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World Bank Project-Financed Research on Population, Health, and Nutrition

J. Price Gittinger
and
Carol Bradford

Most population, health, and nutrition projects provide finance for research. Personalities — of both borrowers and Bank staff — make a difference in the quality of research. Supervision and peer group review also make a difference, and more best-practices workshops are in order.

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This paper—a product of the Health and Nutrition Division, Population and Human Resources Department—is part of a larger effort in the department to disseminate Bank-funded population, health, and nutrition research. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S6-065, extension 31091 (November 1992, 16 pages).

This report on World Bank project-financed research on population, health, and nutrition (PHN) is based on a review of 109 staff appraisal reports for projects financed in fiscal 1980-91 and on selected interviews with task managers. The report looks at only the simplest dimensions of project-financed research and examines research outcomes of only a few projects. Among conclusions tentatively reached:

- More than 90 percent of PHN projects from fiscal 1980-91 financed research.
- Bank experience with project-financed research in the PHN sector has been extremely variable: quite successful in some countries and almost a total failure in others. Even so, some striking successes justify continued efforts to incorporate research into projects and to encourage use of that research to improve both national PHN policy and follow-on Bank-financed projects.
- Personalities make a difference, both among borrowers and within the Bank. Often successes are associated with a particular person within the government or the Bank who has taken a continuing personal interest in encouraging research.
- Supervision is crucial to good results. Supervision must be frequent enough to keep the

research component on time and of good quality. For quality research to be completed, it is important that those responsible for supervision attach a high priority to research even if it is not a large part of the project in terms of budget.

- Research that leads to a project outcome—such as research needed to justify release of funds or for a follow-on project—is more likely to be undertaken and completed than is research with a more general objective.
- In countries where the institutional capability exists, using a national institution to review research proposals and to administer research grants can be quite effective. Experience indicates that some sort of peer-group review produces better research.
- There is probably room for more best-practices workshops where PHN staff can exchange experiences about successful design and supervision of project-financed research components. But usually it will be necessary to retain experienced consultants to help design substantial research components.
- More systematic collection and dissemination of project-financed research is justified, given the considerable amounts of money and effort devoted to it.

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on Population, Health, and Nutrition**

by

**J. Price Gittinger
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World Bank Project-Financed Research on Population, Health, and Nutrition

This note reports on World Bank project-financed research on population, health, and nutrition (PHN). It is based on a review of 109 staff appraisal reports (SARs) for projects financed in fiscal years 1980 through 1991 and selected interviews with task managers. The projects reviewed include 47 in the Africa region; 13 in the East Asia and Pacific region; 15 in the South Asia region; 14 in the Middle East and North Africa region; and 19 in the Latin America and Caribbean region. In this note, Turkey is tabulated in the Middle East and North Africa region. There were no operations in the Europe and Central Asia region during the period reviewed. (A list of the projects reviewed is given in the Annex.) The projects represent essentially all Bank financing in the PHN sector during the period under review.

The World Bank encourages PHN research to strengthen the knowledge base upon which to design cost-effective investments in population, health, and nutrition; to strengthen the analytical capacity of borrowing governments to undertake policy-related PHN research; and to evaluate program and project performance as a basis for improving future design.

This note is an initial, exploratory survey. It looks only at the simplest dimensions of project-financed research and examines research outcomes of only a few projects. Hence, the conclusions reached must be considered tentative and subject to revision in the light of fuller investigation.

Proportion of Projects with Research

Virtually every project in the PHN sector during the period reviewed contained some provision for research (Figure 1). Bank-wide and in

four of the five regions covered, the proportion of projects which included a research component was over 90 percent; in MENA 80 percent of the projects included a research component.

Categories of Research Financed

For every project reviewed, the research proposed in the SAR was classified by one of six categories or else was noted as uncategorized (see box). Projects were reviewed and tabulated Bank-wide and on a regional basis (Table 1).

The categories were medical, demographic/epidemiological, human resources (including studies relating to personnel practices), managerial (including operational research), financial, and research needed to prepare information, education, and communication (IEC) programs.

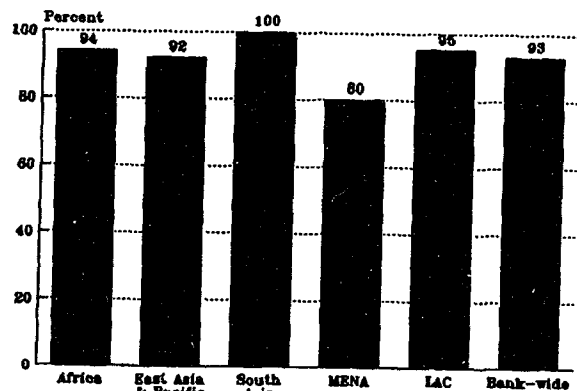


Figure 1. Proportion of projects with research components by region and Bank-wide.

Research Categories

Research proposed in the 109 SARs reviewed for this note was categorized in one of six categories or else noted as uncategorized. Research was taken to mean special studies of some sort, either as part of project implementation or for a broader purpose.

MEDICAL. Includes biological research, clinical studies, medical trials, etc.

DEMOGRAPHIC/EPIDEMIOLOGICAL. Covers surveys, censuses, studies done with large groups to determine the effect of a program, etc. Includes epidemiology.

HUMAN RESOURCES. Research carried out to determine numbers of personnel needed or to assess the skills of individuals providing care or other services. Includes assessments of additional training needed or how existing skills might be improved.

MANAGERIAL. Studies assessing administrative issues, including operational research and means to increase program efficiency. Includes stand-alone evaluations of projects or programs. However, it was assumed that every project would have a management information system, so MIS intended primarily as a management tool during project implementation was not included.

FINANCIAL. Research on program costs or means of financing health care or nutrition interventions. Includes studies on cost-recovery and health insurance.

INFORMATION, EDUCATION, AND COMMUNICATION (IEC). Research on information needed for IEC programs, but not preparation of the materials themselves.

Frequency of Categories

Bank-wide, the most common research component was a managerial study or operational research. Seventy-two percent of all projects reviewed included one or another kind of managerial research. The next most common categories of research were demographic/epidemiological included in 48 percent of all projects and financial studies included in 47 percent of all projects reviewed. Research turning on human resources issues, including training of personnel, was included in 30 percent of the projects. Studies needed to prepare IEC materials were included in 16 percent of the projects reviewed. (Preparation of the IEC materials themselves was not counted as research.) In some 13 percent of the projects there was a medical research component.

Regional Differences

While there are regional differences in the frequency in which categories are included in projects, they are not striking and probably are not significant. In every region except MENA, managerial studies were the most frequent category encountered. Demographic/epidemiological or financial research were the second and third most common. It is interesting to note that financial studies in the Africa region frequently revolved around cost recovery, a topic which was of great concern to health administrators and governments during the decade of the 1980s. On the other hand, studies of medical insurance were concentrated in Asia. Research for IEC materials and programs ranged from 7 percent in MENA to 40 percent in South Asia. The reason for the variation is not clear, and it may be insignificant; it proved difficult to separate out the research needed to prepare IEC materials from the work of preparing the materials themselves. While no project in MENA included medical research, more than one in five LAC projects did so.

Table 1. Projects with Research Components
by Region and Category, FY'80-FY'91
(Percent)

Research Category	Africa	East Asia and Pacific	South Asia	MENA ^a	LAC	Bank-wide
Medical	13	15	13	0	21	13
Demographic/ Epidemiological	43	54	47	60	47	48
Human Resources	28	31	47	20	32	30
Managerial	74	54	93	53	74	72
Financial	55	38	27	40	53	47
IEC	17	8	40	7	5	16

a. Includes Turkey.

Other Types of Research

The range of research proposed in the SARs reviewed was extremely broad, even within the tabulated categories. In population projects, it was common to find provision for family planning knowledge, attitude, and practice (KAP) research. Population projects also included research on maternal mortality and on contraceptive use (classified as demographic/epidemiological research). Research into drug prescription practices, distribution, or formulation figured in several projects. Structural adjustment loans with PHN activities often included research to look at the social dimensions of adjustment. Nutrition projects, not surprisingly, generally included nutrition-related research, especially the extent of malnutrition (classified as demographic/epidemiological research). The importance of malaria in the Amazon basin led to inclusion of entomological research in the Brazil Amazon Basin Malaria Control Project.

Research for Follow-On Projects

Bank-wide, 21 percent of the SARs included some explicit provision for research intended to facilitate preparation of a follow-on project (Figure 2). The proportion in Africa was 28 percent, in East Asia and Pacific 23 percent, in South Asia 20 percent, in MENA 7 percent, and in LAC 16 percent.

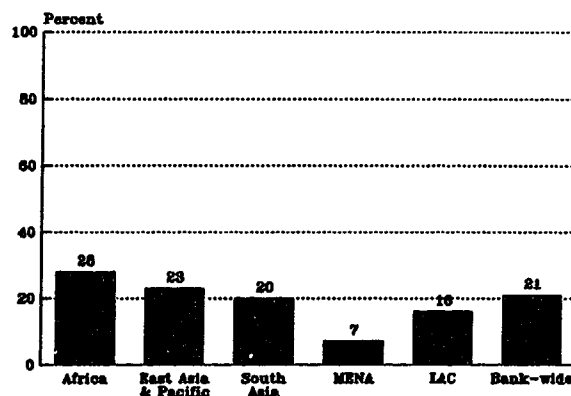


Figure 2. Proportion of projects with follow-on project research components by region and Bank-wide.

in LAC 16 percent. The proportion of projects with research intended to support follow-on projects is probably considerably understated by these tabulations. It seems likely that many SARs might be written in the expectation that all research included would contribute to the preparation of a follow-on project and that it would be unnecessary to mention it explicitly. Further, many SARs made provision for strengthening general population, health, and nutrition planning and that would support preparation of follow-on projects.

Total Value of Project-Financed Research

The sources of data for this note do not permit more than a very rough approximation of the total amount of Bank and IDA funds used for project-financed research. The SARs often do not include explicitly the amount envisioned for research; instead research is often included with other items such as training or the management information system. SARs, of course, are statements of intent; whether the funds envisioned were actually expended is not known on the basis of the documentation used in this study. Even the Project Completion Reports often do not report the outcome of research unless it was a very important or contentious component of the project. Frequently when information about the amount to be spent on research is included in an SAR, it is not clear to what extent loan funds will finance the research or if it will be financed entirely from the government contribution to the project.

However, while keeping these limitations in mind, a gross approximation of the amount of funds devoted to PHN research from Bank loans and IDA credits is attempted. In a large number of the cases where it is possible to identify the amount spent on research, it accounts for between one and two percent of the total project costs. Taking this range, and assuming it applies to Bank and IDA funds, it is possible to make an approximation. Total SAR proposed lending for the projects included in this study was about US\$4.6

billion. If the amount for health and other PHN research is between one and two percent of this, that would come to between US\$46 million and US\$92 million, or some US\$4 million to US\$8 million annually. If these estimates are valid, it would make the Bank, after the World Health Organization, the largest external financier of health and other PHN research in Third World countries. In the late 1980s, the WHO budget for research was running between \$60 million to \$70 million annually. However, according to the WHO Office of Research Promotion and Development, in 1988 only 3 percent of this was for areas which might include policy research, or on the order of \$2 million. Since Bank project-financed research is dominantly in the areas of demography/epidemiology, management, or finance, project-financed research is probably the leading source of external finance for these kinds of research.

Project-Financed Research Experience

Eight country experiences are presented to provide insight into the effectiveness of project-financed research. They were selected to give a range of different kinds of projects, a range of regions, and both successful and unsuccessful efforts to promote research.

Bangladesh

The Bank-led Bangladesh Population and Health Consortium, grouping 13 financiers including IDA and the Government plus three executing United Nations agencies, was instrumental in working out the Fourth Population and Health Project approved in fiscal year 1991. The Fourth Project is a crucial and significant part of the Fourth Five-Year Plan which extends from 1990 to 1995. Almost all of the project components are population and health elements of the Five-Year Plan. The Consortium is probably the longest-lived, largest, most complex, and perhaps the most

successful example of donor coordination and co-financing in the history of Bank operations.

Preparation of the Fourth Population and Health Project was marked by an extensive series of workshops where the issues and priorities were debated. There was, for example, a three-day high level seminar for senior officials from the Bangladesh Planning Commission, Ministry of Health and Family Welfare, and Ministry of Finance. Another three-day seminar permitted field-level staff to articulate their views about issues and priorities. Representatives of donor agencies met in a workshop to coordinate their views about issues and priorities. Finally, yet another three-day workshop brought together donors and government officials to agree on the broad-brush outline of the major approaches and priorities for the five-year implementation period of the Fourth Project. There was a three-day workshop in May 1990 in conjunction with the World Health Assembly where donor representatives and senior government officials discussed the directions and activities to be included in the Government of Bangladesh's Five-Year Plan.

This process of extensive consultation was greatly facilitated by the availability of a set of 24 extensive studies on various aspects of the population and health sector that had been included in the Third Population and Family Health Project approved in fiscal year 1986. Preparation of the Third Project was not nearly so consultative in nature as was the Fourth Project, and it was recognized at the time that in many areas information needed for jointly planning and setting priorities was incomplete or unavailable. During implementation of the Third Project, the 24 studies were carried out either directly by the External Evaluation Unit of the Planning Commission (later the Population Development and Evaluation Unit) or on contracts supervised by the Unit. These studies were critical background documents for the various workshops through which the approaches and priorities of the Fourth Population and Health Project were agreed upon.

Brazil: Malaria Control

Project-financed research in Brazil has had a substantial impact in changing malaria control programs, has provided a substantial input to a follow-on project, and has influenced thinking about malaria control strategies world-wide.

When preparation began for the Northwest Region Integrated Development Program Project financed in fiscal year 1982, there was limited interest among Government agencies in including provision for research in the project. However, the division chief concerned had visited research institutes in Brazil and was convinced more operational research conducted by these institutions could improve the effectiveness of the anti-malaria campaigns implemented by SUCAM, the semi-autonomous organization responsible for planning and implementing control programs for all the endemic diseases in Brazil. At Bank urging, a research component was included in the project; US\$2.8 million of the \$37.7 was allocated for "research and evaluation."

As the project was implemented, SUCAM, using predominantly project funds, commissioned research at local institutions. The results of this research made it possible to adapt and adjust the SUCAM anti-malarial campaigns to be more specific to particular areas and, thus, more effective.

By 1987, a sizeable body of research on malaria had been financed by project funds. SUCAM, using project funds, sponsored a "Malaria Days" conference in Brazil, which proved to be highly successful. For three days, researchers from all over the country presented the results of their research. The collected papers were later published in a volume which presents one of the more comprehensive views of malaria control operations ever undertaken.

The "Malaria Days" conference was also one of the first steps in the preparation of the follow-on Amazon Basin Malaria Control Project, a

US\$198 million project for which the Bank lent US\$150 million. For the follow-on project, 10 operational research studies were commissioned with project preparation facility funds.

The Amazon Basin Malaria Control Project also contains funds for research to be administered as grants to research institutions. Changes in the organization of research institutes in Brazil have slowed implementation of the grant program, but recently progress has been made in funding research proposals.

The research financed by the Northwest Region Integrated Development Program Project had repercussions far beyond Brazil. The emerging pattern of malaria control strategies based on the research substantially influenced thinking in the international malaria community. Previous efforts to "eradicate" malaria were being recognized as unrealistic. There was a growing appreciation that it would be necessary to shift to malaria control, and that different strategies would be needed. The success of the Brazilian project in using operational research to shape effective local programs made it a model closely observed by the international community.

Brazil: Health Policy Studies

The National Health Policy Studies Project in Brazil, a stand-alone part of the Second Health Project approved in fiscal year 1984, is one of the few Bank projects in any sector aimed exclusively at funding policy research. It also illustrates the importance of careful project design and close supervision. (This discussion draws extensively from a draft Project Completion Report on the project.)

The project was appraised jointly with the Sao Paulo Basic Health Project approved at the same time in fiscal year 1984. As originally discussed, the project was to be administered by the Government Planning Institute (IPEA) or another research institution. During negotiations,

however, the Ministry of Health expressed apprehension about assuming the loan commitment without having direct administrative responsibility. A compromise was worked out by which the Ministry would enter into a "consultative" relationship with IPEA, but would itself be responsible for the contracting and administration of the proposed studies. It was decided to make a separate US\$2 million loan for the project.

From the start implementation was slow. From Board approval in June 1984 to loan signing took approximately six months, and it was another year before effectiveness in January 1986. Six months before the project was originally scheduled to close, 41 percent of the loan funds had been committed to 20 studies, but actual disbursements totalled only US\$270,000. The project was extended an additional two years, and closed on December 31, 1989 with the cancellation of US\$279,000. At closing, the Bank had received only one completed study.

Early in 1989, a new administrator was put in charge of science and technology in the Ministry. He felt that policy research was important and that the loan funds should be utilized to support the research. As a result, 64 research projects were identified under the project. As of this writing, reports for 23 studies have been received by the Bank, but many research projects have simply been left uncompleted.

Many implementation problems can be attributed to the fact that the Ministry is not a research institution, nor had it any experience with research administration. Although IPEA did have such experience, the respective roles and responsibilities of the two institutions were not well defined, and coordination problems persisted throughout the project. The compromise design assigned the role of evaluating study proposals to a coordinating group, CIPLAN, within the Ministry, which further complicated and delayed decision-making.

The project was also adversely affected by political changes and a high inflation rate. Since the early research contracts were not indexed and there were long delays in disbursement by the Ministry, many researchers abandoned their projects for lack of funds.

In retrospect, Bank handling of the project could have been better and might have contributed to more effective implementation. The Bank could have been more careful in institutional design of the project, and more forceful in persuading the government of the merits of the original design. Once it was agreed that the Ministry of Health was to be the administering body, the Bank should have discussed more often, and in greater detail, exactly what sorts of studies the Ministry viewed as helpful to policy formulation. The Bank should have been more consistent in its supervision and follow-up. Supervision was performed at different times by four different staff members with differing backgrounds, and supervision missions were often charged with other activities so that they were unable to devote sufficient time to the project.

Health policy studies were important for Brazil at the time the project was formulated, and continue to be so at present. As a result, with the lessons of this project in mind, discussions are proceeding with a view to including a major policy research component in a forthcoming loan.

China

In China, the Bank has had a very successful experience with project-financed research.

The first PHN lending operation in China was the Rural Health and Medical Education Project. One component was to support three research institutions, the National Center for Preventive Medicine, the Research Center for Health Planning and Statistics, and the Sichuan Institute of Chinese Materia Medica.

The National Center for Preventive Medicine was an amalgamation of five existing institutes, none of which was particularly distinguished. Now reorganized as the Academy for Preventive Medicine so that it can award doctoral degrees, it has become quite successful in the eyes of the Bank staff responsible for the project. It has developed one of the best reporting systems on causes of death and morbidity in the developing world, publishes several journals of high standard, and has completed more than 300 scholarly studies in such areas as operational research on the Chinese health system, vector and parasite control, and effective treatment regimes.

The Research Center for Health Planning and Statistics has also become quite successful, although it was slower in reaching a high standard. Initially, the Center did not sufficiently appreciate the need for a health information system nor for better statistics upon which to do research analysis. Revitalized under a new head, and renamed the Center for Health Statistics and Information, it now has an effective data collection system and is well positioned to do effective operational research.

A very interesting outcome of the Bank credit was the broad range of research which has been undertaken with project funds not envisioned in the SAR. This was made possible by the strong appreciation of the SDR against the dollar which resulted in substantial sums becoming available for additional research. One research activity being financed is a community-based project in Tianjin which has instituted the world's largest chronic disease control experiment. The study is tracing cholesterol levels, smoking behavior, and heart attack and stroke management. The Communicable Disease Centers in the United States, initially retained as a consultant in the research, has now become a full partner, along with the Finnish Ministry of Public Health and the Academy for Preventive Medicine. The study thus combines research workers from a developing country with rising rates of stroke and heart disease, the industrialized country with the highest incidence of

stroke and heart disease (Finland), and an industrialized country which has succeeded in reducing stroke and heart disease (the United States).

Another successful health research effort established with the additional project funds is being carried out in Beijing in cooperation with Oxford University. The study is tracing the effects of different regimes of treating stroke on mortality and recovery time.

Yet another study made possible with the additional project funds is the world's largest study linking health practices and cause of death. More than 500,000 people have been identified and will be monitored over a twenty-year period. Of key interest will be the information the study yields about the link between smoking and mortality, since nearly all the existing studies of smoking and mortality have been carried out in industrialized countries and may have limited applicability in a developing country.

Finally, the project has financed part of an ongoing study of adult-onset diabetes with cooperation from researchers in the United Kingdom, Finland, France, Italy, and the United States.

Other Chinese projects have also resulted in successful project-financed research. The Rural Health and Preventive Medicine Project (Second China Health Project) approved in fiscal year 1986 financed research into alternative insurance schemes which has influenced Chinese rural health policy. The Integrated Regional Health Development Project approved in fiscal year 1989 has funded research to determine if school-based programs influence smoking behavior among parents. Cartoon books about the health risks associated with smoking were the basis for an experimental curriculum. The result of the program was an immediate sharp drop in smoking among the parents of the children taking part in the program.

Project-financed research will continue to influence Chinese health policy. For example, a fiscal year 1992 Bank loan focuses on schistosomi-

asis and tuberculosis control. The TB treatment regime to be extended on a wide scale is one developed with project-financed research from the fiscal year 1984 Rural Health and Medical Education Project.

India—Tamil Nadu

The Tamil Nadu Integrated Nutrition Project in India was an innovative and highly successful project. It showed that large-scale, community-level interventions in the social sectors can work. (The credit became effective in August 1980 and closed at the end of March 1989. This section draws heavily on the Project Completion Report for the project.)

The project as designed included provision for a baseline survey and formal mid-term and final evaluations. Partly because the mid-term evaluation findings were not ready until 1986, they were not acted upon by project management until work began on the design of the Second Tamil Nadu Nutrition Project approved in fiscal year 1990. However, the results of both the mid-term and final evaluations did have a significant impact on the design of the second project.

The Project Management Unit (PMU) had at its disposal funds to commission small, stand-alone research projects and some 40 to 60 such studies were authorized. Most were judged by Bank staff to be of poor quality and had only a limited impact on the redesign of the project. In retrospect, the fact that the PMU had great freedom in commissioning research and so could act rapidly and with great flexibility also contributed to poor research design and limited usefulness. It indicates that a more formal research committee with qualified members which could review proposals for relevance and methodological soundness would have been a better mechanism. The fact that the stand-alone research component was not a very significant part of the total project may have meant that Bank staff could not devote sufficient supervision

time to improve the quality of the stand-alone research projects.

It should be noted that a distinguished group of evaluation studies have been published about this project. They showed large drops in undernutrition and mortality among children. However, these studies were not funded by the project.

Nigeria

Nigeria is another country where Bank experience with project-financed research has been quite successful. In part this is due to the availability of able Nigerian researchers and senior officials interested to foster research and to use the results in policy formulation and to prepare new projects. In part, it is due to a continuing interest in research among the Bank staff responsible.

The first PHN lending operation of the 1980s in Nigeria was the Sokoto Health Project approved in fiscal year 1985. The project included US\$1.4 million earmarked for studies. The money was used to prepare follow-on projects and for major health care financing studies in Sokoto, Ogun, and Oyo states. The survey work in Ogun was used extensively by Bank staff to prepare a major sub-sector report, *Federal Republic of Nigeria—Health Care Cost, Financing and Utilization*, which appeared in October 1991. The results of the research and the sub-sector report are being used as a basis for the First Referral Hospital Project and a nutrition project now under preparation.

A second lending operation in Nigeria, the Imo Health and Population Project approved in fiscal year 1989, included funds to establish a Population Studies Center at Imo State University. The Center has been established, a director appointed, and a research program is being prepared.

The National Population Project, approved in fiscal year 1991, is intended to support both

policy and medical research. The project provides for a US\$4 million Population Research Fund to finance research into a range of topics, including the socio-cultural and economic supports for large families and the determinants of fertility and contraceptive use in Nigeria. An interesting feature is that the Fund is administered by the Nigerian Institute for Social and Economic Research through a Technical Committee which includes representatives of the major user groups. The project also supports extension to other states of research work at the University College Hospital of the University of Ibadan. The hospital was the first World Health Organization collaborating research center for human reproduction in Africa. The Health System Fund Project, also approved in fiscal year 1991, and which became effective in March 1992, has provision to support studies. Even before the project became effective, some studies were already underway to support anticipated requests for grants from the Fund.

Philippines

The Philippine Health Development Project approved in fiscal year 1989 includes a significant policy research component. A contract for US\$1.2 million for 36 studies was signed between the Department of Health (DOH) and the Philippine Institute for Development Studies (PIDS) in mid-1991, and work is proceeding.

The project builds upon the successful implementation of a grant made in 1988 to PIDS by the International Health Policy Program (IHPP), a program to encourage health policy research supported by the Pew Charitable Trusts and the Carnegie Corporation of New York, in cooperation with the World Bank and the World Health Organization. That grant resulted in six substantial studies, mostly by younger researchers not previously working on health policy, which have been widely disseminated and carefully reviewed by the DOH.

For the Bank-financed research, the DOH, in cooperation with the University of the Philippines School of Economics and PIDS, developed terms of reference for baseline studies to be conducted in relation to the design of a core policy reform package for the health care financing system. From this emerged the specific studies to be supervised by PIDS. A Project Steering Committee chaired by a DOH under-secretary has been established. The topics chosen for the research studies include beneficiary and provider profile and behavior, financial resource base and institutions, the health care financing environment, and planning models for the health care financing system. In addition, Bank-financed research would collect, generate, and disseminate data pertinent to the health care financing system and the health system in general. A secondary data inventory and primary data collection are part of the project activities. The primary data collection is aimed at gathering baseline data which are not collected by government or private statistical agencies. The data base is expected to be maintained after completion of the project by the DOH with USAID assistance. Monitoring and consultation activities are built into the project implementation and several local and national level workshops are planned following a pattern developed under the earlier IHPP program.

Zaire

Finally, the experience in Zaire demonstrates once again that the Bank can be of only limited effectiveness in situations where the overall political and economic environment is adverse. The Social Sector Project and the National AIDS Control Program Assistance Project, both approved in fiscal year 1991, contained between them provision for some US\$1.5 million for research. Yet conditions have been such that as of this date virtually no research has been undertaken.

Common Themes and Conclusions

The information on which this note is based can only support preliminary conclusions about project-financed research. There are, however, several generalizations which can be made:

- Bank experience with project-financed research in the PHN sector has been extremely variable, quite successful in some countries and almost a total failure in others. Even so, some striking successes can be noted, as the country experiences outlined here have demonstrated. These successes certainly justify continued efforts to incorporate research into projects and to encourage use of that research both to improve overall national PHN policy and follow-on Bank-financed projects.
- Personalities make a difference, both among borrowers and within the Bank. Quite often when there has been a successful experience, a particular person within the government or within the Bank has taken a personal and continuing interest in encouraging research.
- Supervision is crucial to good results. Supervision must be frequent enough to keep the research component on time and of good quality. It is important if good quality research is to be completed that those responsible for supervision attach a high priority to research even if it is not a large part of the project in money terms.
- Research that leads to a project outcome—such as that needed to justify release of funds or for a follow-on project—is more likely to be undertaken and completed than is research with a more general objective.

- In countries where the institutional capability exists, using a national institution to review research proposals and to administer research grants can be quite effective. Experience indicates some sort of peer-group review results in better quality research.
- There probably is room for more "best practices" workshops where PHN staff can exchange experiences about successful design and supervision of project-financed research components. However, in most cases it will probably be necessary to retain experienced consultants to assist with the design of substantial research components.
- More systematic collection and dissemination of project-financed research is justified, given the considerable amounts of money and effort which is devoted to it.

Other Sector Project-Financed Research

Two other recent studies of World Bank project-financed research have been published, one each in the education and agriculture sectors.

Education

The education study is *World Bank Lending for Education Research, 1982-89* by Marlaine E. Lockheed and Alastair G. Rodd. The authors reviewed 146 Bank education projects initiated between fiscal year 1982 and fiscal year 1989. Of these, 116 included research components. The authors found that 2.2 percent of the loans and credits of these 116 projects was allocated to research, an outcome not much different from the PHN results reported in this note. They found, however, that research as a percentage of total loan commitment declined sharply from 1982 to

1989, an outcome not demonstrated by this study for the PHN sector. Of the 436 planned studies the authors identified, only 184 (or 42 percent) were completed and of these only 84 were available through Regional Information Centers. Examination of the SARs in the PHN sector did not yield anything close to such a precise estimate of the number of studies included in projects, but the general impression from talking to task managers is that in the PHN sector, too, many planned studies are not completed. One would be hard pressed to collect a complete set of reports for those PHN studies which were completed. The authors of the education study were particularly critical of the fact that only 5.6 percent of the completed studies "had anything to do with assessing educational outcomes."

The authors recommended that more attention be paid to the design and implementation of research components in education projects, a conclusion which many would probably feel valid for PHN projects. To facilitate this, they recommend that the Bank develop a program to train operational staff to design studies with appropriate methodologies and which would develop domestic research capacity. In the PHN sector, it would appear more appropriate to assure access to suitable consulting services for the design of research components rather than to undertake a training program substantial enough to teach operational staff how to design research components. They recommended free-standing educational research projects in larger countries. Except for the Brazil Health Policy Studies Project that was part of the Second Health Project, no PHN project reviewed for this note was a free-standing research project, nor have interviews with task managers found a substantial measure of support for free-standing PHN research projects. Finally, the authors recommend much more attention be paid to dissemination of research reports within the Bank and within the borrowing country, and that project completion reports contain a bibliography of the studies completed under a project, both suggestions which would be applicable to the PHN sector.

Agriculture

The other major recently published study of project-financed research is *Lending by the World Bank for Agricultural Research—A Review of the Years 1981 through 1987* by Anthony J. Pritchard.

The extent of Bank lending to support research in agriculture is much greater than it is in the PHN sector. From 1981 through 1987, the Bank lent for 21 free-standing research projects and 209 agricultural and rural development projects with research components. The total cost of the agricultural research elements in Bank-financed agricultural projects was \$2.1 billion—25 to 50 times the amount of project-financed research in PHN projects. Additional support for agricultural research was provided through 12 education projects, 16 policy-based loans, and grants to the Consultative Group for International Research and other international institutions.

Because of differences in the history of agricultural lending and PHN lending within the Bank and because free-standing research projects are more common in the agriculture sector, agriculture staff have a tendency to be much more directly involved in the establishment of research institutions and programs and in supervising research activities.

Pritchard found that free-standing research projects were generally successful "in institution-building and in financing productive research programs." However, "problems in implementing research components in agricultural and rural development projects were sometimes severe and the limited success of these components is a cause for concern."

Pritchard had a number of recommendations, many of which would be inappropriate if applied in the PHN sector given the different emphasis and scale, but some of which would sound familiar to PHN staff. He recommended: (1) continued emphasis on development of strong national

agricultural research systems; (2) an examination on a regional basis for the lack of effectiveness of research components; (3) evaluation of the effectiveness of policy-based lending in the development of agricultural research; (4) training for Bank staff to increase skills in supervision and appraisal of research projects; (5) expansion of the time-frame of agricultural research projects; (6) analysis of the relationship between component size and the success of research programs; (7) development of Bank policy regarding support of biotechnology research for developing countries; (8) reassessment of the Bank's influence on research programs at the international agricultural research centers to ensure efficient use of resources; (9) developing a methodology to determine costs and benefits of agricultural research projects and components; (10) an evaluation of the contributions of consultant experts in agricultural research projects; and (11) a review of the concepts and procedures for extension-research linkages.

To increase the chances of success in agricultural research projects and components, Pritchard suggested increased attention to: (1) administrative and procedural problems during project start-up; (2) adaptive and applied research needs for the complete farming system; (3) developing national agricultural research plans; (4) supporting regional research initiatives; (5) allocating project funds for contract and collaborative research; (6) defining staffing needs, identifying requirements for support staff, and providing adequate training and education opportunities; (7) developing public awareness programs to broaden public support for agricultural research; (8) providing incentives for research workers to assure retention of high calibre staff; and (9) exploring alternative means of providing operating funds for research.

J. Price Gittinger
Carol Bradford

Annex. Projects Reviewed

Region/ Country	Project	Fiscal Year	Total Amount of Project (US\$ million)	Amount of Loan/ Credit (US\$ million)
AFRICA				
Benin	Health Services Development	1989	32.0	8.6
Botswana	Family Health	1984	26.6	11.0
Burkina Faso	Health Services Development	1985	28.0	26.6
Burundi	Population and Health	1988	18.7	14.0
Cameroon	Social Dimensions of Adjustment	1990	85.7	21.5
Chad	Social Development Action	1990	26.9	13.4
Comoros	Health and Population	1984	3.1	2.8
Côte d'Ivoire	Health and Demographic	1986	29.7	22.2
Ethiopia	Family Health	1988	43.9	33.0
Gambia	National Health Development	1987	20.8	5.6
Gambia	Women in Development	1990	15.1	7.0
Ghana	Health and Education Rehabilitation	1986	16.0	15.0
Ghana	Second Health and Population	1991	34.3	27.0
Guinea	Health Services Development	1988	22.5	19.7
Guinea-Bissau	Population, Health and Nutrition	1987	4.4	4.2
Kenya	Integrated Rural Health and Family Planning	1982	61.0	23.0
Kenya	Third Population	1988	28.3	12.2
Kenya	Fourth Population	1990	41.3	35.0
Lesotho	Health and Population	1985	7.4	3.5
Lesotho	Second Population, Health and Nutri- tion	1990	22.1	12.1
Madagascar	Health Sector Improvement	1991	42.5	31.0
Malawi	Health	1983	8.7	6.8
Malawi	Second Family Health	1987	24.9	11.0
Malawi	Population, Health and Nutrition Sec- tor Credit	1991	74.3	55.5
Mali	Health Development	1984	17.6	16.7
Mali	Second Health, Population and Rural Water Supply	1991	61.4	26.6
Mozambique	Health and Nutrition	1989	42.5	27.0
Niger	Health	1986	29.3	27.8
Nigeria	Sokoto Health	1985	53.0	34.0
Nigeria	Imo Health and Population	1989	36.8	27.6
Nigeria	Essential Drugs	1990	85.1	68.1
Nigeria	Health System Fund	1991	94.5	70.0
Nigeria	National Population	1991	93.6	78.5
Rwanda	Family Health	1986	14.5	10.8
Rwanda	First Population	1991	26.1	19.6

Region/ Country	Project	Fiscal Year	Total Amount of Project (US\$ million)	Amount of Loan/ Credit (US\$ million)
Senegal	Rural Health	1983	16.7	15.0
Senegal	Human Resources Development	1991	37.8	35.0
Sierra Leone	Health and Population Sector Support	1986	5.7	5.3
Tanzania	Health and Nutrition	1990	70.0	47.6
Togo	Population and Health Sector Adjust- ment	1991	52.7	14.2
Uganda	First Health	1988	65.5	42.5
Uganda	Social Costs of Adjustment	1990	37.0	28.0
Zaire	National AIDS Control Program Assistance	1989	21.9	8.1
Zaire	Social Sector	1991	37.0	30.4
Zambia	Social Recovery	1991		20.0
Zimbabwe	Family Health	1987	52.6	10.0
Zimbabwe	Second Family Health	1991	116.9	25.0
EAST ASIA AND PACIFIC				
China	Rural Health and Medical Education	1984	322.8	85.0
China	Rural Health and Preventive Medi- cine	1986	177.4	80.0
China	Integrated Regional Health Develop- ment	1989	113.0	52.0
Indonesia	Third Population	1980	72.6	35.0
Indonesia	Provincial Health	1983	54.4	27.0
Indonesia	Fourth Population	1985	94.4	46.0
Indonesia	Second Health (Manpower Develop- ment)	1985	65.9	39.0
Indonesia	Second Nutrition and Community Health	1986	57.5	33.4
Indonesia	Third Health	1989	103.5	43.5
Indonesia	Fifth Population	1991	148.4	104.0
Korea	Population	1980	93.4	30.0
Korea	Health Technology	1991	81.2	60.0
Philippines	Health Development	1989	108.4	70.1
SOUTH ASIA				
Bangladesh	Third Population and Family Health	1986	213.8	78.0
Bangladesh	Fourth Population and Health	1991	601.4	180.0
India	Second Population	1980	96.0	46.0
India	Tamil Nadu Nutrition	1980	66.4	32.0
India	Third Population	1984	123.5	70.0
India	Fourth Population	1986	89.9	51.0
India	Fifth (Bombay and Madras) Popula- tion	1988	182.0	57.0

Region/ Country	Project	Fiscal Year	Total Amount of Project (US\$ million)	Amount of Loan/ Credit (US\$ million)
India	Sixth (National Family Welfare Training and Systems Development)			
	Population	1989	182.0	124.6
India	Seventh Population	1990	141.5	86.7
India	Second Tamil Nadu Nutrition	1990	139.1	95.8
India	Integrated Child Development Services	1991	157.5	106.0
Pakistan	Population	1983	28.2	18.0
Pakistan	Family Health	1991	62.9	45.0
Sri Lanka	Health and Family Planning	1988	21.4	17.5
Sri Lanka	Poverty Alleviation	1991	85.0	57.5
MIDDLE EAST AND NORTH AFRICA				
Algeria	Pilot Public Health	1991	26.7	16.0
Egypt	Social Fund	1991	572.0	140.0
Jordan	Primary Health Care	1985	30.5	13.5
Morocco	Health Development	1985	47.6	28.4
Morocco	Health Sector Investment	1990	171.3	104.0
Oman	Health	1987	30.6	13.3
Tunisia	Health and Population	1981		12.5
Tunisia	Population and Family Health	1991	63.2	26.0
Tunisia	Hospital Restructuring and Supply	1991	49.5	30.0
Turkey	Health	1989	146.7	75.0
Yemen Arab Republic	Health	1983	15.9	10.5
Yemen PDR	Health Development	1983	10.4	7.6
Yemen PDR	Second Health Development	1989	7.6	4.5
Yemen	Health Sector Development	1990	19.1	15.0
Yemen	Emergency Recovery	1991	59.5	33.0
LATIN AMERICA AND CARIBBEAN				
Bolivia	Integrated Health Development	1990	38.6	20.0
Bolivia	Social Investment Fund	1990	95.6	10.0
Brazil	Northwest Region Integrated Development Program First Phase Health	1982	149.0	13.0
Brazil	Second Health	1984	123.6	57.5
Brazil	Northeast Basic Health Services	1986	129.7	59.5
Brazil	Northeast Endemic Disease Control	1988	218.0	109.0
Brazil	Amazon Basin Malaria Control	1989	198.0	150.0
Brazil	and Northeast Basic Health Services	1990	610.6	267.0
Colombia	Health Services Integration	1986	118.0	36.5
Colombia	Community Child Care and Nutrition	1990	40.2	24.0
El Salvador	Social Sector Rehabilitation	1991	35.6	26.0
Haiti	First Health	1990	33.7	28.2

Region/ Country	Project	Fiscal Year	Total Amount of Project (US\$ million)	Amount of Loan/ Credit (US\$ million)
Haiti	Economic and Social Fund	1991	23.6	11.3
Honduras	Social Investment Fund	1991	60.0	20.5
Jamaica	Population and Health	1987	12.4	10.0
Jamaica	Social Sectors Development	1990	67.0	30.0
Mexico	Basic Health Care	1991	249.8	180.0
Peru	Primary Health Care	1983	55.5	33.5
Venezuela	Social Development	1991	320.9	100.0

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