

# Chapter 6

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## *Capacity Development for Health Research*

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## Summary

Evidence-based decision-making at all levels of the health sector is critical for the implementation of health strategies. However, while high-income countries have a large number of scientists and adequate infrastructure for this, most developing countries lack the appropriate human and material resources to initiate research and use the findings for development. Strengthening research capacity in developing countries is one of the most effective and sustainable ways of advancing health and development in these countries and of helping correct the 10/90 Gap in health research.

This chapter summarizes the lessons learned from the efforts undertaken by a number of institutions over the past two to three decades, and outlines the characteristics of a cadre of effective health researchers. One important prerequisite for such a cadre is a commitment by the scientific leadership to find solutions to key national health problems, underlining that capacity development is not an objective in itself but a tool to find cost-effective solutions to the country's priority health problems. Other important lessons include the need to ensure (i) an appropriate balance between trained scientists and the availability of research facilities and (ii) the sustainability of research efforts.

The role of the Global Forum is to:

- provide a platform for the open exchange of ideas on strategies for capacity development
- participate in carrying out critical analysis of examples of capacity development efforts
- play an advocacy role in drawing attention to the positive lessons emerging from the exchange of views and analysis.

There has been renewed commitment among partners of the Global Forum to accelerate research in capacity development efforts. In late 1998, an informal group of partners met to discuss a series of retrospective case studies presented by SAREC (Sweden), USAID, WHO, and indicators for evaluation presented by HIID. Plans for 1999 include: the completion of case studies; the selection and field testing of indicators of research capacity development; and assessment of research capacity needs at country level in a number of developing countries, and of the role of developed country institutions in research capacity development. A report on these efforts will be presented at Forum 3 in June 1999.

## Introduction

The introduction of evidence-based decision-making at all levels in the health sector is a fundamental step towards improving people's health. Many recent reports have shown that investment in health R&D will continue to have high payoffs both in health status and economic productivity. All countries, whether developed or developing, rich or poor, need research for development. In developing countries – particularly during the current economic crisis – research can point the way towards using existing health resources more effectively.

However, while the developed countries have benefited greatly from the increase in knowledge and advancement of technology derived from scientific research, many developing countries lack the human resources needed both to initiate research and make use of the findings for development. Strengthening research capacity in developing countries would be one of the most effective and sustainable ways of advancing health and development in these countries. The minimum level of research capacity needed requires a critical mass of national researchers, adequate equipment and supplies, and adequate funding.

## Section 1:

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### Research capacity development by individual agencies

The need for research capability strengthening (RCS) in developing countries has been a key component of research promotion by the World Health Organization, particularly within the UNDP/World Bank/ WHO Special Programme for Research and Training in Tropical Diseases (TDR) and the UNDP/UNFPA/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP). Over the past three decades, these two

programmes have trained several thousand scientists from many developing countries at MSc and doctoral levels, and also provided post-doctoral training and short-term training in special techniques and methodologies. In addition to training, institutional development grants have been provided in an effort to provide scientists with suitably equipped environments for research (laboratories, insectaries, and field stations, for example). From an initial focus on mainly biomedical

and clinical disciplines and human reproduction, these developing countries in Africa, Asia, and South America have now also developed research capabilities in epidemiology, medical statistics, the social sciences, and health economics. Most of those involved have since become leading scientists in their own fields.

One form of training which has proved to be a catalyst for research capability strengthening involves the use of partnership grants. These grants have enabled strong institutions in developed or developing countries to receive joint funding with a weaker institution in developing countries. The scheme has also facilitated hands-on training for younger scientists.

Other partners of the Global Forum have also provided financial support for capacity building over the past two to three decades. This has involved the award of training grants to developing country nationals, institutional development support, and partnership grants. These partners include both bilateral and international agencies such as Sida/SAREC, DANIDA, IDRC, the European Commission's INCO-DC programme, Rockefeller Foundation, SDC and the former UK Overseas Development Agency (ODA, now DFID).<sup>1</sup> Most of those trained through the above mechanism are now holding research and management positions in their home institutions. During Forum 2, COHRED, INCLEN, Sida/SAREC, SDC, UNDP, USAID, WHO, and the World Bank made short presentations indicating their continued commitment to capacity development in developing countries.

Limited evaluation carried out in these middle- and low-income countries by individual donors has shown that there is a high level of competence in the area of strategic research, particularly in biomedical disciplines and epidemiology. However,

competence in disciplines such as the social sciences and health economics have lagged behind and efforts are now being made to accelerate the training of social scientists and health economists for developing countries. More recently, wide gaps in knowledge have appeared as countries and institutions have identified the need for certain areas of competence to meet the specific needs of their societies. Today, many countries are reforming their health systems in an effort to bring these closer to the people – thereby increasing equity and encouraging greater participation by the population. These reforms call for special competence among scientific staff to analyse health issues, prioritize these, and formulate appropriate policies for governments. As a result, research and competence in new disciplines such as health policies, health accounts, and health management have become increasingly important. Equally important is the need to ensure that capability strengthening extends to the research infrastructure in developing countries. It is also important to emphasize more effective uptake of research results and their use in policy formulation.

There is a new firm commitment among partners of the Global Forum to accelerate and increase research capacity development efforts in low- and middle-income countries, to meet the increasing needs of these countries. This commitment was strongly supported by the report of the Commission for Health Research and Development (1990), the World Bank's *World Development Report 1993*, and the 1996 Report of the Ad Hoc Committee. Assisting in building research capacity in middle- and low-income countries is one of the key methods for redressing the 10/90 Disequilibrium. Appropriate capacity development will enable these countries to successfully compete for the research funds needed to generate information for evidence-based decision-making.

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<sup>1</sup> See list of acronyms and abbreviations.

## Section 2:

### Lessons from the past

In an effort to plan for increased research capability strengthening, it is important to be guided by the successes and failures of past efforts involving a wide range of partners. This kind of assessment should involve answers to the following questions:

- What lessons have been learnt from the capacity strengthening efforts and strategies deployed by the different partners?
- What are the reasons for the successes and failures?
- To what extent have these efforts contributed to self-reliance?
- To what extent have the efforts been sustainable and what factors favoured sustainability?
- Where have these efforts been synergistic and where, if at all, have they been counter-productive?
- To what extent have the efforts provided the developing countries with an appropriate mix of trained scientists and infrastructure to carry out essential national health research to meet their national health agenda?
- What role can the Forum play on this issue?

The reasons for success and failure are many and some of these have been summarized in Insert 6.1 while the characteristics of a cadre of effective health researchers are summarized in Insert 6.2.

#### Insert 6.1

#### *Indicators of the success or failure of Research Capability Strengthening (RCS)*

Accounting for the success or failure of capacity development involves providing indicators for use in measurement. The indicators selected will vary and for each situation should correspond to the answer to the question "capacity for what". Some of the usual indicators used are:

- scientific publications meeting national research priorities
- ability of the institution to attract additional resources
- ability of the scientist to win competitive research grants
- the amount of training of junior scientists in the institution
- the level of uptake of their research findings.

## Insert 6.1 *(continued)*

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### Success was found to be associated with the following:

- capable scientific leadership committed to finding solutions to key national health problems
- continuity of funding for research
- ability to attract a core of dedicated young scientists and provide them with independent research funding
- adequate and appropriate infrastructure for research (buildings and premises)
- adequate equipment and supplies, including modern communication facilities and scientific literature
- linkage to another (stronger) institution, particularly in the North
- stable conditions of service with adequate remuneration.

### Failure was associated with the following:

- weak scientific leadership, including diverting these leaders to other non-scientific tasks
- strong external (usually political) influences on the running of the institution
- severe external political adversity, creating frustration among the scientists
- poor remuneration, thus compelling the scientists either to seek other sources of remuneration to augment their income or leave the country
- inappropriate service conditions, resulting in the resignation of scientists.

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*(Source: Thomas Nchinda, Global Forum for Health Research)*

## Insert 6.2

### ***Characteristics of a cadre of effective health researchers***

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#### Research capacity development to establish a cadre of effective health researchers calls for:

- well focused, goal-oriented research in line with national research priorities
- careful selection of participants on the basis of clear objectives, taking into account personal qualities of intelligence and resourcefulness
- sound training at the highest level in research methods in an appropriate technical field
- continuity of support, including a suitable mentor willing to help the researcher to become established (e.g. the institutional director or an external scientist doing collaborative research with the researcher)

## Insert 6.2 *(continued)*

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- time protection to permit serious research work, so the researcher is not wholly distracted by administrative and other tasks
  - infrastructure support including space, communication facilities (electronic communication), scientific literature, and library resources
  - an enabling environment in the institution for further discussion of research plans and results
  - a balanced combination of biomedical and community-based field research, risk-factor research leading to behaviour change
  - close relationships with national programmes for disease control to help ensure the relevance of research priorities and facilitate the dissemination and application of research findings
  - North-South partnerships based on equality of partners, with a clear line of research for each partner.
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*(Source: Summarized from presentation by Fraser, D.W. at Forum 2,25-26 June 1998, Geneva and Internal Report by Lucas, A.O., external evaluator of WHO/TDR-Rockefeller Foundation joint programme in an internal document dated June 1993)*

Any detailed analysis of past efforts in capability strengthening should include case studies in a number of low- and middle-income countries in Africa, Asia, and Latin America.

An example from Sub-Saharan Africa can be used to illustrate capacity development in one of the poorest countries in Africa, which is facing severe economic constraints (Insert 6.3).

## Insert 6.3 ***Strengthening research in Mali***

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Mali is one of the 40 "least developed countries" according to World Bank and UNDP figures. It has one of the highest infant mortality rates (168 per 1000), one of the lowest life expectancies at birth (47 years), the lowest proportion of the population with access to health services, and the lowest adult literacy rate (20%). Against such a background, the research scene offers little relief. The findings of the Commission on Health Research for Development (1990) show that Mali is one of the poorest countries in health personnel, with only 30 trained scientists.

In spite of this, Mali illustrates what can be done when enough encouragement and help are given to researchers who provide in enthusiasm and commitment what they lack in material resources. These factors were found in two Malian research institutions: the Department of Epidemiology of Parasitic Diseases (DEAP), part of the National School of Medicine; and the National Institute of Public Health Research (INRSP) which belongs to the Ministry of Health. With a modest start in 1988 with a WHO/TDR capital grant of \$60 000 to the two institutions and the leadership of a Malian entomologist Yeya Toure, assisted by a medical parasitology colleague Ogobara Doumbo, a step-by-step process of research capacity development was initiated. With TDR assistance, young nationals were identified for the award of TDR's research training grants for Master's and Doctorate training. These trainees returned to the institution and continued research within the context of an institutional strengthening grant, which TDR had awarded to the institution. More scientists were identified and sent for training in Canada, France, Italy, the UK, and the US.

### Insert 6.3 *(continued)*

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As of 1998, the two institutions have identified and sent about 25 young nationals for training in different disciplines (including epidemiology, molecular biology, entomology, health economics, and social anthropology), about 12 at doctorate level. The doctoral training used the sandwich course approach, with data collection being carried out within the ongoing research activities in Mali. About half of these have now returned to Mali and have been involved in cutting edge as well as operational research in various aspects of malaria. Other staff members have received short-term training on the acquisition of skills relevant to their research.

DEAP recently won the highly prestigious and competitive NIH grant amounting to nearly \$400 000 a year over 5 years. All of their scientists are involved in the research and it has provided them with the opportunity for further training.

DEAP has intensified training of scientists for the country and for other countries of the region. It has become a recognized malaria training centre and has been running the senior level epidemiology training programme for regional medical officers of the sub-region on behalf of the WHO African region. It has also orientated much of the research carried out by its scientists to meet national needs, and the scientists are working closely with the national disease control services in malaria, schistosomiasis, and other tropical diseases. One of their colleagues who heads the epidemiology department in INRSP, Mamadou Traore, played a major role in the preparation of the National Programme on Health Sector Reform. DEAP was a beneficiary of one of the grants awarded under the MIM/TDR Task Force, an important step in ensuring research sustainability for that institution and for other institutions in the country and across Africa.

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*(Source: TDR, 1998)*

## Section 3:

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### **The aim of renewed efforts in capacity development**

In order to renew efforts to develop research capability, the different partners involved need to address two neglected areas: research both on and for the formulation of health policy, for which present training efforts are

inadequate; and the ability of scientists in developing countries to develop and modify research tools to suit their own national agenda. The partners should develop a strategy that will best help middle- and low-income

countries to build indigenous capacity to respond to the specific health challenges of their countries through research and the appropriate use of research findings. Such concerted action should focus on three important issues:

- Efforts should be directed towards ensuring that capacity building is in line with national health priorities. This process will require the use of appropriate focused training to increase the number and quality of trained researchers in the country in the appropriate disciplines and subject matters.
- Capacity strengthening should be directed towards providing an adequate balance of trained scientists and institutional facilities

for carrying out quality research. Equipment and supplies provided must be in response to real needs and match the availability of trained capacity to use them adequately.

- Efforts should be made to ensure the sustainability of research efforts. This requires mechanisms for ensuring that funds are continuously available for research. Some of this can take the form of partnership grants as well as networking.

With the above three in place, the aim of renewed capacity development should be to promote the use of research findings for evidence-based decision-making.

## Section 4:

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### **Objectives of concerted international efforts in capacity development**

The objectives of concerted international efforts in capacity development are to:

- Develop competencies (skills and knowledge) among scientists in developing countries in areas of health critical to local, national, and international needs.
- Help identify key research problems in developing countries (needs assessment)

and ensure that the skills developed are used to solve priority health problems by country and region, including the translation of research results into appropriate action.

- Evaluate all current efforts to strengthen research capability in developing countries, and assess the capacity of these countries to carry out quality training in different

disciplines and to develop indicators for measuring them.

- Establish an environment (physical, material, social, and intellectual) to sustain and enhance externally funded research and promote at national level the recognition of research as an integral part of health system development.
- Design a plan of action for the development of national research agendas, combining both national efforts and assistance from key partners.
- In collaboration with key partners, propose new and innovative methods for furthering research capability strengthening in lower- and middle-income countries in a more interactive and cost-effective manner. This may involve the introduction of new technological approaches in teaching and learning processes, including continuing education, and the innovative use of multi-media teaching methods.
- Design a suitable mechanism for measuring outcomes through the use of appropriate indicators.

## Section 5:

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### The place and role of the Global Forum

The main role of the Global Forum in capacity development is to:

- Provide a platform for the open exchange of ideas on strategies for capacity development;
- Participate in carrying out critical analysis of examples of capacity development efforts;
- Play an advocacy role in drawing attention to the positive lessons emerging from the exchange of views and analysis.

Capacity development in developing countries will help correct the 10/90 Disequilibrium by providing developing countries with trained

researchers and a research environment in which to operate. Research to solve the health problems of developing countries will depend largely on the availability of indigenous researchers. These trained scientists should be able to participate in many of the analytical studies needed to inform decision-making in their countries and facilitate the uptake of research findings. In addition, they should play an active role in the different Initiatives undertaken by the Global Forum. Capacity development underpins all the activities of the Forum, including the analytic work and activities undertaken under the different Initiatives.

## Section 6:

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### The way forward

There has been much discussion recently on the coordinated approach to capacity development. Some of the critical factors indispensable to this approach are summarized in Insert 6.4.

#### Insert 6.4

#### ***Factors indispensable in capacity development***

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##### Capacity development should:

- be systematic and comprehensive since it has wide applications for individual actors at different levels of the health system
- focus on both human and material resources including infrastructure for information and dissemination of information
- address the importance of equity and social justice, which has different implications for the community, the ministry, and research institutions
- include all stakeholders
- wherever possible, take place in developing countries and make use of South-South collaboration
- place a strong emphasis on multi-disciplinary research and build up research teams
- wherever possible, deploy novel training methods, including the preparation of tailor-made teaching materials and the use of long distance computerized learning methods
- consider ways of tackling the "brain drain", in view of the current economic constraints in many developing countries
- have a long-term perspective.

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*(Source: This box is edited and modified by Thomas Nchinda from one appearing in the COHRED "Concept cum Action" paper discussed at its brainstorming session in Geneva, 19-20 January 1998.)*

In October 1998, an informal group representing seven partners (WHO, USAID, SAREC, COHRED, GFHR, Harvard Institute for International Development, and the Rockefeller Foundation) met in Geneva to evaluate health research capacity development. The participants discussed a series of retrospective case studies presented by three partners (SAREC, WHO and USAID) and indicators for evaluation presented by HIID, institutions which have been funding research capacity development in developing countries over the past two decades. Although the mission of these organizations varies substantially, there was general agreement that capacity development was a useful tool, as opposed to a goal, for successful health research and development. It was agreed that the indicators to be used needed further clarification. Meanwhile, new programmes need to collect baseline data as part of capacity development so that change can be measured over time.

The group decided to move ahead with the following:

- Completion of retrospective case studies with inputs from all interested parties in order to refine the indicators for assessment of research capacity development (led by C.Miller, USAID).
- Selection and field testing of common indicators of research capacity development for evaluation by developing country researchers (led by S.Wayling of TDR).
- Assessment of research capacity needs at country level in a number of developing countries, using a systems approach. This will be used as means of further evaluating and refining an existing assessment tool and is based on COHRED material (group led by M.Kerker).
- The role of developed country national institutions in research capacity development (led by C.Miller, USAID).

An assessment of the efforts undertaken will take place at the end of March 1999. The Forum will liaise with USAID and COHRED to monitor progress. A first report on these efforts will be presented at Forum 3.