU's system of priorities and their planning, resource mobilization and resource allocation processes. The development of such skills and perspectives can be facilitated by periodic reassessment of the DOH staff''s functions under the devolved system and their experiences in dealing with local government executives and local program managers.

There is also a need for new skills and perspectives among local program managers at the local level. As they move away from the idea of simply relying on directions from central or regional authorities, they must begin to act like "secretaries of health" in their respective areas. This means that they must increasingly develop the capacity to plan and manage the program and to lobby for funds from the local government to ensure adequate funding for their program. They should likewise develop the capacity to augment local resources by tapping resources from national government agencies and international donors. The development of such skills and perspectives can be facilitated by seminars and workshops that bring together local program managers and local government executives to reassess their roles and responsibilities, to discuss the place of family planning and research in the overall local government priorities, and to review the resource mobilization and budgetary processes to ensure adequate funding for operations research. Furthermore, the exchange of experiences among local program managers can help provide each with a broader perspective of the possibilities for program planning and management and can help develop confidence in their abilities to deal with their local government executives, on the one hand, and with their program clients, on the other.

1.2 Linking Local Issues and National Concerns

Interest in operations research on local issues is likely to be heightened if these are linked to national concerns and if the results of operations research on local issues are shown to be useful in national health policy formulation. Operations research would then cease to be perceived as something that deals only with narrowly confined issues of concern only to local level managers in specific areas. Rather it will be correctly perceived as an integral part of a larger information system. The generic issues that operations research addresses are the same as those addressed by national health policy research. These generic research issues are described in Annex A. These issues are relevant whether were are looking at them from a national policy perspective or from a program manager’s operational perspective.

National issues are likely to be manifested in different ways in different areas. Take the case of the problem of unmet needs for family planning services. In some areas this might involve unmet need for spacing rather than for limiting births; moreover, the reasons might be due mainly to lack of acceptability of available methods rather than simply lack of access. Under this situation, operations research might be needed at the local delivery system to identify and locate couples in the area with unmet needs, understand the nature of their situation, and design local strategies to

effectively deal with the situation. Thus a national concern gets translated into operational issues of effective targeting and focused intervention at the local delivery system. Many operations research studies might initially involve examining how national problems are manifested at the local level. This is important because it is at the local level that many of these problems can be adequately addressed.

Alternatively, the persistence of certain operational issues might simply be the effects of a national policy. For example, a common local concern is the heavy workload of the barangay health station (BHS) midwife. An operational issue might be how to reallocate the midwife's time or how to combine her time with other inputs, like transport allowance and volunteer health workers, in order for her to effectively cope with persisting heavy workloads. When this local issue becomes common to all local delivery systems as revealed by the cumulation of local level operations research, this could lead to a national policy reconsideration regarding the staffing patterns of health facilities nationwide. The perennial overload of BHSs nationwide might indicate that past staffing patterns are no longer adequate (optimal) at present as a result of changes in the epidemiological profile, population density or demand for health care services. In other words, operations issues when they become common enough, persist over time and cut across local areas might suggest that the root cause of the operational problems lie in national policies that now require reexamination. Research at the national level that builds on the results of operations research might then be needed to determine what might be a more appropriate staffing pattern for current facilities or even more broadly, to determine how best to restructure the entire delivery system in terms of facilities, staff and services offered, in order to adequately respond to changing health profiles and demand for services.

The two examples above suggest that in addition to providing program managers with information to solve problems in specific settings, (1) operations research can to help validate national concerns in ways that can be acted upon at the local level; and (2) the results of operations research at the local level can have important implications for national health policy reform.

2. Developing Capacity for Research

2.1 Developing Capacity for Managing Research versus Doing Research by the DOH and Local Program Managers

A recurring issue is whether research should be undertaken by in-house research staff or be commissioned to researchers based in universities and research institutes. If it is the desire that research be undertaken by in-house staff, would DOH and local program managers have the research capacity (adequately trained staff) to do the research. If not, should they duplicate the capacity found in universities and research institutes. If they can duplicate such capacity, can they maintain it over time? It would appear that in the short run, it would be difficult to develop in-house capacity for research at a level found in universities and research institutes, and even if such capacity can be

develop over the medium-run, it is doubtful the DOH and more so the local program managers, can maintain such capacity in the long-run.

However, what might be needed is not really in-house capacity to do research but in-house capacity to manage research. Managing the research simply means ensuring that all the various stages of the research process described earlier do in fact take place as planned culminating in improved planning and management. Perhaps the critical part of the capacity to manage research is the capacity to initiate the research process followed by the capability to synthesize and transform research findings into actionable recommendations for addressing specific problems.

There is a need to develop in program managers the capacity to be sensitive to operational issues that require research. The development of such capacity can be facilitated by training programs using case studies to demonstrate how successful managers have identified a problem situation as requiring research and then proceeding to manage the research process itself.

The capacity to synthesize and transform research findings into actionable recommendations is also an important capacity to develop at the DOH and local levels. Concrete actionable recommendations arising from research findings are often lacking in most research reports. This partly contributes to research findings being ignored by program managers who are not trained in drawing out the implications of research findings for planning and management.

2.2 Promoting Research Capacity Building in Academic and Research Institutions

What can the DOH do to promote operations research as a legitimate and worthwhile activity among researchers in academic and research institutions? One is to help dispel the wrong notion that operations research is unscientific ('quick and dirty") research. There are several ways this can be done. The first is to require that the research being done meets the rigorous standards of scientific inquiry. Peer review of research designs and of the analysis and interpretation of findings should be planned (and therefore budgeted) as part of the research process. The second is to support researchers (and provide financial assistance if necessary) to enable them to transform their research reports into publishable forms and to submit these to refereed scientific journals. Assistance is often needed for further processing of the data and statistical tests suggested by referees to improve the paper. The attempt to publish the results of operations research means that prior agreements have been made between the researcher, the program manager and the funding agency regarding the joint ownership of the data and the freedom of the researcher to publish. Having one's work published in a reputable scientific journal is one test that the work meets the rigors of science. Moreover, such publications form part of the researcher's reward for undertaking such research as a member of the academic community where merit is largely determined by publications. The prospect of having the results of operations research published is one incentive that would attract researchers to do operations research. Making the results of research solely the property of the program manager or of the funding agency would be a major disincentive to operations research and should be avoided if possible.

A second approach to assist in the capacity building of universities and research institutes is for DOH to link up with existing programs that have research capacity building components. The link up can take several forms. One is to help these programs identify potential researchers and institutions needing assistance in terms of fellowship support for graduate and other training programs. Alternatively, one can link researchers and institutions to programs that support capacity building. Thus, the DOH can act as a broker linking capacity building needs of academic and research institutions with available resources being provided by various programs.

A third approach and closely related to the second is to link up with existing networks such as the Health Research Network organized by the DOH in collaboration with the PPA. Such links could be in the form of participation in training workshops and research dissemination seminars.

3. Promoting Interaction Among Researchers and Users of Research

3.1 Clearinghouse for Research and Researchers

The interaction among local government executives, program managers and researchers can be facilitated by availability of information about research issues of national and local interest; research findings from national and international research; research institutions and their major research interests and expertise; and researchers in various disciplines and their qualifications.

The list of institutions and researchers engaged in operations research could be prepared and distributed as a directory which can be updated from time to time. The information on research issues and findings could be prepared and distributed as newsletters, research news, or briefs. After some time when it is possible to connect regional institutions and local government units on the Internet, it might be a good idea to have a web site for operations research in the Philippines.

3.2 Tie-Up with Existing Networks

There is a need to link up with other programs that have similar objectives. At the DOH level, these programs include the Essential National Health Research Program (ENHR) and the Health Research Network Project. Both programs have as their objectives the institutionalization of a research-based decision making and research capacity building at the national and local levels. At the national level, there is the Philippine Council for Health Research and Development with similar objectives with attention to biomedical research. The link up could take the form of joint activities, i.e., orientation seminars and training workshops, or sharing of information about research issues, local government activities, researchers and research institutions.

B. Next Steps

1. Identifying the Decision Making Processes at the Local Level

With devolution, the responsibility of delivering family planning services was transferred to the local governments. Institutionalizing operations research ultimately requires institutionalizing this at the local government level. There is, therefore, a need to work with the LGUs in planning and implementing operations research and utilizing the results for local decision making.

Working with the LGUs and local program managers, however, requires understanding of the decision making processes at each level of the service delivery system. The first set of questions for each level include: (1) what types of decisions are needed to improve planning and management; (2) what information is needed to make goods decisions; and (3) which of the information needed require operations research. The levels of decision making include (1) the DOH at the national level and regional levels; (2) the Governor, provincial planning office, provincial legislature, Provincial Health Board, Provincial Health Office, and Population Health Office at the province level; (3) City Mayor, City Council, City Planning Office, City Health Board, City Health Officer and City Population Officer at the city level; and (4) the Municipal Mayor, Municipal Board, Municipal Planning Office, Municipal Health Board, Municipal Health Officer and Municipal Population Officer at the municipal level.

A second set of questions that need to be answered is how do the different actors in a given local government unit relate to each other. For example, how do the governor, provincial planning officer, provincial legislators, provincial health officer and provincial population officer relate to each other. Specifically, one might ask how resource allocation for family planning services and for operations research in particular are decided relative to other competing services.

A third set of questions relate to how each of the above decision making units relate to each other given that each is somewhat autonomous the devolution. For example, how do provincial governors relate to the city and municipal mayors. Likewise, how do the provincial health officer relate to the city and municipal health officer. Understanding this is important for coordination among different LGUs and local program managers in the implementation of operations research.

2. Establishing the Appropriate Management Structure at the DOH

The final structure should be determined by the DOH taking into account the following general considerations. First, for resource allocation purposes, it is necessary that the management of operations research has a direct link to the Secretary through the Undersecretary for Public Health Services.

Secondly, while the overall management of the operations research program shall be the responsibility of the Head of the Family Planning Services, there should be a person who shall be responsible for the day to day management. This could be a Research Officer directly reporting to the Head of Family Planning Services. A highly qualified officer is needed to manage, among others, the setting up of research priorities, determination of research budget requirements and where to find the resources, identification of researchers, evaluation of research proposals, monitoring of commissioned research, and translation of research findings into actionable recommendations.

Thirdly, to ensure relevance and maintain high quality of research, it might be useful to consider the creation of an ad hoc advisory council. Such council could provide a broader perspective of operations research issues that are critical to program success, on the one hand, and a broader perspective on the various approaches to research.

Finally, for coordination purposes within the DOH, the operations research program should link up with the Essential National Health Research Unit and the research programs of various projects.

Annex A

A FRAMEWORK FOR IDENTIFYING OPERATIONS RESEARCH ISSUES AND LINKING LOCAL ISSUES AND NATIONAL CONCERNS

A. Framework

Broad operation research issues may be readily identified with the aid of the conceptual framework shown in Figure 1. In this framework, one might consider a set of input-output relationships. One might start with improvements in maternal and child health and fertility change as a set of outputs that the Family Planning Program wishes to produce. The inputs are the use of family planning services by couples as well as other services that affect MCH and fertility, e.g., immunization, nutrition, and maternal and child care services. In turn, the increased used of family planning services by couples, an intermediate objective of the Program, can be considered as the output whose inputs are the family planning services available to couples, on the one hand, and other factors that influence the couple's initial motivation to use family planning methods and their preference for specific methods. Finally, one can look at family planning services, which include contraceptive services and IEC services, as the outputs and the inputs are manpower of various skills, health facilities and service outlets, equipment, IEC materials, and others.

In fact, one could extend the input-output relationships beyond that shown in Figure 1 by looking at the family planning inputs as outputs that are produced by another set of inputs. For example, IEC materials are produced by the combination of trained manpower, supplies and materials; training is produced by a combination of trainors, curriculum, teaching materials; and contraceptives are produced by the combination of manpower, materials, equipment and medical technology. For the moment, however, we shall consider only those relationships depicted in Figure 1 to illustrate how the framework can be used to identify basic issues for operations research.

Operations Research Issues

The major issues for operations research that can readily be identified from Figure 1 are briefly described below. The numbers correspond to the numbers in Figure 1. Note that these issues are applicable whether we are looking at them from a national policy perspective or from a local operations perspective. This makes is easy to link local issues with national concerns and to transform national concerns into local issues for operations research. The major issues are categorized as follows.

(1) Use-effectiveness and continuation rates of methods chosen

Greater maternal and child health improvements and fertility change can be achieved if, controlling for other factors, couples use the methods that they freely chose (based on full information) effectively and continuously as needed. Two sets of questions may be asked:

(a) what factors determine use-effectiveness and continuation rates of specific methods, and what can be done to improve them; and

(b) many couples discontinue use of a specific method because of fear of side-effects, (real or imagined), hence, what can be done to properly prepare couples for possible side-effects and to help them obtain the necessary services when such side-effects do occur?

(2) Service structure

Greater family planning service use can be achieved if the services provided are those that adequately meet the informed preferences of couples in service outlets most convenient to them. Several questions need to be answered:

(a) what types of family planning services (i.e., methods, information and motivation) should be provided;

(b) what service outlets/facilities should be set up or upgraded to provide the services (methods), e.g., health stations, rural health units, hospitals, private clinics, NGO outlets, mobile teams, resupply points, etc.; what types of family planning information should be provided and through what medium; and what motivational/communication approaches should be used, e.g., interpersonal versus mass media.

(3) *Service focus*

Greater efficiency in providing services can be achieved by focusing them on couples most in need (target population) rather than providing such services uniformly to all groups irrespective of need. The following questions need to be answered:

(a) what target groups of couples should get priority in the provision of specific services, e.g., couples based on unmet needs and socioeconomic characteristics such as income and education;

(b) what is the most cost-effective way of identifying various target populations for specific services.

(4) *Service utilization*

Greater efficiency in service utilization can be achieved if couples choose the appropriate service outlets or referral levels in obtaining services that they have freely chosen (e.g., when couples do not go to higher level facility for resupply when they can adequately obtain these at the village health stations or village resupply points). The following questions need to be answered:

(a) what mechanism (referral system?) or incentives (price differentials?) can be used to encourage couples to seek the appropriate service outlet/facility for the family planning information/service needs; and

(b) why do couples by-pass lower level service outlets/facilities in favor of higher level (and, therefore, more expensive) outlets/facilities (poor quality of service, lack of credibility of provider/motivator?)

(5) Resource input mix in the production of services

Greater efficiency in the provision of service of given quality can be achieved by choosing the least-costly combination of inputs, given the resources available, the relative prices of inputs, and the prevailing production technology. The basic question is what inputs (and in what combinations) should be used in each service outlet/facility to provide the needed services (e.g., physicians versus midwives, clinic workers versus outreach workers, paid workers versus volunteers, different types of equipment and supplies).

(6) Management structures and procedures

Greater efficiency in service provision can be achieved simply by better management of the resources that are already available. Basic questions include:

(a) what procedures should be used in handling logistics, supervision, reporting and budgeting;

(B) what coordination mechanisms with other programs and other agencies should be adopted.

(7) Organization of service delivery and financing

Basic questions include:

(a) what is the appropriate mix of public, private, NGO service outlets/facilities; and

(b) what is the appropriate mix of financing modes, i.e., public subsidies, user chargers, community financing?

Annex B

STUDIES UNDERTAKEN BY SELECTED RESEARCH PROGRAMS

Health Research Network

1. Health Seeking Behavior of PTB Symptomatics in Regional Health Office XI, Marlina Lacuesta, Ateneo de Davao University, Region XI

2. Analysis of Role Behavior of Rural Health Midwives, Corazon Lamug, UP Los Banos, Region IV

3. An Evaluation of the National TB Program in West Visayas, Venancio Ardales, West Negros College, Region VI

4. Knowledge, Attitude and Practice on Health and Environmental Sanitation in Negros Oriental, Rowe Cadelina, Silliman University, Region VII

5. Information, Collection and Recording System, Exaltacion Lamberte, De La Salle University, National Capital Region

6. Factors Affecting Utilization of Barangay Health Centers, Lita Sealza, Xavier University, Region X

7. The Management of Acute Respiratory Infection by Rural Households in Regional Health Office X, Magdalena Cabaraban, Xavier University, Region X

8. A Critical Analysis of the Strengthened National TB Program in Region III-Phase I, Teresita Maquiso, Central Luzon State University, Region III

9. The Public Health Nurses' and Midwives' Prescribed, Actual and Preferred Roles and Functions in Health Service Delivery in Region VI, Fely David, Central Philippine University, Region VI

10. Cigarette Smoking in the Southern Philippines, Michael Costello and Marilou Costello, Xavier University, Region X

11. An Assessment of the Delivery System of Maternal and Child Health Services: Views and Perception of the DOH Service Providers and Clientele in Region XI

12. KAP of the Generic Drugs in Western Visayas, Betty Polido, CONCERNS, Inc., Region VI

13. Factors Influencing the Low TB Case Finding Rate and Patient Acceptance Rate of Short Course Chemotherapy in Cagayan and Isabela, Reynaldo Aresta, Cagayan State University

14. The Family Health Care Workers Development Program: An Analysis of the Transfer of Health Care Technology in the Province of Batangas, Corazon B. Lamug, UP Los Banos, Region IV

15. Knowledge Attitudes and Practices Towards Herbal Medicines in Selected Barangays in Iligan City, Nimfa Bracamonte, Mindanao State University-Iligan City, Region XII

16. Correlates of Health Among Maranaos of Lanao del Sur, Segundina Sarangani, Mindanao State University-Marawi City, Region XII

17. The Relationship of Ruralities Health Related Definitions with their Health Seeking Behavior: Implications for Health Service Delivery, Bernadette Tan, Mindanao State University-Iligan City, Region XII

18. The Rational Use of Drugs in the Treatment of Acute Respiratory Infections and Diarrhea Among Children Under Five Years Old

19. Factors Related to Tetanus Toxoid Compliance of Mothers, Dominador Tamayo, Cagayan State University, Region II

20. An Assessment of the Capability of Local Government Units to Deliver Basic Health Services, Donato Pidlaon, Notre Dame University, Region XII

21. Primary Health Care in Pasay City: An Assessment of Implementation and Performance, Victoria Bautista, UP Public Administration, National Capital Region

22. Health Related Behaviors of the Resettled Aetas in Central Luzon, Estefania Kollin, Central Luzon State University, Region III

23. KAP of Traditional and Modern Medicine in Iloilo and Negros Occidental, Venancio Ardales, CONCERNS, Inc., Region VI

24. Time Allocation of RHM of DOH Programs, Teodora Baquiran, Cagayan Colleges, Tuguegarao, Region II

25. Pesticides Usage, Its Effects on the Health of Farmers and Other Workers in Selected Areas in Bukidnon, Josefino Magallanes, Central Mindanao University, Region X (not completed as of July 1995)

Family Planning Operations Research and Training Project

1. Factors that Contribute to the Varying Performance of BSPOs and BHWs in the Delivery of Family Planning Services in Iloilo City, Philippines, Fely David and Fely Chin, Central Philippine University, Region VI

2. Factors Affecting the Family Planning Drop-Out Rates in Bukidnon Province, the Philippines, Lita Sealza, Research Institute for Mindanao Culture, Xavier University, Region X

3. A Diagnostic Study on the Implementation of DOH Health Volunteer Workers Program, Philippines, Marlina Lacuesta, Segundina Sarangani and Napoleon Amoyen, Social Research Office, Ateneo de Davao University, Region XI

4. A Study on Factors Leading to Continued Company Support to an Industry-Based Family Planning Program, Philippines, Josefina Cabigon and Emma Magsino, University of the Philippines Population Institute, National Capital Region

5. A Diagnostic Study of the Implementation of Department of Health Training Courses for Family Planning Providers in Region II and Cordillera Administrative Region, Philippines, Steven Rood, Marcelo Raquepo and Mary Ann Ladia, Cordillera Studies Center and Cagayan State University, Region II and CAR.

6. Family Planning Studies in the Philippines: A Review and Synthesis

7. DMPA Monitoring Study: Findings on Use and Continuation Rates

8. The DMPA Service Provider: Profile, Problems and Prospects

9. Knowledge, Attitudes and Practice of the DMPA Injectable Contraceptive: Data from Focus Group Discussions

10. Experience with the DMPA Injectable Contraceptive: A Comparison between Continuing-Users and Drop-Outs

Table 1: Selected Demographic Indicators, Philippines 1970-1990

Indicator	1970	1980	1990
Population (millions) (a)	36.7	48.1	60.7
Density (popn/sq.km.) (a)	122	160	202
Urban population (percent) (a)	31.8	37.3	48.7
Rate of annual increase (percent) (a)	3.08	2.74	2.35
Population doubling time (years)	23	26	30
Total fertility rate (b)	6.0	5.1	4.1
Infant mortality rate: male (c)	93.8	65.2	59.9
Infant mortality rate: femal (c)	83.2	59.4	53.4
Life expectancy at birth: male (c)	57.3	59.7	62.2
Life expectancy at birth: female (c)	61.5	65.1	67.5

Sources:

(a) 1990 Census of Population and Housing Report No. 3 as reported in National Statistics Office and Macro International, Inc., Philippines, National Demographic Survey 1993.

(b) Data are from the 1973, 1983 and 1993 rounds of the National Demographic Surveys, respectively, as reported in National Statistics Office and Macro International, Inc., Philippines, National Demographic Survey 1993.

(c) Flieger, W. and J. Cabigon, 1994, Life Table Estimates for the Philippines, Its Regions and Provinces, By Sex: 1970, 1980 and 1990.

Table 2: Fertility Trends: Age-Specific and Total Fertility Rates from Various Surveys, Philippines 1973-1993

	1973	1978	1983	1986	1993
	NDS	RPFS	NDS	CPS	NDS
Age	(1970)	(1975)	(1980)	(1984)	(1991)
15-19	56	50	55	48	50
20-24	228	212	220	192	190
25-29	302	251	258	229	217
30-34	268	240	221	198	181
35-39	212	179	165	140	120
40-44	100	89	78	62	51
45-49	28	27	20	15	8
TFR	5.97	5.24	5.08	4.42	4.09

Note: Rates for 1973 to 1983 are five-year averages, and 1986 and 1993 are three-year averages centered on the years in parentheses.

NDS=National Demographic Survey

RPFS=Republic of the Philippines Fertility Survey

CPS=Contraceptive Prevalence Survey

Sources: Concepcion, M., 1991, Fertility and Contraception in the Philippines: Glimpses from the 1986 Contraceptive Prevalence Survey for data up to 1986 CPS and National Statistics Office and Macro International, Inc., 1994, Philippines: National Demographic Survey 1993 for the 1993 data, as reported in National Statistics Office and Macro International, Inc., 1994, Philippines: National Demographic Survey 1993.

Table 3: Trends in Contraceptive Use: Percentage of Currently Married Women 15-44 Using Modern Contraceptive Methods and Traditional Methods, Philippines, 1968-1993

Survey	Modern methods	Traditional methods	Total
1968 National Demographic Survey	2.9	11.5	15.4
1973 National Demographic Survey	10.7	6.7	17.4
1978 Republic of the Philippines Fertility Survey	17.2	21.3	38.5
1983 National Demographic Survey	18.9	13.1	32.0
1988 National Demographic Survey	21.6	14.5	36.1
1993 National Demographic Survey	25.5	16.0	41.5

Note: Modern methods refer to pill, IUD, injection, diaphragm/foam/jelly, condom, and male and female voluntary sterilization. Traditional methods include natural family planning, withdrawal and other methods.

Source: World Bank, 1991, New Directions in the Philippines Family Planning Program, Table 1.3 for data from 1968 to 1988 as reported in National Statistics Office and Macro International, Inc., 1994, Philippines: National Demographic Survey 1993. Data for 1993 are from the 1993 National Demographic Survey.

Table 4: Current Use of Contraception by Method: Percent Distribution of Currently Married Women 15-49 by Contraceptive Method Currently Used, Urban and Rural Philippines, 1993

Method	Total	Urban	Rural
Any method	40.0	43.0	36.8
Modern methods			
Any modern method	24.9	27.6	21.9
Pill	8.5	9.0	8.0
IUD	3.0	2.9	3.2
Injection	0.1	0.1	0.1
Diaphragm/foam/jelly	0.0	0.0	0.0
Condom	1.0	1.3	0.6
Female sterilization	11.9	13.9	9.6
Male sterilization	0.4	0.4	0.3
Traditional methods			
Any traditional method	15.1	15.4	14.9
Natural family planning	7.3	7.8	6.8
Withdrawal	7.4	7.3	7.5
Other methods	0.4	0.2	0.5
Not currently using	60.0	57.0	63.2
Total	100.0	100.0	100.0
Number of women	8961	4638	4323

Source: National Statistics Office and and Macro International, Inc., 1994, Philippines: National Demographic Survey 1993, Table 4.6.

Table 5: Unmet Need for Family Planning Services, Philippines 1993

Characteristics	Unmet need for family planning: For spacing	Unmet need for family planning: For limiting	Total
Age			
15-19	27.1	4.4	31.5
20-24	28.2	7.0	35.2
25-29	19.7	12.6	32.3
30-34	12.2	15.6	27.9
35-39	6.4	17.1	23.6
40-44	2.6	19.5	22.2
45-49	0.5	8.9	9.5
Residence			
Urban	11.4	12.1	23.5
Rural	13.6	15.6	29.1
Education			
No education	18.4	15.2	33.6
Elementary	11.6	18.1	29.8
High school	13.5	12.1	25.6
College or higher	11.5	8.8	20.3
Total	12.4	13.8	26.2

Note from source: Unmet need for spacing includes pregnant women whose pregnancy was mistimed, amenorrheic women whose last birth was mistimed, and women who are neither pregnant nor amenorrheic and who are not using any method of family planning and say they want to wait two or more years for next birth. Also included in unmet need for spacing are women who are unsure whether they want another child or who want another child but are unsure when to have the birth. Unmet need for limiting refers to pregnant women whose pregnancy was unwanted, amenorrheic women whose last child was unwanted and women who are neither pregnant nor amenorrheic and who are not using any method of family planning and who want no more children.

Source: National Statistics Office and Macro International, Inc, 1994,

Philippines: National Demographic Survey 1993, Table 6.4.

Table 6: Knowledge of Contraceptive Methods and Source of Methods:

Percentage of All Women and Currently Married Women Who Know

Specific Contraceptive Methods and Who Know a Source (for Information

and Services), by Specific Methods, Philippines 1993

	Know Method			Know a Source	
		Currently			Currently
	All	married		All	married
Contraceptive method	women	women		women	women
Any method	95.9	97.2		88.8	93.3
Any modern method	95.7	96.9		88.8	93.3
Pill	94.3	96.0		85.0	90.8
IUD	85.4	90.9		73.8	82.1
Injection	47.6	53.5		38.1	43.6
Diaphragm/foam/jelly	30.0	31.0		22.9	24.0
Condom	91.8	93.7		81.3	86.5
Female sterilization	87.4	92.2		75.4	82.9
Male sterilization	74.4	81.7		62.7	71.0
Any traditional method	85.1	92.5		NA	NA
Natural family planning	79.3	86.4		NA	NA
Withdrawal	77.5	88.7		NA	NA
Other traditional methods	6.2	8.1		NA	NA
Number of women	15029.0	8961.0		15029.0	8961.0

NA=Not applicable.

Source: National Statistics Office and Macro International, Inc, 1994,

Philippines: National Demographic Survey 1993, Table 4.1.

Table 7: Reasons for Not Using Contraception: Percent Distribution of Currently Married Women Who Are Not Using a Contraceptive Method and Who Do Not Intend to Use in the Future, by Main Reason for Not Using, According to Age, Philippines 1993

Reason for not using contraception	Age of woman 15-29	30-49	Total
Wants children	32.2	15.6	20.1
Lack of knowledge	9.4	4.7	6.0
Opposed to family planning	3.0	3.3	3.2
Religion	5.6	4.5	4.8
Costs too much	0.6	0.4	0.4
Hard to get methods	0.4	0.4	0.4
Side effects	27.4	19.5	21.6
Health concerns	11.3	9.5	10.0
Inconvenient	2.2	2.1	2.1
Old/difficult to get pregnant/ infrequent sex/husband away	5.4	23.5	18.6
Menopausal/had hysterectomy	0.4	14.6	10.7
Others	1.6	1.6	1.6
Don't know/missing	0.6	0.5	0.5
Total	100.0	100.0	100.0
Number of women	929	2505	3433

Source: National Statistics Office and Macro International, Inc, 1994, Philippines: National Demographic Survey 1993, Table 4.16.

Table 8: Reasons for Discontinuation of Contraception: Percent Distribution of Discontinuation of Contraceptive Met

in the Five Years Preceding the Survey by Main Reason for Discontinuation, According to Specific Methods,

Philippines 1993

Reason for discontinuation	Modern method discontinued: Pill	IUD	Injection*	Condom		Tra me dis
Became pregnant	14.5	9.0	5.7	26.1		
To become pregnant	20.9	17.3	5.3	16.7		
Husband disapproved	2.1	2.4	0.0	11.6		
Side effects	24.3	24.5	20.6	2.9		
Health concerns	6.3	7.5	6.5	2.8		
Access/availability	2.0	2.2	0.0	3.2		
Cost	0.6	0.0	12.0	0.6		
Wanted more effective method	1.1	2.8	14.6	4.7		
Inconvenient to use	2.0	8.8	3.0	17.7		
Infrequent sex	7.8	1.1	0.0	1.3		
Menopause	0.2	1.4	0.0	0.6		
Other	2.7	3.1	3.6	1.4		
Don't know/missing	15.5	20.0	28.8	10.5		
Total percent	100.0	100.0	100.0	100.0		
Number of women**	1196	153	25	169		

*Data based on too few cases

** Includes users of diaphragm/foam/jelly, female sterilization, and male sterilization

Source: National Statistics Office and Macro International, Inc, 1994, Philippines: National Demographic Survey 1993,

Table 4.14.

Table 9: Source of Supply for Modern Contraceptive Methods: Percent Distribution of Current Users of Modern Methods by Most Recent Source of Supply, According to Specific Methods, Philippines 1993

Source	Pill	IUD	Condom	Female sterilization	Male sterilization*	All Me
Public sector	**73.4**	**78.8**	**55.6**	**70.4**	**56.6**	
Government hospital	2.7	17.7	4.0	59.2	41.4	
Barangay Health Station	53.9	30.7	34.9	3.3	12.4	
Barangay Supply Office	2.6	2.4	2.2	0.4	0.0	
Puericulture Center	14.2	28.0	14.5	7.5	2.8	
Medical Private	**23.4**	**19.5**	**40.6**	**28.5**	**29.7**	
Private hospital/clinic	3.6	12.8	3.8	26.8	21.0	
Pharmacy	17.4	0.0	36.0	0.0	0.0	
Private doctor	2.4	6.7	0.8	1.7	8.7	
Other Private	**3.3**	**1.7**	**3.8**	**1.1**	**13.7**	
Store	0.2	0.0	1.9	0.0	0.0	
Church	0.0	0.0	0.0	0.8	5.5	
Friends/relatives	2.0	0.6	0.8	0.0	0.0	
Other	0.4	0.7	0.0	0.3	0.0	
Don'tknow/missing	0.7	0.4	1.1	0.0	8.2	
Total percent	100.0	100.0	100.0	100.0	100.0	
Number of women	764	273	90	1104	34	

*Data based on too few cases

**Includes 5 users of injection and 2 users of diaphragm/foam/jelly

Source: National Statistics Office and Macro International, Inc, 1994, Philippines: National Demographic Survey 1993, Table 4.11.

Table 10: Desire for More Children: Percent of Currently Married Women by Desire for More Children, According to Number of Living Children, Philippines 1993

Desire for children	0	1	Number of living children* 2	3	
Have another soon**	67.5	20.8	8.2	4.7	
Have another later***	14.5	55.7	30.9	11.7	
Have another, undecided when	1.3	0.3	0.6	0.1	
Undecided	2.4	5.6	8.8	6.2	
Wants no more	1.2	13.5	42.4	55.4	6
Sterilized	0.0	0.8	6.4	19.2	2
Declared infecund	12.4	2.5	2.4	2.4	
Missing	0.7	0.7	0.2	0.3	
Total	100.0	100.0	100.0	100.0	10
Number of women	384	1279	1774	1730	1

*Includes current pregnancy

**Wants next birth within two years

***Wants to delay next birth for two or more years

Source: National Statistics Office and Macro International, Inc., 1994, Philippines: National Demographic Survey 1993, Table 6.1.

Table 11: Desire for More Children: Percent Distribution of Currently Married Women by Desire for More Children, According to Age, Philippines 1993

			Age of woman		
Desire for chidren	15-19	20-24	25-29	30-34	35
Have another soon (a)	19.0	9.8	10.6	10.6	
Have another later (b)	53.7	48.8	30.7	15.4	
Have another, undecided when	0.0	0.4	0.6	0.4	
Undecided	7.8	8.3	8.3	7.1	
Wants no more	17.8	30.6	43.4	52.6	5
Sterilized	0.0	0.8	5.4	12.6	1
Declared infecund	1.0	0.7	0.8	1.1	
Missing	0.6	0.6	0.1	0.2	
Total	100.0	100.0	100.0	100.0	10
Number of women	234	1174	1763	1838	1

(a) Wants next birth within two years

(b) Wants to delay next birth for two or more years

Source: National Statistics Office and Macro International, Inc., 1994, Philippines: National Demographic Survey 1993, Table 6.2.

Table 12: Fertility Planning Status: Percent of Births in the Five Years Preceding the Survey by Fertility Planning Status, According to Birth Order and Mother's Age, Philippines 1993

	Planning status of birth					
	Wanted then	Wanted later	Wanted no more	Missing	Total	Number
Birth order						
1	79.1	18.4	2.3	0.3	100.0	2190
2	58.7	35.9	5.1	0.3	100.0	1961
3	54.9	32.7	11.9	0.6	100.0	1605
4+	41.9	27.6	30.0	0.5	100.0	4061
Age at birth						
<20	67.3	29.5	3.3	0.0	100.0	783
20-24	62.6	31.0	5.8	0.6	100.0	2651
25-29	57.0	30.2	12.4	0.4	100.0	2758
30-34	50.8	27.2	21.6	0.4	100.0	1985
35-39	45.1	21.4	32.8	0.6	100.0	1188
40-44	34.9	16.6	48.3	0.2	100.0	420
45-49	**	**	**	**	100.0	33
Total	55.7	28.0	15.9	0.4	100.0	9817

** Less than 50 cases.

Note from source: Birth order includes current pregnancy.

Source: NSO and Macro International, Inc., 1994, National Demographic Survey 1993

Table 13 : Wanted Fertility Rates: Total Wanted Fertility and Total Fertility Rates for the Three Years Preceding the Survey, Philippines 1993

	Total wanted fertility rate	Total fertility rate
Residence		
Urban	2.6	3.5
Rural	3.3	4.8
Mother's education		
No education	4.0	4.9
Elementary	3.7	5.5
High school	2.9	3.9
College or higher	2.4	2.8
Total	2.9	4.1

Note from source: Rates are based on births to women 15-49 in the period 1-36 months preceding the survey.

Source: National Statistics Office and Macro International, Inc., 1994, Philippines: National Demographic Survey 1993, Table 6.8.

Table 14: Mean Ideal Number of Children for All Women and for Currently Married Women, According to Number of Living Children, Philippines 1993

			Number of Living Children*		
	None	1	2	3	4
All women, mean ideal	2.8	2.6	2.9	3.3	3.8
All woman	5745	1481	1881	1789	1373
Currently married women, mean ideal	2.9	2.7	2.9	3.3	3.8
Currently married women	380	1272	1766	1717	1302

Note from source: The means exclude women who gave non-numeric responses.

* Includes current pregnancy.

Source: National Statistics Office and Macro International, Inc., 1994, Philippines: National Demographic Survey 1993, Table 6.5.

Table 15: Mean Ideal Number of Children for All Women, By Age and Selected Background Characteristics, Philippines 1993

Background characteristic	15-19	20-24	Age of woman 25-29	30-34	35-39
Residence					
Urban	2.7	2.8	3.0	3.1	3.4
Rural	2.9	3.0	3.2	3.6	3.7
Education					
No education	(3.8)	(3.7)	(4.5)	(4.6)	5.2
Elementary	2.8	3.1	3.3	3.6	3.8
High school	2.8	2.8	3.0	3.3	3.4
College or higher	2.8	2.9	2.9	3.0	3.2
Total	2.8	2.9	3.1	3.3	3.6

( ) Figures in parentheses are based on 25-49 unweighted cases.

Source: National Statistics Office and Macro International, Inc., 1994, Philippines: National Demographic Survey 1993, Table 6.6.

Table 20: High Risk Fertility Behavior: Percent Distribution of Children Born in the Five Years Preceding the Survey Who Are at Elevated Risk of Mortality, and the Percent Distribution of Currently Married Women at Risk of Conceiving a Child with an Elevated Risk of Mortality, by Category of Increased Risk, Philippines 1993

	Births in last 5 years preceding the survey		Percentage of currently
	Percentage	Risk	married
Risk category	of births	ratio	women*
Not in any risk category	37.6	1.0	31.1**
Single risk category			
Mother's age <18	2.3	1.7	0.2
Mother's age >34	1.7	1.2	7.5
Birth interval <24	13.5	1.3	9.3
Birth order >3	19.0	1.5	12.1
Subtotal	36.5	1.4	29.1
Multiple risk categories			
Age <18 & birth interval <24***	0.2	****	0.1
Age >34 & birth interval <24	0.4	****	0.5
Age >34 & birth order >3	11.2	2.2	26.4
Age >34 & birth interval <24 & birth order >3	3.2	3.5	4.1
Birth interval <24 & birth order >3	10.9	2.5	8.8
Subtotal	25.9	2.4	39.8
In any risk category	62.4	1.9	68.9
Total	100.0		100.0
Number	8803		8961

Note from source: Risk ratio is the ratio of the proportion dead of births in a specific risk category to the proportion dead of births not in any risk category.*Women were assigned to risk categories according to the status they would have *Women were assigned to risk categories according to the status they would have at the birth of a child, if the child were conceived at the time of the survey: age less than 17 years and 3 months, age older than 34 years and 2 months,latest birth less than 15 months ago, and latest birth order of 3 or higher.
**Includes sterilized women.
***Includes the combined categories age <18 and birth order >3.
****Fewer than 200 cases
Source: National Statistics Office and Macro International, Inc., 1994,
Philippines: National Demographic Survey 1993, Table 7.5.

Table 16: Alternative Age Specific Fertility Schedules, Philippines

Age group	Standard	Proportion wanted(1)	Wanted-1	Wanted-2	Low Risk-2	Replacement
15-19	0.04930	0.967	0.04767	0.04182	0.00000	0.02970
20-24	0.18740	0.942	0.17653	0.15487	0.18739	0.10998
25-29	0.21400	0.876	0.18746	0.16446	0.20608	0.11679
30-34	0.17850	0.784	0.13994	0.12277	0.12277	0.08719
35-39	0.11840	0.672	0.07956	0.06980	0.05235	0.04957
40-44	0.05030	0.517	0.02601	0.02281	0.01141	0.01620
45-49	0.00790	0.500	0.00395	0.00347	0.00000	0.00246
TFR	4.02900		3.30566	2.90000	2.90001	2.05950

Standard	Wanted-2	Low Risk-2	Replacement

(1)=One minus the proportion of unwanted births (From Table 12)
Wanted 1=proportion wanted applied to standard TFR, by age group.
Wanted 2= Takes the estimated wanted TFR of 2.9 (from 1993 NDS) and distributed according to the age pattern shown in Wanted 1.
Replacement= replacement fertility achieved in 2020 by the standard Philippine projections equal to 2.0595 distributed according to the age pattern shown in Wanted 1.

Table 17: Alternative Total Fertility Rate Assumptions, Philippines

Year	Standard	Wanted-1	Wanted-2	Replacement
1990-1995	4.02900			
1995-2000	3.57900	3.30566	2.90000	2.05950
2000-2005	3.17950	3.05643	2.73190	2.05950
2005-2010	2.82400	2.80720	2.56380	2.05950
2010-2015	2.50800	2.55796	2.39570	2.05950
2015-2020	2.22850	2.30873	2.22760	2.05950
2020-2025	2.05950	2.05950	2.05950	2.05950
2025-2030	1.98200	1.98200	1.98200	1.98200
2030-2035	1.90800	1.90800	1.90800	1.90800
2035-2040	1.83500	1.83500	1.83500	1.83500

Replacement 1 (Age pattern of wanted 1)										
Age	1990/1995	1995/2000	2000/2005	2005/2010	2010/2015	2015/2020	2020/2025	2025/2030	2030/2035	2035/2040
15-19	0.04930	0.02970	0.02970	0.02970	0.02970	0.02970	0.02970	0.02858	0.02751	0.02646
20-24	0.18740	0.10998	0.10998	0.10998	0.10998	0.10998	0.10998	0.10585	0.10189	0.09800
25-29	0.21400	0.11679	0.11679	0.11679	0.11679	0.11679	0.11679	0.11240	0.10820	0.10406
30-34	0.17850	0.08719	0.08719	0.08719	0.08719	0.08719	0.08719	0.08391	0.08077	0.07768
35-39	0.11840	0.04957	0.04957	0.04957	0.04957	0.04957	0.04957	0.04770	0.04592	0.04417
40-44	0.05030	0.01620	0.01620	0.01620	0.01620	0.01620	0.01620	0.01559	0.01501	0.01443
45-49	0.00790	0.00246	0.00246	0.00246	0.00246	0.00246	0.00246	0.00237	0.00228	0.00220
TFR	4.02900	2.0595	2.0595	2.0595	2.0595	2.0595	2.0595	1.98200	1.90800	1.83500
Replacement 2 (Age pattern of wanted 2)										
Age	1990/1995	1995/2000	2000/2005	2005/2010	2010/2015	2015/2020	2020/2025	2025/2030	2030/2035	2035/2040
15-19	0.04930	0.02970	0.02970	0.02970	0.02970	0.02970	0.02970	0.02858	0.02752	0.02646
20-24	0.18740	0.10998	0.10998	0.10998	0.10998	0.10998	0.10998	0.10584	0.10189	0.09799
25-29	0.21400	0.11679	0.11679	0.11679	0.11679	0.11679	0.11679	0.11240	0.10820	0.10406
30-34	0.17850	0.08719	0.08719	0.08719	0.08719	0.08719	0.08719	0.08391	0.08077	0.07768
35-39	0.11840	0.04957	0.04957	0.04957	0.04957	0.04957	0.04957	0.04771	0.04592	0.04417
40-44	0.05030	0.01620	0.01620	0.01620	0.01620	0.01620	0.01620	0.01559	0.01501	0.01444
45-49	0.00790	0.00246	0.00246	0.00246	0.00246	0.00246	0.00246	0.00237	0.00228	0.00219
TFR	4.02900	2.05950	2.05950	2.05950	2.05950	2.05950	2.05950	1.98200	1.90800	1.83500
Spacing (age pattern of wanted)										
Age	1990/1995	1995/2000	2000/2005	2005/2010	2010/2015	2015/2020	2020/2025	2025/2030	2030/2035	2035/2040
15-19	0.04930	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
20-24	0.18740	0.18739	0.17653	0.16567	0.15480	0.14394	0.13308	0.12807	0.12329	0.11857
25-29	0.21400	0.20608	0.19414	0.18219	0.17025	0.15830	0.14635	0.14085	0.13559	0.13040
30-34	0.17850	0.12277	0.11565	0.10854	0.10142	0.09430	0.08719	0.08391	0.08077	0.07768
35-39	0.11840	0.05235	0.04932	0.04628	0.04325	0.04021	0.03718	0.03578	0.03444	0.03313
40-44	0.05030	0.01141	0.01075	0.01008	0.00942	0.00876	0.00810	0.00780	0.00750	0.00722
45-49	0.00790	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
TFR	4.02900	2.90001	2.7319	2.5638	2.3957	2.2276	2.0595	1.98200	1.90800	1.83500
			0.9420344828	0.88406897	0.82610345	0.76813793	0.71017241	0.68344828	0.65793134	0.6327586

Table 18: Alternative Population Projections, Philippines										
		Wanted	Replacement	Zero	Constant					
	Standard	fertility	fertility	population	fertility					
	Philippine	starting	starting	growth from	as that					
Year	Projections	1995	1995	1995 on	of 1990	Standard	Wanted	Replace-ment	Zero Growth	Constar
Population Size in Millions										
1990	62.0	62.0	62.0	62.0	62.0					
1995	70.3	70.3	70.3	70.3	70.3					
2000	78.4	76.7	74.3	70.3	79.7					
2005	86.3	83.4	79.0	70.3	90.2					
2010	93.9	90.3	84.1	70.3	101.8					
2015	101.0	97.1	89.6	70.3	114.6					
2020	107.4	103.4	94.8	70.3	128.8					
2025	113.5	108.8	99.2	70.3	144.7					
2030	119.1	113.7	102.8	70.3	162.6					
2035	124.1	118.0	105.5	70.3	182.6					
2040	128.1	121.5	107.8	70.3	204.8					
Average Annual Growth Rate										
1990-1995	2.49	2.49	2.49	2.49	2.49					
1995-2000	2.19	1.76	1.13	0.00	2.51					
2000-2005	1.92	1.68	1.21	0.00	2.48					
2005-2010	1.68	1.58	1.26	0.00	2.42					
2010-2015	1.45	1.44	1.25	0.00	2.36					
2015-2020	1.25	1.26	1.13	0.00	2.34					
2020-2025	1.09	1.03	0.92	0.00	2.33					
2025-2030	0.97	0.88	0.70	0.00	2.33					
2030-2035	0.82	0.73	0.53	0.00	2.32					
2035-2040	0.65	0.59	0.41	0.00	2.30					

Table 19: Projection of Population Size and Sources of Growth, Philippines		
	Population (in millions)	
	2020	2040
Population Projections:		
Standard Projection (replacement at 2020)	107.4	128.1
Reducing unwanted fertility by 1995	103.4	121.5
Replacement at 1995	94.8	107.8
Decomposition		
Increase due to unwanted fertility	4.0	6.6
Increase due to family size preference	8.6	13.7
Increase due to momentum	24.5	37.5
Total increase from 1995 population	37.1	57.8

Figure 1: Standard Projections: Philippines and World Bank Table Alternative Standard Projections							
Population							
Year	Philippines	World Bank					
1990	62049232	61480000		62.0	61.5		
1995	70268744	69209000		70.3	69.2		
2000	78415680	77268000		78.4	77.3		
2005	86326208	85599000		86.3	85.6		
2010	93873864	93774000		93.9	93.8		
2015	100950184	101404000		101.0	101.4		
2020	107447128	108236000		107.4	108.2		
2025	113461864	114842000		113.5	114.8		
2030	119094800	121448000		119.1	121.4		
2035	124050592	127755000		124.1	127.8		
2040	128135640			128.1			
Total Fertility Rate							
Year	Philippines	World Bank					
1990-1995	4.029	4.050					
1995-2000	3.579	3.725					
2000-2005	3.180	3.400					
2005-2010	2.824	2.957					
2010-2015	2.508	2.572					
2015-2020	2.229	2.237					
2020-2025	2.060	2.115					
2025-2030	1.982	2.109					
2030-2035	1.908	2.102					
2035-2040	1.835						
Life expectancy							
	Philippines			World Bank			
	Male	Female	Both Sexes	Both Sexes			
1990-1995	63.58	68.83	66.205	64.99			
1995-2000	65.58	70.83	68.205	66.49			
2000-2005	67.08	72.33	69.705	68.10			
2005-2010	68.58	73.83	71.205	69.77			
2010-2015	69.78	75.03	72.405	70.63			
2015-2020	70.98	76.03	73.505	71.51			
2020-2025	71.98	77.03	74.505	72.44			
2025-2030	72.92	78.03	75.475	73.40			
2030-2035	73.78	78.83	76.305	74.41			
2035-2040	74.58	79.63	77.105				