Resource Flows For Health Research and Development

Malaysia, The Philippines and Thailand Agendas for Health Research and Development

Final Report
Phase 1

COHRED

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Table of Contents

List of Tables

List of Figures

List of Acronyms

MALAYSIA: LIST OF ACRONYMS

IRPA	Intensification of Research in Priority Area
NCSRD	National Council for Scientific Research and Development's
MASTIC	Malaysian Science and Technology information Center
MOSTE	Ministry of Science, Technology and Environment
S&T	Science and Technology
OECD	Organization for Economic Co-operation and Development
FTE	Full Time Equivalent
RDE	Research and Development Expenditure
FOR	Fields of Research
SEO	Socio-economic objective
NMDS	National Science and Technology Minimum Dataset

THE PHILLIPINES: LIST OF ACRONYMS

ADB	Asian Development Bank
ASE	Annual Survey of Establishments
BFAD	Bureau of Food and Drug
BIR	Bureau of Internal Revenue
CEPR	Center for Economic Policy Research
DBM	Department of Budget and Management
DOH	Department of Health
DOST	Department of Science and Technology
ENHR	Essential National Health Research
ESSO	Economic and Social Statistics Office
ICHS	Integrated Community Health Service
ITSD	Industry and Trade Statistic Department
LE	List of Establishments
NHRA	National Health Research Agenda
NHSTP	National Health Science & Technology Plan
NSCB	National Statistical Coordination Board
NSO	National Statistics Office
NSSTA	National Survey on the Scientific and Technological Activities
ORS	Office of Research Services
PCCI	Philippine Chamber of Commerce and Industry
PCHRD	Philippine Council for Health Research and Development
PGH	Philippine General Hospital
PIDS	Philippine Institute for Development Studies
PSIC	Philippine Standard Industrial Classification
R&D	Research and Development
RITM	Research Institute for Tropical Medicine
SEC	Securities and Exchange Commission
STA	Science and Technological Activity
STAND	Science and Technology Agenda for National Development
UP	University of the Philippines
UP-HPDP	University of the Philippines-Health Policy Development Project

THAILAND: LIST OF ACRONYMS

COHRED	Council of Health Research and Development
CPH	College of Public Health, Chulalongkorn University
DMS	Department of Medical Science
ENHR	Essential National Health Research
HSRI	Health Systems Research Institute
MOPH	Ministry of Public Health
MTEC	Metal and Materials Technology
MUA	Ministry of University Affairs
NCGEB	National Center of Genetic Engineering and Biotechnology
NECTEC	National Electronics and Computer Technology
NESDB	National Economic and Social Development Board
NGO	Non-Governmental Organization
NHA	National Health Account
NHRA	National Health Research Agenda
NRCT	National Research Council of Thailand
NSTDA	National Science and Technology Development Agency
R&D	Research and Development
THRI	Thai Health Researh Institute
TIAC	Technology Information Access Center
TRF	Thai Research Fund
UNDB	United Nation Development Bank
WHO	World Health Organization

RESOURCE FLOWS FOR HEALTH RESEARCH AND DEVELOPMENT
Malaysia, Philippines, and Thailand
Phase I

EXECUTIVE SUMMARY

This project is the first multicountry study that tracks resource flows for health research and development (R&D). It responds to the recognition that monitoring resources flows is a key input in any useful discussion on health R&D policy, as well as the need to collect, analyze, and disseminate information on health resource flows to better address health problems of low and middle income countries. This effort is part of a larger movement, known as essential national health research (ENHR) which aims, among others, to enhance the impact of limited resources on health, particularly in developing countries.

To carry out the project, country teams have been formed from the Ministry of Health for Malaysia, the Center for Economic Policy Research (CEPR) for the Philippines, and the College of Public Health of the Chulalongkorn University for Thailand.

This report presents the first quarter results of the twelve-quarter project.

Objectives

The overall objective of the project is to develop a basic methodology for tracing and measuring health R&D funds in a country as a tool to streamline and finetune the allocation of health R&D funds. The specific objectives, at the country level, are to:

- Identify the sources and uses of health R&D funds
- Estimate the amount and nature of health R&D expenditures
- Undertake a qualitative analysis of research outputs resulting from these resources, to the extent possible
- Assess if health R&D expenditures are aligned with the priorities of the research agenda
- Catalog indicators for monitoring of health R&D expenditures across time
- Establish trends in health R&D expenditures, and
- Develop recommendations based on project findings. Including those involving gaps, fragmentation, and imbalances in the allocation of health R&D funds.

Within these objectives, those for the first quarter of the project were crafted as followed, per country, to:

- Document health-research priority setting
- Identify existing data sets of health R&D
- Develop a plan for sustained monitoring of health R&D
- Draft survey questionnaire, and
- Formulate survey approach.

Definition and Framework

To ensure that results of the project are comparable not only among Malaysia, the Philippines and Thailand, but all other countries who decide to undertake similar work, every effort will be made to keep the approach and methodology similar across the three countries.

The working definition of R&D for the project is based on that of United Nations Educational, Scientific, and Cultural Organization (UNESCO): any systematic and creative work undertaken in order to increase the stock of knowledge, and the use of such knowledge to devise new applications.

Some other elements of the framework that will be kept uniform in the three countries are: definitions for types and fields of health R&D, categories used to capture fund sources and fund users, methodology used to document and assess health priority-setting process, and techniques for data generation and statistical analysis.

Finally, the study approach includes the coordination mechanism of project meetings, timed with the key deliverable milestones, that will bring together the key members of the country teams to discuss and decide on common plans of action for the project, discuss their respective country findings, and enhance networking.

Findings and Progress

The activities undertaken during the first three months of the project (August-October 1998) consisted essentially of documentation of the health research priority-setting process and groundwork for the sustained monitoring of health R&D flows in each of the three countries.

National Health Research Priority-Setting

All three countries currently have in place national-level priorities for health research, developed using different processes of consultation.

Current national priorities for health research in Malaysia are embodied in the Seventh Malaysia Plan (1996-2000). Setting of national research priorities began only in the late 1980s after science and technology planning was integrated into the Fifth Malaysia Plan and a central fund for R&D, the Intensification of Research in Priority Areas (IRPA) fund, was created.
Prior to this, health research priorities were set at the institutional level. By 1987, the National Council for Scientific Research and Development (NCSRD) established the framework for policy and mechanism for national priority-setting. In addition to national research priority areas, research needs in the Ministry of Health are also identified from research dialogue sessions held annually between researchers and the Ministry of Health's policy makers, planners, and managers.

In general, government-funded health research in the Philippines attempts to address priority issues confronting the local health sector. In the case of the public health subsector, research priorities are defined by two government institutions: the Philippine Council for Health Research and Development (PCHRD) of the Department of Science and Technology (DOST) and the Essential National Health Research unit of the Department of Health (DOH-ENHR). Both institutions formulate their respective health research agendas through similar but distinct consultative processes. The PCHRD spearheads a nationwide multisectoral consultation process to develop the National Health Science and Technology Plan; the ENHR draws up priority areas within the five areas of responsibility of the Department of Health. A

substantial amount of research is also funded by the private sector which may not necessarily follow the priorities set by ENHR or PCHRD. Taken together, the private and government sector priorities for research largely constitute the country's research agenda for any given time period. At the same time, bilateral/multilateral funding agencies, which also contribute to funds for health R&D may undertake work responsive to their respective agendas.

A core group of seven organizations defines health research priorities for Thailand. These consist of three government institutions: the National Research Council of Thailand (NRCT), Ministry of Public Health (MOPH), and National Science and Technology Development Agency (NSTDA); and four autonomous research funding organizations: the Health System Research Institute (HSRI), Thai Research Fund (TRF), Thai Health Research Institute (THRI), and the Ananthamidol Foundation. These organizations formulate their health research agendas based on the National Health Plan which is a subplan of the National Economic and Social Development Plan and through annual meetings called by the Thai Forum on Health Research and Development. As in the Philippines, research funded by the private sector (other than the four members of the core group) and bilateral/multilateral funding agencies may not necessarily follow the national agenda.

Groundwork for Survey

Groundwork for survey during the first phase consisted of identification of existing health R&D-related datasets, planning for sustained monitoring, development of survey questionnaire, and development of survey approach. The following are the results and findings for these activities:

Existing Health R&D-Related Data Sets

The study team for each country compiled and reviewed existing data sets and systems to gather existing baseline information on health R&D and to avoid duplication with respect to the project survey.

Except for a funds flow study for health R&D in the Philippines, the rest of the relevant datasets in all three countries did not contain information specific to health R&D funding, but rather general information regarding science and technology, R&D, public health, or healthcare funding. These datasets did provide some guidance on the approach to be used for the project survey. However, they were generally limited to the government sector and did not shed too much light on the private and non-government sectors.

Malaysia identified three relevant datasets. All three are not specific to health R&D only but represent a subset of a larger dataset for all categories of R&D activities. These data have been collected, analysed, and are managed by the Malaysian Science and Technology Information Centre (MASTIC) located within the Ministry of Science, Technology and Environment (MOSTE). MASTIC, commissioned in late 1992, is the country's primary authoritative provider of science and technology (S&T) information. The three datasets include the national surveys of R&D efforts, the national S&T minimum dataset, and IRPA. The latter two are now available online.

The Philippines has the following health R&D-related datasets: the data in the Analysis of Funds Flow for Health R&D in the Philippines, a study of the DOH-ENHR commissioned to CEPR; the scientific and technological activities (STA) survey of the DOST and the Philippine Institute for Development Studies (PIDS); the national health accounts; the STA engagement data in the annual survey of establishments of the National Statistics Office (NSO), the profiles of research conducted in the University of the Philippines (UP)-Manila, and the Assessment of Health Research Status in the Philippines, a survey conducted by the

PCHRD for DOH-ENHR. Among these, only the NSO and UP Manila data are collected regularly. As mentioned earlier, the funds flow study for health R&D is the only dataset found in the three countries that contains data specific to health R&D resource flows, and is of particular value to the present project.

Thailand found four existing health R&D-relevant datasets: the national R&D data compiled by the Department of Medical Science in the National Research Council of Thailand; the profile of research projects funded by the Thai Research Fund; the national health accounts (NHA) which was first established in 1994 and which produces aggregated health expenditure data, of which R&D is a subset; and the profiles of R&D performed in the Health System Research Institute, Ministry of Public Health, and Ministry of University Affair, as collected by the respective organizations.

Sustained Monitoring

This project will undertake the initial effort in tracking health R&D resources in the hope that it will be continued by the respective governments of the three countries. Thus, part of its work is looking into the feasibility of sustaining the effort by identifying and interfacing with government institutions with the potential and infrastructure to carry out the survey nationwide, not only for the current project but beyond it, as part of its regular activities.

In Malaysia, the long-term monitoring of resource flows for health R&D is seen as a collaborative effort between the Ministry of Health and the Ministry of Science, Technology, and Environment. Further discussions with these institutions will be pursued.

For the Philippines, the agencies that could carry out the task are the National Statistics Office which can collect the data through a rider in its Annual Survey of Establishments (ASE), the National Statistical Coordination Board (NSCB), which serves as depository of the data collected by the NSO in a format useful for policy makers, and the Department of Health, which can specify data requirements according to its use. Efforts to coordinate the tasks of the three agencies will be made.

In Thailand, the National Research Council of Thailand, the highest policymaking body in R&D, emerges as the best candidate for the regular monitoring of health research resource flows. The other members of the Thai Forum on Health Research and Development can assist NRCT in conducting surveys as riders in their own surveys. Negotiations for such arrangements will be conducted in the next phase of the project.

Survey Questionnaire

After identifying the data required for a comprehensive analysis of health R&D resource flows, a questionnaire addressing these data requirements was developed. The questionnaire was substantially based on the questionnaire used in the health R&D funds flow survey in the Philippines. It was pretested through the same survey. The format of the questionnaire as well as major areas of inquiry were agreed on in a meeting of representatives of country research teams in Bangkok. More discussions on definitions of terms used are expected at a multicountry project team level before the survey is actually conducted in the three countries.

Survey Approach

Based on the results of the above activities, concrete plans on how to approach the survey have been drawn out in terms of sampling frame, and on who shall conduct data collection, encoding, processing, and analysis.

The sampling frame for the survey shall be largely drawn from the respondent bases of existing surveys in the three countries. In Malaysia, the respondent base for the public sector will be based on the MOSTE's national R&D survey, while the private sector listing will be requested from the National Pharmaceutical Control Bureau and associations in the pharmaceutical industry. The Philippines will draw its sampling frame from the NSO's List of Establishments (LE) for the private sector, and from the CEPR/DOH-ENHR funds flow survey and DOST STA survey for the government sector. For Thailand, the sampling frame will be based on the NRCT national R&D survey. The lists for all three countries will be augmented using other government listings, participant lists of meetings among health sector stakeholders, as well as results of the survey as it is being implemented.

The study teams intend to prepare the questionnaire and carry out the data collection in their respective countries. In the Philippines, though, questionnaires for private sector respondents may be fielded and collected as a rider in the NSO's ASE for 1999, if the project survey timetable can be adjusted to the ASE timetable. This arrangement will be ideal as it can serve as a test run to determine the feasibility for NSO to carry out this survey regularly. The questionnaires will be mailed or delivered, with follow-up interviews to be conducted as needed. All the interviewers/researchers conducting the survey will be given the requisite training, especially in the area of definitions. Thailand's lead health research institutions have indicated their willingness to include the data generated in their respective databases. Malaysia and the Philippines will seek a similar commitment from their lead health research institutions.

Processing of data will also be carried out by the respective study teams except in Malaysia where data will be entered and processed electronically by the secretariat in the Institute for Medical Research, which also processes the national R&D survey. Malaysia is likewise exploring the possibility of using the Teleform software which can carry out data entry by rapid scanning. The Philippines and Thailand may use the same data entry and processing tools or similar ones which are more appropriate in their countries. In any case, every effort will be made to ensure that data in all three countries are generated and processed in a manner that will allow comparisons across the databases.

Data analysis for each country shall be conducted by the respective study teams, based on guidelines agreed upon by the multicountry project team.

Further Work

The following figure presents the proposed workplan for the second phase of the resource flows study. The period spans fourteen months and covers preparation for the survey, including firming up the respondent list, conduct of the survey, analysis of survey results, development of measures for gaps, imbalances, and fragmentation, and trend analysis methodology. Depending on what month this phase takes off, the order of activities may be adjusted based on when data collection for the field survey begins. A meeting of key members of the country project teams will be held in the fourth month to discuss issues in the priority-setting process in each country and a common approach to measuring gaps, fragmentation, and imbalances, as well as agree on trend indicators and trending methodology.

Proposed Workplan
Resource Flows for Health Research and Development, Phase 2

Activity / Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Survey for Fund flow Framework:														
1. Drawing of sampling frame														
2. Survey preparation														
3. Training														
4. Data Gathering														
5. Data Encoding														
6. Data Processing														
7. Data Analysis														
Research Agenda/Priority Setting Process:														
1. Document existing set-up for priority setting														
2. Identify key stakeholders, organizations and respective mandates														
3. Trace linkages among key stakeholders/ organizatons														
4. Identify current priorities and how they were established														
5. Document consensus-building process if any														
Gaps, Imbalances, and Fragmentation														
1. Develop approach to measuring gaps,														
2. Measure gaps, imbalances, and fragmentaion														
3. Formulate recommendations														
Trend Analysis														
1. Identify indicators for trend analysis														
2. Develop trending methodology														
3. Conduct trend analysis; Analyse survey results														

RESOURCE FLOW FOR HEALTH RESEARCH AND DEVELOPMENT
A Comparative Study of Malaysia, the Philippines, and Thailand

I. BACKGROUND

In the early 1990s, the Commission on Health Research and Development (COHRED) published a report that already stressed the power of health research as a tool to further world health. Based on this premise, the Commission recommended that all countries should vigorously undertake essential national health research (ENHR) to accelerate health action in diverse national and community settings, and to ensure that resources available for the health sector, achieve maximum results. The recommendation was particularly directed to developing countries where ENHR could, among other things, enhance the impact of limited resources.

The Council for Health Research and Development (COHRED) was established in March 1993 as a long-term mechanism to carry forward the implementation of ENHR and the other recommendations of the Commission. Since then, the COHRED has been advocating the process at a national level whereby health research is used as a tool to solve the most important problems determined by a particular country in order to achieve equity in health. It has also been serving as a means by which countries, agencies, and organizations can work together to promote, facilitate and support ENHR, and address health issues of international priority requiring joint action.

Within the decade an Ad Hoc Committee was formed by the World Health Organization on Health Research Relating to Future Intervention Options. The Committee was tasked to address priorities for health R&D, prospects for funding, and institutional changes at both the national and international level that might enhance the productivity of ongoing R&D expenditures. Its 1996 report, Investing in Health Research and Development, again noted related findings: the need for a mechanism for exchanging ideas about progress and priorities in health R&D, and for tracking flows of funding and identifying important gaps.

The following year, a paper presented at the First Global Forum for Health Research by Catherine Michaud identified the monitoring of resource flows as a key input in any useful discussion health research and development policy. She also pointed out the need to collect, analyze, and disseminate information on health resource flows to better address health problems of low and middle income countries.

This project is a first attempt at responding to the concerns raised so far about the tracking of health R&D funds as it looks at these resource flows in three middle-income countries: Malaysia, the Philippines, and Thailand. While the project is expected to benefit each country on an individual basis, it has been organized as a multicountry effort for several reasons. The topic of health R&D flows is virtually untouched in the literature on health research; doing a three-country study not only jumpstarts the body of knowledge on it, the project will benefit from the shared learning and continuing discussion of a multinational project team. Since the project will keep the approach and methodology uniform across the three countries, the project is expected to come up with findings that may be applicable to a larger number of countries. In fact, a generic approach and methodology that can be replicated in other countries can highlight calibrations in health R&D flows, given varying market conditions, institutional organizations, structural context, as well as political support. To date no model exists that can serve as a benchmark of these flows; it is hoped that the comparative analysis of the three countries will provide enough insights to develop such a model.

II. PROJECT OBJECTIVES:

The overall objective of the project is to develop a basic methodology for tracing and measuring health R&D funds in a country as a tool to streamline and fine-tune the allocation of health R&D funds. The specific objectives, at the country level, are:

1. To identify the sources and uses of health R&D funds
2. To estimate the amount and nature of health R&D expenditures
3. To undertake a qualitative analysis of research outputs resulting from these resources, to the extent possible
4. To assess if health R&D expenditures are aligned with the priorities of the research agenda
5. Catalog indicators for monitoring of health R&D expenditures across time
6. Establish trends in health R&D expenditures, and
7. To develop recommendations based on project findings, including those involving gaps, fragmentation, and imbalances in the allocation of health R&D funds.

III. APPROACH AND METHODOLOGY

Several constructs underpin the study's approach and methodology.

First is the definition of R&D, a critical construct since such a definition not only determines the scope of the proposed project effort but also guides the task of tracing the flow of funds, particularly in cases where the funds take a rather convoluted track (e.g. when multilateral funding goes through the government budgetary process before a research institution is allowed access to it.) For purposes of the project, a modified version of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) definition of R&D is used: health research and development is any systematic and creative work undertaken in order to increase the stock of knowledge of health, and the use of such knowledge to devise new applications. Thus, the definition covers all R&D work falling within the domain of the medical and natural sciences, studies on health financing and economics, as well as sociological studies such as: studies on knowledge, attitudes, and practices (KAP) of people towards health programs and interventions. Although purists may not consider such social studies as health research, the project team chooses to err towards comprehensiveness especially because the study breaks pioneering ground.

Second are categories used to capture fund sources and fund uses in the framework. Table 1 presents the major institutions covered by the framework.

The institutional breakdown of fund sources is guided as much by their source of financing (e.g. government budget versus user fee) as their functional role (e.g. public versus private, providers versus pharmaceutical firms). Although these institutions are viewed as the main players and stakeholders in the health research arena of the three countries considered, they break our differently for each country at the firm and agency level, with the possibility of some overlapping. The issue of double counting would therefore not be viewed as trivial. As shown in the figure, the major fund sources are the three categories of public funds (emanating from government budgets, user fees, and social insurance), private funds (source from pharmaceutical companies, health care providers, and NGOs/foundations), and foreign funds from bilateral and multilateral agencies. On the other hand, the major fund users are government agencies, academic institutions, research institutions, NGOs/foundations, pharmaceutical firms, and healthcare providers.

Table 1
Sources and Users of Health Research Resources

SOURCES	USERS
Private	Private
Individuals	Research Institutions
For Profit Organizations	Academic Institutions
Not for Profit Organizations	Manufacturing Firms (particularly pharmaceutical firms)
Financial Institutions	
Public	Public
Government	National Level
Bilateral (loan or grant)	Ministry of Health
Multilateral (loan or grant)	Program units
	Research Institutes
	Ministry of Science and Technology
	Ministry of Education
	Local Government Level
	Research Institutions
	Academic Institutions

Third is the structure within a country that theoretically brings together health R&D sources with health R&D users so that funding is efficiently brought to bear on the most critical health research priority areas. This structure probably consists of both public and private organizations with relevant mandates, stakeholders, and the larger community. Within this structure have evolved both informal and formal linkages that shape the process of formulating policies related to the country's health research agenda. Because of the increasing array of competing demands for health R & D, this allocative system becomes very important.

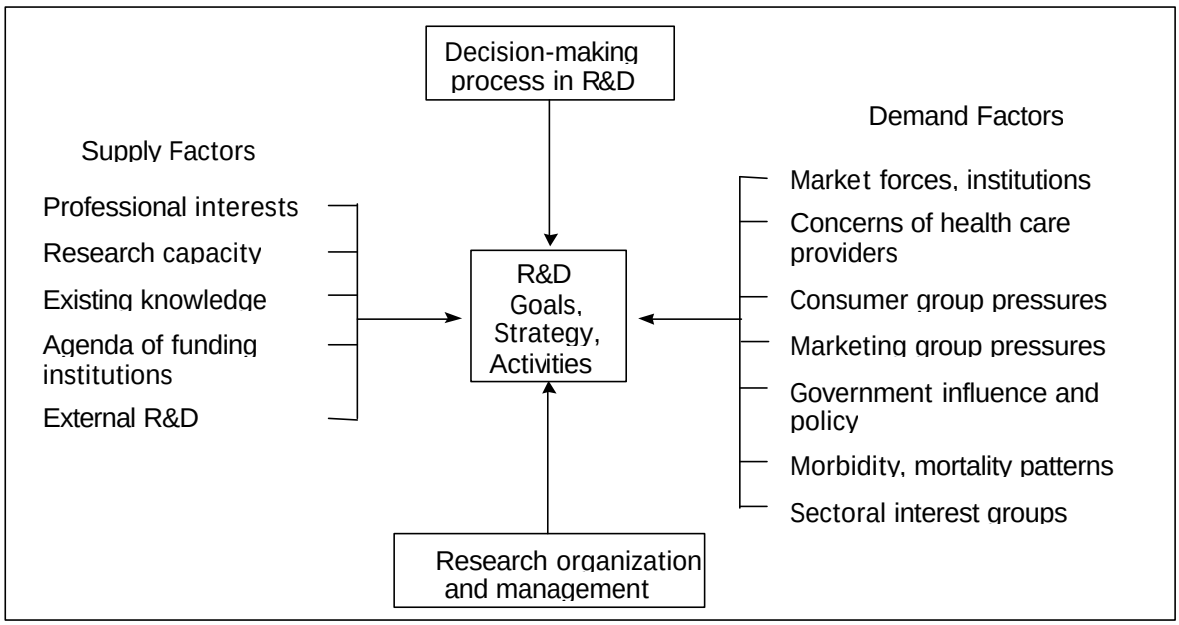
Unfortunately, in analyzing the market or allocative system for scientific research, including health R & D, the repertoire of analytical methods available to the economist usually turn out to be blunt instruments because of the inappropriateness of a pricing mechanism. Much of the knowledge created through research becomes directly available to the public and therefore has no price tag for the user. Also, its use does not diminish the amount available to others. Because there are no prices to signal relative scarcities in the interaction of demand and supply, alternative allocative mechanisms have to be resorted to.

Non-price allocation problems are generally of two types: (1) determining what to produce in the absence of prices, and (2) determining how to optimally allocate resources within an organization to enable it to most effectively pursue its objective. In the field of health care, the issue of whether to devote more resources to research in malaria control or towards finding a cure for AIDS falls under the first problem, while determining how best to allocate the health budget among the various offices under the Department of Health (DOH) illustrates the second problem.

In instances when costs are known, these can be used to derive the minimum cost allocation among alternatives. But even this is never straightforward since costs are usually evaluated on the basis of effectiveness; one method resorted to is the concept of DALY (disability-adjusted life years). Moreover, in the case of research, even costs are difficult to pin down because of issues around how to value the researcher's mind, or how to exhaustively establish input and output connections in research.

There is consensus in the literature that in the absence of a fully operating market mechanism, the allocation of resources in research should be guided by expected contributions to social goals. The question remains: Who should formulate the goals in a situation where R & D is being done by many institutions in a fragmented manner? Whatever the view, it appears desirable to follow a process which includes broad-based consultation with at least the various stakeholders, in a goal-formulation process presented in Figure 1.
Source: CEPR 1998 Survey on Health Research Funds

Figure 1: Goal Setting in Health R&D



Fourth are the techniques for data generation and statistical analysis. Data generation shall be country-specific and shall be guided by the funds flow framework. The strategy for carrying this out consists of three elements.

1. A review of relevant data sets. A number of existing recording systems capture data on resources for health research; a systematic and comprehensive review of these data shall be made to determine their utility as a source of information for the project and to identify information gaps.
2. The efforts to fill these gaps shall take a four-pronged approach, with each to be applied in successive levels of selectiveness, but always in a fashion that reinforces the quality of data that is generated:

    - Questionnaire: A survey questionnaire shall be formulated to fill the information gaps and it shall be conducted among a respondent base which covers a representative sample of institutions identified in the funds flow framework.
    - Interview: A selected number of respondents shall be interviewed to add depth to the data-gathering effort.
    - Tracer: An even more selected sample of fund recipients shall be studied in greater depth to gain insights into fund utilization. It can also serve to validate data collected through the first two methods.
    - Indirect data sources: An attempt shall be made to harness indirect sources of data, a process discussed by Michaud as the capture-recapture method. In particular, published research outputs shall be reviewed to try to trace back resource flows through acknowledged funding sources.

    Statistical analysis of the data shall be undertaken. The country project teams shall agree upon analytical techniques and a common data processing package.

3. For trending purposes, the analysis of the survey results shall include a determination of the indicators to be monitored over time. A second survey to generate information on these indicators shall be in the third year. A comparative study of these successive survey results shall then be undertaken.

Fifth is the coordination mechanism of project meetings, timed with the key deliverable milestones, that will bring together the key members of the country project teams to discuss and decide on common plans of action for the project, share respective country findings, and enhance networking.

IV. PROJECT SCOPE

To track the flow of funds for health R & D, an accounting framework which traces the flow of funds from fund sources to fund uses is used, the latter referring mainly to funding recipients tasked to undertake the R & D activity.

Several constructs underpin this flow of funds framework.

First is the definition of health R & D, a critical construct since such a definition not only determines the scope of the proposed project effort but also guides the task of tracing the flow of funds, particularly in cases where the funds take a rather convoluted track (e.g. when multilateral funding goes through the government budgetary process before a research institution is allowed access to it.) For purposes of the project, a modified version of the World Health Organization definition of R & D is used. *Health R & D is defined as any systematic and creative work undertaken in order to increase the stock of knowledge of health , and the use of such knowledge to devise new applications.* Thus, the definition covers all R & D work falling within the domain of the medical and natural sciences, studies on health financing and economics, as well as sociological studies such as. studies on knowledge, attitudes, and practices (KAP) of people towards health programs and interventions. Although purists may not consider such sociological studies as health research, the project team chooses to err towards comprehensiveness, especially because the study breaks pioneering ground.

Second are the categories used capture fund sources and fund uses in the framework. The institutional breakdown of fund sources are guided as much by their source of financing (e.g. government budget versus user fee) as their functional role (e.g. public vs. private, providers vs. pharmaceutical firms). Although these institutions are viewed as the main players and stakeholders in the health research arena of the three countries considered, they break out differently for each country at the firm and agency level, with the possibility of some overlapping. The issue of double counting should therefore not be viewed as trivial. The major fund sources are the three categories of public funds (emanating from government budgets, user fees, and social insurance), private funds (source from pharmaceutical companies, health care providers, and NGOs/foundations), and foreign funds from bilateral and multilateral agencies. On the other hand, the major fund users are government agencies, academic institutions, research institutions, NGOs/foundations, pharmaceutical companies, and health care providers.

Third is the structure within a country that theoretically brings together health R & D sources with health R & D users so that funding is efficiently brought to bear on the most critical health research priority areas. This structure probably consists of both public and private organizations with relevant mandates, stakeholders, and the larger community. Within this structure have evolved both informal and formal linkages that shape the process of formulating policies related to the country is health research agenda. The project will shed light on whether the funding of health R & D is in any way responsive to the policies formulated. Gaps, imbalances, and fragmentation in the structure will be noted as well as areas of strength and of comparative advantage for the country.

Fourth are the techniques for data generation and statistical analysis. Data generation shall be country-specific and shall be guided by the funds flow framework. The strategy for carrying this out consists of three elements.

1. A review of relevant data sets will be conducted. A number of existing surveys capture data on resources for health research; an example for the three countries to be studied is the National Health Accounts. A systematic and comprehensive review of these data sets shall therefore be made to determine their utility as a source of information for the project and to identify information gaps.

2. The efforts to fill these gaps shall take a four-pronged approach, with each being applied in successive levels of selectiveness, but always in a fashion that reinforces the quality of the data that is generated:

Questionnaire: A survey questionnaire shall be formulated to fill the information gaps and it shall be conducted among a respondent base which covers a representative sample of the institutions identified in the funds flow framework.

Interview: A selected number of respondents shall be interviewed to add depth to the data-gathering effort.

Tracer: An even more selected sample of fund recipients shall be studied in greater depth to gain insights into fund utilization. It can also serve to validate data collected through the first two methods.

Indirect data sources: Following Michaud is capture-recapture method, an attempt shall be made to harness indirect sources of data. In particular, published research outputs on selected topics shall be reviewed to try to trace back resource flows through acknowledged funding sources.

Statistical analysis of the data shall be undertaken using agreed upon analytical techniques and a common statistical software package.

3. For trending purposes, the analysis of the survey results shall include a determination of the indicators to be monitored over time. A second survey to generate information on these indicators shall be launched in the third year. A comparative study of these successive survey results shall then be undertaken.

Fifth is the coordination mechanism of project meetings, timed with the key deliverable milestones, that will bring together the key members of the country project teams to discuss and decide on common plans of action for the project, share respective country findings, and enhance networking.

This paper presents the results of activities undertaken during the first three months of the project (August-October 1998). The bulk of these activities consisted of groundwork on the feasibility of conducting a survey to monitor the flow of health R&D resources on a national scope, as well as the documentation of the health research priority-setting process.

Major steps undertaken during these three months were the following:

A. Documentation of Health Research Priority-Setting

A meaningful discussion on flows of health research resources should discuss the responsiveness of these to pertinent policies. During this phase of the project, the study teams documented the systems for setting health research priorities in their respective countries. Particular focus was given to the institutional framework and processes of priority-setting. The results of this documentation will be used in the subsequent phases of the project.

B. Identification of Existing Data Sets

The project team for each country compiled and reviewed existing data sets and systems that capture information on resources for health research, in order to provide baseline information on the subject, and to prevent duplication with data to be generated in the project survey.

C. Planning for Sustained Monitoring

This project will undertake the initial effort in tracking health R&D resources. It is hoped, however, that the government will sustain the effort. Hence part of the study teams' task is to identify and interface with organizations in their respective countries that have the potential and infrastructure to carry out the survey not only for the current project but beyond it, as part of their regular activities. Government agencies mandated to gather national statistics were the primary institutions tapped for this task, and initial negotiations have been made with some of these institutions. Given the project findings, it is expected that the benefits of monitoring health R&D resources will be recognized and will merit its inclusion as a regular activity of the appropriate national agencies.

D. Drafting of Survey Questionnaire

After identifying the data required for an a comprehensive analysis of health R&D resource flows, a questionnaire that would address these data requirements was developed. The questionnaire was substantially based on a questionnaire used in a current survey on health R&D funds in the Philippines. It was pre-tested through the same survey.

E. Formulation of Survey Approach

Based on the results of the above activities, concrete plans on how to carry out the survey were made. These included strategies for drawing the sampling frame and for collection of data.

V. FINDINGS AND PROGRESS

A. HEALTH RESEARCH AGENDA

Malaysia

Malaysia Research Priority Setting

The integration for the very first time of Science and Technology planning into overall development in the 5th Malaysia Plan (1986 - 1990) and the creation of a central fund specifically for Research and Development, namely the Intensification of Research in Priority Areas "IRPA" fund, show the Government's recognition of the value of R&D in ensuring the nation's progress.

Prior to the introduction of the IRPA funding mechanism, health research priorities were set at the institutional level. This was based mainly on perceived needs, interest and strengths of the various institutions. When the IRPA mechanism was introduced in 1987, it was apparent that the determination of national priorities in research was needed to support the funding approval process. Efforts to establish priorities in health research in Malaysia have since been made through the framework of the National Council for Scientific Research and Development's (NCSRD) policy and mechanism for national priority setting. One of these has been the setting up of IRPA Panels for the main sectors including health.

As an interim measure for the 1988 funding exercise, a listing of 'Indicative Areas for R&D Support' was developed for funding projects under the then 4 sectors of agriculture, medical, industrial and strategic research **(Malaysia: *Annex 1*)**. This list was further modified for use in the exercise for the 1989 funding **(Malaysia: *Annex 2*)**.

However, it was recognized that these lists, although serving a useful purpose in guiding the initial funding processes were too broad and unfocussed to be effective. A more comprehensive guideline for priority setting in Health Research was clearly needed and this task was given to the Medical Sciences Committee, or its successor, the IRPA Panel for Health Research.

An Ad hoc Subcommittee of the IRPA Panel (Medical Sector) was then appointed to develop a matrix for improved prioritizing of research. The subcommittee comprised of 5 senior officers of the Ministry of Health. The techniques used by the subcommittee included review of pertinent literature and

other relevant documents, brainstorming, and discussion with clinicians. Finally, the subcommittee divided the priority listing into 6 major areas needing research and identified the diseases or conditions which would fall into each of these areas **(Malaysia: *Annex 3a*)**. Each of these areas was then taken and their component diseases/conditions were evaluated in turn to decide on their priority ranking (high, medium or low) based on various health indicators identified by the review of the 5th Malaysia Plan and on the following parameters **(Malaysia: *Annex 3b*)**:

a) Its socio-economic implications - the extent of the problem
b) Lack of information in the subject
c) Operational weaknesses
d) Cost and time needed for research

This process was taken a step further by identifying actual research questions that need to be answered for each of the diseases/conditions **(Malaysia: *Annex 3c*)**. The list of priorities developed by the subcommittee was then presented to the IRPA Panel (Medical Sector), and deans of the Medical Faculty of the 3 major universities in Malaysia who were invited to give their comments and suggestions. After modifications to include relevant suggestions, a document titled, "Priority Areas for Medical/Health Research" was circulated for use commencing with the 1991 IRPA funding exercise.

A third revision of the priorities listing was carried out in 1995 in preparation for the Seventh Malaysia Plan (1996-2000). The revised document was the product of a "National Conference on the Setting of Research Priorities for the Medical Sector for the 7th Malaysia Plan". Inputs for this conference were invited from as wide a representation as possible of organisations which had an interest and/or working in health research in Malaysia. The following organisations were invited to submit suggestions on what should be included in the priorities document: Departments of the Ministry of Health; medical faculties of 3 major universities, other institutes with health research interests; and relevant non-governmental organisations. Prior to the conference proper, a number of satellite meetings were held for specific topics deemed to be of national importance; these being: clinical research, traditional medicines, malaria and dengue. The outcomes of 2 scientific meetings, "The National Health Systems Research Conference" and the "First National Conference on Environmental Health Research", also contributed towards the priority conference. At the national priorities conference, after much deliberation by three working groups, a consensus was reached on what should constitute the health research priorities for the 7th Malaysia Plan **(Malaysia: *Annex 4a - b*)**. This list of priorities is not meant to be static and will evolve with changing national needs and aspirations. The national priority setting exercise is conducted for each of the 5 year development plans.

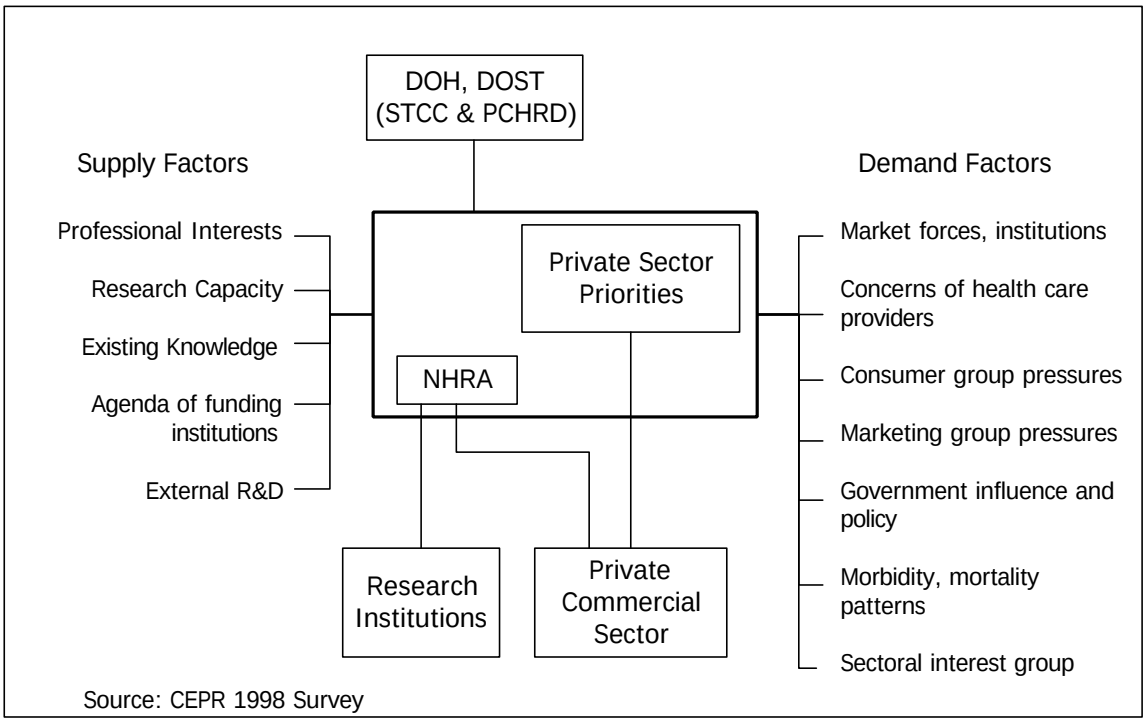
In addition to the national research priority areas, research needs in the Ministry of Health are also identified from the research dialogue sessions held annually between researchers and the Ministry of Health's policy makers, planners and managers. The dialogue sessions provide a forum where researchers are told of the latter's research needs and expectations. Research needs are also identified through monitoring of the health data obtained from the National Health and Morbidity Survey conducted every ten years and from the Health Management Information System.

The Philippines

In general, government-funded health research in the Philippines attempts to address priority issues confronting the local health sector. In the case of the public health sub-sector, research priorities are defined by two government institutions: the Philippine Council for Health Research and Development (PCHRD) of the Department of Science and Technology (DOST), and the Essential National Health Research (ENHR) unit of the Department of Health (DOH). Both institutions formulate their respective health research agendas through similar but distinct consultative processes. A substantial amount of research is also funded by the private sector, which may not necessarily follow the priorities set by ENHR or PCHRD. Taken together, the private and government sector priorities for research constitute the country's research agenda for any given time period. The

following figure illustrates the institutional framework for the health R & D agenda-setting process in the Philippines:

Figure 2: Institutional Framework for the Philippine Health R&D Agenda



LEAD AGENCIES

Philippine Council for Health Research and Development

The **PCHRD** is one of five sectoral councils of the Department of Science and Technology (DOST) and is the highest policy-making body in health research. One of its many roles is to provide leadership and direction in health-related research and development activities and to rationalize investment in science and technology relating to health. It undertakes these functions through a system of review of ongoing and pipeline projects in the government sector and by exerting its influence on the private sector, to ensure that implemented projects are in consonance with the **National Health Research Agenda (NHRA).**

The NHRA is embodied in the National Health S & T Plan (NHSTP) , which is drawn up every five years through a nationwide multi-sectoral consultation process spearheaded by the PCHRD. The process employs the bottom-up approach, and consultation is done at three levels: regional, zonal and national. An expert is assigned per region who coordinates the planning effort in his area, culminating in the preparation of a report that describes the region's:

- health situation;
- pressing health problems and issues;
- state of the health care industry;
- R & D priorities; and,
- capability development needs.

The regions are grouped into six zones and each zone assigned a conveyor, who then collects and consolidates the regional reports into a draft zonal health S & T Plan. Through a series of consultation workshops organized by the conveyor and participated in by the regional experts, the draft consolidated plan is reviewed and a consensus formulated on the ranking of health S & T priorities for the zone. The final zonal health S & T Plan is then submitted to PCHRD, where a similar

consultative process of consolidation of all zonal plans into a National Health S & T Plan is undertaken.

A wide range of national concerns shape the NHSTP: the push towards globalization; DOH concerns as embodied in the National Health Plan and its ENHR program; DOST concerns with globally competitive technologies; and national concerns as manifested in current government programs (examples of these are the social reform agenda, the pole vault strategy towards competitiveness, and others focusing on sustainable economic development, rapid urbanization, ecological changes, migration flows, and demographic structure).

The present NHSTP (1993-1998) was greatly influenced by priorities defined in the Science and Technology Agenda for National Development (STAND), mainly due to the emphasis given the latter by the last administration. The STAND is a medium-term, market-oriented and private-sector led plan that embodies a list of priority products and services on which science and technology interventions are to be focused over a six-year period. As a result of this influence, health research funds of PCHRD were allocated at a ratio of 70:30, the larger share devoted to industry-related health research and the smaller portion afforded to research for other health concerns. However, health stakeholders felt that this scheme almost neglected many non-biomedical but more pressing health issues that required study, such as the devolution of healthcare delivery. In response, the governing council of the PCHRD has suggested an adjustment in the ratio of industry-to-health research funds! to a more equitable 60:40 beginning 1999.

With the NHRA in place, the PCHRD then reviews and evaluates health projects to determine the extent to which these are aligned with NHRA priorities, and to ensure that projects are complementary and do not duplicate each other. The size of the project operating budgets is also assessed. The PCHRD does this by requiring all government agencies to submit the detailed work and financial plans of new and ongoing health-related R & D projects in the natural, agricultural, technological and engineering sciences. The projects that pass the evaluation are then endorsed by PCHRD to the Department of the Budget and Management (DBM) for possible funding. The Project Evaluation Criteria employed by PCHRD are shown in **(The Philippines: Annex 2)**.

Essential National Health Research Unit

The Essential National Health Research Unit (ENHRU) of the DOH was created in 1990 to manage the ENHR program of the DOH. This unit works closely with DOH regional R&D coordinators in organizing ENHR promotional activities in the provinces and regions through the local health networks.

The goal of the ENHR program is to promote a scientific and data-based culture within the health sector as a means of elevating the health status and quality of life of Filipinos. Part of its guiding policies is to build up, support, coordinate and sustain health research activities, whose results serve as an inputs to the national public health plans and programs. Its health research priorities are defined through a process that involves consultations and workshops with researchers, policy makers, program managers, health service providers, and users. The research agenda addresses the five main areas of responsibility of the DOH, namely:

- Health sector organization
- Disease control and public health
- Personal health care
- Health care financing, and
- Health product development.

These priorities were arrived at using criteria which included **burden of illness**, **perceived demand**, **urgency**, **feasibility**, and **impact**.

ENHR projects fall under four main categories:

- Health Care

1. infectious diseases
2. non-infectious diseases, and
3. special groups and programs.

- Product Research and Utilization
  rational drug use
  vaccines
  diagnostic reagents, and
  pharmaceuticals.
- Health Sector Organization and Management
  1. policy studies
  2. health and management information systems, and
  3. human resources.
- Economics of Health Care
  1. impact of macroeconomic policy on health sector
  2. cost effectiveness
  3. benefit and utility of various health services in the DOH
  4. sources and uses of community health care and financing, and
  5. evaluation the effectiveness of community-based health insurance.

In 1996, a consensus-building workshop was held to identify the ENHR priorities for the years 1997 to 2000. The workshop was attended by fifty participants composed of ENHR officials, DOH regional directors, health professionals, health researchers, and representatives from local government units (LGUs), non-government organizations (NGOs), and people's organizations (POs). The Focus Group Discussions (FGD) covered the following topics: 1) health needs and problems, 2) research questions, 3) prioritization, 4) rank, 5) justification, and 6) the corresponding strategy. The workshop yielded the following health research agenda for 1997-2000:

- Devolution
- Communicable Diseases
- Non-communicable diseases
- Philippine Health Insurance Plan
- Traditional Medicine
- Elderly
- Disease Control and Prevention
- Culture and Health
- Occupational Health
- Reproductive Health
- Environmental Health
- Ecology
- Rational Drug Use
- Personal Health Care
- Nutrition
- Mental Health, and
- Rational Use of High Technology.

For 1996 in particular, ENHR priorities focused on the following:

- Women's Health
- Health Care Financing
- Prevention and Control of TB and Malaria
- Ecology in Health
- Impact of health reform - equity, access
- Health Service Capacity Improvement
- Cancer
- Cardio-Vascular Disease
- Quality Assurance
- Care of the Elderly, and
- TKO - "Tubig, Kubeta, Oresol" (water, toilets, and oral rehydration solution).

Institutional Linkages

Although the separate agenda-setting efforts of PCHRD and DOH-ENHRU may result in different sets of research priorities for each, conflicts among priorities are checked through organizational and operational linkages between these two institutions. For one, the DOH, through its secretary and the executive director of ENHRU, is a member of the Governing Council of the PCHRD, which is chaired by the secretary of the DOST (other members of the Council are the chancellor of the University of the Philippines - Manila, and the executive director of the National Nutrition Center). The Council convenes every two months to discuss research policy issues and projects to be funded by PCHRD.

As mentioned earlier, DOH concerns factor into the Health S & T Plan, and this is ensured through the participation of the ENHRU in the national-level consultations organized by PCHRD to finalize the Plan. The ENHRU also envisions future utilization research on vaccines, diagnostic reagents, and pharmaceuticals, which are to be carried out in collaboration with PCHRD.

OTHER INSTITUTIONS

National health research is not the exclusive province of PCHRD and ENHR. The **National Institutes of Health** (NIH), which operate within the University of the Philippines system, works closely with the DOST on research-related concerns. Envisioned as the home of the university's research and of extension units specializing in health and socio-biomedical concerns, the NIH serves to coordinate and integrate the existing research institutes of the University, namely: the Institute of Ophthalmology, Institute of Socio-Biomedical Research, Institute of Biotechnology and Molecular Biology for Health, Institute of Clinical Epidemiology, and others that may be subsequently created. The NIH is also mandated to organize research and development teams in several broad health concerns, as follows:

- Development of medicines, vaccines, and other health products and instruments
- Health promotion, disease prevention and control
- Problems associated with aging, degenerative processes, metabolism and the prevention and rehabilitation of disabilities
- Holistic, integrative and transdisciplinary studies on wellness, health communications and health social sciences, and
- Establishment and management of health care systems and exploration of alternatives to Western medicine.

There are also government institutions devoted to health research in specific fields, such as the Schistosomiasis Research Hospital and the Research Institute of Tropical Medicine (RITM). The latter is the main research arm of the Department of Health in implementing the national research program for infectious and tropical diseases. As such, it is also an advocate of ENHR and follows its thrusts, focusing on diseases that adversely affect the poor. These diseases include acute respiratory infections, diarrhea diseases, hepatitis, leprosy, tuberculosis, dengue, rabies, and poliomyelitis as well as other infectious diseases.

Many other government institutions, particularly hospitals and medical centers, conduct health research but these are usually focused on curative aspects of health and divided according to medical specialties. Done at the departmental level, research in these hospitals are usually not governed by any system of prioritization, with the exception of externally-funded research. In the latter case, the priorities of the funding entity normally apply.

In the private sector, research is largely funded by pharmaceutical establishments, and consist mostly of clinical studies on pharmaceutical products. This is in compliance with the Bureau of Food and Drugs (BFAD) requirement that new drugs to be introduced in the Philippine market must first undergo clinical study, and this is usually performed by the bigger and better-known hospitals in the country. Bilateral and multilateral agencies have also played a role in health research in the

Philippines as fund donors. They generally fund research which fall under their respective health concerns for developing countries.

Thailand

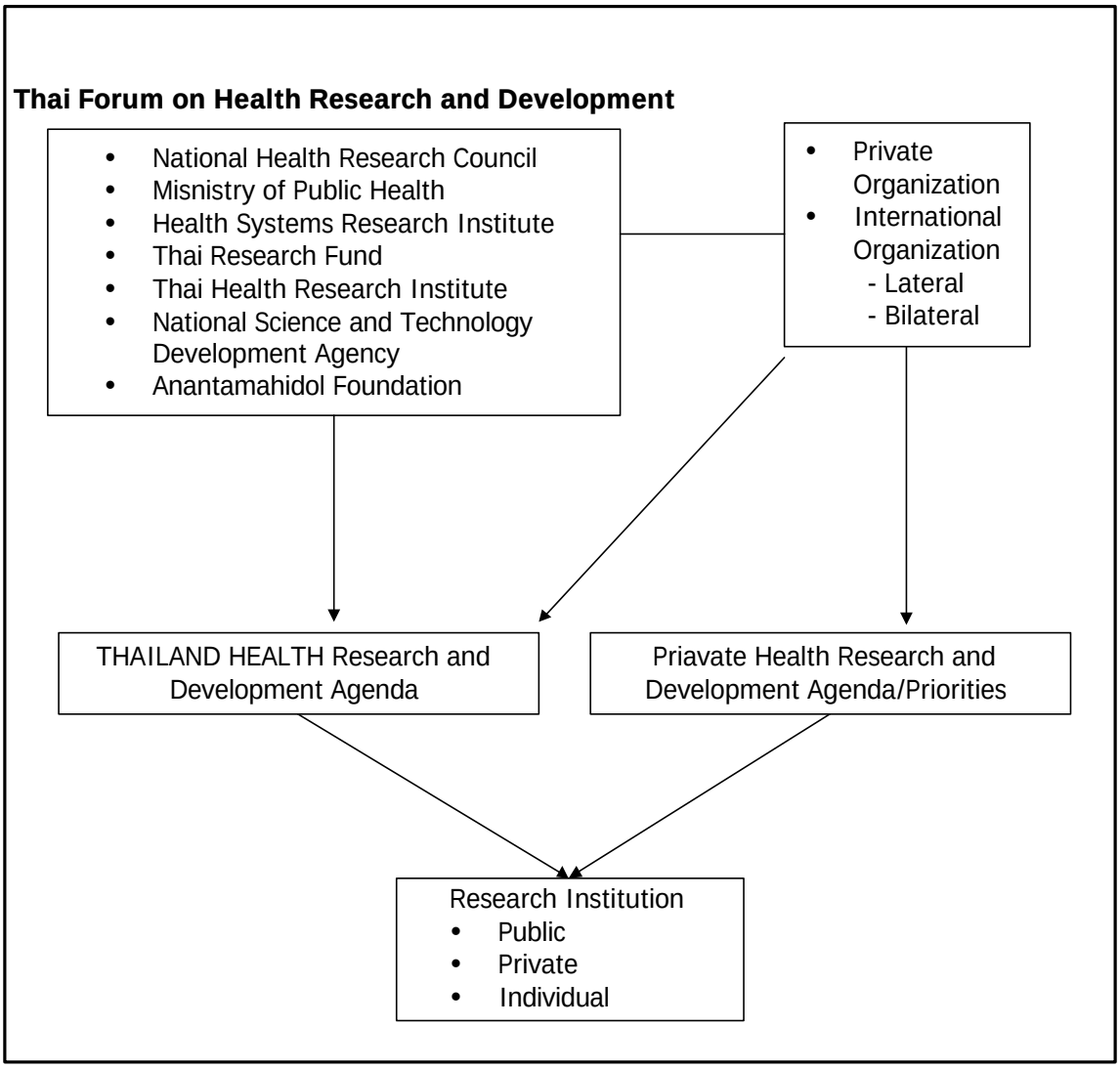
Health research funding in Thailand is obtained from three sources: the Thai government, private institutions and international (lateral or bilateral) organizations **(Thailand: Annex 1)**. Government-funded health research addresses national health policy and planning issues and relates to local health problems **(Thailand: Annex 2).**

Three government institutions (National Research Council of Thailand (NRCT), Ministry of Public Health (MOPH) and National Science and Technology Development Agency (NSTDA)) and four autonomous research funding organizations (Health System Research Institute (HSRI), Thai Research Fund (TRF), Thai Health Research Institute (THRI) and Ananthamahidol Foundation) act as a core group to define health research priorities for the country. These institutions and organizations formulate their health research agendas based upon the National Health Plan which is a sub-plan of the National Economic and Social Development Plan and through meetings which take place once a year at the Thai Forum on Health Research and Development.

Research funded by the private sector (manufacturers of drugs, etc.) or international organizations (WHO, UNDB, etc.) may not necessarily follow the same agenda as the government. The research priorities for this group will reflect the needs of each organization but occasionally coincide with the nation's health research agenda since some members of this group are participants in the Thai Forum on Health Research and Development.

The following figure illustrates the institutional framework for the health research and development agenda in Thailand.

Figure 3: Institutional Framework for Thailand Health Research and Development Agencies



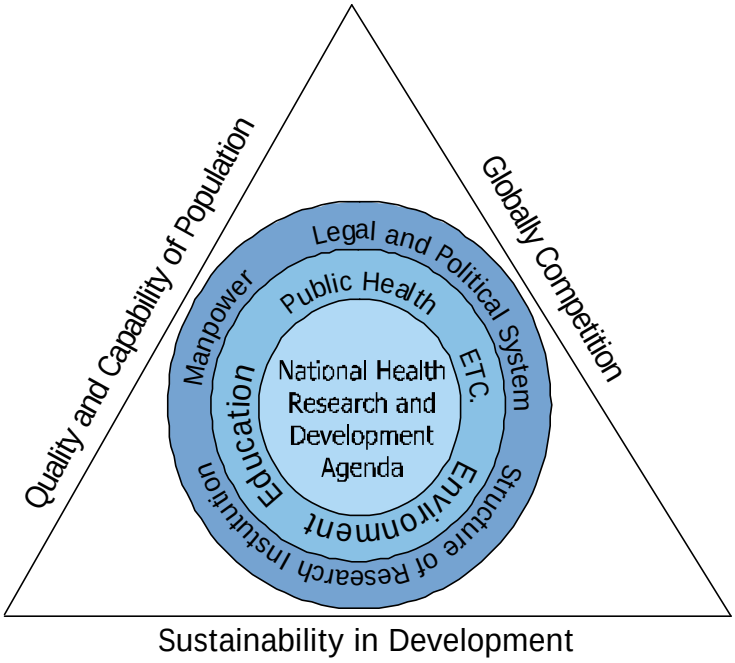
Priority-Setting Process

Seven health and health related research institutions playing major roles as leaders in setting priorities for health research and development in Thailand are:

1. Department of Medical Science: National Research Council of Thailand (NRCT)

Thailand's National Research Council is the highest policy making body in research and development and consists of ten departments. The Medical Science Department is responsible for formulating National Health Plan and Development activities in health related research. These responsibilities also include setting priorities in health research and development. The Prime Minister is titular head of this council while the committee members are Ministers, representatives from other government offices and the private sector. These committee members perform reviews of projects in government and private sector projects and set priorities for research **(Thailand: Annex 3)**.

Figure 4: National Health Policy and Research Plan Framework



The other main activities of this council include providing policy and research project recommendations, to formulating Thailand's research plan every four years, allocating and providing funds to research institutions, and coordinating institutional research projects to create an integrated National Research Network.

In summary, the Medical Science Department of National Research Council bases the National Health Research Agenda (NHRA) on the National Economic and Social Development Plan issued from the National Economic and Social Development Board (NESDB), Office of Secretary General. The NHRA is formulated every 4 years. The current plan covers the period from 1997 to 2001. The main components of this plan cover issues related to poverty of population, quality of life and environment which lead to problems in many areas i.e. health education, public health, health industry and etc. At the same time, the plan covers issues such as how to improve and develop quality of manpower, structure of research institutions, and legal and political systemic questions. The main goal of this plan is to develop and sustain high quality, capable people while simultaneously establishing globally competitive research technology.

2. Ministry of Public Health (MOPH)

In 1918, a Division of Public Health was set up in the Ministry of Interior, to bring together various public functions related to health. This unit produced smallpox vaccine, appointed "commune doctors" (usually traditional healers), and built and operated a few provincial hospitals. Not until 1942 was this unit removed from the Ministry of Interior and established as a cabinet-level Ministry of Public Health.

The Ministry of Public Health (MOPH) at the central level in Bangkok has six principal departments: (1) Office of Under-Secretary of State for Health (2) Department of Medical Services, (3) Department of Health, (4) Department of Communicable Disease Control, (5) Department of Medical Sciences, and (6) Office of Food and Drug Committees. The Under-Secretary's Office has very wide scope. In addition to coordinating the other five departments, it supervises all rural health services and trains health personnel. At the same time, it assists each department to establish research projects and studies on local health problems facing that department. MOPH's priority setting process for

research and development is mostly based on the issues of local and urgent health problems and is partly based on the National Health Plan from the National Research Council of Thailand. The permanent secretary of MOPH is in charge of approving each research project by naming committee members to evaluate each proposal. Several other government ministries i.e. Ministry of Education, Ministry of Agriculture and Cooperatives, Ministry of Industry etc. and the private sector perform functions relevant to the health system. These stakeholders also contribute their concerns to this priority-setting process.

3. Health Systems Research Institute (HSRI)

The Health System Research Institute Act 1992 established a new model government research agency. The HSRI promotes the national health system through an evidence-based and problem-solving process. It runs under the loose supervision of the Ministry of Public Health and its unique structure make the HSRI the first agency of its kind in South-East Asia.

The HSRI Policy Steering Board provides strategic guidance and sets priorities on public health problems and issues. The Board is comprised of high-ranking representatives from five ministries and of seven distinguished academics. The director runs the operation as a private enterprise.

HSRI's goal aims at promoting evidence-based health policy and administration. Many of its resources go to policy linked study grants. HSRI grants offer comprehensive support including project development, implementation, and promotion of findings.

In addition, HSRI allocates about twenty percent of its budget to area-based R&D programs. This encourages and supports projects aimed at tackling local problems. Practitioners generally take a vital part in the research process. HSRI works through the HRS community which includes researchers and practitioners from various institutions. It is through this network that most projects are carried out.

4. Thai Research Fund (TRF)

TRF is an agency providing research grants covering all areas of research, science and technology, social science, humanities, policy research and applied research. TRF's goal is to promote research for national social, economic and academic development. It does not operate under government bureaucratic regulations but under the guidance of a policy board. TRF started its activities in 1993.

TRF aims at strengthening the research system of Thailand, developing the research profession, and fund-raising for national research activities. It sets the direction of research funding by supporting reviews of various major national problems leading to recommendations on research priorities for each issue. TRF then acts as consultation coordinator among academics, policy makers and users of research results to develop research programs. TRF therefore funds not only research but also the dissemination and application of research results. TRF funds are available to both the public and private sectors.

TRF does not conduct research itself. It only supports and coordinates research and related activities for national development.
The activities are:

1. Determining research need and priorities of the country.
2. Developing research programs for issues with a high impact on national development.
3. Coordinating between researchers, research institutes, research result users (including those in public sector, private sector and social sector), and national policy makers to develop comprehensive research programs with high applicability to and high impact on national development.
4. Coordinating with research result users in the public, private and social sectors to use research results in commercial applications, national policy, or for the benefit of general public.

5. Subsidizing research programs and projects and contracting research for immediate application.
6. Managing research programs and projects to ensure high quality results.
7. Strengthening the national R&D system by developing research professionals, increasing rewards for research, continuing research support and helping develop good research environments in various institutions.
8. Supporting proper dissemination of research results such as giving financial support to international journals published in Thailand, book publications, and meetings to bring research results to users.

5. Thai Health Research Institute (THRI)

THRI is an organization which was established from groups of volunteers, who are interested in increasing the general Thai populations understanding of health related issues. THRI is working closely with both government and private institutions to improve the populace's knowledge by sponsoring research projects in five main areas: Health Status of Thai Population, Health Services System, Health Promotion, Consumer Protection, and Adolescence Health. Organization members formulate policies and priorities of research funding based on the National Health Agenda and current local health problems.

6. National Science and Technology Development Agency

NSTDA is an autonomous funding and research organization, established by the Science and Technology Development Act, B.E. 2534, on 29 December 1991.

Its target is to improve production and services, as well as supporting research aimed at commercial application. Three specialized centers - Genetic Engineering and Biotechnology (NCGEB), Metal and Materials Technology (MTEC) and Electronics and Computer Technology (NECTEC) - come under the NSTDA umbrella. In addition, the Technology Information Access Center (TIAC) provides on-line information services from important databases worldwide. The NSTDA board, which controls the policy and operation of the Agency, consists of an equal number of members from the public and the private sectors, and is chaired by the Minister of Science, Technology and Environment.

Up to the present. NSTDA has given funding to universities, state agencies and the private sectors for a total of 791 projects including those initiated before the passage of the subject act when the various centers were attached to the Ministry of Science, Technology and Environment.

7. Anathamahidol Foundation

This foundation was established by His Majesty King Bhumipol to honor his brother King Ananthamahidol. The goals of this foundation are to create highly skilled and well trained professionals in many areas of development by giving educational support and scholarships to students.

His Majesty the King desires to see Thailand improve the standard of living for most of the people. The objectives of this foundation are

- providing scholarships to high school and university graduates who ranked highest in their class. This scholarship is provided to students until they reach to the highest education they desire.
- giving research grants to individuals and institutions to perform research in medical science, public health, engineering, etc.
- collaborating and creating networks with other research and academic institutions.

The committee members of this foundation consist of His Majesty the King who is an honorary chairperson and representatives from academic institutions, government and private sectors.

Integration of Health Research Priorities

Under the policies and priorities of these seven lead institutions, we have come to realize that although the health policies and priorities are somewhat different, they do not necessarily conflict with each other. These institutions have goals to improve Thailand's health research and development. Members of the boards in each institution: the presidents, directors, and board representatives are highly qualified to perform and direct all health research and development activities. It is almost guaranteed that these institutions will deliver what they promise to improve and increase health research and development.

Because of limited research funding in general, funding for health research and development in Thailand is even more limited. If these institutions continue to perform their health research and development activities autonomously, each in its own specific direction, the resources will not be utilized in the most efficient way. Some current health research projects directions which is not directly related to or follow the National Public Health Agenda and local health problems.

In August 1997, with the support from World Health Organization (WHO) and Council of Health Research and Development (COHRED), The College of Public Health, Chulalongkorn University hosted the First Thai Forum on Health Research and Development: National Workshop on Prioritization of Health Research. The purpose of this forum was to set Health Research and Development priority for Thailand among lead research institutions. Not only representatives from seven lead research organizations but also representatives from private sectors, international agencies and academic institutions were invited to this forum. Forum members agreed on coordinated priority setting methodology to prioritize research areas at national level. The forum explored this methodology through three case study areas: road traffic accident, carcinoma of cervix and drug system. The forum further agreed on having one annual meeting each year to further understanding of steps in developing and evaluating research projects **(Thailand: Annex 4)**. This was a good start for Thailand health research and development.

The forum did not include all institutions that do health research. Many other government institutions in Thailand conduct health research which is not usually governed by a system for prioritization. Some of these researches focused on curative aspects of heath and divided according to medical specialties.

Health research in the private sector usually conducted through funds from medical product and pharmaceutical companies. Therefore the priorities are based upon the specific needs of each industry. The private sector sometimes subcontracts health research projects to academic institutions which may have their own guidelines or policies on the conduct of health research.

GROUNDWORK FOR SURVEY

Existing Health R&D-Related Data Sets

Malaysia

Thus far, three datasets have been identified to contain information related to health research and development (R&D). All these datasets are not specific for health R&D only, but represents a subset of a larger dataset for all categories of R&D activities. These data have been collected, analysed and are managed by the Malaysian Science and Technology Information Centre (MASTIC) located within the Ministry of Science, Technology and Environment (MOSTE). MASTIC, commissioned in late 1992, is the country's primary authoritative provider of Science and Technology (S&T) Information. The 3 datasets include the national surveys of R&D efforts, the National S&T Minimum Dataset, and the Intensification of Research in Priority Areas (IRPA) **(Malaysia: *Table 1.1*)**. The latter two datasets are now made available via on-line access from MASTIC (homepage: http://mastic.gov.my).

National Surveys of R&D Activities

The main source of information on health R&D currently available is contained within the national R&D dataset of the MASTIC. These data are obtained through national surveys which are conducted biennially. So far, MASTIC has conducted 3 surveys, namely for the years 1992, 1994 and 1996.

The definitions and methods used are based on the internationally agreed guidelines as put forward by the Organisation for Economic Co-operation and Development (OECD) member countries.

The surveys highlight various aspects of R&D efforts in Malaysia carried out by four sectors: private sector, government agencies and research institutions, institutes of higher learning and non-profit

Malaysia: Table 1.1
EXISTING DATASETS ON HEALTH R&D

DATA SET	DATA CONTAINED	SOURCE OF DATA / RESPONDENT BASE	METHODOLOGY / INSTRUMENT USED	STATUS
National R&D activities Malaysian Science and Technology Information Centre (MASTIC), Ministry of Science, Technology & Environment	National Survey of R&D, 1992, 1994, 1996 Human resources for R&D Financial resources for R&D R&D expenditures by • type of costs • sources of fund • types of activity • major field of research • major socio-economic objectives Location of R&D activities by Sector Factors limiting R&D activities Patents and Utility Innovation	• Government Sector • Private Sector • Institutes of Higher Learning	• Survey with mailed questionnaires • special workshop was organised for the private sector for the 1994 survey • telephone and facsimile hot-line service Three sets of questionnaires were developed for each sector	It is a biennial survey exercise. The next survey will be conducted in 1999 for the calendar year of 1998
National S&T Minimum Dataset MASTIC	National surveys of S&T 1994, 1996, 1998 S&T human resources S&T projects S&T facilities	• Government Sector • Private Sector • Institutes of Higher Learning	Mailed questionnaires Interviews Telephone	Ongoing, annually
Intensification of Research in Priority Area (IRPA) MASTIC Science & Technology Division	Database on IRPA grants - allocation, locations, project leaders, project titles, field of research, socio-economic objectives	All organisations which are recipients of the IRPA grants	IRPA application forms submitted by applicants	Ongoing

organisations. However, in the 1996 Survey, the non-profit organisations were left out due to their poor response. Four sets of questionnaires were developed for the surveys, one for each sector.

In general, the information captured and presented in the national R&D survey reports encompasses the following:

- **Overview of national research and development**
  - Profile of National R&D activities
  - R&D spending by Sector
  - R&D spending by Type of Cost (Labour, Capital, Operating)
  - R&D spending by Type of Research (Basic, Applied, Experimental)
  - Manpower for R&D expressed in terms of figures and Full Time Equivalent (FTE)
  - The Factors Limiting R&D Activities (internal and external factors)
  - International Comparisons according to the GERD/GDP ratios, Manpower for R&D, and Type of Research by Sectors
  - Research and Development activities for each sector : Government Agencies and Research Institutions, Institutes of Higher Learning and Private Sector
  - R&D expenditures
  - Manpower for R&D
  - R&D expenditures by Field of Research
  - R&D expenditures by Socio-economic Objectives
  - R&D labour cost
  - R&D outsourcing
  - Factors limiting R&D activities

Published reports of the national R&D surveys can also be assessed on-line from MASTIC homepage.

Definitions
R&D is defined as "Creative work undertaken on beyond a systematic basis in order to increase the stock of knowledge, and the use of this stock of knowledge to devise new applications".
R&D Expenditure (RDE) includes capital expenditure (Acquisition of fixed tangible assets involved in R&D activities), manpower costs, and other related operating expenditures.
R&D manpower includes all personnel, comprising of researchers, technicians and staffs supporting R&D work, irrespective of their qualifications.
Full Time Equivalent (FTE) is an approximate measure of the proportion of time a researcher, technician or other support staff spent on R&D work during the surveyed year.
Research is classified in terms of fields of research (FOR) and the socio-economic objective (SEO) according to the revised "Malaysian R&D Classification System (Second Edition) August 1995".

National Science and Technology Minimum DataSet (NMDS)

The NMDS captures information relating to S&T human resources, S&T projects and S&T facilities. Data are obtained through mailed questionnaires. The third survey exercise is currently ongoing. The details of the information contained are as follow:

S&T human resources : identity, qualification and skills, contact details, S&T outputs

S&T projects :	identification and type of project, scientific area of discipline, project socio-economic objective and outputs producted
S&T facilities:	development of facilities, its unique equipment and location and conditions of access

The survey does not obtain data on R&D expenditures, nevertheless the profile of the S&T human resources and organisations in the country will be useful in assisting us in the choice of our sampling frame.

Intensification of Research in Priority Areas (IRPA)

The IRPA dataset contains information on projects funded under the IRPA mechanism in the 6th Malaysia Plan (1991 - 1995) and the 7th Malaysia Plan (1996 - 2000). The data that can be extracted include project leader, organisation, title and abstracts of project, project status and allocation. Considering that a large proportion of research in the country is funded under the IRPA mechanism, the dataset is still information in that we can utilise it to determine the types of health research conducted in the country particularly so by government agencies/research institutions and institutes of higher learning. In addition to this dataset maintained by MASTIC, the Science & Technology Division in MOSTE which acts as the Secretariat for the IRPA funding mechanism has set up its own database on the allocation and expenditures of IRPA funded projects.

From these datasets, it appears that information on health R&D by the public sector has been captured to a fair extent and is accessible via online. This is however not so for health R&D activities by the private sectors and non-governmental sectors. The conduct of this intercountry collaborative study on resource flow hopes to fill this gap.

The Philippines

To date, six existing data sets have been identified to contain data related to health research and development (R&D). Each set is described in Table 1 in terms of data contained, data source, data sourcing methodology, and current status. More detailed descriptions are in **Philippines: Annex A**.

Among the six data sets, only the ongoing Department of Health-Essential National Health Research (DOH-ENHR) study, commissioned to the Center for Economic Policy Research (CEPR), contains explicit data pertaining to flow of health R&D funds. This study, however, covers only the year 1996, and so far the DOH has not expressed any plan to continue the effort. Since this inter-country study intends to look at R&D funds using a similar framework (funds flow), it can consider the DOH-ENHR funds flow study as a take-off point by examining the instruments used such as the funds flow framework and survey questionnaire.

The scientific and technological activities survey conducted by the Department of Science and Technology (DOST) and the Philippine Institute of Development Studies (PIDS) also asked about R&D expenditures for 1989-1996 according to fund sources and type of R&D activity but health-related R&D was limited to the field of medical science. The other fields considered in the study such as natural science and environmental science may include R&D activities with health benefits but based on the survey questionnaire, this portion cannot be extracted from the larger fields.

The national health accounts (NHA) includes research as a type of healthcare expenditure, but lumps this with expenditure on training. The NHA study team, which relied on secondary data for estimating the different healthcare expenditures, obtained figures for the research and training item for the years 1991-1993 from the government budget as contained in the General Appropriations Act, indicating that no secondary data specific to R&D are available. The NHA matrices may soon be updated regularly by the National Statistical Coordination Board (NSCB), the government body intended to consolidate data from different sources, including those from the National Statistics Office, transform them into useful form, and make them available to the public. Provincial health accounts, using the same format, may be developed for selected

provinces within the Integrated Community Health Service (ICHS) project of the Asian Development Bank (ADB).

The annual survey of establishments (ASE) of the National Statistics Office (NSO) solicits information on whether a respondent is involved in Scientific and Technological Activities (STA) and on what type of STA activity (R&D, scientific and technological services, science and technology education and training) it is involved in. Unfortunately, the ASE only includes private firms. However, its list of respondent firms can be a first step in developing the sampling frame for the private sector of the health R&D funds flow study.

The Office of Research Services (ORS) of the University of the Philippines-Manila (UP Manila) compiles information regarding research conducted by the different units in this university per academic year. UP Manila is considered the premier research institution in the country, and the Philippine General Hospital (PGH) and National Institutes of Health operate under its wing; hence records available in the ORS cover a substantial portion of health research activities in the country. A look at available records in this office, however, revealed that only titles of studies are documented. Data on the type of research, amount involved, and source of funding are skimpy.

Finally, the Assessment of Health Research Status in the Philippines is a survey being conducted by the DOST's Philippine Council for Health Research and Development (PCHRD) to get a profile of health research institutions in the country, soliciting information on the number of R&D personnel, educational attainment of the R&D personnel, and type of laboratory equipment owned by the institution. While the survey results will not contain detailed data on health R&D expenditures, the profile of research institutions should provide very useful information on the characteristics of health research institutions and personnel in the country. Also, once the survey results come out, results of the profile can also be used for a better sampling frame.

Table 2: Health R&D - Related Data Sets in the Philippines

DATA SET/ INSTITUTION INVOLVED	DATA CONTAINED	SOURCE OF DATA/ RESPONDENT BASE	METHODOLOGY/ INSTRUMENT USED	STATUS/REMARKS
Analysis of Funds Flow of Health R&D in the Philippines Center for Economic Policy Research, commissioned by the DOH-ENHR	R&D Expenditures, 1996: ➢ External Expenditure for the Performance of Health R&D Activities by: • Source of Funds • Type of Expenditure ➢ Internal Expenditure for the Performance of Health R&D by: • Field of Activity • Type of R&D Activity • Type of R&D Expenditure • Field of Activity and by • Source of Funds	• Government (DOH, DOST, DECS, Academic/Research Institutions, Hospitals, Others) • Private Sector (Pharmaceutical Firms, Academic/Research Institutions, Hospitals, NGOs)	• Survey, with mailed or delivered questionnaires • with telephone follow-ups for institutions located in Metro Manila	• ongoing, final report expected by December 1998
!rsrdrw15 National Health Accounts UPEcon - Health Policy Development Program	Healthcare Expenditures, 1991-1993: ➢ Amount ➢ Source ➢ Uses	Current Data Recording Systems: Publications/Reports of • DBM • LGAO, COA • DOH-FACS • GSIS • SSS • PMCC • ECC • NSO • IC • SEC	Manipulated secondary data using estimation techniques to come up with figures necessary in the matrix	• no updated NHA matrix after 1993 • ICHS currently monitoring health accounts in selected provinces • plans are underway on updating the matrix on a regular basis through the NCSB
!rdrlScientific and Technological Activities (STA) DOST Policy Planning Division, 1991-1992 Philippine Institute of Development Studies (PIDS), 1993-1996	1989-1992: ➢ National R&D Expenditures • by Sector • by Type of Research • by Field of Activity 1993-1996: ➢ Public Sector Expenditure • by Type of Scientific and Technological Activity (STA)	1989-1992 data: • Government - state colleges and universities - other government agencies (DOH, etc.)	• Survey • Questionnaire is divided into three parts, and deadlines for submission set at different dates for each part • many respondents were visited for data collection, including	• 1989-1992 data not completely processed • 1993-1996 PIDS survey ongoing • 1993-1996 survey for the private sector to be fielded in collaboration with NSO towards the end of the year.

Thailand

From Thailand's first phase on resource flow, we can identify four existing data sets which contain relevant health research and development information (Table 3). These data sets contain information/data which are not specific to health research and development (R&D). They include many other data sets from public health activities and national public health information.

The National Research Council of Thailand (NRCT) compiles data on research and development for the whole nation. The data is collected annually through surveys which are distributed to all government, private, research and academic institutions. NRCT acts as a center to collect information on all categories of R&D activities in order to form research policy for the country's development. The health research and development data set represents a subset of this large data set. These data have been collected, analyzed and are managed by Department of Medical Science located within NRCT.

The Thai Research Fund (TRF) is a research institution which provides funding to many research organizations i.e. government, private and academic institutions. As a funder, TRF also collects information from these researches and development projects. This consists of research and development information from many fields including public health and medical science. The data on resource flow in R &D which is available from TRF is in an integrated format. Therefore, we are unable to measure the amount of resources TRF allocated to each project.

The Thai national health account (NHA) is an important tool to demonstrate how the country's health resources were spent, what services were provided, and who paid for them. The first NHA in Thailand was established in 1994. NHA also accounts for research and development as health care expenditures. Two phases of work were initiated; first, flow of funds from ultimate finance sources to financing agencies and second, the use of funds by financing agencies. Health research and development expenditures, as from our study, are lumped together since NHA is based on datasets of the National Economics and Social Development Board (NESDB) of Thailand which produces aggregate health expenditure data, its estimation methods have several limitations. NHA II will soon be updated to improve the accuracy of aggregate and breakdown data particularly from research and development institutions.

The Health System Research Institute (HSRI), Ministry of Public Health (MOPH) and Ministry of University Affair (MUA) compile information regarding research and development conducted by different units in HSRI, MOPH and MUA annually. We analyzed at available records in these offices and found that the systems of gathering data at MOPH and MUA are quite inefficient. Data collecting and storage are still in paper work form. The computerized system of collecting data is widely use only at HSRI. Data on the type of research and development, and source of funding are available in specific areas.

Table 3 Health R&D-Related Data Sets in Thailand

Data set	Data Contained	Source of Data/Respondent Base	Methodology/ Instrument Used	Status
National Research Council of Thailand, Office of Secretary General	Annual National Survey of R&D ▪ Types of Research ▪ Financial Resources for R&D ▪ Types of Activities ▪ Types of Expenditures ▪ Location of R&D Activities by Sector	▪ Government Sector (All Ministries, Academic/ Research Institutes, Hospitals, others) ▪ Private Sector (Medical and Pharmaceutical Firms, Academic/Research Institutes, Hospitals, others)	▪ Survey with mailed questionnaires ▪ Telephone and FAX	Ongoing, Annually
Thailand Research Fund (TRF)	Source of Research Fund Types of Expenditures ▪ Field of Activities and Type of Research ▪ Source of Funds and by Field of Activities	All Research Organizations which are recipients of the TRF grants	TRF application forms submitted by applicants	Ongoing
National Health Accounts, Health System Research Institute (HSRI)	Amount, Source, and Uses of Healthcare Expenditures 1994	Government ▪ MOPH, NSO, Hospitals, others Private ▪ Hospitals, Insurance Companies	▪ OECD Framework ▪ Secondary Datasets ▪ Surveys	Plans are underway on updating NHA by College of Public Health, Chulalongkorn University

Data set	Data Contained	Source of Data/Respondent Base	Methodology/ Instrument Used	Status
Health System Research Institute (HSRI)	Database on HSRI grants ▪ Allocation, Locations ▪ Project leaders ▪ Project ▪ Field of Research ▪ Others	Recipients of the HSRI grants	HSRI application forms submitted by applicants	Ongoing
Ministry of Public Health (MOPH)	Expenditures on Health Research and Development ▪ Source of Funds ▪ Types of Expenditures ▪ Field of Activity ▪ Types of R&D Activity	All Divisions in MOPH that do Health Research	▪ Survey ▪ Questionnaire ▪ Telephone and FAX	Ongoing
Ministry of University Affair	▪ Expenditures on R&D of Universities in Thailand ▪ Source of Funds ▪ Field of Activities ▪ Field of Activities and by source of Funds	All Academic Institutes (Universities) ▪ Government ▪ Private	▪ Survey with mailed or delivered questionnaires ▪ Telephone follow ups	Ongoing, Annually

Planning for Sustained Monitoring

Malaysia

The Secretariat for the Standing Committee for Medical Research, Ministry of Health Malaysia under the leadership of the Deputy Director of Health (Research & Technical Support) shall convene the survey of health R&D activities in Malaysia with the view of concurrently sourcing relevant information from MASTIC's 1998 R&D survey. The Malaysian Science and Technology Information Centre has agreed to provide the list of R&D organisations in the country undertaking health research and development activities. Ideally, the long-term monitoring of resource flows for health R&D in the country should be carried out as a collaborative effort between the Ministry of Health and the Ministry of Science, Technology and Environment. Further discussion on this shall have to be pursued.

The Philippines

For the Philippines, long-term monitoring of resource flows for health R&D is deemed sustainable through two national agencies. The National Statistics Office (NSO) can carry out data collection through its Annual Survey of Establishments (ASE). The National Statistical Coordination Board, on the other hand, can serve as depository of the data collected by the NSO in a format useful for policymaking concerning health research resources.

National Statistics Office

The NSO is the Philippine institution mandated to collect, compile, classify, produce, publish, and disseminate general-purpose statistics in the country. It undertakes censuses and surveys on various social and economic factors and/or indicators for planning and policy-making purposes. Among its surveys, the annual survey of establishments is the data collection mechanism that best compliments the frame and methodology required to obtain the desired data on health resources.

The Annual Survey of Establishments

The ASE is handled by the NSO's Industry and Trade Statistics Department (ITSD). This survey is conducted to provide statistics on the structure, levels and trends of economic activities in the country. It is a nationwide survey and covers the following economic activities as classified under the 1977 Philippine Standard Industrial Classification (PSIC):

- Agriculture, Fishery and Forestry
- Mining and Quarrying
- Manufacturing
- Electricity, Gas, and Water
- Construction
- Wholesale and Retail
- Transportation, Communication, and Storage
- Financing, Insurance, Real Estate, and Business Services
- Community, Social and Personal Services

The unit of enumeration for the ASE is the establishment. An establishment is defined as an economic unit which engages under a single ownership or control, i.e., under a single entity, in one or predominantly one kind of economic activity at a single fixed location.

The ASE uses a different questionnaire for each industry or group of industries enumerated above. The major items of data obtained through these questionnaires are the following:

- Name and physical location of establishment
- Economic activity or business
- Period of operation
- Legal organization
- Ownership and control of establishment
- Economic organization
- Employment
- Compensation
- Man-hours (for selected industries only)
- Revenue
- Subsidies
- Costs
- Fixed assets
- Capital Expenditures
- Inventories
- Capacity utilization (for selected industries only)
- Scientific and technological activities (STA)
- List of branches

Prospects for carrying out the survey for the project look positive since the NSO has expressed willingness to look at options of working together. Also, the ASE timetable is workable since planning activities for the ASE are held during the last quarter of every year. Interviewers are fielded in the months of June and July, and data semi-processed at the regional level are submitted tot he national office from August to October. The data are then processed at a national level, and results are released in the early part of the succeeding year. In the initial negotiations with NSO, it was agreed that the NSO can include the health R&D questionnaire as a rider in the ASE to be conducted in 1999, covering the year 1998. However, as it has been in the 1990s, the ASE for 1999 will cover only the private sector. It is planned, therefore, that the Center for Economic Policy Research (CEPR) will undertake the survey for the public sector simultaneously with the private sector survey. The CEPR is a private firm that has considerable experience in this type of survey since it undertook a study on flow of funds for health research for the Department of Health. This study had a survey component similar to the proposed survey for this project. It is a medium to long-term objective, however, that the survey be conducted by the NSO for both private and public sectors, as a portion of, and not as a mere rider to the ASE questionnaire.

National Statistical Coordination Board

The National Statistical Coordination Board (NSCB) is the highest policy-making and coordinating body on statistical matters in the Philippines. The Board was created in 1987 after a Special Committee that reviewed the Philippine Statistical System (PSS) recognized the absence of a strong coordination mechanism which give rise to the problems of duplication of activities, conflicting statistics, data gaps, as well as unnecessary burden on respondents. Its objective is to achieve the development of an orderly statistical system capable of providing timely, accurate, sufficient, and useful data to suit planning, programming, and evaluation needs of all sectors of the Philippine economy. With this mandate, the NSCB is deemed to be the appropriate depository of the health R&D data, particularly through one of its two major offices, the Economic and Social Statistics Office (ESSO). Some functions delegated to the ESSO are as follows:

- Develop operational socio-economic frameworks and indicator system that would provide tools for effective socio-economic planning and policy formulation and for effective statistical coordination;
- Prepare periodic estimates of National Accounts and Regional Accounts, Input-Output Tables, and Food Balance Sheet and maintain and compile the Economic and Social Impact Analysis Indicator System, Child Monitoring System, and other socio-economic development;

- Conduct assessment of statistical production, identify data gaps, issues and deficiencies, and recommend activities for the improvement of databases of accounts and indicator system for consideration in the Philippine Statistical Development Program; and
- Conduct researches and studies for the improvement of the Accounts/Indicator System in the PSS.

The ESSO has five divisions, namely: the Agro-Industrial Division; Public and Private Services Division; Economic Indicators and Consolidation Division; Population, Income, and Employment Division; and, Health, Education, and Social Welfare Division.

The ESSO is currently undergoing training on maintaining the National Health Accounts (NHA) from the team that developed the NHA. The NHA is discussed more thoroughly in the previous section that tackled existing health R&D datasets. It is the object of the project to encourage the NSCB to maintain the health R&D statistics. Based on the results of the project, the data can be treated either as a specific item in the national health accounts or as an independent national account in a configuration that can be used to track health R&D resource flows.

Thailand

Our researchers performed interviews with representatives from core lead research institutions. The information from them so far is that there should be some improvement in data collection on health research and development among themselves. As we presented them with a draft of our questionnaire, that Malaysia, the Philippines and Thailand agreed upon from our last meeting in Bangkok on August 28, 1998, these representatives promised to carry out or to add requested information from this survey in their next round of data collecting which for the most part will take place at the beginning of next year. We are now in a process of accumulating the list of other research and development institutions i.e. private and foreign research institutions and will pursue with the questionnaire survey in the next phase of this resource flow study.

We hope that the government will eventually recognize the importance of Health R&D Resource Flows and will assist in sustaining the effort. We see the National Research Council of Thailand (NRCT) which is the highest policy making body in research and development as the candidate for this purpose. NRCT provides policy and research project recommendations, formulates Thailand's research plan every four years, allocates and provides funds to research institutions, and coordinates institutional research projects to create an integrated National Research Network. Details negotiation will be made in the second phase with NRCT for the conducting of the survey we propose in this study. The rest of members in the Thai Forum on Health Research and Development, on the other hand, can assist NRCT in conducting surveys including Health R&D questionnaire as riders in their annual surveys.

Proposed Survey Approach

Malaysia

Sampling frame

The respondent base for the survey shall follow closely that used in the national R&D survey conducted by the Ministry of Science, Technology & Environment. As this present survey is essentially health R&D, the respondent base shall be substantially expanded so as to obtain a wider and better coverage of all agencies involved in health-related research activities irrespective of funding by the government, private sector or international funding agencies. The survey shall take a 2-pronged approach in that questionnaires would be fielded not only to the directors/managing executives of the agencies/institutions/ departments but as far as possible also to the researcher themselves. The list of researchers shall be obtained through various sources such as from the Malaysian directory of research scientists, through publications and annual reports of the various institutions.

For the private sector, assistance shall be sought from the National Pharmaceutical Control Bureau to provide a list of pharmaceutical companies which are or may be conducting or sponsoring clinical trials in the country. In addition, the Pharmaceutical Association of Malaysia and the Malaysian Organisation of Pharmaceutical Industries shall be approached for feedback not only on the survey questionnaires but also listing of their members. Another source for the respondent listing would be participants of the annual health dialogue sessions between the Ministry of Health officials, professional bodies, industries, non-governmental organisations and in house unions.

Data Collection

The mechanism of data collection shall be according to the standard procedures of the national R&D survey, that is through mailed questionnaires with followup interviews. Whenever possible, the questionnaires shall be sent by email. The Secretariat of the Standing Committee for Medical Research, Ministry of Health shall be the coordinating centre and prepares the research tools to be used. The possibility of the questionnaire forms being specially prepared using the *Teleform* computer software shall be explored considering that with this method, data entry can be carried out by rapid scanning. Questionnaires posting, followup, interviews and data collection shall be carried out by trained temporary research assistants led by Research Officers from the Secretariat. The completed questionnaire forms shall be returned to the Secretariat in the Institute for Medical Research where they will be processed and data entered electronically. Data analysis will be carried out following the guidelines of the multicountry project team.

The Philippines

Sampling Frame

The sampling frame for the private sector will be lifted from the NSO's List of Establishments (LE). The LE is a comprehensive listing of establishments operating in the entire country and engaged in economic activities as described in the 1977 Philippine Standard Industrial Classification, which are enumerated in the discussion of the ASE. The main sources of information for updating the directory of establishments are the following: 1) List of New Establishments, which is prepared at the barangay level, the smallest unit of government in the Philippines; 2) Master list of Establishments, which is used for verifying characteristics and status of old establishments; and 3) administrative lists/directories maintained by private sector groups and other government agencies, such as those from the Securities and Exchange Commission (SEC), the Bureau of Internal Revenue (BIR), the Philippine Chamber of Commerce and Industry (PCCI), and the Municipal Treasure Office.

The NSO has estimated that 400 establishments among the roster are likely to be engaged in health-related or research activities. For the survey to be conducted in 1999, each of these will be sent the health R&D questionnaire. When the survey is conducted in the succeeding years, the number of respondents is expected to drop significantly since the 1999 survey will weed out the establishments that do not qualify.

Identification of respondents in the public sector will be based on the respondent base used in the 1998 CEPR health R&D funds flow survey and the PIDS STA survey. This list will be supplemented by other government listings of institutions of establishments that are engaged in health-related activities. Research offices of large institutions such as the Office of Research Services of UP Manila and PGH will also be tapped to collect the information necessary for the survey from their respective units.

Data Collection

The data collection method shall follow the methodology used in the ASE.

The concerned ITSD and field office personnel of the NSO shall attend a training on the conduct of field operation and processing of ASE questionnaires. Counterpart staff in CEPR shall also attend this training. The training will give special attention to explaining definitions and field classifications of R&D.

The field personnel shall personally deliver the pre-addressed questionnaires to sample establishments. The contact person shall be informed on the date when the questionnaires will be collected. The establishments are given 30 days to accomplish the questionnaires.

Before actual collection, a telephone call shall be made or a reminder shall be sent to ensure that the questionnaire is already accomplished on the date set for collection. For the health R&D survey, however, it was learned in the 1998 CEPR survey that the respondents will generally need assistance from the data collectors in filling up the questionnaires. Hence, a visit other than the delivery and pick-up of the questionnaire is expected to occur to enlighten the respondents on how to fill up the questionnaire.
Upon collection, field personnel shall edit the accomplished questionnaires in accordance with the instructions provided for in the ASE Field Processing Manual.

Data Encoding, Processing, and Analysis

Encoding of data will also be carried out by the NSO for the private sector and CEPR for the public sector. Processing of all data will be done by CEPR.

Data analysis will be carried out by the study team, as directed by the multicountry project team

Thailand

Sampling Frame

The sampling frames for the public and private sectors of this study is based on the survey list of National Research Council of Thailand (NRCT). This way, we will be able to see the picture of R&D pattern for the entire country. NRCT performs this survey annually. The supplementary lists will be provided through other government institutions that are engaged in health-related activities. Other lead research agencies, i.e. Thai Research Fund, Health System Research Institute and etc., also provide information necessary for this survey. As mentioned earlier, the researchers had contacted representatives from these institutions and they agreed to incorporate our proposed multi-country survey with their annual survey.

Data Collection

Before actual data collection, the College of Public Health (CPH) will hold a workshop on Thailand Health Research Resource Flow by inviting representatives of stakeholders i.e. NRCT, TRF, HSRI and etc. CPH staffs will also attend this workshop.

The purpose of this workshop is to explain definitions and classification of Health R&D and, at the same time, inform these attendants the importance and usefulness of this project. In addition, the questionnaires will be explained how they will be collected and all the questions on the questionnaires will be answered and clarified.

The questionnaires will be distributed to NRCT and all lead research institutions as well as private and foreign research institutions. Researchers from CPH will follow-up with this questionnaire survey. The respondents are given approximately 30 days to accomplish this survey unless there occurs some delay on the annual survey of each institution or stakeholder. CPH will also provides questionnaire's support group to assisting respondents in filling up the questionnaire

Data Encoding, Processing, and Analysis

Data encoding and processing will be carried out by CPH for both the public and private sectors. The CPH study team which was designated from Malaysia, the Philippines and Thailand project team will then perform data analysis.

Proposed Survey Questionnaire

Following presents the proposed questionnaire, which has been pre-tested through the ongoing DOH-ENHR study in the Philippines. It is a shorter, more concise version of the questionnaire used for the DOH-ENHR study and incorporates changes, which are expected to facilitate the conduct of the survey. The questionnaire format as well as major areas of inquiry were agreed on in a meeting of representatives of country research teams in Bangkok.

The first part of the questionnaire identifies the respondent according to type of institution and type of R&D conducted. The succeeding part examines the sources and amounts of R&D activities, whether internally or externally financed.

The next set of questions further breaks down the institution's internal expenditure by type and field of R&D activity performed. The different types of R&D activity are as follows: basic research, applied research, and experimental development. Field of activity enumerates the major possible areas in which health research is normally done: natural sciences, epidemiology, sociological sciences, clinical research, and biomedical research. Another table divides the expenditures into current and capital and indicating how much is spent on labor (local or foreign), equipment (locally sourced or imported), land, and others. The external expenditure section shows whether the institution is a *source* of health R&D funds. It also helps the study team trace the flow of funds in the health sector.

The final section inquires about the institution's research agenda for the next three to five years. For firms that have research agendas, a list of their planned projects is required. This part reveals the priorities of the health R&D and allows the study team to see if these are aligned with national priorities.

PROPOSED QUESTIONNAIRE FOR HEALTH RESEARCH RESOURCE FLOW

Name of Institution/Department: _____
Address: _____
Mailing Address: _____
_____
Telephone No: _____ Fax No.: _____

Person(s) Completing This Form:

Part	Printed Name	Signature	Job Title	Tel. No.
I	_____	_____	_____	_____
II	_____	_____	_____	_____
III	_____	_____	_____	_____
IV	_____	_____	_____	_____

I. GENERAL INFORMATION

Item 1. Type of Institution (Please put an [x] appropriate box)

- ❑ Government
- ❑ Private
- ❑ Others (please specify) _____

Item 2. Type of Research and Experimental Development (R&D) Undertaken by This Institution

- ❑ Internal (type of R & D that is performed within the particular institution /department/unit)
- ❑ Basic Research
- ❑ Applied Research
- ❑ Experimental Development
- ❑ External (commissions another institution/department/unit to perform health R & D)
- ❑ Both Internal and External
- ❑ None of the above (Survey ends. Please return questionnaire)

*** if answers are internal, external or both, proceed to the next item.**

DEFINITIONS

BASIC RESEARCH - any experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular or specific application or use in view.

APPLIED RESEARCH - any original investigation undertaken in order to acquire new knowledge that is directed primarily towards a specific practical aim.

EXPERIMENTAL DEVELOPMENT- any systematic work, drawing on existing knowledge gained from research and/or practical experience that is directed to producing new materials, products and devices, to installing new processes, systems and services, and to improving substantially those already produced or installed.

II. Financing Health R & D, 1997-1999.

Item 3. **Source of funds** for Health R & D expenditures **by Agency/Institution**, (for internal R&D, external R&D or both).

SOURCE OF FUNDS by Agency/Institution	AMOUNT RECEIVED	AMOUNT UTILIZED
ALL SOURCES		
A. INSTITUTION'S OWN FUNDS		
B. OTHER SOURCES		
1. GOVERNMENT (TOTAL)		
MOPH		
NRCT (DMS)		
Academic/ Research Institutions (pls. specify) _____ _____		
Hospitals (pls. specify) _____ _____		
Other Inst'ns (pls. specify) _____ _____		
2. PRIVATE (TOTAL)		
Pharmaceutical Firms (pls. Specify) _____ _____		
Academic/Research Institutions (pls. specify) _____ _____		
Hospitals (pls. specify) _____ _____		
NGO's (pls. specify) _____ _____		
Other Private Institutions (Personal)		
3. FOREIGN FUNDS (pls. specify) _____ _____		
4. OTHER SOURCES (pls. specify) _____ _____		

INSTRUCTION

- For Internal expenditure, proceed to Part II.
- For External expenditure, proceed to Part III.
- For both, answer all following sections.

III. Internal Expenditure for Health R & D, 1997-1999.

Item 4. Total **Internal Expenditure** for the performance of Health R & D **by Field of Activity and by type of R & D Activity (only if applicable)**, **1997-1999**.

TYPE OF R&D ACTIVITY / FIELD OF ACTIVITY	TOTAL	BASIC RESEARCH	APPLIED RESEARCH	EXPT'L DEV'T.
TOTAL INTERNAL HEALTH R & D EXPENDITURE				
1. Natural Science Research (that has benefits to Health) pls. specify: _____				
2. Epidemiological Research pls. specify: _____				
3. Clinical Research pls. specify: _____				
4. Biomedical Research pls. specify: _____				
5. Social Sciences Research pls. specify: _____				
6. Combination of any of the above pls. specify: _____				
7. Others , pls. specify _____				

DEFINITIONS

Natural Sciences - concerns the treatment of Natural Phenomenon like Biology, Botany, Chemistry, Physics, etc. as applied to health (ex: studies on bacteriology)

Epidemiology - study of distribution and determinants of health-related states and events in specified populations and applications of this study to the control of health problems. (ex: India-Long-term effects of exposure to methyl Isocyanade)

Clinical Research - studies, trials, and/or experiments regarding different illnesses and diseases conducted for the benefit and with the use of specific patients. (ex: Pressure lowering effect of Lathanoprost versus Timulol in glaucomatous and ocular hypertensive patients.)

Biomedical Research - studies in living organism with a medical purpose which include diagnosis, therapy, and rehabilitation like Chemistry, Pharmacology, Biochemistry, etc. (ex: Therapeutic properties of Herbal Medicine)

Sociological Science - studies that are concerned with behavioral patterns or changes in a population as subject to certain conditions, situations or phenomena. (ex: Effects of Religion on Family Planning Practices)

Combination- studies that may involve more than one of the field of activity mentioned above.

(ex: Clinical Epidemiology: "Prevalence of Poliomyelitis using acute Flaccid Paralysis as an indicator" . Biomedical Epidemiology: " Serological Markers of Hepatitis in Children".

Item 5. Internal Expenditure for the Performance of Health R&D Activities by **Type of Expenditure , 1997-1999**.

AMOUNT	TOTAL	CURRENT				CAPITAL			
		Subtotal	Labor Costs		Other Costs	Subtotal	Land	Major Equipment	
			Local	Foreign				Locally sourced	Imported
$	$								

NOTE:

LABOR COSTS are measured in terms of the level of effort interpreted as the proportion of working hours actually devoted to the conduct of Health R&D as against their nominal wage. (e.g. Employee is commissioned B 8,000 a month and is expected to work 8 hours a day. However, he/she only works 4 hours a day. Therefore, his/her nominal wage is halved as according to her actual working performance (B 4,000). This will be recorded as the labor cost.

IV. External Expenditure for Health R & D, 1997-1999.

Item 6. Please give the name and type of the institutions/entities/individuals given financial grant for performance of Health R&D activities, contact person/number of the institution/s and the specific amount given.

NAME OF INSTITUTION	TYPE OF INSTITUTION	CONTACT PERSON/NUMBER	AMOUNT GIVEN (IN PHP)	PURPOSE OF THE FINANCIAL GRANT

1. Please state the reasons those institutions were selected to perform Health R&D.

_____

_____

DEFINITIONS

TYPE OF INSTITUTIONS - various institutions or departments may be classified under these:

- **Government**
  - MOPH,
  - Gov't Academic/Research Institution
  - Gov't Hospitals
  - Other Gov't Institutions
- **Private**
  - Pharmaceutical Firms
  - Priv. Academic/ Research Institutions
  - Priv. Hospitals
  - Non-government Organizations (NGO's)
  - Other Private Institutions

TYPE OF EXPENDITURE - expenses can be classified as follows:

- **Current -** all payments covering the cost of labor, minor equipment and expendable supplies and other current expenses.
- **Capital** - all payments made relating to expenditure on major equipment, land and other capital expenses.

V. RESEARCH AGENDA

1. Is there an agenda for research for your institution for this year and the next three to five years?

   ❑ Yes.
   ❑ No.

2. a. Do you undertake R&D in fields other than health?

   ❑ Yes.
   ❑ No.

   b. If yes, what are these other fields?

   _____
   _____

3. Did you consider the NRCT Research Agenda in formulating your own agenda?

   ❑ Yes.
   ❑ No.

4. What are the other factors you considered in the formulation of your institution's research agenda?

   ❑ NRCT: DMS (National Research Council of Thailand: Department of Medical Science)
   ❑ Institution/Department's own objectives
   ❑ Degree of necessity/requirement
   ❑ Others, please specify

   _____

FURTHER WORK: WORKPLAN AND BUDGET

Malaysia

Figure 5 Project Schedule - Malaysian Study Phase II
(November 1998 - December 1999)

Activity	1998		1999											
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fund flow Framework:														
Meeting of country representatives														
1. Finalise questionaire forms and printing														
of form														
2. Recruit and train research assistants														
3. Finalise resposdents lists														
4. Data collection														
5. Checking of forms and data capture														
6. Data analysis and preparation of reports														
Research Agenda/Priority Setting Process:														
1. Document existing set-up for priority setting														
2. Identify key stakeholders, organizations														
and respective mandates														
3. Trace linkages among key stakeholders/														
organizatons														
4. Identify current priorities and how they were														
established														
5. Document consensus-building process if any														
established														
Gaps, Imbalances, and Fragmentation														
1. Develop approach to measuring gaps,														
2. Measure gaps, imbalances, and fragmentaion														
3. Formulate recommendations														
Trend Analysis														
1. Identify indicators for trend analysis														
2. Develop trending methodology														
3. Conduct trend analysis; Analyse survey results														

Table 4

Project Costs : Malaysian Study Phase II

A. Staff costs

Staff Category	No. of person	Salary per month	No. of months	Total (USD)
• Temporary and contract personnel Research Assistants (Degree Holders)	5	400	12 mths	24,000
Sub-total staff costs				24,000

B. Direct project expenses

Expense Category	Types	Cost / Unit	Unit	USD
• Travel and transportation	Training & Survey cost			8,000
	Meeting (intercountry)			2,000
• Research materials and supplies	Stationery			
	Diskettes			5,000
• Special services	Printing of forms			10,000
	Data analysis			
• Special equipment and accessories	Computer software			1,000
Sub-total direct				26,000

C. Total cost (Please add the sub-totals of A and B)

	Contract	Direct	TOTAL
COST (USD)	24,000	26,000	50,000

The Philippines

WORKPLAN AND BUDGET: NOVEMBER 1998 TO DECEMBER 1999

Slight adjustments have been made in the schedule of the remaining project life. Figure 2 presents the revised workplan which is proposed for the second phase of the resource flows study from November 1998 to end 1999. The period covers preparation for the survey, including firming up the respondent list, conduct of the survey, analysis of survey results, documentation of research agenda and priority-setting process, and development of measures for gaps, imbalances, and fragmentation, and trend analysis methodology. A meeting of key members of the country project teams will be held in February to discuss the priority-setting process in each country and a common approach to measuring gaps, fragmentation, and imbalances.

An estimated $ 107,909 is to be incurred for this period. Table 2 gives a breakdown of this amount. Based on initial arrangements with NSO, survey preparation and data collection for the private sector will cost $29,250 (Annex 3).

Arrangements for the regular conduct of the survey through the NSO and active dissemination of results through the National Census and Statistics Board will be made beyond 1999.

Figure 6

Proposed Workplan, Health esource Flows Study Phase 2,
November 1998 - December 1999

Activity	1998		1999											
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Survey for Fund flow Framework:														
1. Drawing of sampling frame														
2. Survey preparation														
3. Training														
4. Data Gathering														
- Public Sector														
- Private Sector														
5. Data Encoding														
- Public Sector														
- Private Sector														
6. Data Processing														
7. Data Analysis														
Research Agenda/Priority Setting Process:														
1. Document existing set-up for priority setting														
2. Identify key stakeholders, organizations and respective mandates														
3. Trace linkages among key stakeholders/ organizatons														
4. Identify current priorities and how they were established														
5. Document consensus-building process if any														
Gaps, Imbalances, and Fragmentation														
1. Develop approach to measuring gaps,														
2. Measure gaps, imbalances, and fragmentaion														
3. Formulate recommendations														
Trend Analysis														
1. Identify indicators for trend analysis														
2. Develop trending methodology														
3. Conduct trend analysis; Analyse survey results														

Table 5. PROPOSED BUDGET (US$)

Health Resource Flow Study Phase 2 (November 1998-December 1999)

	No.of Units	Unit	Unit Rate	Amount	Total
Professional Fees					37,100
Consultant 1	7	Months	1,000	7,000	
Consultant 2	7	Months	1,000	7,000	
Consultant 2	7	Months	800	5,600	
Research Assistant 1	14	Months	500	7,000	
Research Assistant 2	14	Months	250	3,500	
Research Assistant 3	14	Months	250	3,500	
Research Assistant 4	7	Months	250	1,750	
Research Assistant 5	7	Months	250	1,750	
Training/Workshop	1	Lumpsum	1,000	1,000	1,000
Project Team Meeting					1,840
Air Fare	2	RT	560	1,120	
Per Diem	6	Days	120	720	
Field survey costs					43,200
Private Sector and Public Sector	1	Lumpsum	29,250	29,250	
Travel					
Luzon	6	Trips	100	600	
Visayas	6	Trips	150	900	
Mindanao	6	Trips	150	900	
Perdiem					
Metro Manila	90	Days	5	450	
Lozon	90	Days	40	3,600	
Visayas	90	Days	40	3,600	
Mindanao	90	Days	40	3,600	
Survey Questionnaire	300	Questionnaires	1	300	
Computer Software	1	Lumpsum	500	500	500
Computer Hardware	2	Lumpsum	1,000	1,000	1,000
Recurrent Costs					7,000
Supplies	14	Months	125	1,750	
Reproduction	14	Months	125	1,750	
Communications	14	Months	125	1,750	
Miscellaneous	14	Months	125	1,750	
Subtotal					102,710
Contingency (5%)					5,139
Total					**107,849**

Thailand

Workplan and Budget: November 1988 to December 1999

Workplan:

Following (Figure 3) is the workplan and budget for Thailand Health R&D Resource Flow starting from November 1998 to December 1999. This second phase workplan has been revised from the original proposal which consists of survey of funds flow framework (preparation for the survey), research agenda and priority setting process, identification of gaps, imbalances and fragmentation and trend analysis methodology of this resource flow study. On February of 1999, there will be a meeting among key members of country project on the priority setting process and measuring methodology.

Figure 7

Proposed Workplan, Thailand Health Resource Flows Study Phase 2,
November 1998 - December 1999

Activity	1998		1999											
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Survey for Fund flow Framework:														
1. Drawing of sampling frame														
2. Survey preparation														
3. Training														
4. Data Gathering														
- Public Sector														
- Private Sector														
5. Data Encoding														
- Public Sector														
- Private Sector														
6. Data Processing														
7. Data Analysis														
Research Agenda/Priority Setting Process:														
1. Document existing set-up for priority setting														
2. Identify key stakeholders, organizations and respective mandates														
3. Trace linkages among key stakeholders/ organizatons														
4. Identify current priorities and how they were established														
5. Document consensus-building process if any														
Gaps, Imbalances, and Fragmentation														
1. Develop approach to measuring gaps,														
2. Measure gaps, imbalances, and fragmentaion														
3. Formulate recommendations														
Trend Analysis														
1. Identify indicators for trend analysis														
2. Develop trending methodology														
3. Conduct trend analysis; Analyse survey results														

Budget:
Demonstrates a breakdown of estimated budget for the second phase study. The budget is estimated at US$74,148

Table 6
PROPOSED BUDGET (US$)
Thailand Health Resource Flow Study Phase 2 (November 1998-December 1999)

	No.of Units	Unit	Unit Rate	Amount	Total
Professional Fees					29,750
Consultant 1	7	Months	1,000	7,000	
Consultant 2	7	Months	1,000	7,000	
Research Assistant 1	14	Months	500	7,000	
Research Assistant 2	14	Months	250	3,500	
Research Assistant 3	14	Months	250	3,500	
Research Assistant 4	7	Months	250	1,750	
Training / Workshop	1	Lumpsum	1,000	1,000	1,000
Project Team Meeting					1,840
Air Fare	2	RT	560	1,120	
Per Diem	6	Days	120	720	
Field survey costs					20,200
Private Sector and Public Sector	1	Lumpsum	20,000	20,000	
Survey Questionnaire	200	Questionnaires	1	200	
Computer Software	1	Lumpsum	1,000	1,000	1,000
Computer Hardware	2	Lumpsum	2,000	2,000	2,000
Recurrent Costs					7,000
Supplies	14	Months	125	1,750	
Reproduction	14	Months	125	1,750	
Communications	14	Months	125	1,750	
Miscellaneous	14	Months	125	1,750	
Subtotal					61,790
Overhead (20%of Project's Budget to CPH)					12,358
Total					**74,148**

REFERENCES

1. CHRD [Commission on Health Research for Development] (1990). Health research : essential link to equity in development. Oxford, Oxford University Press.
2. Department of Science and Technology, "Science and Technology Agenda for Thailand National Development.' 1993.
3. Kaldor. Donald R. "Social Returns to Research and the Objectives of Public Research." In Resource Allocation in Agricultural Research, pp. 62–79. Edited by Walter L. Fishel. Minneapolis: University of Minnesota Press, 1971.
4. Michaud C, Murry CJL (1996). Resources for health research and development in 1992 : a global review. Investing in health research and development. Report of the Ad Hoc Committee in Health Research relating to future intervention options. World Hearth Organization, Geneva.
5. Michaud C (1997) . Monitoring results : how to measure the contribution of the initiatives to the overall goal of the forum. A paper presented to the First Global Forum for Health Research, 20 – 27 June 1997.
6. Pinstrup - Andersen, Per. Agricultural Research and Technology in Economic Development. New York: Longman Inc., 1982.
7. Tichenor, Phillip J. and Ruttan, Vernon W. "Problems and Issues in Resources Allocation for Agricultural Research." In Resource Allocation in Agricultural Research, pp. 3-22. Edited by Walter L. Fishel. Minneapolis: University of Minnesota Press, 1971.
8. Tweeten, Luther G. ' The Search for a Theory and Methodology of Research Resource Allocation." In Resource Allocation in Agricultural Research, pp. 25-61. Edited by Walter L. Fishel. Minneapolis: University of Minnesota Press, 1971.
9. United Nations Educational, Scientific, and Cultural Organization, Guide to statistics on science and technical
10. Council on Health Research for Development. The Next Step: An Interim Assessment of ENHR and COHRED.
11. Council on Health Research for Development, Research Into Action. 1998.
12. Council on Health Research for Development, Progress Report. 1996.
13. Department of Science and Technology (Philippines), Administrative Order No. 039: Policy guidelines and procedures concerning DOST endorsement of science and technology research and development activities of various government agencies to the Department of Budget and Management. Series of 1997.
14. Department of Science and Technology (Philippines). "Science and Technology Agenda for National Development." 1993.
15. Philippine Council for Health Research and Development, "Annual Report." 1996.
16. Health System Research Institute (Thailand), "Annual Report", 1993-1996.
17. Thai Research Fund, "Annual Report", 1996.

Malaysia: Annex 1

INDICATIVE AREAS OF R&D SUPPORT IN MEDICAL SCIENCE 1988

OVERALL OBJECTIVES

To reduce the cost of health care or morbidity/mortality and to bring about financial returns through marketing of products, e.g. vaccine production.

LIST OF INDICATIVE AREAS

1.0 BIOMEDICAL such as:

1.1 Biotechnology
1.2 Infectious diseases
1.3 Nutritional, endocrine and metabolic disorders
1.4 Neoplastic diseases
1.5 Congenital and genetic disorders
1.6 Cardiovascular disorders
1.7 Diseases of childhood
1.8 Development and evaluation of pharmacological products
1.9 Mental Health

2.0 HEALTH SYSTEM RESEARCH such as :

2.1 Evaluation and implementation of immunisation
2.2 Primary health care approach
2.3 Evaluation of training of health personnel
2.4 Quality assurance in health care delivery

3.0 HEALTH BEHAVIOURAL RESEARCH such as :

3.1 Knowledge Attitude Practice (KAP)
3.2 Health Education
3.3 Health and poverty

4.0 INDUSTRIAL HEALTH RESEARCH such as :

4.1 Industrial Health Hazards
4.2 Ergonomics

Malaysia: Annex 2

INDICATIVE AREAS OF R&D SUPPORT IN MEDICAL SCIENCE 1989

OVERALL OBJECTIVES

To reduce the cost of health care or morbidity/mortality and to bring about financial returns through marketing of products, e.g. vaccine production.

LIST OF INDICATIVE AREAS

1.0 BIOMEDICAL such as:
- 1.1 Infectious diseases
- 1.2 Nutritional, endocrine and metabolic disorders
- 1.3 Neoplastic diseases
- 1.4 Congenital and genetic disorders
- 1.5 Cardiovascular disorders
- 1.6 Diseases of childhood
- 1.7 Development and evaluation of pharmacological products
- 1.8 Mental Health

2.0 HEALTH SYSTEM RESEARCH such as :
- 2.1 Evaluation and implementation of immunisation
- 2.2 Primary health care approach
- 2.3 Evaluation of training of health personnel
- 2.4 Quality assurance in health care delivery

3.0 HEALTH BEHAVIOURAL RESEARCH such as :
- 3.1 Knowledge Attitude Practice (KAP)
- 3.2 Health Education
- 3.3 Health and poverty
- 3.4 Addiction
- 3.5 Traffic accidents

4.0 INDUSTRIAL HEALTH RESEARCH such as :
- 4.1 Industrial Health Hazards
- 4.2 Ergonomics

5.0 TECHNOLOGY DEVELOPMENT such as :
- 5.1 Biotechnology
- 5.2 Computerisation in Health Care
- 5.3 Medical Equipment and Instrumentation including design, production and maintenance
- 5.4 Techno-economics

Malaysia: Annex 3a
PRIORITY AREAS FOR MEDICAL/HEALTH RESEARCH

	PROBLEM AREAS	DISEASES/CONDITIONS
I	Research to facilitate application of available technology to control food/water-borne diseases, nutritional deficiencies, immunisable diseases and inappropriate fertility.	Food and water borne diseases Immunisable diseases Nutritional Deficiencies Inappropriate fertility
II	Research in local diseases for which basic knowledge re control is still lacking.	Vector-borne diseases Viral diseases Bacterial diseases Parasitic non-vector borne diseases Behavioural disorders Neoplasms (geographical/ethnic)
III	Research in Non-Communicable Diseases. (a) Hazardous factors are known e.g. smoking, alcohol	(a)1. Cardiovascular diseases - Acquired Non-infective 2. Accidents Substance abuse (glue, drug, alcohol) Metabolic disorders Occupational diseases
	(b) Hazardous factors are not known	(a) Psychotic disorders Neoplastic (cosmopolitan)
IV	Research to reduce morbidity, mortality & limit disability for conditions for which prevention is not known.	Endocrine disorders Congenital & genetic diseases Degenerative disease Metabolic disorders
V	Research to meet needs of policy makers and planners.	Transmigration. Alternative system of Health (traditional medicine) Resources – availability and deficiency Management of Health Services - community involvement - evaluation of Health Services
VI	Research for Technology Development.	Biotechnology - Pharmaceuticals - Biologicals - Reagents Computerisation in Health care medical equipment & Instrumentation (including design, production and maintenance) Appropriate Technology for Health
VII	Research in Toxicology	

Malaysia: Annex 3b

I. RESEARCH TO FACILITATE APPLICATION OF AVAILABLE TECHNOLOGY TO CONTROL FOOD AND VECTOR-BORNE DISEASES, NUTRITIONAL DEFICIENCIES, IMMUNISABLE DISEASES AND INAPPROPRIATE FERTILITY

	PROBLEM AREA	EVALUATION CRITERIA	PRIORITY
1.	Food and water borne diseases	High prevalence. Wide spread operational weakness. Adequate information	High
2.	Nutritional deficiencies	Borderline malnutrition in pockets. Adequate information for intervention. Operational weakness in identifying disadvantaged groups and applying appropriate strategy.	**High**
3.	Fertility	Uncontrolled fertility among high risk group (low socio-economic group, older mothers). Adequate information. Operational weakness is high.	High
4.	Immunisable diseases	Continuing existence. Adequate information. Operational weakness in identifying disadvantaged groups and applying appropriate strategy.	High

Malaysia: Annex 3c
LIST OF FOOD AND WATER-BORNE DISORDERS

1.0 Food and water borne disorders

1.1 Factors contributing to the non-availability of clean water and adequate sanitation in high risk population

1.2 Development of affordable and acceptable alternatives in the organisation of health service delivery and technology for the reduction of food and water-borne diseases, for example, through :

(i) improving techniques to effect desirable behavioural changes;

(ii) the development of alternative organisational structures including ways to improve interagency and intersectoral coordination;

(iii) the development of methods, techniques and equipment to provide clean water and adequate sanitation to disadvantaged groups;

(iv) the development of methods, techniques and equipment for the sanitary disposal of human and industrial wastes

1.3 Development of effective, feasible, appropriate and acceptable surveillance mechanisms, including gathering new information on the survival of specific disease agents in the local environment.

1.4 Ways to improve the quality of food-handling, food preparation and cooking, including new information in support of existing legislation on food-handling and quality control.

Malaysia: Annex 4a

HEALTH RESEARCH PRIORITIES FOR THE 7TH MALAYSIA PLAN

SEO GROUP	TARGET AREA	PROGRAMME
CLINICAL	HEALTH PROBLEMS ASSOCIATED WITH LIFESTYLES	Health problems associated with industrialisation and affluence. Health promotion, education and evaluation. Maternal and child health. Substance abuse Sexually transmitted diseases (STD) and HIV infection.
PUBLIC HEALTH	HEALTH PROBLEMS ASSOCIATED WITH DEMOGRAPHIC CHANGES	Urban health. Problems associated with increased life expectancy. Malignancies.
PUBLIC HEALTH	EPIDEMIOLOGICAL DATABASE	National database on morbidity and mortality.
PUBLIC HEALTH	OCCUPATIONAL AND ENVIRONMENTAL HEALTH	Occupational health and safety. Injuries. Road injuries. Home/Leisure/School Drinking water quality. Air Quality. Food Quality. Environmental health impact. Waste water collection and treatment. Solid waste management.
PUBLIC HEALTH	VECTOR BORNE AND OTHER COMMUNICABLE DISEASES	Vector-borne diseases. Other communicable diseases. Vaccine development, evaluation and implementation.
HEALTH AND SUPPORT SERVICES	NEW TECHNOLOGIES IN HEALTH	Quality control of medical diagnostic instruments and devices. Innovative technology. Development and adaptation of new medical technologies. Appropriate use of medical technologies.
HEALTH AND SUPPORT SERVICES	HEALTH CARE SYSTEM AND INDUSTRIES	Quality of life. Health care delivery system for specific groups. Health care cost, utilisation and community involvement. Human resource development. Inadequate knowledge and undirected screening of natural products. Emergency medicine. Health rehabilitation services. Health Legislation. Systems for monitoring drug utilisation.

Malaysia: Annex 4b

HEALTH RESEARCH PRIORITIES FOR THE 7TH MALAYSIA PLAN

SEO GROUP	CLINICAL
TARGET AREA	HEALTH PROBLEMS ASSOCIATED WITH LIFESTYLE CHANGES
R&D OBJECTIVES	To reduce morbidity and mortality from health problems associated with lifestyle changes
RESEARCH THEME	Reduction of morbidity and mortality from health problems associated with industrialisation, affluence, substance abuse and sexually transmitted diseases.

PROGRAMME	RANK	SCOPE OF RESEARCH
Health problems associated with industrialisation and affluence	1	The major health problems that should be studied include : (i) cardiovascular diseases (ischaemic heart disease, hypertension and stroke) (ii) diabetes meilitus (iii) obesity (iv) psychosocial problems For the above diseases research will be conducted on : (i) identification and quantification of risk factors and modification of these risk factors for prevention and control (ii) development of appropriate technologies aimed at early diagnosis and more effective management (iii) evaluating the effectiveness of health promotion campaigns
Health promotion, education and evaluation	2	• Determination of the correct target group, message, media for promotion of health in each of the priority problems mentioned above especially diseases associated with lifestyles and substance abuse. • Determination of effective interventional strategies for health promotion targeted at all four levels i.e. environmental, social, organisational and individual. • Development or methods of evaluating the effectiveness of health promotion and health education efforts. • Determination of ways to improve and maximise the utilisation of primary health care facilities.
Maternal and child health	2	• Determine ways to reduce high incidence of foetal abnormalities especially in certain parts of the country. • Determine strategies to further reduce prenatal and neonatal morbidity and mortality. • Identify causes of learning disabilities and other handicaps among children so as to provide opportunities for optimal growth and development. • Determine ways to further improve the nutritional status of mothers and children particularly with regard to micronutrients. • Evaluation of nutrition intervention programmes including the promotion of breast feeding programmes. • Prevalence and factors associated with child abuse, neglect, child labour and accidents with the objective of formulating strategies to overcome these problems. • Ways to improve maternal and child health in relation to social, behavioural, cultural, economic, ethnic and geographical factors.

Substance abuse	3	• Research aimed at improving the effectiveness of strategies employed in the prevention and control of substance abuse. • Social, behavioural, biological and molecular aspects of substance abuse. • New control and preventive measures.
Sexually transmitted diseases (STD) and HIV infections	3	• Prevalence study. • Early and rapid diagnosis for detection, characterisation of strains and treatment e.g. PCR and other new technologies to be accessible and affordable • Characterisation of strains for epidemiological purposes. • Evaluation of new vaccines and new treatment protocols. • Determine reasons for increased incidence of these infections.

Malaysia: Annex 5
Proposed Questionnaire

SURVEY OF HEALTH RESEARCH & DEVELOPMENT (R&D)
FINANCIAL YEAR 1998

Name of Institution/Department: _____
Address: _____
Mailing Address: _____
_____
Telephone No: _____ Fax No.: _____
Person(s) Completing This Form:

Part	Printed Name	Signature	Job Title	Tel. No.
I	_____	_____	_____	_____
II	_____	_____	_____	_____
III	_____	_____	_____	_____
IV	_____	_____	_____	_____

I. GENERAL INFORMATION

Item 1. Type of Institution (Please put an [x] appropriate box)

- ❑ Government
- ❑ Private
- ❑ Others (please specify) _____

Item 2. Type of Research and Experimental Development (R&D) Undertaken by This Institution

- ❑ Internal (type of R & D that is performed **within the particular institution/department/unit**)
- ❑ Basic Research
- ❑ Applied Research
- ❑ Experimental Development
- ❑ External (commissions another institution/department/unit to perform health R & D)
- ❑ Both Internal and External
- ❑ None of the above (Survey ends. Please return questionnaire)

*** if answers are internal, external or both, proceed to the next item.**

DEFINITIONS:

BASIC RESEARCH **- any experimental or theoretical work undertaken primarily to acquire new knowledge** of the underlying foundations of phenomena and observable facts, **without any particular or specific application** or use in view.
APPLIED RESEARCH - any original investigation undertaken in order to acquire new knowledge that is **directed primarily towards a specific practical aim**.
EXPERIMENTAL DEVELOPMENT- any systematic work, drawing on existing knowledge gained from research and/or practical experience that is directed to **producing new materials, products and devices, to installing new processes, systems and services, and to improving substantially those already produced or installed.**

II. Financing Health R & D, 1998

Item 3. **Source of funds** for Health R & D expenditures **by Agency/Institution**, (for internal R&D, external R&D or both).

SOURCE OF FUNDS by Agency/Institution	AMOUNT RECEIVED (RM)	AMOUNT UTILIZED (RM)
ALL SOURCES		
A. INSTITUTION'S OWN FUNDS		
B. OTHER SOURCES		
1. GOVERNMENT (TOTAL)		
IRPA		
Federal		
State or local government		
Academic/ Research Institutions (pls. specify) _____ _____		
Hospitals (pls. specify) _____ _____		
Other Inst'ns (pls. specify) _____ _____		
2. PRIVATE (TOTAL)		
Pharmaceutical Firms (pls. Specify) _____ _____		
Academic/Research Institutions (pls. specify) _____ _____		
Hospitals (pls. specify) _____ _____		
NGO's (pls. specify) _____		
Other Private Institutions (Personal)		
3. FOREIGN FUNDS (pls. Specify) _____ _____		
4. OTHER SOURCES (pls. Specify) _____ _____		

INSTRUCTION

- For Internal expenditure, proceed to Part II.
- For External expenditure, proceed to Part III.
- For both, answer all following sections.

III. Internal Expenditure for Health R & D, 1998.
Item 4. Total **Internal Expenditure** for the performance of Health R & D **by Field of Activity and by type of R & D Activity (only if applicable), 1998**. (In RM)

TYPE OF R&D ACTIVITY / FIELD OF ACTIVITY	TOTAL	BASIC RESEARCH	APPLIED RESEARCH	EXPT'L DEV'T.
TOTAL INTERNAL HEALTH R & D EXPENDITURE	RM	RM	RM	RM
1. Natural Science Research (that has benefits to Health)pls. specify: _____				
2. Epidemiological Research pls. specify: _____				
3. Clinical Research pls. specify: _____				
4. Biomedical Research pls. specify: _____				
5. Social Sciences Research pls. specify: _____				
6. Combination of any of the above pls. specify: _____				
7. Others , pls. specify _____				

DEFINITIONS

Natural Sciences - concerns the treatment of Natural Phenomenon like Biology, Botany, Chemistry, Physics, etc. as applied to health (ex: studies on bacteriology)
Epidemiology - study of distribution and determinants of health-related states and events in specified populations and applications of this study to the control of health problems. (ex: India-Long-term effects of exposure to methyl Isocyanade)
Clinical Research - studies, trials, and/or experiments regarding different illnesses and diseases conducted for the benefit and with the use of specific patients. (ex: Pressure lowering effect of Lathanoprost versus Timulol in glaucomatous and ocular hypertensive patients.)
Biomedical Research - studies in living organism with a medical purpose which include diagnosis, therapy, and rehabilitation like Chemistry, Pharmacology, Biochemistry, etc. (ex: Therapeutic properties of Herbal Medicine)
Sociological Science - studies that are concerned with behavioral patterns or changes in a population as subject to certain conditions, situations or phenomena. (ex: Effects of Religion on Family Planning Practices)
Combination- studies that may involve more than one of the field of activity mentioned above.
(ex: Clinical Epidemiology: "Prevalence of Poliomyelitis using acute Flaccid Paralysis as an indicator" . Biomedical Epidemiology: " Serological Markers of Hepatitis in Children".

Item 5. Internal Expenditure for the Performance of Health R&D Activities by **Type of Expenditure , 1998**.

AMOUNT	TOTAL	CURRENT				CAPITAL			
		Subtotal	Labor Costs		Other Costs	Subtotal	Land	Major Equipment	
			Local	Foreign				Locally sourced	Importec
RM	RM								

NOTE:

LABOR COSTS are measured in terms of the level of effort interpreted as the proportion of working hours actually devoted to the conduct of Health R&D as against their nominal wage. (e.g. Employee is commissioned RM10,000 a month and is expected to work 8 hours a day. However, he/she only works 4 hours a day. Therefore, his/her nominal wage is halved as according to her actual working performance (RM5,000). This will be recorded as the labor cost.

IV. External Expenditure for Health R & D, 1998.

Item 6. Please give the name and type of the institutions/entities/individuals given financial grant for performance of Health R&D activities, contact person/number of the institution/s and the specific amount given.

NAME OF INSTITUTION	TYPE OF INSTITUTION	CONTACT PERSON/NUMBER	AMOUNT GIVEN (RM)	PURPOSE OF THE FINANCIAL GRANT

1. Please state the reasons those institutions were selected to perform Health R&D.

_____

_____

DEFINITIONS

TYPE OF INSTITUTIONS - various institutions or departments may be classified under these:

- Government
  - MOH,
  - MOSTE,
  - Gov't Academic/Research Institution
  - Gov't Hospitals
  - Other Gov't Institutions
- Private
  - Pharmaceutical Firms
  - Priv. Academic/ Research Institutions
  - Priv. Hospitals
  - Non-government Organizations (NGO's)
  - Other Private Institutions

TYPE OF EXPENDITURE - expenses can be classified as follows:

Current - all payments covering the cost of labor, minor equipment and expendable supplies and other current expenses.

Capital - all payments made relating to expenditure on major equipment, land and other capital expenses.

V. RESEARCH AGENDA

1. Is there an agenda for research for your institution for this year and the next three to five years?

   ❑ Yes.
   ❑ No.

2. a. Do you undertake R&D in fields other than health?

   ❑ Yes.
   ❑ No.

   b. If yes, what are these other fields?

   _____
   _____

3. Did you consider the "Health Research Priorities for the 7th Malaysia Plan " (see Appendix A) in formulating your own agenda?

   ❑ Yes.
   ❑ No.

4. What are the other factors you considered in the formulation of your institution's research agenda?

   ❑ Institution/Department's own objectives
   ❑ Degree of necessity/requirement
   ❑ Others, please specify _____

Malaysia: Appendix A

Health Research Priorities For The 7th Malaysia Plan

TARGET AREA	PROGRAMME
HEALTH PROBLEMS ASSOCIATED WITH LIFESTYLES	Health problems associated with industrialisation and affluence. Health promotion, education and evaluation. Maternal and child health. Substance abuse Sexually transmitted diseases (STD) and HIV infection.
HEALTH PROBLEMS ASSOCIATED WITH DEMOGRAPHIC CHANGES	Urban health. Problems associated with increased life expectancy. Malignancies.
EPIDEMIOLOGICAL DATABASE	National database on morbidity and mortality.
OCCUPATIONAL AND ENVIRONMENTAL HEALTH	Occupational health and safety. Injuries. Road injuries. Home/Leisure/School Drinking water quality. Air Quality. Food Quality. Environmental health impact. Waste water collection and treatment. Solid waste management.
VECTOR BORNE AND OTHER COMMUNICABLE DISEASES	Vector-borne diseases. Other communicable diseases. Vaccine development, evaluation and implementation.
NEW TECHNOLOGIES IN HEALTH	Quality control of medical diagnostic instruments and devices. Innovative technology. Development and adaptation of new medical technologies. Appropriate use of medical technologies.
HEALTH CARE SYSTEM AND INDUSTRIES	Quality of life. Health care delivery system for specific groups. Health care cost, utilisation and community involvement. Human resource development. Inadequate knowledge and undirected screening of natural products. Emergency medicine. Health rehabilitation services. Health Legislation. Systems for monitoring drug utilisation.

THE PHILIPPINES: ANNEX 1
HEALTH R&D -RELATED DATA SETS

ANALYSIS OF FUNDS FLOW OF HEALTH R&D EXPENDITURES IN THE PHILIPPINES

IMPLEMENTOR/DATA COLLECTOR

Center for Economic Policy Research (CEPR), commissioned by the Department of Health - Essential National Health Research (DOH-ENHR).

DATA and PERIOD COVERED

1996:

A. R&D Personnel Data

- Number of Scientific and Technical Personnel Involved in R&D Activities by Extent of Involvement and by Type of R&D Activity
- Health R&D Personnel by Field of Activity by Category of Personnel and by Type of R&D Activity
- Number of Foreign Personnel Engaged in Health R&D by Field of Activity by Category of Personnel and by Type of R&D Activity

Extent of Involvement

1. Full-Time
2. Part-Time

Category of Health R&D Personnel

1. Scientists and Engineers
2. Health R&D Technicians
3. Health R&D Auxiliary Personnel

Type of R&D Activity

1. Basic Research
2. Applied Resesarch
3. Experimental Development

Field of Activity

1. Natural Sciences
   a. Bacteriology
   b. Biochemistry
   c. Other Fields with R&D benefits for health (e.g. physics, chemistry)
2. Medical Sciences
   a. Public Health
   a.1 Malaria Control
   a.2 Schistosomiasis Control
   a.3 Tuberculosis Control
   a.4 Communicable Disease Control
   a.5 Non-communicable Disease Control
   a.6 Environmental and Occupational Health
   a.7 Nutrition
   a.8 Maternal and Child Health
   a.9 Family Planning
   a.10 Dental Health
   a.11 AIDS Prevention and Control Program
   a.12 Other Programs
   b. Anatomy
   c. Dentistry
   d. Medicine
   e. Nursing
   f. Obstetrics

g. Optpmetry
h. Osteopathy
i. Pharmacy
j. Physiotherapy
k. Other Allied Subjects

3. Other Health-Related Sciences (e.g. health economics, sociological studies)

B. R&D Expenditure

- External Expenditure for the Performance of Health R&D Activities by Source of Funds
- External Expenditure of the Performance of Health R&D Activities by Type of Expenditure
- Internal Expenditure for the Performance of Health R&D by Field of Activity and by Type of R&D Activity
- Internal Expenditure for the Performance of Health R&D Activities by Type of R&D Expenditure
- Internal Expenditure for the Performance of Health R&D Activities by Field of Activity and by Source of Funds

Source of Funds

1. Government
   - Department of Health
   - Department of Science and Technology (DOST)
   - Government Academic/Research Institutions
   - Government Hospitals
   - Other government Institutions
2. Private Sector
   - Pharmaceutical Firms
   - Private Academic/Research Hospitals
   - Private Hospitals
   - Other Private Institutions
3. Foreign Funds
4. Other Sources

Type of Expenditure

1. Current
   - Labor
   - Other Current Expenditures
2. Capital
   - Land, Building
   - Major Equipment

C. Others

- Annual Salaries and Wages of R&D Personnel by Category of Personnel and by Field of Activity
- Receipts and Disbursements by Source, All R&D, Health R&D

SOURCES OF DATA AND DATA COLLECTION METHOD

Data were collected through survey questionnaires. The questionnaires contained a set of definitions of the different classifications of personnel and expenditure data solicited. Questionnaires were either mailed or delivered to selected respondents which are classified into the following groups of institutions:

	No. of Institutions	No. of Questionnaires Sent
I. Government Sector	**182**	**182**
A. Department of Health	**37**	**80**
B. Department of Science and Technology	**1**	**8**
C. Department of Education, Culture, and Sports	**1**	**2**
D. Academic/Research Institutions	**67**	**51**
E. Hospitals	**3**	**16**
F. Other Government Institutions	**9**	**9**
II. Private Sector		
A. Pharmaceutical Firms	**100**	**100**
B. Academic/Research Institutions	**33**	**40**
C. Hospitals	**18**	**18**
D. Other Private Institutions	**26**	**27**
III. Funding Institutions	**9**	**9**
Total	**244**	**376**

The set of respondents was based initially on a 1992 listing of the PCHRD of institutions undertaking health research. This list was expanded with the additions of 100 pharmaceutical firms as well as Metro Manila hospitals known to be likely undertaking health research as consulted from experts in the field of health.

STATUS

The survey is ongoing, with the final report expected to be available by December 1998.

LIMITATIONS of DATA

In the course of the survey, the questionnaire used proved to be too long and complicated for the respondents to comprehend in a reasonable time for them to accomplish it with little interference from their usual duties at work. Because of this, the quality of the data gathered suffered in many aspects. The following summarize how this problem affected the study:

- The questionnaire items pertaining to personnel were not processed. Most data gathered in this section contained inconsistencies as well as contestable data, indicating that the respondents interpreted the questionnaire items in different ways.
- Other items which were not processed were those pertaining to salaries and wages of R&D personnel and the R&D fund receipts and disbursements which also generated responses that indicated difficulty in understanding the questionnaire. Also, many respondents remarked that these items required too much of their time to be filled in.
- There was also an apparent difficulty in the classification of expenditures according to type of R&D activity and according to field of activity. For those responses that provided the titles of the research activities undertaken, the researchers reclassified the expenditure data according to the study's definitions of the different types of R&D activity and fields of activity. For those in which research titles were not available, the classifications that the respondents indicated were retained.

Efforts in improving the quality of the data are concentrated on the flow of the health R&D funds and the nature of R&D activities (i.e. type of R&D activity and field of activity).

NATIONAL HEALTH ACCOUNTS

IMPLEMENTOR/DATA COLLECTOR

UPEcon-Health Policy Development Program (HPDP)

DATA and PERIOD COVERED

- Amount, Source, and Uses of Healthcare Expenditures, 1991-1993
  ⇒ format of NHA matrix is attached

Sources of Funds

1. Government
   - includes foreign-assisted projects
2. Social Insurance
   - includes Medicare and Employment Compensation programs of SSS and GSIS
3. Private Sources
   - households, private insurance companies providing health and accident coverage, health maintenance organizations, business firms with employer-provided health care, private schools, community-based health care financing schemes
4. Philanthropy
   - includes philanthropic fund raising organizations (e.g. Red Cross), private charitable organizations (e.g. Rotary and Lions), religious organizations, and non-government organizations.
   - includes funds from philanthropic organizations which are coursed through the government or community financing schemes.

Uses

1. payments for personal health care services
   - those whose health benefits accrue only to the persons who receive the treatment or service
   - includes:
     (1) personal or in-patient care form either public or private hospitals,
     (2) non-hospital (medical) or out-patient care,
     (3) dental care,
     (4) other professional care,
     (5) traditional health care, and
     (6) self-care (non-prescription purchases of drugs, medical non-durables, vision products and medical durables.
2. payments for public health care services
   - include
     (1) services that benefit everyone in the community simultaneously (e.g., information/education campaigns or IEC, safety and standards regulation, spraying for malaria control and other vector control activities;
     (2) services whose benefits accrue not only to persons receiving the service but also to others in the community (e.g. immunization); and
     (3) programs providing personal care services combined with information and education services (e.g., primary health care, maternal and child health care control of diarrheal diseases and control of acute respiratory infections).

3. Others
   - include
     (1) general administrative costs of operating:
       (a) central and local government health care agencies (not at the service provider level),
       (b) the social insurance systems (Medicare and EC),
       (c) non-government organizations (NGOs),
       (d) private insurance companies,
       (e) health maintenance organizations,
       (f) employer-provided health plans and

(g) community-based health plans;

(2) other outlays such as net income and additions to reserves by private and social insurance systems and HMOs; and

(3) costs of research and training by government.

Health-related research activities, 3 Types:

1. biomedical research
   e.g., research done at the Research Institute of Tropical Medicine
2. operations/policy research
   e.g., studies on education strategy on AIDS
3. surveying/monitoring
   e.g., National Disability Survey and Diabetes Prevalence Survey

Training

- non-degree courses and work-related training/seminars/workshops for health personnel

SOURCES OF DATA

Data were collected from current data recording systems. A list of the sources of these data is enumerated in the following pages. Because the collected data were in structures specific to the needs of the agencies collecting them, the data in the NHA matrix were estimated from these existing data with the extensive use of manipulation and, in some cases, approximation techniques.

STATUS

The HPDP has ended. There is no known update of the NHA matrices beyond 1993, but the Integrated Community Health Services Project of the Asian Development Bank - DOH is currently monitoring health accounts in selected provinces. There is also a plan of institutionalizing the monitoring of national health accounts through the National census and Statistics Board (NCSB) using the same methodology used in this study.

1993 NATIONAL HEALTH ACOUNTS (PRELIMINARY AS OF 11-29-94)
(THOUSAND PESOS)

USES OF FUNDS	SOURCES OF FUNDS													TOTAL BY USE
	GOVERNMENT		SOCIAL INSURANCE					PRIVATE					PHIL ANTHROPY	
			MEDICARE		EMPLOYMENT COMPENSATION		OUT-OF-POCKET	PRIVATE INSURANCE	HMOs	ENTERPRISE-BASED				
	CENTRAL(1)	LOCAL	GSIS	SSS	GSIS	SSS				BUSINESS FIRMS	PRIVATE SCHOOLS	COMMUNITY-BASED		
PERSONAL HEALTH CARE	######		#####	#####	####	#####			####					######
Government Hospitals	######													
Private Hospitals	15,708		#####	#####	####	#####			####					
Non-Hospital Facilities	22,614													
Dental Care Facilities	-													
Other Professional Facilities	-													
Traditional Health Care	-													
Drugs and Other Medical Non-Durables	-													
Vision Products and Other Medical Durables	-													
PUBLIC HEALTH CARE	######													######
OTHERS	940,809		#####	#####	####	#####			####					######
Administraton/Operating Cost (3)	845,316		16,127	#####	####	5,662			####					
Insurance Expense (4)			#####		####									
Net Income	-								####					
Additions to reserves (5)	-		13,176	#####	####	#####			-					
Research and Training	95,493													
TOTAL BY SOURCE	######		#####	#####	####	#####			####					######

NOTES:

Indicates that the value entered refers to all cells included in the double-lined box.

Indicates either (1) data are being processed or (2) data are still to be collected or estimated.

(1) Includes foreign-assisted projects.
(2) Includes Health Insurtance Plan expenditures (under the Optional Life Insurance Fund)
(3) Indluces other underwriting costs, general expenses and premium/income/other taxes for private insurance companies and HMOs
(4) Insurance expense is reported as a separate expenditure item only by GSIS
(5) Non-life insurance companies do not report net additions to reserves.

1991-1993 NATIONAL HEALTH ACCOUNTS: SUMMARY OF DATA SOURCES

SOURCE OF FUNDS CATEGORIES	DATA SOURCES
GOVERNMENT	
DOH and Non-DOH Agencies	• Department of Budget and Management (DBM)
Local Government	• Local Government Auditing Office, Commission on Audit (LGAO, CAO)
Foreign-Assisted Projects	• Accounting Division, Finance Service, Department of Health • Department of Budget and Management (DBM) • Foreign Assistance Coordination Service (FACS), DOH • Project Monitoring Staff, National Economic and Development Authority (PMS,NEDA)
SOCIAL INSURANCE	
Medicare and Employment Compensation	• Government Service Insurance System (GSIS) • Social Security System (SSS) • Philippine Medical Care Commission (PMCC) • Employment and Compensation Commission (ECC)
RIVATE SOURCES	
Out-of-Pocket	• National Statistics Office (NSO)
Private Insurance	• Insurance Commission (IC)
Health Maintenance Organizations	• Securities and Exchange Commission (SEC)

NATIONAL SURVEY ON THE SCIENTIFIC AND TECHNOLOGICAL ACTIVITIES (NSSTA)

IMPLEMENTOR/DATA COLLECTOR

Department of Science and Technology (DOST) S&T Resource Assessment and Evaluation Division (STRAED), Planning and Evaluation Service (PES), 1989 - 1992
Philippine Institute of Development Studies (PIDS), commissioned by the DOST, 1993 - 1996

DATA and PERIOD COVERED

1989 - 1992:

Processing of data gathered in the DOST survey in 1989-1992 was not completed. The set of data collected were almost the same as those that will be enumerated in #2 below but an integrated report of the survey published in 1995 only included aggregate amounts of the ff:

- National R&D Expenditures by Sector, by Type of Research and by Field of Activity

  Sector/Source of Funds Classifications:

  Classification A:

  1. Government
     Government Agencies
     State Colleges and Universities
  2. Private
     Private Industry
     Non-Government Organization
     Private Colleges and Universities

  Classification B:

  1. Higher Education
  2. Government
  3. Non-Government
  4. Private Industry

  Types of Research

  1. Basic Research
  2. Applied Research
  3. Experimental Development

  Fields of Activity

  1. Agricultural Sciences
  2. Engineering and Technology
  3. Medical Science
  4. Natural Science
  5. Social Science
  6. Humanities
  7. Others

1993 - 1996:

The PIDS survey questionnaire collected the following information:

- Expenditure by Type of Scientific and Technological Activity (STA) and by Expense Classification

  Types of STA

  1. Research and Development (R&D)
  2. Scientific and Technological Services (STS)
  3. Scientific and Technological Education and Training (STET)

  Expense Classification

  1. Personnel Services (PS)
  2. MOOE
  3. Capital Outlay (CO)

- R&D Expenditure by Field of Activity and Type of Research
- R&D Expenditure by Source of Funds and by Field of Activity

  Fields of Activity

  1. Agricultural Sciences
  2. Engineering and Technology
  3. Medical Sciences
  4. Natural Sciences
     - Biological Sciences
     - Environmental Sciences
     - Mathematical Sciences
     - Physical Sciences
  5. Social Sciences
  6. Humanities
  7. Others

  Type of Research

  1. Basic Research
  2. Applied Research
  3. Experimental Development

  Source of Funds

  1. Institution's Own Funds (own appropriations in the government budget)
  2. Other Government Funds
  3. Private Sector Funds
  4. Foreign Funds

- Number of Scientific and Technical Personnel by Type of S&T Activity, by Type of Involvement and by Sex
- Number of Scientific Personnel by Field of Activity, by Category of Personnel and by Sex
- Educational Attainment of R&D Personnel

  Type of Involvement

  1. Full-Time
  2. Part-Time

  Category of Personnel

1. Scientists and Engineers
2. Technicians
3. Auxiliary Personnel

Educational Attainment

1. Ph. D.
2. MS/MA
3. Post Graduate (Diploma/Certificate)
4. BS/BA
5. Post High School (Diploma/Certificate)

- The analysis aims to over the determination of: (a) the appropriate R&D expenditure levels and patterns and the corresponding manpower complement; (b) the rates of return to R&D investments; ? the prioritization of R&D across sectors; and (d) the institutional arrangements.

SOURCES OF DATA AND DATA COLLECTION METHOD

Primary data were gathered through a questionnaire. The PIDS team made few modifications to the questionnaire used by the DOST. Unlike the DOST which fielded one long questionnaire, the PIDS broke up the questionnaire into three major parts, and deadline for submission of each of the three parts were set one week apart.

The DOST survey covered both government and private sectors. On the other hand, the PIDS survey covered only government institutions: 233 state colleges and universities (including vocational and technical training institutions) and 177 other government agencies. A list of the survey population is in Attachment B.1.

For the PIDS survey, the respondents were compelled to accomplish the questionnaire through a Joint Circular (No. 3-97, dated 15 December 1997) signed by Secretaries William G. Padolina of the DOST and Salvador M. Enriquez, Jr. of the Department of Budget Management (DBM).

STATUS/RESULTS

1. The DOST survey for 1989-1992 data was not completely tabulated and processed. The published integrated report generally contained only lumpsums of R&D expenditures by sector.
2. The PIDS survey for 1993-1996 data is currently processing the data gathered. No analysis has been made so far, although a progress report in March 1998 which showed initial results made a few notes regarding the three-year trend (increases and declines) of R&D expenditures.
3. The data for medical research expenditures of DOH were obtained from survey conducted by the ENHR-CEPR Study: An Analysis of Funds Flow of Health Research in the Philippines.
4. The DOST is preparing for the STA survey on private establishments and has coordinated with the National Statistics for data gathering and processing. The association in currently in the stage of training the field survey coordinators in accomplishing the survey questionnaire. Actual data gathering is expected to commence within the year.

LIMITATIONS OF DATA

1. About 40% of the responses included in the March progress report of the PIDS survey contained inconsistent data. Also, some respondents gave only lumpsums of expenditures, that is, with no breakdown of the figures into the different classifications required in the questionnaire. At that time, the research team was still finding appropriate ways to remedy these data gaps and inconsistencies.

ASSESSMENT OF HEALTH RESEARCH STATUS IN THE PHILIPPINES

IMPLEMENTOR / DATA COLLECTOR

Philippine Council for Health Research and Development (PCHRD) - Department of Science and Technology (DOST), funded by the DOH-ENHR

DATA and PERIOD COVERED

1990 - 1995:

The study consists of a survey collecting data on health research resources, particularly manpower, capital equipment, and funds. The questionnaire package used for this study contains several forms that inquire details on the institution's budget, manpower and technology utilized as specified below:

Questionnaire A:

- General information on the respondent institution
  1. Type of institution
  2. Specific units or department within institution that undertook health research since 1990.
- Health research resources of institution
  1. Institution's 1990-1995 total budget
  2. Institution's 1990-1995 health research budget
  3. Additional funds generated from external sources in 1990-1995
     a. amount of funds generated
     b. name of funding agency/institution

Questionnaire B:

- Existing manpower resources for health research since 1990
  1. Name of staff member engaged in health R&D
  2. Position/title in the department
- Resigned personnel
  1. Name of researcher
  2. Reason for leaving institution
- Available equipment in laboratory
  1. Name of equipment
  2. Equipment classified as automated or computerized
- Availability of different services/facilities in the institution and person/s in-charge of these
  Facilities/services:
  1. Internet connection - dial-up of leased line
     a. Library/Services - computerized or manual acquisition, circulation, interlibrary loan, and databases

Questionnaire C:

- Details on health research human resources
  1. Highest degree obtained
  2. Research specialization
  3. Employment status: Full-time of part-time
  4. Hours involved in the ff. activities:
     a. Research
     b. Teaching
     c. Private practice
     d. Administration
- 1990-1995 research projects published in referred journals
  1. Author of research project
  2. Title of Article

3. Name of publication
4. Date of publication

- Ongoing projects and sources funds
  1. Project title
  2. Duration
  3. Budget
  4. Source of budget
- Technologies that resulted from researches undertaken by institution
  1. Technologies currently being utilized
  2. Technologies with potential for utlization
  3. Technologies currently in the market
  4. Technologies with potential for commercialization

SOURCES OF DATA / DATA COLLECTION METHOD

Questionnaires were mailed out to different government and private institutions based from a list of respondents. This list was derived from the DOST's previous survey, which included respondent institutions both from the government and private sector, and the Commission on Higher Education, where they got a listing of the different public and private academic institutions. The group's report is based only from the results of this survey.

STATUS

The project's partial results are presently being analyzed. This analysis is based from the responses of the 174 institutions out of the 535 that were given questionnaires. More responses are awaited while the study is in progress.

ANNUAL SURVEY OF ESTABLISHMENTS (ASE)

IMPLEMENTOR/DATA COLLECTOR

National Statistics Office

DATA and PERIOD COVERED

The following two information are asked in the NSO's ASE from the early 1990s up to the present:

- Type of Scientific and Technological Activity (STA) Engaged In
- Number of Scientists and Engineers Engaged in R&D Activities

Type of Scientific and Technological Activity

1. Research and Experimental Development (R&D)
2. Scientific and Technological Services (STS)
3. Scientific and Technological Education and Training (STET)
4. None

SOURCES OF DATA

To be determined

STATUS

1. The item (see Attachment 6.1) soliciting the above information has been included in the ASE questionnaire as a requested rider question for DOST. The data gathered for this item were encoded but never processed. Special processing of these data may be requested from NSO if necessary.
2. The ASE was not conducted for the year 1996, hence the ongoing ASE data collection covers the years 1996 and 1997.
3. The DOST, needing the NSO to collect much more detailed information regarding scientific and technological activities of the private sector, has associated with the NSO to conduct a nationwide survey on STA of the private sector. This is a progression of the STA survey that DOST conducted by itself for the period 1989-192 and the STA survey being conducted by the PIDS for DOST for the period 1993-1996 for the government sector.
4. For this year, the NSO will be conducting the survey separately from the ASE because the preparations for the STA survey were not completed on time to be conducted together with the AES. In an attempt to institutionalized the gathering o STA information, however, the STA questionnaire will be included as a rider in the ASE in the succeeding years.

THE PHILIPPINES: ANNEX 2
PROPOSED QUESTIONNAIRE

Name of Institution/Department: _____
Address: _____
Mailing Address: _____
_____
Telephone No: _____ Fax No.: _____

Person(s) Completing This Form:

Part	Printed Name	Signature	Job Title	Tel. No.
I	_____	_____	_____	_____
II	_____	_____	_____	_____
III	_____	_____	_____	_____
IV	_____	_____	_____	_____

I. GENERAL INFORMATION

Item 1. Type of Institution

- ☐ Government
- ☐ Private
- ☐ Others (please specify) _____

Item 2. Type of Research and Experimental Development (R&D) Undertaken by This Institution

- ☐ Internal (type of R & D that is performed **within the particular institution/department/unit**)
  - ☐ Basic Research
  - ☐ Applied Research
  - ☐ Experimental Development
- ☐ External (commissions another institution/department/unit to perform health R & D)
- ☐ Both Internal and External
- ☐ None of the above
  (Survey ends. Please return questionnaire)

*** if answers are internal, external or both, proceed to the next item.**

DEFINITIONS:

BASIC RESEARCH - **any experimental or theoretical work undertaken primarily to acquire new knowledge** of the underlying foundations of phenomena and observable facts, **without any particular or specific application** or use in view.

APPLIED RESEARCH - any original investigation undertaken in order to acquire new knowledge that is **directed primarily towards a specific practical aim**.

EXPERIMENTAL DEVELOPMENT- any systematic work, drawing on existing knowledge gained from research and/or practical experience that is directed to **producing new materials, products and devices, to installing new processes, systems and services, and to improving substantially those already produced or installed.**

II. Financing Health R & D, 1997-1999.

Item 3. **Source of funds** for Health R & D expenditures **by Agency/Institution**, (for internal R&D, external R&D or both).

SOURCE OF FUNDS by Agency/Institution	AMOUNT RECEIVED in (PhP)	AMOUNT UTILIZED in (PhP)
ALL SOURCES		
A. INSTITUTION'S OWN FUNDS		
B. OTHER SOURCES		
1. GOVERNMENT (TOTAL)		
DOH		
DOST		
Academic/ Research Institutions (pls. specify) _____ _____		
Hospitals (pls. specify) _____ _____		
Other Gov't Inst'ns (pls. specify) _____ _____		
2. PRIVATE (TOTAL)		
Pharmaceutical Firms (pls. Specify) _____ _____		
Academic/Research Institutions (pls. specify) _____ _____		
Hospitals (pls. specify) _____ _____		
NGO's (pls. specify) _____ _____		
Other Private Sources (pls. specify)		
3. FOREIGN FUNDS (pls. specify) _____ _____		
4. OTHER SOURCES (pls. specify) _____ _____		

INSTRUCTION

- For Internal expenditure, proceed to Part II.
- For External expenditure, proceed to Part III.
- For both, answer all following sections.

III. Internal Expenditure for Health R & D, 1997-1999.
Item 4. Total **Internal Expenditure** for the performance of Health R & D **by Field of Activity and by type of R & D Activity (only if applicable)**, **1997-1999**. (In Phil. Pesos)

TYPE OF R&D ACTIVITY / FIELD OF ACTIVITY	TOTAL	BASIC RESEARCH	APPLIED RESEARCH	EXPT'L DEV'T.
TOTAL INTERNAL HEALTH R & D EXPENDITURE	P	P	P	P
1. Natural Science Research (that has benefits to Health) pls. specify: _____				
2. Epidemiological Research pls. specify: _____				
3. Clinical Research pls. specify: _____				
4. Biomedical Research pls. specify: _____				
5. Social Sciences Research pls. specify: _____				
6. Combination of any of the above pls. specify: _____				
7. Others , pls. specify _____				

DEFINITIONS

Natural Sciences - concerns the treatment of Natural Phenomenon like Biology, Botany, Chemistry, Physics, etc. as applied to health (e.g. studies on bacteriology)

Epidemiology - study of distribution and determinants of health-related states and events in specified populations and applications of this study to the control of health problems. (e.g. India-Long-term effects of exposure to methyl Isocyanade)

Clinical Research - studies, trials, and/or experiments regarding different illnesses and diseases conducted for the benefit and with the use of specific patients. (e.g. Pressure lowering effect of Lathanoprost versus Timulol in glaucomatous and ocular hypertensive patients.)

Biomedical Research - studies in living organism with a medical purpose which include diagnosis, therapy, and rehabilitation like Chemistry, Pharmacology, Biochemistry, etc. (e.g. Therapeutic properties of Herbal Medicine)

Sociological Science - studies that are concerned with behavioral patterns or changes in a population as subject to certain conditions, situations or phenomena. (e.g. Effects of Religion on Family Planning Practices)

Combination- studies that may involve more than one of the field of activity mentioned above.
(e.g. Clinical Epidemiology: "Prevalence of Poliomyelitis using acute Flaccid Paralysis as an indicator" . Biomedical Epidemiology: " Serological Markers of Hepatitis in Children".

Item 5. Internal Expenditure for the Performance of Health R&D Activities by **Type of Expenditure , 1997-1999**. (In Phil. Pesos)

AMOUNT	TOTAL	CURRENT				CAPITAL			
		Subtotal	Labor Costs		Other Costs	Subtotal	Land	Major Equipment	
			Local	Foreign				Locally sourced	Imported
P	P								

NOTE:

LABOR COSTS are measured in terms of the level of effort interpreted as the proportion of working hours actually devoted to the conduct of Health R&D as against their nominal wage. (e.g. Employee is commissioned P10,000 a month and is expected to work 8 hours a day. However, he/she only works 4 hours a day. Therefore, his/her nominal wage is halved as according to her actual working performance (P5,000). This will be recorded as the labor cost.

IV. External Expenditure for Health R & D, 1997-1999.

Item 6. Please give the name and type of the institutions/entities/individuals given financial grant for performance of Health R&D activities, contact person/number of the institution/s and the specific amount given.

NAME OF INSTITUTION	TYPE OF INSTITUTION	CONTACT PERSON/NUMBER	BASIS OF SELECTING INSTITUTION	PURPOSE OF THE FINANCIAL GRANT

Item 7. Please give the details of the funded projects/studies performed by the institution/s mentioned in Item 6.

INSTITUTION	PROJECT/STUDY	AMOUNT GRANTED (IN PHP)	TYPE OF R&D ACTIVITY			FIELD OF ACTIVITY (pls. specify)
			BA	AR	ED	

NOTE: BA Basic Research
AR Applied Research
ED Experimental Development

V. RESEARCH AGENDA

1. Is there an agenda for research for your institution for this year and the next three to five years?

☐ Yes. ☐ No.

2. a. Do you undertake R&D in fields other than health?

☐ Yes. ☐ No.

b. If yes, what are these other fields?

_____

_____

3. Did you consider the DOH-ENHR Research Agenda (see Agenda for 1996-2000 below) in formulating your own agenda?

☐ Yes. ☐ No

4. What are the other factors you considered in the formulation of your institution's research agenda?

☐ STAND (Science & Technology Agenda for National Development)
☐ Institution/Department's own objectives
☐ Degree of necessity/requirement
☐ Others, please specify _____

DOH-ENHR RESEARCH AGENDA
(1996-2000)

1. Devolution
2. Communicable Diseases
3. Non-Communicable Diseases
4. Philippine Health Insurance Plan
5. Traditional Medicine
6. Elderly
7. Disease Control and Prevention
8. Culture and Health
9. Occupational Health
10. Reproductive Health
11. Environmental Health
12. Ecology
13. Rational Drug Use
14. Personal Health Care
15. Nutrition
16. Mental Health
17. Rational Use of High Technology

THE PHILIPPINES: ANNEX 3

PROPOSED BUDGET ESTIMATES BY THE NSO,
HEALTH R&D SURVEY FOR PRIVATE SECTOR

ACTIVITY	AMOUNT	TOTAL
DEVELOPMENT OF FRAME		1,250
QUESTIONNAIRE DESIGN		750
TRAINING		7,500
PRINTING COSTS		1,250
FIELD OPERATIONS (Distribution and collection and follow-up) ($250 eper samle: N=400 samples)		10,000
PROCESSING & SYSTEMS DEVELOPMENT and PROGRAMMING		3,500
Systems Development and Programming	1,625	
Processing	875	
Manual Processing ($250)		
Data Encoding ($250)		
Machine Processing ($375)		
Tabulations	1,000	
ADMINISTRATIVE COSTS		2,500
OVERHEAD/OTHER COSTS		2,500
TOTAL		**$ 29,250**

Thailand: Annex 1
Research Fund Network

Funding Sources

National Research Council of Thailand, National Science and Technology Development Agency, National Center for Genetic Engineering and Biotechnology, National Metal and Materials Technology Center, National Electronics and Computer Technology Center, various universities, various non-government agencies, foreign funding sources

Research Institutions

Various universities, Thailand Institute of Science and Technology Research, research laboratories of the three National Centers, research institutions in ministries and departments, Thailand Development and Research Institute

Thailand: Annex 2

THE RESEARCH ENDOWMENT ACT, B.E. 2535 **(unofficial translation)**

THE RESEARCH ENDOWMENT ACT, B.E. 2535
Bhumibol Adulyadej, REX.
Given on March 29, B.E. 2535
Being the 47th year of the Present Reign

By command of the King's Most Excellent Majesty
Whereas it is expedient that there shall be a law on the Research Developrnent Endowment
Be it therefore enacted by tile King, by and with the advice and consent of tile National Legislation Assembly, acting as National Council, as follows:-

Section 1. This act is called tile "The Research Development Endowment Act, B.E. 2535.

Section 2. This act will come to force following the date of its publication in the Government Gazette.

Section 3. In this act:

"Research" means searching by means of scientific experimentation, survey, or study for information, knowledge, and product and process development that can be used for economic, social, or academic benefit or for use in national development.

"Funds" means research development endowment or research fund.

"Policy Board" means the policy board of the research development endowment.

"Evaluation Board" means tile committee to follow-up and evaluate research support.

"Office" means the Thailand Research Fund Office.

"Director" means the director of the Thailand Research F.und Office.

Section 4. A fund shall be established called "The Research Development Endowment." Funding and assets defined in Section 5 are to be used as a working capital and for expenses in continuous and effective research development support. Research shall be in the areas of science, technology, social sciences and humanities, policy research, and applied research for national socio-economic, and academic development.

The Funds shall maintain the status of a juristic body. Its objective is to support research activities specified in this act and shall have necessary or contiguous powers in order to achieve the stated goals. However, it may not conduct research itself.

The Funds shall have its main office in Bangkok called "The Thailand Research Fund Office." It shall be under the direction of the Prime Minister's Office with an administrative system different from the government system for greater flexibility in conducting activities designated by the Policy Board.

Section 5. Funding and assets of the Funds comprise the following:

1. Government-provided funding.
2. Foreign funding and funding from international agencms.
3. Fund or assets donated to support the Funds.
4. Interest or income of the Funds, including any income from intellectual property or other income resulting from research.

There shall be a transfer of budget as stated in Section 26(.2) of the annual Budget Act B.E. 2535 in the amount of one billion, two hundred million baht to the Funds.

Section 6. Use of funding shall be as decided by the Policy Board for activities in the following areas:

1. support of research, follow-up and evaluation, research findings dissemination, and promotion of usage of research findings;
2. fund administration;
3. administration of the Thailand Research Fund Office.

Section 7. Funding shall be deposited in a government cooperative bank chosen by the Policy Board. Part of the Funds may be used to purchase treasury bonds or bonds offered by governmental organization, state enterprise as decided by the Policy Board.

Section 8. Income of the Funds will go directly to the Funds without passing through the Ministry of the Treasury as regulated by the treasury reserves law, or laws on budget regulations, or other laws.

Section 9. The Cabinet will appoint the Policy comprising of a qualified person with very good knowledge and experience in research as chairman. The Permanent Secretary of the Ministry of the Prime Minister's Office will serve as vice-chairman. The Permanent Secretaries of the following ministries will serve as members: Defense; Treasury; Agriculture and Cooperatives; Science, Technology, and Environment; Public Health; Industry; and University Affairs. The Secretary of the National Research Council of Thailand and the Director of the National Science and Technology Development Agency shall also be board members. Additionally, the Cabinet shall appoint not less than four (4) no more than seven (7) qualified persons with good research knowledge and experience to serve as board members. The Director shall serve as a board member and secretary.

The chairman, board members, and the Director may not be political government officials, or advisors or members of any political party.

Section 10. The chairman and board members appointed by the Cabinet shall hold a term of three (3) years; which may be extended. However, any member may serve not more than two consecutive terms.

In the case that a member leaves his term early or the Cabinet appoints the new board member in the middle of a term, any person so appointed shall retain his position only for the period of time of his predcessor.

When a term is complete, if no new members have been appointed, the board shall maintain their positions until new members have been appointed.

Section 11. Besides completing the term of Office as stated in Section 10, the chairman and members are released from their term of duty in the cases of:

1. death.
2. resignation.
3. dismissal by the Cabinet.
4. bankruptcy.
5. being an incapable or quasi-incapable person.
6. having been sentenced by a final judgement to imprisonment, unless it is a sentence for an offence committed out of carelessness or for a petty offence.

Section 12. A meeting of the Policy Board must comprise at least half of the total members to be considered a quorum.

If the chairman is absent from a meeting or cannot function as chair, the vice-chairman shall function in his stead. If both the chairman and vice-chairman are absent or cannot function as chair, the participating members shall choose one member to preside over the meeting.

Resolutions of the meeting shall be made by majority rule. Each member has one vote. In the case of a tie-vote, the chairman shall cast another vote to break the tie.

Section 13. The chairman, vice-chairman, and members of the board will receive appropriate honorarium and benefits as established by the Cabinet.

Section 14. The Policy Board has the following responsibilities and powers:

1. set policy and planning to provide the research fund;
2. set guidelines and measures for research support for researchers and government, state enterprises, and private agencies;
3. set policy, outlining regulations and administrative procedures, and control the operation of the Thailand Research Fund Office, including appointing and dismissing the Director;
4. define measures to disseminate research finding to users and set guidelines for profit sharing of research that occurs;
5. mobilize funding from various sources for the Funds;
6. set regulations or rules on income and expenditure of the Funds;
7. set regulations and methods for allocating the interest or income of the Funds;
8. approve the annual budget for the Thailand Research Fund Office;
9. control the income and expenditure of the Funds;
10. conduct other activities to support research;
11. prepare an annual report to be presented to the Prime Minister.

Section 15. The Cabinet will appoint the Evaluation Board comprising a qualified person with very good knowledge and experience in research as chairman. Other board members are representatives from the following agencies: Department of Agriculture; Office of the Supreme Command Headquarters; Bureau of the Budget; National Economic and Social Development Board; Comptroller-General's Department; the Federation of Thai Industries; Board of Trade of Thailand, Thai Bankers' Association. Additionally, the Cabinet shall appoint not less than four (4) and not more than nine (9) qualified persons with good knowledge and experience in science, technology, social sciences or humanities to serve as board members. The Director shall serve as board member and secretary.

Sections 10, 11, 12, and 13 shall be used in conformity for the Evaluation Board.

Section 16. The Evaluation Board has the following powers and responsibilities:

1. follow-up, check, and evaluate funded research projects;
2. report results of the operation including suggestions to the Policy Board.

Section 17. In implementing the essence of this act, the Policy Board and Evaluation Board may appoint sub-committees to review and offer suggestions in specific areas or to perform certain activities as seen fit.

Sections 12 and 13 shall be used in conformity for the sub-committees.

Section 18. The Thailand Research Fund Office will have the following responsibilities:

1. administration of the Funds according to rules, regulations, and decisions of the Policy Board;
2. study, analyze, and assess present and future research needs of the country, and suggest to the Policy Board appropriate ways to carry out research to meet those needs;
3. coordinate and support research, publicize research findings, bring about the use of research result and assess the performance of all those activities;
4. prepare reports and accounts of the Funds;
5. conduct administratwe activities for the Policy Board and the Evaluation Board;
6. conduct other activities related to research support as seen fit by the Policy Board and the Evaluation Board, but shall not conduct research itself.

Section 19. The Director of the Thailand Research Fund Office shall be responsible for overseeing the functions of the Office, to serve as superior to employees, and holding the following powers and responsibilities:

present a work plan together with objectives of research support as assigned to the Policy Board for consideration;

report research findings of funded research, including the dissemination and use of research to the Policy Board and the Evaluation Board;

present financial reports and accounts and fiscal plans and fiscal budget of the next year to the Policy Board for consideration;

present the appointment of program and research evaluators and report the results of evaluation to the Evaluation Board for consideration;

administer the Office according to policies and decisions of the Policy Board and the Evaluation Board;

conduct other activities as assigned by the Policy Board and the Evaluation Board.

Section 20. Activities in connection with other agencies, the Director shall serve as the representative of the Funds. In this regard, the Director may assign a representative pending the Policy Board approval.

Section 21. Book-keeping of the Funds will use international systems with internal audition on finance, accounting, and purchasing. The auditor's report will be presented to the Policy Board at least once per year.

Section 22. The Office shall prepare balance sheets, financial statements, and account to be sent to the auditor within 120 days following the final day of the fiscal year.

Office of the Auditor-General of Thailand shall serve as the auditor for the Funds and prepare an annual accounts report to be submitted to the Policy Board.

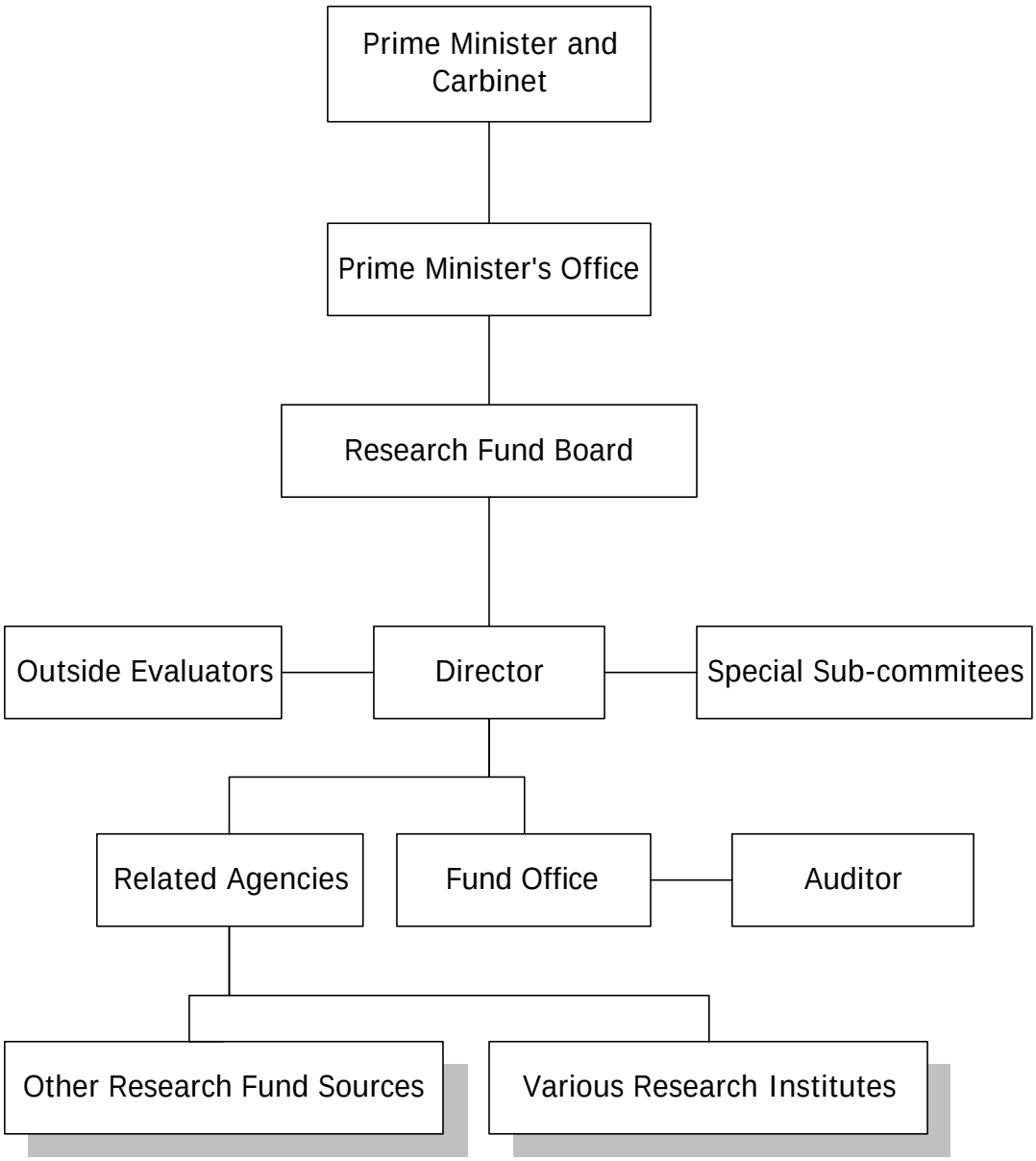
Section 23. The Prime Minister shall see to the fulfillment of this act.

Countersigned by,
Anand Panyarachun,
Prime Minister

Note: The reason for the proclaimation of this act is that effective research and the use of such research findings in the fields of science and technology, social sciences and humanities is extremely essential for socio-economic, and academic development of the country. But, presently, research and use of research findings has not been promoted and supported by the government in sufficient amount. Therefore, it is proper to set up a research development endowment which is free of government bureaucracy, in order to broadly promote and support research and the efficacious use of its findings. To ensure continuous and effective administration to assist research for ultimate use, it is therefore deem essential to proclaim this act.

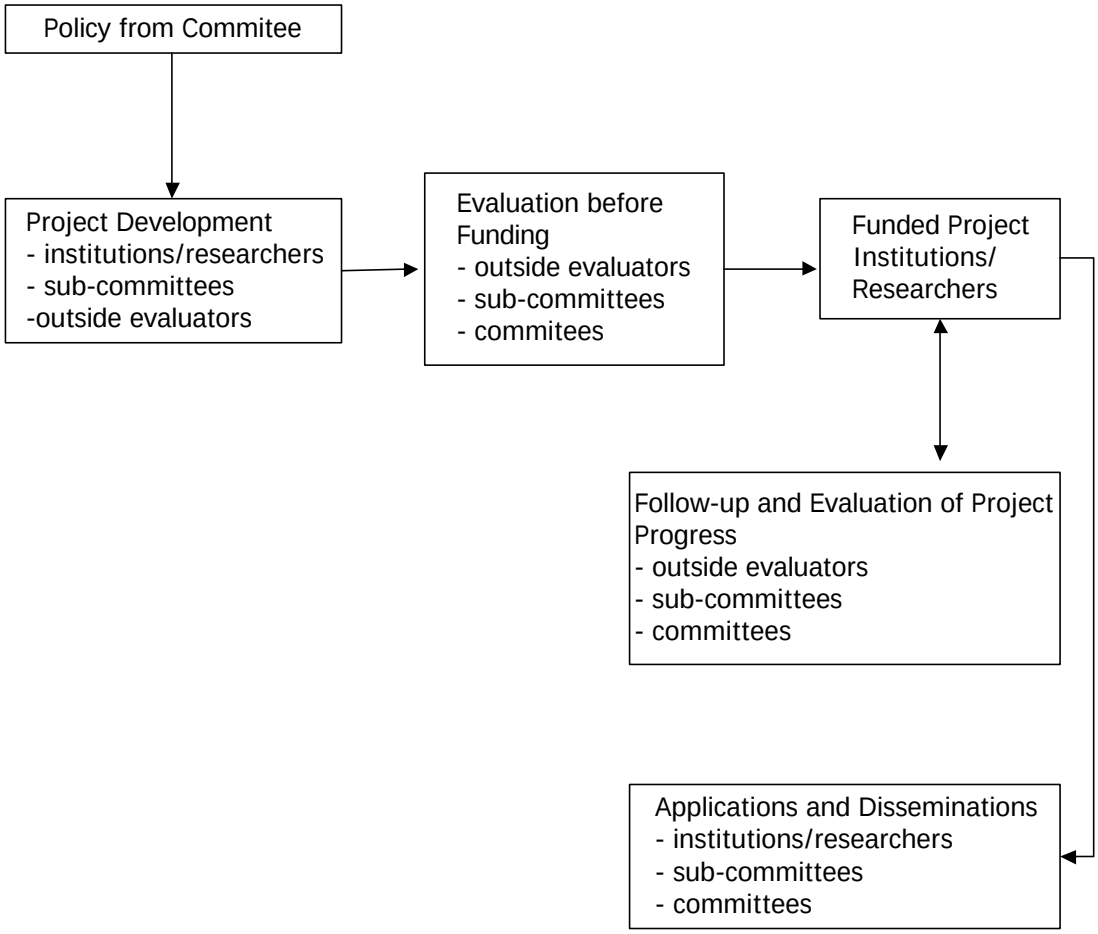
Thailand: Annex 3

Flow Chart of Work of Research Fund



Thailand: ANNEX 4

Step in Developing and Evaluating Research Project



Thailand: Annex 5

PROPOSED QUESTIONNAIRE FOR
THAI HEALTH RESEARCH RESOURCE FLOW

Name of Institution/Department: _____
Address: _____
Mailing Address: _____
_____
Telephone No: _____ Fax No.: _____

Person(s) Completing This Form:

Part	Printed Name	Signature	Job Title	Tel. No.
I	_____	_____	_____	_____
II	_____	_____	_____	_____
III	_____	_____	_____	_____
IV	_____	_____	_____	_____

I. GENERAL INFORMATION

Item 1. Type of Institution (Please put an [x] appropriate box)

- ❑ Government
- ❑ Private
- ❑ Others (please specify) _____

Item 2. Type of Research and Experimental Development (R&D) Undertaken by This Institution

- ❑ Internal (type of R & D that is performed within the particular institution /department/unit)
- ❑ Basic Research
- ❑ Applied Research
- ❑ Experimental Development
- ❑ External (commissions another institution/department/unit to perform health R & D)
- ❑ Both Internal and External
- ❑ None of the above (Survey ends. Please return questionnaire)

*** if answers are internal, external or both, proceed to the next item.**

DEFINITIONS

BASIC RESEARCH - any experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular or specific application or use in view.

APPLIED RESEARCH - any original investigation undertaken in order to acquire new knowledge that is directed primarily towards a specific practical aim.

EXPERIMENTAL DEVELOPMENT- any systematic work, drawing on existing knowledge gained from research and/or practical experience that is directed to producing new materials, products and devices, to installing new processes, systems and services, and to improving substantially those already produced or installed.

II. Financing Health R & D, 1997-1999.

Item 3. **Source of funds** for Health R & D expenditures **by Agency/Institution**, (for internal R&D, external R&D or both).

SOURCE OF FUNDS by Agency/Institution	AMOUNT RECEIVED in (Baht)	AMOUNT UTILIZED in (Baht)
ALL SOURCES		
A. INSTITUTION'S OWN FUNDS		
B. OTHER SOURCES		
1. GOVERNMENT (TOTAL)		
MOPH		
NRCT (DMS)		
Academic/ Research Institutions (pls. specify) _____ _____		
Hospitals (pls. specify) _____ _____		
Other Inst'ns (pls. specify) _____ _____		
2. PRIVATE (TOTAL)		
Pharmaceutical Firms (pls. Specify) _____ _____		
Academic/Research Institutions (pls. specify) _____ _____		
Hospitals (pls. specify) _____ _____		
NGO's (pls. specify) _____ _____		
Other Private Institutions (Personal)		
3. FOREIGN FUNDS (pls. specify) _____ _____		
4. OTHER SOURCES (pls. specify) _____ _____		

INSTRUCTION

- For Internal expenditure, proceed to Part II.
- For External expenditure, proceed to Part III.
- For both, answer all following sections.

III. Internal Expenditure for Health R & D, 1997-1999.

Item 4. Total **Internal Expenditure** for the performance of Health R & D **by Field of Activity and by type of R & D Activity (only if applicable), 1997-1999**. (In Thai Baht.)

TYPE OF R&D ACTIVITY / FIELD OF ACTIVITY	TOTAL	BASIC RESEARCH	APPLIED RESEARCH	EXPT'L DEV'T.
TOTAL INTERNAL HEALTH R & D EXPENDITURE	B	B	B	B
1. Natural Science Research (that has benefits to Health) pls. specify: _____				
2. Epidemiological Research Pls. specify: _____				
3. Clinical Research Pls. specify: _____				
4. Biomedical Research pls. specify: _____				
5. Social Sciences Research pls. specify: _____				
6. Combination of any of the above pls. specify: _____				
7. Others , pls. specify _____				

DEFINITIONS

Natural Sciences - concerns the treatment of Natural Phenomenon like Biology, Botany, Chemistry, Physics, etc. as applied to health (ex: studies on bacteriology)

Epidemiology - study of distribution and determinants of health-related states and events in specified populations and applications of this study to the control of health problems. (ex: India-Long-term effects of exposure to methyl Isocyanade)

Clinical Research - studies, trials, and/or experiments regarding different illnesses and diseases conducted for the benefit and with the use of specific patients. (ex: Pressure lowering effect of Lathanoprost versus Timulol in glaucomatous and ocular hypertensive patients.)

Biomedical Research - studies in living organism with a medical purpose which include diagnosis, therapy, and rehabilitation like Chemistry, Pharmacology, Biochemistry, etc. (ex: Therapeutic properties of Herbal Medicine)

Sociological Science - studies that are concerned with behavioral patterns or changes in a population as subject to certain conditions, situations or phenomena. (ex: Effects of Religion on Family Planning Practices)

Combination- studies that may involve more than one of the field of activity mentioned above.

(ex: Clinical Epidemiology: "Prevalence of Poliomyelitis using acute Flaccid Paralysis as an indicator" . Biomedical Epidemiology: " Serological Markers of Hepatitis in Children".

Item 5. Internal Expenditure for the Performance of Health R&D Activities by **Type of Expenditure , 1997-1999**. (In Thai Baht)

AMOUNT	TOTAL	CURRENT				CAPITAL			
		Subtotal	Labor Costs		Other Costs	Subtotal	Land	Major Equipment	
			Local	Foreign				Locally sourced	Imported
B	B								

NOTE:

LABOR COSTS are measured in terms of the level of effort interpreted as the proportion of working hours actually devoted to the conduct of Health R&D as against their nominal wage. (e.g. Employee is commissioned B 8,000 a month and is expected to work 8 hours a day. However, he/she only works 4 hours a day. Therefore, his/her nominal wage is halved as according to her actual working performance (B 4,000). This will be recorded as the labor cost.

IV. External Expenditure for Health R & D, 1997-1999.

Item 6. Please give the name and type of the institutions/entities/individuals given financial grant for performance of Health R&D activities, contact person/number of the institution/s and the specific amount given.

NAME OF INSTITUTION	TYPE OF INSTITUTION	CONTACT PERSON/NUMBER	AMOUNT GIVEN (IN PHP)	PURPOSE OF THE FINANCIAL GRANT

1. Please state the reasons those institutions were selected to perform Health R&D.

V. RESEARCH AGENDA

DEFINITIONS

TYPE OF INSTITUTIONS - various institutions or departments may be classified under these:

- **Government**
  - MOPH,
  - NRCT (DMS),
  - Gov't Academic/Research Institution
  - Gov't Hospitals
  - Other Gov't Institutions
- **Private**
  - Pharmaceutical Firms
  - Priv. Academic/ Research Institutions
  - Priv. Hospitals
  - Non-government Organizations (NGO's)
  - Other Private Institutions

TYPE OF EXPENDITURE - expenses can be classified as follows:

- **Current -** all payments covering the cost of labor, minor equipment and expendable supplies and other current expenses.
- **Capital** - all payments made relating to expenditure on major equipment, land and other capital expenses.

1. Is there an agenda for research for your institution for this year and the next three to five years?

   ❑ Yes.
   ❑ No.

2. a. Do you undertake R&D in fields other than health?

   ❑ Yes.
   ❑ No.

   b. If yes, what are these other fields?

   _____
   _____

3. Did you consider the NRCT Research Agenda in formulating your own agenda?

   ❑ Yes.
   ❑ No.

4. What are the other factors you considered in the formulation of your institution's research agenda?

   ❑ NRCT: DMS (National Research Council of Thailand: Department of Medical Science)
   ❑ Institution/Department's own objectives
   ❑ Degree of necessity/requirement
   ❑ Others, please specify _____