

Chapter 5

Enhancing capacity for knowledge generation



Key messages

- Experiences of low- and middle-income countries vary considerably in terms of their HPSR organizations and sectors.
- Previous capacity development strategies focused on individual skills development, but there is increasing recognition of the need to focus on all capacity dimensions and to pay special attention to institutional design.
- The centrepiece of HPSR capacity strengthening must be institutions and the wider HPSR environment.
- HPSR institutions and funding agencies must find ways of facilitating productive and capacity-enhancing partnerships and networks.
- Funding for capacity is needed both for specific initiatives and to complement general research funding.
- HPSR is a relatively young research field. As such, it poses methodological challenges that require solutions beyond the scope of individual institutions. Moreover, some countries need strategies to enhance the overall culture, identity and governance of the HPSR sector.



Introduction

We turn now to the second function in the framework – knowledge generation and dissemination in health policy and systems research (HPSR). HPSR is a new area of research activity – 20 years ago, the concept would have meant nothing in the research community, let alone among policy-makers. Now even the acronym is widely recognized – perhaps one indicator of acceptance! More significant, of course, is that it is seen to play an increasingly important role, particularly as the scale-up of priority programmes runs into health system constraints. As Box 5.1 suggests, the returns from health systems research can be substantial. But in reality, too little investment is made in this research area. That places serious limits on capacity, particularly in low- and middle-income countries.

This chapter explores the critical function of generating and disseminating HPSR. Though a significant proportion of HPSR research is conducted through international collaborations, we focus on activity at the national level. The chapter begins by identifying the key organizations involved in generating knowledge and assessing the current state of this function. It then discusses approaches to strengthening the capacity of the major institutions involved in creating knowledge – research institutions and universities (and, to a lesser degree, health ministries). As with other chapters, each country presents its own challenges, particularly in terms of resource levels; inevitably, this suggests different strategies for these different contexts.

Current situation regarding knowledge generation for HPSR

The capacity to carry out HPSR varies from place to place. While some research institutions in middle-income countries are very effective, the situation is uneven. The

problems are most severe in the poorest and smallest countries, where limited capacity to produce knowledge is compounded by a dearth of domestic funding and by ‘brain drain’ (emigration of skilled personnel to developed countries), and where domestic research capacity focuses largely on research agendas that are set outside the country (Ali & Hill 2005). Policy-makers in countries with such weak capacity are either denied access to appropriate evidence, forced to rely on poor-quality research findings, dependent on international research organizations potentially unfamiliar with the country context or reliant on donor agencies for interpretation of the available evidence base.

There are common challenges for developing *any* health research capacity (Nchinda 2002); however, some are specific to HPSR. These arise from the distinctive nature of the demands for knowledge in the policy process, the need to package knowledge appropriately, and the methodological difficulties inherent in what is a relatively new and multidisciplinary area of research. As we saw in Chapter 4, HPSR is also significantly underprioritized in terms of resources (Ali & Hill 2005).

Organizations involved in HPSR knowledge generation

We consider first the characteristics of institutions which are involved in HPSR knowledge generation, keeping in mind the capacity elements of our conceptual framework.

Governance and leadership

Many different sorts of national organizations conduct HPSR: universities, research institutes, think tanks, non-governmental organizations (NGOs), private consulting firms, international agencies and government ministries, among others. A survey of research institutions in developing countries conducted in 2004 for the Alliance found that the majority (69%) were public institutions,

BOX 5.1 THE RETURNS FROM HEALTH SYSTEMS RESEARCH

A recent study estimated the potential returns from investment in new technology versus research to improve the delivery and use of health services. Surveying deaths among children aged less than 5 years in 42 low-income countries, the authors concluded that, while improved technology had the potential to avert 21.5% of deaths, greater use of services could avert 62.5% of child deaths. Despite the much greater returns from research on service delivery and use, the same study found that 97% of the grants awarded by the two largest public and private funders of global health research went to development of new technologies.

Source: Leroy et al. (2007).

while 30% were private (although the proportion of private institutions in upper-middle-income countries was higher – 40%). Regional and global research partnerships are increasingly prominent. Surprisingly, there appears to have been no systematic evaluation of the relative performance of these types of organizations. However, the diversity of organizations suggests that different models fit different contexts – or that it is not the organizational form or ownership that matters but more fundamental characteristics, which we explore below.

Different organizations have different overall objectives and activities. Universities combine research with teaching and may have a wide variety of subject specialisms; by contrast, independent research institutions are less likely to engage in educational activities and may have an institutional focus on a particular area (such as HPSR). Any of these may also engage in consultancy activities alongside their research. These different combinations of activities will inevitably lead to different tensions in terms of the emphasis on and type of research being conducted. For example, in some countries, academic departments traditionally favour disciplinary specialization. Given the multidisciplinary nature of HPSR, this may be one reason for the growth in new forms of organizations specializing in HPSR which embrace that way of working. Funsalud (Mexico), Curatio International Foundation (CIF, Georgia), Health Systems Trust (South

Africa), the International Health Policy Programme (IHPP, Thailand) and the Institute for Health Policy (IHP, Sri Lanka) provide a few representative examples.

Accountability arrangements also differ. For example, research institutes may be set up and directly managed and funded by government, have non-profit-making aims with an independent charter or act as for-profit organizations. Successful HPSR organizations appear to be those that have the following characteristics. They

- possess a considerable degree of operational autonomy, but maintain close relations to public sector policy-makers;
- are considered neutral by stakeholders;
- are geared to recruiting and managing HPSR researchers; and
- can mobilize high-level technical expertise while rooting such work in a firm understanding of the policy context.

The importance of leadership has also been identified as a key success factor in developing HPSR institutions (Nchinda 2002; CCGHR & BRAC 2007). Pitayarangsarit & Tangcharoensathien (see Appendix) show the important role of a small, committed group of ministry officials in establishing much of Thailand's HPSR infrastructure, and subsequently in providing leadership to develop specific institutions.

Some leadership attributes are common to all organizations – and include the need to set clear and feasible objectives and to obtain wide ownership of these among colleagues. In knowledge-generating organizations, strategic goals and vision need to address issues such as the focus of research and its links to national health policy needs, its ‘place’ within the organization alongside other activities and relationships with other key partners. Leadership attributes include high scientific quality and innovation (including the ability to work in a multidisciplinary fashion), and familiarity with global research trends (Nchinda 2002).

Good management systems are necessary as well. Again, some of these, like competent human resources management, and management and mentoring schemes, are fundamental to all organizations. Others, such as quality management (through setting up internal peer-review mechanisms) and ethical scrutiny procedures, are specific to research organizations. Given the reliance of many HPSR organizations on a large number of small grants from multiple funders, with different accounting requirements, one key capacity for such organizations is their ability to manage and account for research funds received.

At the wider level, governance of and interrelationships within the HPSR sector are also important. Most obviously, a healthy HPSR sector will have well-established procedures for the ethical approval and conduct of research, and a regulatory framework to support these procedures; the degree to which this responsibility is self-regulated by the research community or by formal agencies varies. We examine issues of working partnerships in the section “Communication and networks” in page 82.

Resources

Human resources – the research skills base

Research is a highly skilled and labour-intensive activity. HPSR organizations need committed and competent researchers with a range and appropriate mix of disciplinary expertise. For example, research on the policy issues related to the challenge of noncommunicable disease in Russia required consideration of epidemiological, demographic, public finance, health service management, labour market and political factors (Suhrcke et al. 2007). HPSR organizations need to be able to attract such diverse talent as well as the rarer experts who can bridge these different disciplines, and then provide an environment that nurtures them.

Throughout the world, however, HPSR organizations report difficulties in recruiting capable researchers (COHRED 2007). Salary scales in the HPSR field are frequently inadequate to attract scientists with the requisite training and background. This problem is particularly acute for those with medical training, who can command high salaries based on their clinical experience.

Retaining skilled staff is a further challenge faced by HPSR institutions. People may leave for other countries or non-research activities within the country, and (most obviously in low-income countries) for projects or country offices of major development agencies. This latter problem can be severe, because the types of expertise that make a good HPSR researcher or manager are in demand by such agencies. Donors can create distortions in the market for local HPSR skills by paying rates for remuneration that are substantially different from the rates paid for the same skills by local HPSR organizations (Birdsall 2007).

As a consequence, salary patterns are beginning to change. For example, organizations as diverse as IHPP, CIF and IHP report compensation packages for HPSR

experts that are significantly higher than for other (non-HPSR) researchers, with the compensation differential being as much as five times in the case of the Centre for Health System Development in Kyrgyzstan. Managers of these institutions report that paying higher salaries is often considered a critical factor in their successful development.

The way HPSR is commissioned poses a different set of issues. Several major funders of health research for low- and middle-income countries require that primary grant recipients be based in developed countries – the European Commission (EC) and its framework programmes for research and technological development is one prominent example of this, but many bilateral global health research agencies also require grant recipients to be based within the country from which the funds originate.¹ While some funders, such as the United Kingdom Department for International Development (DFID), have recently moved away from this policy towards open international competition, and others, such as the Swedish International Development and Cooperation (Sida/SAREC), combine allocations for national agencies with substantive funding targeted to low-income country institutions, the practice still provides strong incentives to researchers to emigrate to institutions in higher-income countries.

Other issues specific to HPSR make recruitment and retention particularly difficult. Since HPSR is relatively new and still insufficiently recognized as a field in its own right, working in an HPSR setting is often not attractive to good researchers who may fear being marginalized in their own fields or who cannot discern a clear career structure. In addition, the policy focus of HPSR may mean that research outputs are often not peer-reviewed academic papers but unpublished or even confidential

reports to decision-makers. Junior researchers may fear that shifting to HPSR could damage their careers.

Infrastructure

Although HPSR does not have major equipment or laboratory requirements (unlike biomedical research), it is a labour-intensive activity which requires a basic infrastructure. In addition to appropriate office space for researchers, this includes access to adequate computing equipment and software, the Internet, and online and paper-based library facilities. Proper infrastructure not only facilitates research but also aids in recruiting capable researchers.

Finance

The ability to develop suitable infrastructure and retain competent HPSR staff both rely on sustainable financing (Nchinda 2002). Research institutions are funded through core institutional grants and/or through specific project contracts, which are often competitively awarded. Institutional funding consists of monies provided to an organization to cover its costs, without close linkage to outputs, typically in the form of a fixed budget. One example is a public sector research organization financed as part of the routine government budget. Project funding is given for specific outputs, and can take many forms ranging from consultancy contracts to research grants.

Core grants are attractive because they provide a base for building infrastructure as well as a sense of security for research staff. They can be particularly important in the early growth stages of a research institution. Once established, institutions may be able to maintain their level of infrastructure and research staff with less (or perhaps no) core funding if they are able to charge full economic costs (including indirect and infrastructure expenses) for any contracted research or consultancy work they undertake, and if they have a sufficient level of such commissioned work. The trend in economies of

¹ See, for example, a recent award of grants by Irish Aid http://www.irishaid.gov.ie/grants_global.asp (last accessed 21 August 2007).

countries in the Organisation for Economic Co-operation and Development (OECD) is to diversify away from institutional core funding towards competitively based project grants, but the growing imbalance between institutional funding and project funding has been identified as a major concern by analysts (Conraths & Smidt 2005; Adams & Bekhradnia 2004).

A range of project funding sources are available to low-income countries research organizations. One source is through consultancy contracts awarded for specific pieces of analysis by donor or national agencies. This type of funding is most likely to involve monitoring and evaluation exercises, operational research or research on issues of importance to a particular sponsor. Although this work is often undertaken by consultancy firms, it can represent a significant source of financing for some research organizations. It may have disadvantages, however, in that it may be narrow in scope, project-oriented and targeted to the needs of a specific client, rather than aligning with the local policy agenda.

Another key source of funding is through (often competitively awarded) research grants. These can fund much broader areas of work than a typical consultancy contract and for longer time periods, and may allow greater scope for the organization to determine the actual work content. In middle-income countries most research grant funding for HPSR is from domestic sources, but in low-income countries international sources are dominant (Ali & Hill 2005). These include research funding agencies based in high-income countries prepared to provide grants to scientists in low-income countries; donor agencies; and philanthropic foundations such as the Bill & Melinda Gates Foundation and the Rockefeller Foundation. Much of this money is distributed through open, competitive mechanisms. Its large volume means that if HPSR organizations are geared to obtaining such funding, it can dwarf available domestic funding. These grants typically flow through partners in developed countries and are administered through agency-specific

accounting systems, both of which may require specific capacities for partners in developing countries in terms of accessing funds and accounting for them. Indeed, as organizations rely more on diverse funding sources, financial management capacity becomes critical.

Funding agencies differ in their willingness to allow or their desire to incorporate funding for capacity development activities as opposed to generation of research findings. The EC, for example, has explicitly incorporated capacity development in its International Cooperation with Developing Countries (INCO-DEV) funding programmes (Van Damme et al. 2004). Where funding agencies do not explicitly allow for national research institutions to build capacity development activities into their grants, this may not only affect the development of institutional capacity, but also the quality of research conducted.

By its very nature, HPSR is a public good, and its outputs have little commercial value. Public or philanthropic funding of HPSR is thus a necessity. Richer health systems recognize this by relying predominantly on domestic public financing to support policy research. Even in the USA, where philanthropy typically makes a significant contribution to research, public federal funding for health services research amounts to about US\$ 1.5 billion per annum, whereas the largest philanthropic funder made US\$ 5–6 million per annum available (Coalition for Health Services Research 2005). However, as pointed out in Chapter 4, priority for financing HPSR among low-income-country governments remains low. Inevitably, the lack of public financing is most severe in such countries. Consequently, in many of the poorer countries the key HPSR institutions depend substantially on external research funding, with a significant component of this coming from international competitive grants.

Communication and networks

Effective HPSR institutions do not operate in isolation; they need to be able to communicate with a variety of stakeholders, including policy-makers, research funders, knowledge brokers and advocacy organizations. This communication may be through networks that are informal, such as those operating in the Thai health sector (see Appendix), or formal (such as Equitap, Equinet, HEPNet² or even the Alliance itself). The importance of such networks is increasingly being recognized (Stein et al. 2001), although in practice potential benefits must be weighed against time costs associated with membership.

Partnerships between research institutions or between researchers are also increasingly important in HPSR. This is the result both of growing awareness of the benefits that partnerships can bring to research organizations in general, and the trend for a growing share of international HPSR funding to be available only through partnerships. Partnerships in HPSR generally take two forms – between organizations in developed and developing countries, and between developing countries themselves.

Research partnerships offer a number of benefits (Oldham 2005), and there are specific advantages for HPSR. These include:

- enabling the sharing of knowledge and expertise, and acquisition of new skills;
- strengthening the research system as a whole by increasing linkages and communication between researchers;
- increasing the pool of funds available to individual institutions;
- enabling joint approaches to problems otherwise impossible for individual institutions to solve;

- facilitating comparative research between countries; and
- in the case of international partnerships, providing national HPSR researchers with a broader perspective for analysing issues and problems in their own health systems.

There are, however, also associated difficulties. A diverse literature describes problems that can arise in partnerships between 'northern' and 'southern' (i.e. between developed- and developing-country) institutions (Gaillard 1994; Edejer 1999; Jentsch & Pilley 2003; Binka 2005). Of these, common problems in HPSR research include domination and exploitation of southern partners by stronger northern partners; the use of southern HPSR organizations as data collectors, with little role in analysis, which has at times been characterized as 'safari research' (Acosta-Lazares et al. 2000; p1.); and downgrading of capacity-strengthening objectives by northern partners more interested in academic publications than capacity strengthening (Bernard 1988; CCGHR 2007; Ter Kuile 2007). A more specific problem is that funding agencies in developed countries may be less ready to fund coordination costs of partners in developing countries, thus inhibiting them from taking a leadership role.

For many researchers, communication skills have largely been developed in the written, often formal academic writing mode, with less emphasis on other means of communication. It is increasingly important for HPSR institutions to have the capacity to communicate using a range of approaches. Researchers as individuals and as organizations need to consider carefully the dissemination aspects of research alongside the production of knowledge. Strategies to improve dissemination include involving key stakeholders from the inception of a research project, and developing a variety of forms of output ranging from traditional peer-reviewed articles and policy briefs through to videos and even dramas. This element of dissemination is closely associated with

² Equitap, Equity in Asia-Pacific Health Systems; Equinet, Regional Network for Equity in Health in Southern Africa; HEPnet, Health Economics and Policy Network in Africa.

the function of filtering and amplification, which is discussed further in Chapter 6.

Another element of this capacity dimension is access to and management of information. Organizations involved in HPSR require information at various levels. First, they require access to information as part of their research function. Long-established HPSR institutions have built up mechanisms for identifying and accessing routine data either through in-country data sets (such as demographic surveillance systems) or through Internet-based information (including access to other published research), as well as generating their own systematic primary data sources. However, such institutions also require information about the HPSR environment within which they operate. This would include identifying emerging health policy and system research needs, future research funding opportunities, activities of potential partners and competitors, and information concerning the skilled labour market. Finally, in common with any organization, HPSR institutions require information to support their internal management and governance functions. The capacity to manage such information can be a critical component of the success or failure of an HPSR institution – yet it is often not given the attention it deserves.

Technical research capacity

As Chapter 1 indicated, the health system requires a variety of types of research, each with its own set of methods appropriate to the particular questions it seeks to answer. The areas of basic science and biomedical research are the best established, with HPSR a relatively recent addition. HPSR itself covers a range of areas of focus, including health systems research related to specific diseases (e.g. different approaches to delivery of DOTS (directly observed treatment, short-course)), research into more generic systems issues (e.g. methods of financing health care), and research into the content and processes of health policy-making. Fundamental to

these areas of inquiry is a need for research into basic health system concepts (such as recent work on the importance of trust in health systems (Gilson 2003)). As was argued in Chapter 4, national health research needs go beyond adapting interventions to fit local systems – HPSR must assist in building sustainable and effective health systems. This includes ‘discovery and innovation’ for health systems, i.e. in stewardship, governance, financing, resource management and informatics, as well as service delivery.

Prior to the 1980s, HPSR often consisted either of document reviews or analyses of particular problems using the tools of a single discipline, such as public finance. Now that health policy problems are increasingly recognized to be multifaceted and health systems complex, more comprehensive, multidisciplinary methods are becoming more common. Qualitative research methods are now widely used alongside well-established quantitative approaches.

There are, however, areas within HPSR where methodological and conceptual development is still needed. Examples include methods related to comparison across different contexts and health systems; methodologically challenging areas such as research into corruption; basic concepts such as equity; the ethical dimensions of HPSR and systematic reviews of HPSR. While the Cochrane Collaboration has well-established approaches to the syntheses of effectiveness research, systematic reviews of HPSR relevant to developing countries suffer from the limited number of high quality health systems impact evaluations that meet typical inclusion criteria, and the lack of consensus around appropriate methods to synthesize evidence regarding other types of (non-effectiveness) research questions (such as, how communities perceive an intervention, or how best to implement a particular policy change). Given the multidisciplinary nature of much HPSR, there is also a need for greater understanding of how different disciplines relate to each other and can be complementary.

Even where methods exist, their application in low- and middle-income country contexts may be very limited. For example, an unpublished thesis sought to identify how many systematic reviews in the health field have been conducted which included at least one author from any of 10 low-income Sub-Saharan African countries (Burkina Faso, Cameroon, the Central African Republic, Ethiopia, Kenya, Mozambique, Niger, Uganda, the United Republic of Tanzania, and Zambia). A total of 27 systematic reviews were identified that met these criteria. However, the vast majority were reviews of clinical, not health policy and system interventions. Only two reviews addressed service delivery issues, and none addressed governance or health financing arrangements (Sachs 2007).

All these points suggest an important area in which HPSR needs to be strengthened, and yet responsibility for making it happen lies beyond any particular health system or research organization.

Strategies for improving capacity

Having outlined the key dimensions relating to the capacity of HPSR organizations, we now examine strategic elements for strengthening capacity that we suggest are critical.

Developing research organizations

Initiatives to strengthen HPSR capacity have largely focused on training individuals in the belief that shortages of researchers were the critical constraint. This is not entirely correct; the centrepiece of HPSR capacity strengthening must be strengthening *institutions* and the wider HPSR *environment*. Such interventions are more likely to result in sustainable HPSR capacity than solely investing in individuals. Furthermore, strong institutions can substantially compensate for adverse conditions, including limited national funding.

Institutions also provide the necessary environment for the multidisciplinary approach which is central to HPSR.

Low-income countries with a major capacity gap may need to devise strategies aimed at setting up new research organizations. Even where research organizations already exist, it might be worthwhile assessing whether they meet the wider system needs.

HPSR organizations should respond to national health policy needs. However, they also need sufficient operational and financial autonomy so that they can mobilize and manage resources, recruit and retain skilled experts, and pursue a coherent research strategy which is not excessively influenced by short-term or external pressures. The difficulty in achieving this balance is illustrated by DFID-funded efforts to create specialized HPSR units within health ministries (see Box 5.2).

The outputs of HPSR must, of course, be credible to policy-makers. However, this is not always easy, as too close a connection with particular stakeholders can create a perception that the research is biased. However, too great a distance from decision-makers, particularly key public officials, can lead to the research being ignored. In developing governance arrangements for new or existing HPSR institutions, careful attention needs to be given to these tensions.

An example of the attainment of such a balance can be seen in China, Hong Kong Special Administrative Region (see Box 5.3).

Investing in leadership and management of HPSR institutions

Having research institutions is, of course, not enough. High-quality research requires trained staff, infrastructure and leadership. Organizational theory stresses the importance of leadership in building strong and effective institutions (e.g. Yukl 2005). Organizations need to start by recruiting appropriate leaders who have a range of abilities, in addition to research skills. Senior institutional

BOX 5.2 EXPERIENCES WITH INSTITUTIONAL SUSTAINABILITY IN THE HEALTH ECONOMICS AND POLICY UNITS OF BANGLADESH, KYRGYZSTAN AND THAILAND

DFID has supported the establishment of HPSR or health economics units as sub-departments of ministries of health in Bangladesh, Nepal and Kyrgyzstan. However, this has had varying success (Rannan-Eliya 2007).

Particular problems include an inability to attract and retain specialized technical staff under normal civil service regulations and remuneration levels; inability to ensure adequate financing; instability in leadership; and lack of adequate protection against short-term political pressures.

In some cases, recognition of these problems led to subsequent efforts to base HPSR units within external autonomous organizations, such as universities. However, results have been poor. This is either because these host organizations are so autonomous that they find it difficult to sustain a research agenda that satisfies the policy-makers, or because they have other long-standing objectives which prevent a strong focus on HPSR.

The most successful in terms of sustainability has been the Kyrgyz Health Policy Unit. In the early 2000s, when it was clear that its core DFID funding was unlikely to be sustained, the unit launched a systematic analysis of its potential options, and a global review of the problems faced by other similar centres (Jakab, Tairova & Akhmatova 2004). This led the Kyrgyz unit to develop a long-term strategy that involved creating its own successor, which was a new, legally-independent research and training centre, operating outside the health ministry structure, but with lines of accountability to senior ministry staff. This has provided the long-term operational flexibility needed to retain staff and mobilize resources, while allowing the centre to maintain its close relationship with key policy-makers.

This approach contrasts with capacity-strengthening efforts in Thailand, which focused on creating an autonomous public sector HPSR institute (the Health Systems Research Institute, HSRI) outside the health ministry. However, as it matured, its economics analytic unit shifted into the Bureau of Policy and Strategy in the Ministry of Public Health, and it became a semi-autonomous unit. Unusually, this new unit, IHPP (International Health Policy Program), is able to function in a civil service environment, employing civil servants but paying supplements to normal salary scales; and it has extensive ability to mobilize its own funding (see Appendix).

BOX 5.3 ESTABLISHING AN HPSR UNIT IN HONG KONG SAR

A review (Harvard Team 1999) of Hong Kong SAR's health system recommended to the territory's health bureau the establishment of a new HPSR institution. Although HPSR was conducted in Hong Kong SAR's public sector university medical and economic departments, its range was limited and usually not responsive to decision-makers. While interest and the financial and technical resources to establish the necessary HPSR capacity existed in the territory's Hospital Authority (HA), policy-makers were not inclined to develop a centre there, partly because the HA was itself a major stakeholder with which the bureau had to negotiate. No new HPSR institution was established, and instead the bureau became a commissioner of research. Under this approach, the leading HPSR centre that emerged was a specialized research group that evolved in a newly established public health school within one of the local universities. This group has the advantages of its staff enjoying good relationships with key public sector officials, being able to pay competitive remuneration and yet being seen by most stakeholders as sufficiently neutral.

Source: Leung (2007).

staff need to be able to develop management and leadership skills, and to be given adequate freedom to exercise these skills. Investment in this area should be seen as an important strategy for developing such organizations. Networking and exchange among leaders can also be an effective capacity-strengthening strategy. Alongside the development of leadership skills, organizations need effective management systems, particularly in the areas of finance, staffing and future planning. Such systems may historically have been neglected, but they are likely to be critical elements for success – particularly for institutions seeking greater autonomy and financial diversification.

Ensuring a supply of researchers

The next set of capacity strategies relate to recruitment and retention of high-quality scientists. We have argued that previous capacity support focused on individuals rather than institutions. For this reason, strategies need to link research training to the wider development of those institutions, including ensuring that, alongside

technical staff training, there are clear strategies and resources in place to ensure employment opportunities, and that appropriate research environments are part of the wider staff development packages. It would appear that a shift *is* occurring towards a more institutional approach, which we would endorse. As such, HPSR institutions need, as part of their long-term strategies, to develop specific strategies related to staff and which take account of the following issues.

Valuing researchers and nurturing young professionals

As with any professional group, health policy and systems researchers seek recognition in a number of ways. Without such recognition, they will find employment elsewhere. Because HPSR is a young field, it can lack the recognition and clear career structures of more established research fields. This – in addition to obvious issues of pay and infrastructure that apply to all research staff – may make it difficult for HPSR organizations to attract and retain young researchers. These problems compound the general difficulty that poorer countries

face in attracting back young researchers who have trained abroad.

HPSR institutions can respond by providing concrete opportunities to attract potential researchers, and then providing them with a viable professional pathway. Such employment opportunities can be very important for young researchers who have just graduated abroad, and who are most likely to return to their countries immediately after graduation. Some donors (e.g. Special Programme for Research and Training in Tropical Diseases, TDR; Sida/SAREC; and the Danish International Development Agency, DANIDA) have introduced innovative approaches to encourage doctoral students to maintain links with their home institution. The 'sandwich model' of doctoral training requires students to conduct their research in their local context, with time at the supporting international university for coursework, analysis and composition. By ensuring that trainees select thesis subjects that are more specific and relevant to the problems of their countries, this model has helped trainees to resume research in their home environment on completion. In some instances it has also accelerated the process of institutional strengthening (Nchinda 2002).

Senior researchers can provide important role models for junior researchers and, where HPSR is not well established, be influential mentors. This is especially important since there is little formal guidance on careers in HPSR. Thai policy-makers have paid particular attention to these issues in the past decade, helping the country build a sizeable group of committed and trained health policy and systems researchers (see Appendix).

Developing an identity for HPSR and a critical mass of health policy and systems researchers

Implicit in bettering recognition for researchers is the need to develop a more coherent disciplinary and professional identity for HPSR globally and nationally. Additionally, a critical mass of health policy and systems

researchers must be cultivated at both the national and international levels to provide personal and professional mutual support.

Leading academic centres have moved in recent years to recognize HPSR as a distinct area of knowledge in its own right. The benefits of putting HPSR on clearer academic footing are illustrated by a senior researcher at one of Bangladesh's universities, who observed that the emergence of many academic institutions competing for the same skill mix has made it easier to recruit good staff because people are less afraid that they may be left professionally stranded if they decide to leave their current institution (Rahman, personal communication, 2007).

Ensuring financial sustainability

Diversified funding sources

Ensuring a long-term reliable source of funding for HPSR organizations which will cover all their operational and capital costs is essential. Individual research organizations need to develop their own specific strategies for financial sustainability which fit the particular health system and wider context within which they operate. There are various issues that such strategies need to consider.

Given the reality of financial constraints within the health system, and the seeming trend towards more project-based funding for research, organizations need to develop strategies to diversify their sources of funding. For example, in the case of IHPP in Thailand, this type of funding has grown from being a supplement to core funding to being the major source of financing (Appendix), and similar trends are reported by leading HPSR centres in Kyrgyzstan and Sri Lanka.

For funders of HPSR activities, whether at the national or international level, consideration needs to be given to the balance between core institutional funding and project-based funding. It is particularly important for

research funders to recognize that ‘young’ institutions are likely to require more core support before they are in a position to diversify their funding; however, even mature institutions may need such funding to ensure that they can work on key issues which may not be funded through project work. Furthermore, research funders need to recognize that whether making monies available through core or project routes, many institutions in low- and middle-income country institutions need support, over and above normal operational costs, for capacity-development activities.

One area where the current policy of many donor agencies is unhelpful relates to procurement practices for consultancy work. Where remuneration is inadequate, HPSR organizations may face pressure to allow staff to supplement their incomes with external work. However, this practice can be counterproductive and result in researchers’ incentives diverting from the institution’s agenda. Such work can also be difficult to monitor and may cause internal tensions. In addition, if consulting contracts do not allow charging of overhead costs, an institution may find it harder to recover its core operating costs, undermining its sustainability. Ultimately this problem stems from low basic remuneration, and overly-rigid institutional rules may, under such circumstances, lead to further loss of staff. Such situations require concerted action by both institutions and contracting agencies. HPSR institutions need to develop clear policies for consultancy work and to apply them uniformly. Contracting agencies need to revisit their own policies to assess the potential damage they inflict on institutional capacity when they preferentially use individual consultancy contracts – often on the grounds of minimizing costs – to obtain HPSR inputs from HPSR organizations, instead of full institutional contracts.

Financial management

The quality of financial management can be critical in ensuring financial sustainability. This Review cannot

cover all the important issues and challenges in improving financial management.³ However, the following are two common issues that effective HPSR capacity-building efforts must pay attention to.

First, where an organization’s rules and governance are not designed to manage a more diversified funding base, then change is necessary. If this is not possible within the public sector framework, consideration should be given to alternative institutional structures and locations.

Second, a shift to project funding requires that an institution has internal financial controls and information systems that will satisfy the reporting requirements of funders. HPSR organizations may need to make significant investments in upgrading their own internal systems.

Funding agency responsibilities

Accordingly, agencies that fund research (and consultancy) may need to reconsider their funding policies at various levels. Their approaches to contracting mechanisms may need to take account of the current stage of any particular national HPSR sector. In countries where HPSR institutions are weak or emerging, funding policies need to recognize that costs of such institutions may be higher than more established institutions. Additionally, agencies need to consider their mechanisms for funding research, and in particular what mix of core and project funding they use. Related to this is the need, as stressed in the preceding chapter, for greater emphasis on either channelling funds to local research priority-setting approaches for distribution to national institutions or, if necessary, funding national research institutions directly. Furthermore, agencies need to take account in their procurement policies of the effects of individual consultancy contracts on institutions. As described above, such

³ For an excellent and detailed coverage of the key issues the reader is referred to Struyk (2002).

contracts have potential negative effects on research organizations; but more fundamentally, private contracts limit the degree of responsibility and autonomy given to developing country institutions. Over time they may undermine the development of problem-solving capacity (Gaillard 1994).

We suggest that agencies also need to incorporate specific costs into research funding for institutional and indeed sectoral capacity building. This has, for example, been a feature of EC-funded research (Van Damme et al. 2004).

Finally, of course, all these measures require much greater investment by funders in capacity development through dedicated strategies.

Investing in future HPSR methods development

There are a number of areas in which methodological development is needed as outlined earlier, such as comparative methodologies and systematic reviews. Developing technical research capacity must be the collective responsibility of all knowledge-generating HPSR organizations, with adequate attention being paid to this by priority-setting and funding organizations. It is a responsibility that is truly global.

Developing appropriate methods for disseminating research results is a related area which also warrants capacity development. Research institutions need to be able to draw on a range of approaches to disseminating output in forms that are acceptable and digestible to a range of audiences. At one level, this objective will require greater emphasis in staff training and continuous outreach efforts. However, new approaches to dissemination must be developed as well. This is further discussed in the section in the following chapter on knowledge brokering.

Improving partnership strategies

We suggested earlier that partnerships are becoming an increasingly important feature of research activity. Partnerships provide a means of bridging complementary disciplines and facilitate cross-country comparative work. They also provide opportunities for capacity strengthening through exchange of staff, ideas and skills. However, increasing recognition of the potential problems of partnerships (Bernard 1988; Binka 2005; Jentsch & Pilley 2003; Gaillard 1994; CCGHR 2007) has stimulated strategies for improving the design and management of such interactions – especially those involving partners in developed and developing countries (see, for example, the guidelines issued by the Swiss Commission for Research Partnership with Developing Countries, Box 5.4). These guidelines stress the need for equality between partners in the use of results, access to information, management responsibility and agenda setting. One promising approach to this goal is for organizations in developing countries to take the lead in initiating and coordinating partnerships. Managing complex partnership arrangements can be difficult, however, and in some institutions, research management capacity may need to be specifically strengthened. Partners in developed countries must be sensitive to the effects that unequal relationships can have on partners from developing countries, and to consider explicitly, in their activities, how to ensure capacity is strengthened rather than constrained.

Given the unevenness of research capacity in health systems in developing countries, there is also potential for more learning between partners within developing country contexts.

Since partnerships bring great benefit to the HPSR process, funding agencies should continue to support them and to encourage their formation in funded research. Special attention should also be given to supporting partnerships initiated and led by HPSR organizations in

BOX 5.4 PRINCIPLES OF RESEARCH PARTNERSHIP

- Decide on the objectives together.
- Build up mutual trust.
- Share information, develop networks.
- Share responsibility.
- Create transparency.
- Monitor and evaluate the collaboration.
- Disseminate the results.
- Apply the results.
- Share the profits equitably.
- Increase research capacity.
- Build on achievements.

Source: Maselli, Lys & Schmid (2006).

developing countries. This must include providing such institutions with funding to cover their coordination costs.

Developing an HPSR culture and critical mass

The discussion above has focused largely on strategies for enhancing the capacity of individual research organizations. However, some countries also need to strengthen the knowledge generation and dissemination function at the wider system level.

An effective health research system depends on a critical mass of organizations and researchers. Mexico, South Africa and Thailand all have several institutions involved in HPSR, and that seems to provide a healthy environment – policy-makers are not forced to rely on one institution alone for advice, and there is greater scope for institutional collaboration and competition. Other essential components of the system include effective inter-institutional communication and networking, and developing a culture and identity for HPSR.

Attention also must be paid to the wider governance of the HPSR sector, including areas such as ethical scrutiny and the relationships between the research community and policy processes.

Accordingly, countries with weak HPSR capacity may require comprehensive assessment of the state of the national HPSR sector, led perhaps by a partnership of research institutions and government to identify system capacity needs.

Conclusions

Of the four functions that make up the HPSR framework, knowledge generation and dissemination has received the most attention in terms of capacity strengthening. Yet it is clear that some countries and some organizations still have major capacity needs in terms of governance and leadership, resources (human, material and financial), communication and quality of research. Strategies are needed to identify and respond to these needs at the institutional level and beyond. In the following chapter, we examine what happens to the results of research – the filtering and amplification function.