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Around the world, many countries are trying to strengthen the foundations of their health systems, using evidence from health research systems. This workshop is based upon the experience and the expertise of many people from such countries. Because of the active participation of these individuals, many of the themes and concepts that we, at the World Health Organization (WHO), had been struggling with were clarified and better articulated. Our grateful thanks to all the workshop participants, upon whose ideas and thoughts this book is based.

Many thanks to the Global Forum for Health Research, the Council for Health Research and Development, and the Rockefeller Foundation for providing financial and logistical support to the workshop.

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NATIONAL HEALTH RESEARCH SYSTEMS

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Tikki Pang
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WHO, Geneva
January 2002
In 1990, the Commission on Health Research for Development proposed a set of strategies to address the growing inequities in health throughout the world (1). The strategies harnessed the potential of health research and included the following proposals:

- Countries should undertake essential national health research and invest at least 2% of national health expenditure in such research.
- Developing countries should focus on their own health research priorities, even when in partnership with more developed countries.
- Development agencies working in health sector projects and programmes should earmark 5% of support for health research.
- An international mechanism should be established to monitor progress on the financial and technical support provided for health research in developing countries.

The term “essential national health research” (ENHR) was coined to emphasize the importance of setting national priorities, but a decade later much of the Commission's vision has yet to be fulfilled (2). While some countries have managed to develop their health research capacity and productivity, many others still experience problems. International partnerships continue to strengthen health research by funding diseases or programmes, rather than by focusing on a "horizontal systems approach." Countries themselves have been unable to integrate health research into a systems approach, even though they have adopted the ENHR philosophy, and research continues to be fragmented and poorly coordinated. Faulty research governance has also led to inadequate and inappropriate research funding, while the lack of ethical guidelines has resulted in poorly conducted, inappropriate and unethical research that exploits people in developing countries.
The International Conference on Health Research for Development (ICHRD), held in Bangkok in October 2000 (2), was organized in recognition of the need to review global health research. Prior to the conference, regional consultations were held and used to inform the conference. The outcome of the conference was an action plan that proposed a set of goals, visions, values and principles on which the health research of a country should be based. The action plan identified five areas in which to focus strategies: knowledge production, use and management; capacity development and retention; governance; financing; and national focus. There were also expectations of a more concrete follow-up from global leaders in health research: it was articulated that the conference should be seen as a component of an ongoing process, and that conference recommendations should be followed to their logical conclusions of strengthening health research systems in the countries.

To promote the recommendations adopted at the ICHRD, the World Health Organization (WHO), the Council on Health Research and Development (COHRED), the Global Forum for Health Research (GFHR) and the Rockefeller Foundation (RF) funded and supported the Thai Health Research Forum in holding the International Workshop on National Health Research Systems in Cha-am, Thailand in March 2001. A total of 46 participants from 16 countries attended the workshop (Appendix 1). Participants represented researchers from public health and academic institutions, as well as individuals working in research councils or ministries of health/public health. Ten representatives were from the key supporting institutions: WHO, COHRED, GFHR, RF and the Thai Health Research Forum. The workshop proposal, the process and the expected outcomes are given in Appendix 2.

The overall objectives of the workshop were to examine “national health research system” as a concept, and to explore ways in which such systems could be strengthened to better address national priorities. In addition, plans were to be developed for taking this process forward at national, regional and global levels.

Some specific objectives were:

- To discuss the recommendations from the ICHRD in the context of national health research systems.
- To better define health research and health research systems.
- To better define a conceptual map of health research systems (e.g. values and principles, context, key features, output and impact).
1. INTRODUCTION

- To better define the strategies needed to strengthen health research systems.
- To discuss whether health research system performance should be evaluated and how to perform such an evaluation.

To achieve these objectives, several formats were used at the workshop. The formats were designed to give participants the maximum opportunity to share their experiences and concerns. Small group discussions formed the backbone of the workshop (Box 1), and these were supported by inputs based on the preliminary experiences of participating countries with their health research systems. For each small group discussion session (A–D, Box 1), participants were divided into 3–4 groups and each group discussed the set of questions listed for the session. The outcomes were then presented to all participants in end-of-day summaries, which ensured that all concerns and ideas were incorporated. Supporting these activities were plenary lectures on specific issues of health research, such as reproductive health. A closing “round-table” discussion allowed participants to review the situation with respect to their own countries and define the action necessary to take the process forward.

This document is not a verbatim report of the proceedings. Instead, the following chapters are a synthesis of views expressed by participants during discussions over the four-day period of the meeting. The discussions provided a definition for the health research system, a conceptual map for describing it, and strategies and actions that might strengthen health research systems. This document is an initial step towards fulfilling ICRHD recommendations (2), and we hope that the ideas in this document will help countries to define their health research systems. We also hope that it will provide the impetus to strengthen them as further initiatives are developed, such as the ongoing WHO initiatives to develop tools to assess the performance of health research systems.
Structure of the workshop

**DAY 1**

Plenary Lecture (Dr. Chitr Sithi-amorn).
Introduction to the workshop (Dr. Somsak Chunharas).
Introductions by the participants.

Small group discussion—Session A
What are we trying to achieve?
What is a national health research system?
Why do we need a national health research system?
What are the values and principles behind such a system?

Small group discussion—Session B
What elements should be included in a national health research system?
What should be the operating principle of such a system?
What should be the infrastructure of this system?

**DAY 2**

Country presentations (in order of presentation): Thailand (Dr. Somsak Chunharas); Australia (Dr. Alan Pettigrew); South Africa (Drs. Marian Jacobs and David McCoy); and Cuba (Drs. Pedro Mas Bermejo and Eric Martinez). More details of these presentations are given in Boxes 5–9.

Small group discussion—Session C
Self-assessment of national health research systems (country groups).
What can be done to improve self-assessment?
Crucial strategies for developing a functioning health research system.

**DAY 3**

Presentation on “Health Research Scenario in Developing Countries” (Dr. Abha Saxena).
Plenary session on “Evaluating Performance of National Health Research Systems” (Dr. Tikki Pang).

Small group discussion—Session D
Evaluating health research system performance.
Why?
How?
Feasibility?
Utility?
Country presentation (Thailand) on “Health Biotechnology in Thailand.”

**DAY 4**

Presentation on “Meeting the Reproductive Health Research Needs in Developing Countries.”
Wrapping up.
Round-table discussion on current country situations and possible follow-up steps.
2. Health research system: goals and terminology

2.1 Health research

Health research is a broad term that covers many types of research and no attempt has been made to come up with a single system for categorizing it. Instead, it is multidimensional and can be categorized in many ways, for example, as biomedical; clinical; public health; basic; applied; researcher driven; health system driven; quantitative; and qualitative. In addition, the relationship between health research and the health system is bidirectional, affecting and being influenced by different parts of the health system (Fig. 1).

The ultimate goals of a health system are better health, and improved levels of fairness and equity in health (3). Health research contributes to these goals by guiding the health system in the design and implementation of health policies that lead to equity. However, the goals of health research, while ultimately leading to health equity, are different from those of the health system.

Some goals of health research are:

- To produce the information and knowledge for identifying the challenges to the health system and to provide solutions.

Figure 1. Health research helps the health system achieve its goals, but also evaluates the system. Health research impacts different parts of the health system through nonlinear and multidirectional relationships.
To monitor health system performance (e.g. have policies been translated into practice?).

- To develop new technology and health products (e.g. an HIV vaccine).
- To evaluate the impact of health research itself.

Health research may have other goals, which may conflict with those mentioned above. For example, health research carried out by commercial pharmaceutical and biotechnology industries is profit driven, not equity oriented. Health research goals may also be economically and politically important to a country and supported for strategic reasons. Cuba, for example, decided to become self-sufficient in biotechnology and developed its own programme, and India nurtured the basic sciences so as not to be left behind in health research. The fear of a technology race and a widening technology gap appears to have been the motivation for several governments to develop certain industries. Such considerations need to be taken into account when describing or assessing the health research of a country.

2.2 The health research system

While the objectives of health research are clear, the purpose and rationale of a health research system are less so. To some, the term “system” implies a collection of entities engaged in a purposeful and functional set of activities (Box 2). For others, it implies something formal and well-structured. Still others believe it can be a looser, more flexible entity and not necessarily purposively designed. Moreover, terms to replace health research system (e.g. health research network or health research forum) might cover only a part of the system. For example, “network” connotes groups of people or institutions working together on research projects; and “forum” implies a discussion group only.

**Box 2**

The health research system

A system for planning, coordinating, monitoring and managing health research resources and activities; and for promoting research for effective and equitable national health development.

A concept that integrates and coordinates the objectives, structures, stakeholders, processes, cultures and outcomes of health research towards the development of equity in health and in the national health system.
2. HEALTH RESEARCH SYSTEM: GOALS AND TERMINOLOGY

There are several reasons for a country to adopt a “systems” approach to health research:

- In many countries, health research is uncoordinated and fragmented, resulting in inefficiencies and duplication. A systems approach would better coordinate this research.
- Some research requires collaboration and linkages between different research organizations or disciplines. A system would be able to create the required synergy between these entities.
- In many countries, research is inadequately linked to the priorities and goals of the health system. A systems approach would better align health research with national health priorities and goals.
- Many research outputs are not adequately translated into changes in the health system, or into the desired health and equity outcomes. This points to a need for a more systematic application of research in policy, planning and delivery, as well as a more systematic link between researchers and users of the research.
- A systems approach is needed to develop research capacity and to mobilize resources for research and development.
- Health research in many countries is unethical, unfair, unaccountable and not transparent. Countries need to develop systems approaches for setting rules, procedures and standards, and to regulate themselves in line with expressed values and principles.

Based on the workshop discussions, a “conceptual map” for health research systems was developed and is presented in Chapter 4. The purpose of the map is to provide a framework so that countries can describe their own health research systems, and plan and implement strategies to strengthen them.
3. A conceptual map for health research systems

3.1 Principles, values and ethics

Countries should strive for strong health research systems that drive their health systems towards equity and improved health. Although it is beyond the scope of this book to define "equity," the term connotes fairness and justice. The notion of equity is also embedded in the Alma Ata declaration (4), which was adopted by the 191 WHO member states in 1978. Health and health research systems that are non-exploitative are also highly valued.

Some of the overarching values and principles that lead to strong health systems (including health research systems) are listed in Box 3. Additionally, a health research system may be governed by values and principles specific to it (Box 4).

To promote equity, a health research system needs to focus on the values and ethics of people in the health and research systems. Creating common values, principles and ethical standards for health research is as

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**BOX 3**

Values and principles for a health system

- Equity/fairness (reflected in goals).
- Health seen as "developmental."
- Community centeredness and human dignity.
- Prioritized and needs-based.
- Includes both public health and biomedical elements.
- Accountability.
- Sound ethics.

*The health system also includes the health research system*
3. A CONCEPTUAL MAP FOR HEALTH RESEARCH SYSTEMS

Values and principles for a health research system

- Equal opportunity.
- Horizontal team work.
- Decentralization of decision making in research (at both global and national levels).
- Greater transparency in what research is being carried out, in how research is funded, and in the impact of the research.
- Balance between excellence and relevance.

important as improving the structures, capacity and strategies. This need goes beyond the conventional ethical standards for researchers working with human or animal subjects. Ethical concerns of a national health research system also extend to how countries work within the global health research system. Often, health research practices are unfair, inequitable and exploitative, such as when intellectual property rights are abused. Unethical and inequitable practices also occur within countries, with front-line health-care workers and community members commonly receiving unethical health research.

3.2 Context

Three broader systems are interlinked with the health research system of a country: the health system itself, the education system, and the science and technology system (Fig. 2). These systems are influenced by the country context, including the historical, political, ideological, socioeconomic, geographical and cultural factors at play in the country. The interaction of these systems with each other and with the prevailing environment eventually shapes the health research system, which is then further influenced by the international research community. Examples of health research systems in different contexts are given in Boxes 5–9. South Africa (Box 5) and Cuba (Box 6), for example, have been strongly influenced by the political climate. Georgia (Box 7) and Thailand (Box 8) are examples of countries in which the health research systems are in transition. Georgia, in particular, is still struggling with the consequences of Soviet central planning. By contrast, Australia, is a country with a well-structured health research system (Box 9).
Figure 2. A health research system interacts with other societal systems (shown in circles) and the interactions are shaped by many factors, such as those shown.
BOX 5

SOUTH AFRICA. Example of a country in which the health research system was influenced by the political environment.

The case of South Africa is unique, in that the health research paradigm changed as the result of a changed political environment. Prior to 1994, research was a “racialized,” power-oriented programme, with a greater emphasis on biomedical research, rather than on public health research. Equity and human rights were not core issues. After 1994, with a new democracy and constitution, a social and economic development programme was instituted and health research received a boost. Several developments have occurred:

Health policy
- Reduce inequities in the health sector.
- Integrate health research into planning, policies and programmes.
- Adopt the ENHR philosophy.

Science and technology policy
- Declared applied and basic research in health sciences crucial for development.

ENHR Committee
- Appointed by the Ministry of Health.
- Has multiple constituencies.
- Has coordination and oversight function.
- Produced the Draft Health Research Policy.
- Focuses on institutional framework.
- Sets priorities.
- Promotes equity in financing
- Develops capacity.
- Communicates and disseminates research results.

Medical Research Council of South Africa
- Statutory body (MRC Act).
- Increased the quality of life for its people through priority-driven research.
- Functions include: funding, monitoring, capacity building, innovating, ethicality, policy making, running programmes.
**BOX 6**

**CUBA.** Example of a country in which the health research system is decentralized and based on national priorities.

Health research in Cuba is carried out within a strategic framework guided by national priorities. The priorities are based on mortality and morbidity data for the country that are collected by the national health system, and research programmes are funded within the following four sectors:

- Communicable disease epidemiology.
- Noncommunicable disease epidemiology.
- Life quality.
- Research on health systems and services.

**Current situation in Cuba**

Primary health care has a high priority and consequently health research is carried out in family doctor clinics, community healthcare centres and health management units. Research is conducted under the supervision and control of the Faculty of Medical Sciences located in each province. There are fourteen research institutes in the national health system, constituting the national reference centres for research performance. Each specializes in one of the above health sectors and provide advice and support to local researchers.

Cuba works in close coordination with international organizations, such as WHO and the Pan-American Health Organization (PAHO), on multicentre and interagency projects. The aim is to stimulate international collaboration in health research.
Georgia. Example of a country in transition and how this influences the health research system.

Georgia provides insight into the problems that may be faced by countries in transition. Before the collapse of the Soviet Union, directions for research were planned in agreement with Moscow and funding was aimed at sustaining research institutions. As a result, Georgia is now left with an excessive number of scientific institutions, academies, medical universities and scientists, with limited budgets and low efficiency. Although the development of the health research agenda is one of the priorities of health reform in Georgia, as yet there is no mechanism to develop the research priorities, nor to allow different stakeholders to come together on a common platform.

Current situation in Georgia
- Research is ad hoc and chaotic, with little coordination
- The primary source of research funding is the government, but the funding is variable and not committed
- International aid is not coordinated
- Key actors in health research are independent organizations with their own agendas

Suggestions for action
- Establish a National Health Research Council which would:
  - Provide a platform for stakeholders to come together.
  - Develop national health research priorities.
  - Establish a new financing mechanism to channel funds for health research.
  - Increase participation of stakeholder groups in research management.
  - Provide advocacy for health research.
  - Coordinate both national efforts and international aid.
BOX 8

THAILAND. Example of a country in the process of reforming its health research system.

The National Health Research System in Thailand is being reformed, particularly with respect to priority setting, research management, coordination with funding agencies and utilization of research products, with the goal of providing health equity. The four major stakeholder groups in the current system are the research funding agencies; the researchers and research institutes; research users; and the general public. There are three major sources of funding: the government; international funding agencies; and universities. Private investment in health research is minimal. The funds are disbursed through four main health-related funding agencies: the National Research Council; Thailand Research Fund; National Science and Technology Development Agency; and the Health Systems Research Institute. The last three agencies are autonomous and have less bureaucratic control.

Current problems

- Inefficient fund management.
- Inadequate investment in, and support for, health research.
- Lack of common goals and objectives from major funders.
- Most research carried out by overburdened university staff.
- Processing time for research proposals is too long.
- There is low capacity in certain fields (e.g. policy, and systems research and development).

Recent developments

- Establishment of three new research funding agencies with better organizational structure. The role of multiple funding agencies within the country was emphasized.
- More emphasis on priority setting.
- More emphasis on capacity building for health research management.
- Research capacity strengthened as an integral part of developing the research programme.
- Progress in forming organized networking and collaboration.
- Development of research budgets with flexible organization and management.
- Active involvement of the public.

Crucial issues

- A national focal body for coordinating different stakeholders needs to be created.
- Investment in health research needs to be increased.
- Flexible rules for health research management need to be instituted.
- Researchers need to be more involved in the system as advocates, to ensure that research is disseminated and translated into action.
BOX 9

AUSTRALIA. Example of a country with a well-structured health research system.

Health research in Australia is coordinated by the National Health and Medical Research Council (NHMRC) established in 1992. The NHMRC oversees three major programmes (research, advice and ethics) which are carried out by four principle committees. Though it appears to be a fully evolved programme, continuous evaluation means continuous change. This has translated into a doubling of funds and a reshaping of grant systems to focus more on people than on institutions, and to enhance the national research capacity.

The National Health and Medical Research Council

The NHMRC was established by an Act of Parliament and has the statutory obligation to raise the health standards of the Australian people. It is empowered to foster health research and training in Australia and to promulgate consistent health standards within the country, while taking into consideration ethical issues in health. The objectives of the NHMRC are to increase knowledge, translate research into better health, and increase knowledge-based industries in Australia.

Research support

The Research Committee supports investigator-driven research through an open, competitive, peer-review process. The Strategic Research Development Committee develops strategic capability in areas and provides targeted funding to complement the research capacity.

NHMRC funding sources

- Specialist foundations
- Generalist foundations
- Governmental sources
- Australian Research Council (non-medical)
- Cooperative research centres
- Private benefactors
3.3 Stakeholders

The primary actors and institutions of the health research system are those with a direct involvement in research activities, and who have some commonality with the values and principles described above. Three primary groups are the researchers, the research funders and the research users (Fig. 3). Within each primary group, subgroups may occur and their relative importance can vary between countries. Each subgroup is guided by its own values and principles, and by the roles and functions given to it.

A detailed listing of key institutions and people in each group and subgroup will help countries better identify priority subgroups. It will also help countries avoid focusing on researchers as the only key actors in the system and consider "research users" also. Conventional thinking always ranks top-level decision makers as the prime users of health research, and countries should not lose sight of the civil society as an important subgroup of research users. The profit-driven pharmaceutical sector and biotechnology industry are also important stakeholders. Although equity may not be

<table>
<thead>
<tr>
<th>Researchers</th>
<th>Research users</th>
<th>Research funders</th>
</tr>
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<tbody>
<tr>
<td>Focal national research governance institutions (e.g. statutory national research councils).</td>
<td>Public sector health institutions (e.g. Ministries of Health and Education, and senior health managers and policy makers).</td>
<td>Focal national research governance institutions (e.g. statutory national research councils).</td>
</tr>
<tr>
<td>Research and development organizations (e.g. university departments or health research consultancies).</td>
<td>Public and nongovernmental health providers, including both private and public health care providers.</td>
<td>Research funding organizations (e.g. private organizations, government aid organizations)</td>
</tr>
<tr>
<td>Private pharmaceutical firms and the biotechnology industry.</td>
<td>Private pharmaceutical firms and the biotechnology industry.</td>
<td>Private pharmaceutical firms and the biotechnology industry.</td>
</tr>
<tr>
<td>International health and research organizations working in other countries (e.g. WHO, AFRIMES, NAMRU).</td>
<td>International health and research organizations (e.g. WHO, UNICEF)</td>
<td>International health and research organizations (e.g. WHO).</td>
</tr>
<tr>
<td>Community and civic groups, including consumer groups who work to improve the health of the people.</td>
<td>The general public, whose health is affected directly or indirectly by policy decisions.</td>
<td></td>
</tr>
</tbody>
</table>
Figure 3. Key features of a health research system. The circle represents the health research system constituted by the three primary groups, the researchers, research users and research funders. Each group is governed and guided by its own set of values, its roles and functions, and by its capacity.

their goal, it is important to understand how they interact with the health research system (e.g. in priority setting, controlling costs) and they must be engaged in dialogue.

Table 1 is a non-exhaustive list of actors and institutions involved with health research.

3.4 Roles and functions

The following roles of primary actors in health research systems are key:

- Setting directions for health research.
- Identifying priorities.
- Developing relevant and good-quality proposals.
- Funding relevant research.
- Providing management that ensures relevance, quality, efficiency and ethical standards.
- Ensuring the quality and utilization of research products.
- Building sustainable infrastructure and capacity.
• Providing good governance, to ensure that health research yields maximal benefits and minimal harm to health development.

3.5 Capacity

It is important to understand the capacity of a health research system, and this includes assessing the depth and breadth of existing capacity, the gaps and imbalances of skills and expertise within the health research system, and plans for reducing these inequities. Capacity development applies not only to individual researchers and research institutions, but to the health research system as a whole. Unfortunately, capacity development of both research funders and users, so that they would be better able to identify and respond to research needs, is often neglected and thus capacity building is necessary at all levels.

In assessing capacity, it is important to define what kind of capacity is considered relevant. One needs to look beyond the capacity of researchers to do research and include other capacities, such as management and leadership capacity; resource generation and allocation capacity; negotiation and team building capacity; and the capacity to understand and uphold ethical standards.

Finally, there needs to be a good description and understanding of the “brain drain,” a phenomenon in every country that results in the loss of intellectual and research capacity. There are two types of brain drain: an internal brain drain, in which researchers shift from poorly paid and poorly maintained public sectors, to better paid and better maintained private laboratories and institutions within a country; and an external brain drain, in which researchers emigrate to better equipped laboratories and organizations in other countries with higher pay. The ability of a country to retain health research capacity is therefore an important dimension of the conceptual map. By adopting a systems approach to health research, countries can better understand what can be done to reduce the brain drain. For example, from a systems perspective, improving the capacity of health research is achieved not simply by training more people in health research. It requires that the research financing system, human resources management and the general management of research institutions be improved as well.
3.6 Relationships
To better understand the functioning of a health research system, it is important to describe relationships between primary actors and institutions in terms of:

- The location and spread of authority, control and power, including the legislative environment.
- The level and quality of coordination, collaboration and synergy.
- The level of consensus/trust/solidarity among primary actors and institutions, including the level and quality of communication and dialogue.
- The level of equity among primary actors and institutions, and the mechanisms for promoting fairness within the health research system.

3.7 Resources
The management of human and financial resources is a major issue more appropriately addressed from within a systems approach. Resource management includes not only the issue of wasted resources, but also the capacity to generate resources. Issues that are important for national health research systems are:

- Development of human resource capital.
- Monitoring and managing resources more efficiently.
- Resource mobilization (nationally and globally).
- Transparency in disbursement of funds.

3.8 Output and impact
To better define a national health research system, the outputs and their utilization need to be appraised (Fig. 4). When looking at outputs from a system perspective, a key concern is how outputs relate to the context of the health research system. Another concern is the extent to which health research outputs are equity-oriented and how they relate to the values and principles set forth earlier. A key output of any health research can be described generically as "new knowledge," but to better link new knowledge to the context, values and principles of a health research system the practices of knowledge management should be critically appraised. While it is accepted that knowledge production is a desirable output of a research system, it is also important that the "right type of knowledge" is produced
that accounts for the concerns of all stakeholders (i.e. knowledge in alignment with the national priorities). Any assessment of the outputs of a health research system is incomplete without the simultaneous assessment of knowledge management practices. Finally, the impact of the health research system on the health system itself and on the nation needs to be appraised, even though the methods for this still need more work.

Figure 4. Matrix of action levels for an equity-oriented health system. The strategies, processes and knowledge management practices resulting from research outputs of a health research system are shown.
4.1 Key strategies

Key strategies for strengthening health research systems, such as those identified at the ICHRD (2), include country focus; knowledge management; governance for health research; capacity development; and fairness in financing. The main question is how these strategies should be viewed within the concept of a national health research system.

The most important strategy for strengthening health research is to focus at the country level, and international donors aiming to strengthen the health research in a country should focus on the country needs, rather than be driven by their own agenda. Each country should also commit some investment to health research. A key strategy is to bring all stakeholders together, to define their specific roles in the national context and involve them in setting priorities. A focal institute should be identified which can bring together all stakeholders and provide good governance. However, in reality there may be limited resources available, and in such cases good governance implies prioritizing funds and allocating them transparently in agenda-driven research, rather than in donor-driven research.

Another strategic action is to manage and track the flow of resources. Although the availability of research funds is important, the long-term effectiveness of a research system will also depend on how funds are allocated, used and managed. For individual projects and programmes, relevant research should be promoted by regular funding, by clear direction from funders, and by flexibility in the use of funds. This will also lead to the continuous involvement and commitment of researchers. Research should also be managed proactively, and instead of waiting for proposals from researchers, grant agencies should actively solicit proposals in strategically important research areas. Results should also be disseminated prior to completion of the project, rather than wait, as is current practice.
The capacity of researchers, research funders and users all need to be developed. The scope of capacity development can also be widened, to include the capacity to ask the right research questions; the capacity to disseminate research results in a timely fashion and to the right groups of people; and the capacity to engage policy makers in the right dialogue; etc. Finally, the participation of community members in the health research process needs to be encouraged, not just as research subjects, but as equal partners.

Although it is appropriate to provide broad strategic goals and principles that apply across all countries, operationally, strategic plans for strengthening country health research systems need to be developed from the bottom up and be sensitive to the country environment (e.g. socioeconomic status, geographic location, political situation). In other words, there is no uniform prescription for strengthening country health research systems. It should also be remembered that all countries have some components of a health research system that work to strengthen the health system, and it is necessary only to strengthen existing components, in the country context. This means having a good understanding of the health research system in a country, so that international, national and regional strategies for strengthening it can be tailored to the country requirements.

4.2 Action at the country level

4.2.1 Situation analysis

Countries might begin with a situation analysis of their health research system, based on the conceptual map described at the meeting (see Chapter 3). Situation analysis is emphasized for the following reasons:

- It reinforces the principle of working with the existing system when strengthening health research systems, rather than designing the system de novo.
- It avoids actions that might try to “fix things that ain’t broke.”
- It is a nonthreatening term, unlike “evaluation” and “assessment,” for example, which can have negative connotations.
- It is a term that is commonly used in planning and implementation and it has dynamic, forward-looking connotations.

A country level framework for strengthening health research systems, that includes inputs from situation analysis, is shown in Fig. 5.
4.2.2 Evaluating the performance of national health research systems

Given the complexity of health research systems and the contextual differences between countries, there are significant methodological difficulties in developing a valid composite “score.” For example, use of the term “evaluation” might be objectionable to some, since it suggests that countries will be ranked for comparisons; other terms, such as “descriptive analysis” or “situational analysis,” may be more appropriate. Evaluation can also be conceptualized as a process of self-assessment by countries and a means of mapping their performance over time. This approach has the advantage of removing the “threat” of ranking and also places evaluation in the context of self-improvement. Ultimately, there can be many types of indicators for evaluating health research systems, such as indicators for structure, function, process, goals, financing, etc., and it is important to differentiate between “process indicators” (which can be relatively easy to identify) and “impact indicators” (which can more difficult to identify).

A framework for evaluating performance would be beneficial, since it would serve as a platform for action, as well as a framework for identifying “forgotten elements.” Countries should agree on a set of core functions and
indicators for describing the performance of health research system. The functions and indicators should focus on all the stated functions of health research systems, such as governance; financing; knowledge; production and use; and capacity development. Mapping country goals in health research would allow countries to choose appropriate indicators (or develop new ones) for evaluating performance. This process would also need to include a situation analysis as a prerequisite to evaluation.

Different processes for evaluation include: a continuous process; a onetime process; a periodic process; short- and long-term processes; graded assessment; and qualitative and quantitative assessments.

Although situation analyses and performance evaluations are useful ways for countries to move forward, in some countries there may be neither the technical capacity nor the resources to take things forward in a meaningful way. In others, the in-country environment may not be conducive to conducting such exercises, because of a hostile political environment, for example, or a lack of solidarity within the health research system. Carefully planned support may therefore be required for certain countries and international agencies can potentially play a critical role in providing such support. Support for situation analyses or performance evaluations need to be tailored to the country context, and can be classified into three types: strategic support (to promote the desirability of strengthening health research systems); technical support; and financial support. If international agencies coordinate country support activities in this direction, it will further a much needed bottom-up strengthening of health research systems, and avoid the one-size-fits-all approach to development and assistance that commonly leads to frustration.

4.3 Action at the regional level

A country can better develop country-sensitive national health research systems by forming a network with other countries that are actively trying to develop or strengthen their own health research systems. This would allow planning and action to be based on the existing situation in a country and allow lessons to be shared, helping stakeholders better understand their own health research system and accelerate development. At the same time, a network would help refine the conceptual map, by making available the experiences of neighbouring countries. However, financial support from international donors will be needed to create and maintain regional or multiregional intercountry networks. The return from the net-
4. STRENGTHENING HEALTH RESEARCH SYSTEMS

Working process would be useful to other countries, beyond those participating in the network, and thus the creation of such networks would fit within the mandate of some international donors.

4.4 Action at the supranational level

International agencies play an important role in supporting efforts to strengthen national health research systems. However, health research and support from international agencies is still uncoordinated, top-down and inequitable, and international and multilateral agencies need to address the following issues with action:

- The growing economic and political inequities between the northern and southern hemispheres.
- The dominance of “northern-based” public health academic institutions and their ethics.
- The brain drain.
- Boomerang aid.
- The exploitation of the southern hemisphere by pharmaceutical and biotechnology concerns.
- The need for a more thorough evaluation of funding flows provided by international organizations, including the purposes of the aid and the impact it has on the health systems and health research systems of countries.

International donor agencies should also conduct a situation analysis on themselves, as countries are expected to do, including an assessment of the extent to which their actions, outputs and impact are in alignment with the ultimate goals, values and principles set forth at this meeting.
Health research is crucial for the development of an equitable health system, and national and global health research should be viewed from a systems perspective. Although the term “health research system” implies different things to different people, essentially it encompasses all those objectives, structures, stakeholders, processes, cultures and outcomes of health research that are geared towards developing equity in health and the health system. A conceptual map of the health research system is a useful tool for understanding the health research situation of a country and for increasing the impact of research on health development. In addition, countries need to map out their own health research systems and carry out the analysis. One strategy for improving national health research systems is to evaluate performance.

Countries also need to identify partners and funding resources to carry this work forward. In particular, developing countries need support from international donors to improve their health research systems, and international donors should be sensitive to the needs of such countries and not push their own agenda. International donors also need to carry out situation analyses to determine the actual benefit of their aid to countries.
6. Literature cited


APPENDIX 1

List of participants

Workshop participants are listed alphabetically, by country. Key supporting institutions are marked with an asterisk and are listed at the end of the table.

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APPENDIX 2

Workshop proposal

Proposal for the International Workshop on National Health Research Systems, March 2001, Thailand

Participants at the ICHRDS (2) emphasized the need to promote equity in health through health research and development. Five main strategies for future health research, collaboration and development were identified at the conference: knowledge production and management; country focus; capacity development; resource mobilization; and governance. The strategies are based on key values, such as knowledge as public goods; equal partnership; and connectivity and complementary between various groups and levels. It is crucial that the key strategies be incorporated into future action plans at all levels.

A component of the country focus strategy is to enhance national health research systems, especially in developing countries where health research systems may not be well established, so that all countries can be active players in the global efforts to make health research beneficial for everyone. Clearly, efforts in health research cannot contribute to the health improvement of people in developing countries, if well-developed health research systems are not integrated into a functioning health system. To enhance health research systems, developing countries need to develop country level institutions so that health research responds to the health needs of the people, rather than simply emphasize that they are a part of international health research efforts.

So far, the researcher and research institute components of the health research system have been best developed. In contrast, research funding and research user components have generally been neglected, and research management capability has been emphasized only at the project level. With more developed health research systems, countries will be better able to ensure that health research will be relevant, of good quality and respon-
sive to country issues. If health research is to be improved and applied to those most in need, health research systems in developing countries will require close collaboration and support from more developed countries and international organizations.

To operationalize the recommendations adopted at the ICHRDC, two concurrent and complementary lines of action may be necessary. Besides forming global partnerships to promote health research, countries that are strengthening health research systems also need to develop networks between themselves. Well functioning national health research systems, especially in developing countries, will form the foundation of future global or regional partnerships that can better address global health concerns and ensure better use of research output. A workshop that brings together people from countries that are actively enhancing national health research systems can be the first step for evolving and expanding building efforts in other countries. The workshop can also serve as a bottom-up process that would complement global or regional efforts to ensure that health research contributes to the global development of health equity.

The workshop process
The workshop will be organized and conducted, based on the following key assumptions:

- There are groups in some countries that are actively trying to build better health research systems, including the three major groups, researchers, research funders and research users. These group are interested in improving their work and sharing experiences with groups in other countries (developed and developing).

- Shared country experiences will further the development of national health research systems in other countries.

- Networks of countries with concrete actions and experiences will contribute ideas and lessons, as well as suggestions for action at global and regional levels. This input will complement efforts at national and higher levels.

- Networks of countries will lead to the evolution and expansion of global efforts in health research, with developing countries playing active roles in the process.

- There is no best model for national health research systems that can be used for all countries. Nevertheless, the formation of networks between countries trying to develop their own health research systems
will catalyze system development. Networking is possible with support from international organizations.

Individuals now working in national health research systems will be key workshop participants. The basic process of the workshop will be interactive group work, which will synthesize lessons and strategies by which partners in different countries can work together effectively. Inputs to the working sessions will come from a preliminary synthesis of the experiences of participating countries and from technical papers from experts in related fields. Three groups of issues will be addressed at the workshop. The first group deals with national partnership building and strategies for strengthening national health research systems, and includes issues such as partner institutes, priority setting, resources mobilization and funding management. The second group deals with actions at global or regional levels that support national level activities, such as assessing the performance of national health research system, and global and regional mechanisms for funding research (including the idea of a global NIH). The third group deals with research in specific health problems, such as reproductive health, tuberculosis, HIV.

The composition of workshop groups will vary according to the issues being addressed. When addressing national strategies and partnerships, groups will consist mainly of members from the same country. In contrast, when addressing actions and supports from global and regional level, or issues related to specific health problems, the group composition will be mixed. The questions and issues discussed in the group work will be about how to make things happen at the country level, about the type of mechanism that should be established to better support countries, and about how such mechanisms can be mobilized at other levels to supplement related country level actions. Whenever necessary, there will also be in-depth technical discussions about methodology, etc.

Expected outputs

- Lessons on the development of national health research systems. For example, who are the crucial partners and what are their roles in the national health research system? What are the crucial strategies in national health research development (e.g. capacity development, network formation, resource mobilization, equity orientation, community participation) and how can they be carried out?
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- Networks of country groups that will continue dialogue and interactively learn from each other; and a concrete plan to make this happen in the next 2–3 years.
- Country level suggestions for strengthening global and regional mechanisms that promote health research.

Expected outcomes

- Well-functioning national health research systems among participating countries, as well as among nearby countries.
- The formation of partnerships and processes for global and regional level health research.
- The development of national level methods for supporting national health research systems.

In the evenings, there will be time for informal discussions, such as on the development of the Working Party (as recommended by the ICHRD), and on collaboration in research areas of common interest (e.g. the Thai-Cuba collaboration on biotechnology; and the Thai-Malaysia collaboration on research for disease surveillance and control). Participants interested in such informal discussions can ask the organizer to provide facilities.