

Health Research: Powerful Advocate for Health and Development, based on Equity



A COHRED issues paper

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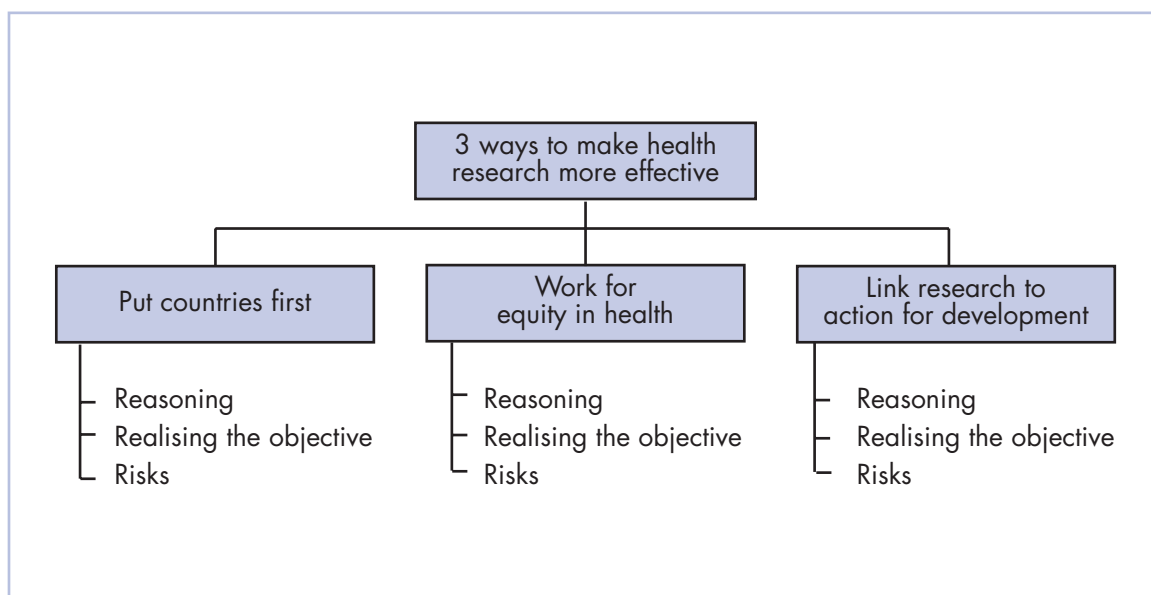
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Introduction: Three Features of Effective Health Research

Structure of this issues paper



1.1 What this issues paper is about

This paper seeks to better equip those who promote and advocate health and development based on equity. It describes how health research can be a powerful instrument to reach that goal. It is part of the publications programme of the Council on Health Research for Development (COHRED) that seeks to document experiences and insights from and for countries implementing Essential National Health Research (ENHR). It argues that health research can become a powerful means of promoting and advocating health and development based on equity. Left to market forces and curiosity alone, however, health research will tend to reflect the priorities and health problems of the rich. Instead of helping to narrow the gap between rich and poor, it will simply widen existing disparities.

This issues paper is intended to assist people in countries that advocate a different approach to health research – one that has as its central aim better health, more development and less inequity. It proposes three ways to make research effective, namely to:

- put countries first;
- work for equity in health; and
- link research to action for development.

For each of these principles, the paper provides suggestions and food for thought, organised under the three headings of reasoning, ways of reaching the objectives, and the risks entailed. However, it is not meant to be a handbook on *techniques* for promotion and advocacy – other publications do that much better.¹ It is intended to demonstrate that health research can

¹ A good example is the SARA publication: Sharma R (1997) An Introduction to Advocacy: Training Guide. Support for Analysis and Research in Africa (SARA) Project, Academy for Educational Development, Washington DC (Email: sara@aed.org)

become a powerful advocate for health and development in ways that make that research more effective in any country.

1.2 Damned if you do and damned if you don't

Health research poses a dilemma for leaders in developing countries. On the one hand, there is clear evidence from *knowledge-based economies* like Japan, the United States and Western Europe that investments in research drive progress, leading to human development and economic growth. International agencies like the World Health Organization, the World Bank, the Global Forum for Health Research and the Council on Health Research for Development all argue that more emphasis on health research will improve health. On the other hand, developing countries struggle to see any benefits from investments in health research. The main output of much university-based research seems to be academic papers or reports in folders that add little other than a line to someone's resumé. Newly trained researchers are drawn to the bright lights of North America or Western Europe; and the lack of resources make country contributions to global knowledge seem insignificant. Many health ministries funding research are hard pressed to describe any systematic contribution of that research to improved health status – isolated anecdotes perhaps. How do leaders in developing countries approach this dilemma? If research is not supported, poorer countries risk becoming even more marginalised than they already are, as new knowledge and technologies pass them by. But at the same time, these countries don't have the money to throw away on efforts that produce very little public benefit in return. Damned if you do and damned if you don't.

1.3 The myth of the inviolability of research

Compounding this dilemma is the myth that research is somehow sacrosanct – a public good in its own right that needs to be protected from a squeeze on the public purse or even a little political pressure. In one sense, this is true. The whole purpose of research is to *think outside the box*, to make discoveries and to challenge existing notions of the world – and this requires the space and resources to be creative and intellectually honest. It is often important for different research groups to tackle the same problem from different angles, developing new perspectives and challenging findings of earlier studies. It is also important that research findings be tried and tested through repetition of research. All the same, the public is entitled to expect the same of research as it does of any other public programme, namely that its investment is used efficiently and effectively.

Box 1: Ten Research Practices that are Inefficient*

Reinventing the wheel: Researchers fail to find or use existing knowledge that may answer the question that they are asking;

Doing parallel research in isolation: Different groups of researchers work on the same problem without learning from each other and sharing outputs**;

Empire building: Research funding that is channelled into boosting institutions at the expense of research outputs;

Bad science: Poor methodologies that simply waste resources;

Cloistering in ivory towers: Doing - often good - research in academic institutions that is not put to good use, because of poor communications with users or because the results are never written up or published;

Chasing the market: Letting the health products market, especially the pharmaceutical industry, determine the agenda: - more resources allocated to the problems of the rich, and too few to those of the poor;

Giving scientists free rein: Allowing scientists to set the research agenda on their own, without taking into account equally important priorities of investors and users of research;

Letting the Minister decide: Research agendas that are too heavily concentrated in the hands of health ministries tend to allocate too many resources to present problems and too few to those of the future;

Isolating research disciplines: Treating pure and applied research, and individual research disciplines as separate entities;

Hogging the limelight: Failing to use the opportunity that research offers to develop skills among new researchers, including developing research methodology, writing up and presenting findings.

* For a more systematic review of potential inefficiencies in research, read the journal article by: Dasgupta P, David P (1994). Towards a New Economics of Science. *Research Policy* 23:487-521

** Note that the concern here is about research projects that do not learn from each other, rather than about overlapping or repeated research that attempts to shed new light on the same problem

The real question is not *if* research should be examined critically from the point of view of efficiency and cost-benefit, but *how* to gauge the benefits of research. In fact, many of the benefits of research are indirect – or at least not immediately apparent. And in most cases it is not possible to directly link health research to better health outcomes.

A starting point is to recognise that research leads to better health in different ways.

These include:

- In the broadest sense, contributing to a national environment of R&D that is essential for continued economic growth and human development;

- Fostering a climate of learning and sharing new knowledge that enables clinicians, technologists and policy makers to take informed decisions;
- Adding to the pool of scientific knowledge that enables new discoveries to be made and new technologies developed;
- Answering some of the questions directly related to health problems, especially those that seek to make a cause and effect link – at the biomedical, behavioural and health system level; and
- Showing where there is wastage, and how limited resources can be better used.

Some people argue that the contribution of health research is so multi-faceted - so important, yet difficult to pin down – that efforts to gauge efficiency and effectiveness are, at best fruitless. At worst, they jeopardise the delicate fabric of national research environments by alienating the research community and undermining existing infrastructure. But it is precisely *because* the contribution of research is so difficult to define that extra effort should be made to ensure efficiency and achieve the best outcomes from country investments. Left to market forces and curiosity alone, health research may show all the inefficiencies that motivated public investment in the first place, namely under-investment in research that benefits the public as a whole, and inadequate application of new discoveries to all who could benefit from them.

1.4 In a dart game, aiming at the target increases the chance of hitting the bull's eye

The value of Marie Curie's discovery of X-rays, John Snow's pinpointing the source of a cholera epidemic or Alexander Fleming's discovery of penicillin, lay in their general applicability.



People across the world continue to benefit from these and similar discoveries. But some people do not benefit, because – for one reason or another – they do not have access to these effective health interventions. Other known interventions are still too expensive for widespread use. Still others have yet to be discovered or invented.

These same market forces and curiosity may also enable health research to substantially increase our *know-how* – advancing new technologies and leading to dramatic breakthroughs in medicine. In some instances these breakthroughs may even have important implications for the health problems of the poor. Studies in recombinant DNA and monoclonal antibodies are good examples. But like a game of darts, aiming at the target increases the chance of hitting the bull's eye. At the end of the twentieth century, only 5% of all public expenditure on health research focuses on the biggest problems in developing countries – where, not incidentally, most of the global burden of disease is found.² Somewhere along the line, the glamour and marvel of *cutting edge research* has left most of the world's people behind.

2 Global Forum on Health Research (1999). *The 10/90 Report on Health Research*. Geneva

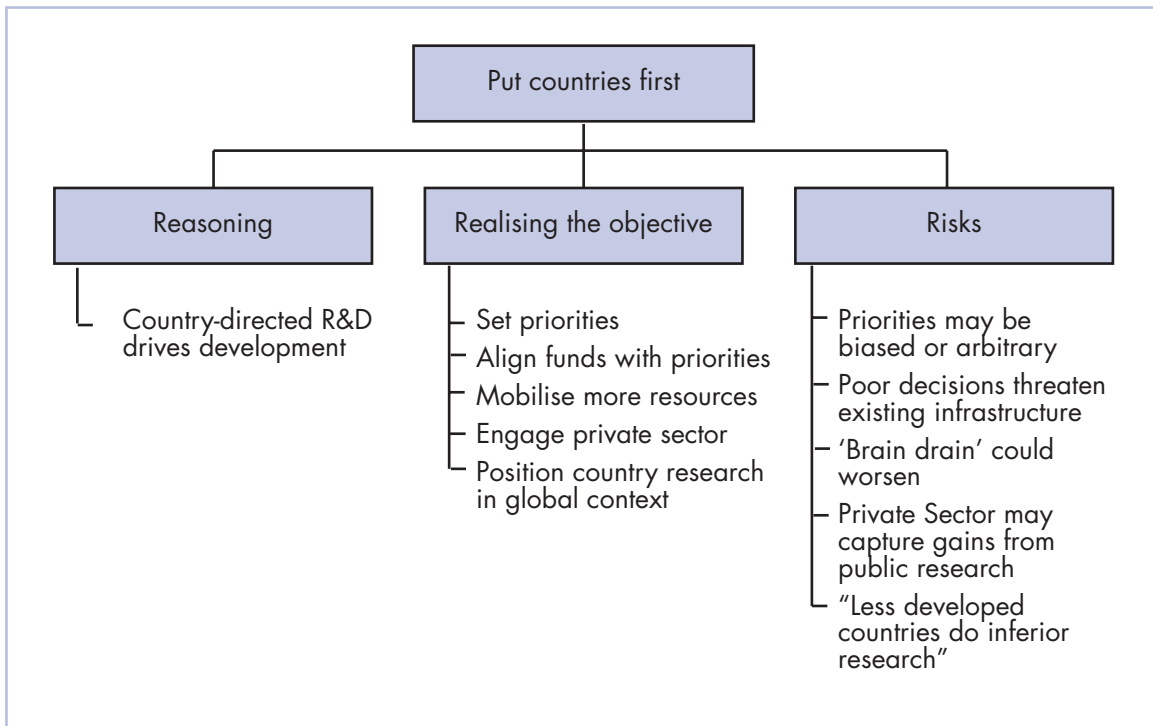
In effect, global investments in health research have become increasingly inefficient – huge spending involving researchers from almost every country in the world, but focused on the health problems of a minority of the world’s population. Even within countries that have a disproportionately high burden of disease, research efforts often reflect the priorities of multinational companies and international agencies. Countries that face the dilemma of supporting research with very limited budgets have most reason to achieve good returns on public investments. For them, it is not enough that health research achieves technological advancement. Health research must be seen to contribute to public knowledge that improves health, fosters development and reduces the disparities between rich and poor.



Strategy One: Put countries first

The three principles of effective health research

- **Put countries first**
- Work for equity in health
- Link research to action for development



2.1 Reasoning

Perhaps the strongest argument for putting countries first is the tremendous success of those nations that have done exactly that. R&D in developed countries like the United States, Western Europe and Japan has been driven by self-interest - to great effect.³ Some developing countries, particularly in Asia, have been very successful in harnessing knowledge for their benefit.⁴ Obviously, less developed countries face an even greater challenge. Resources are strictly limited and some of the development in richer countries has been at the expense of poorer ones. But the point is that national research efforts that have responded directly to specific challenges within countries have proved most successful. Current trends in globalisation make the case for country focus even more important. While technologies now exist for new

3 A very illuminating overview of the role of American universities in technological advance is: Rosenberg N, Nelson R (1994). American universities and technical advance in industry. *Research Policy* 23: 323-348

4 See the latest *World Development Report* for further examples of how developing countries have generated new knowledge or adapted existing knowledge to great benefit: World Bank (1999) *World Development Report 1998/9: Investing in Knowledge*. Oxford University Press, New York.

knowledge to be rapidly disseminated around the world, the reality is that developed countries are the main beneficiaries – and the “globalisation of knowledge” is a bit of a misnomer. Privatisation of research, tighter intellectual property rights and the growing gap in access to communication technologies are all factors that work against the interests of the poor in developing countries. While developing countries try to take advantage of the benefits of a “global economy”, they need to ensure that the concerns of the people of their countries don’t get lost in the process. The objectives of national research in less developed countries are at least threefold.



2.1.1 First, to use existing knowledge, technologies and health interventions more effectively

In some cases, this may mean adapting knowledge and technologies for local use. In other cases, it will mean making current intervention efforts more efficient and effective.

2.1.2 Second, to make interventions that are known to be effective (yet expensive), simpler and more affordable

Often, this will involve collaboration with researchers from other countries faced with similar health priorities.

2.1.3 Third, to participate in research that seeks to discover new ways of dealing with priority problems

In some instances, this participation may mean involvement in actual research efforts. In other cases, less developed countries may play the role of advocate of research that addresses their priorities without necessarily participating in the actual work. Advocacy may be directed at international investors and agencies, as well as researchers in developed countries.⁵

Globalisation brings both opportunities and risks for less developed countries: On the one hand, the explosion of knowledge and ease of communication allows countries to derive rapid benefit from new discoveries. On the other hand, less developed countries risk contributing human and other resources to a global health effort that has limited local application. Health advocates need to ensure that all three objectives of a national research effort described above are realised.

5 See *Investing in Health Research and Development* for a good analysis of research needs related to priority health problems. [Ad Hoc Committee on Health Research Relating to Future Intervention Options (1996) *Investing in Health Research and Development*. World Health Organisation, Geneva (Document TDR/Gen/96.1)]

Box 2: How health advocates in the Philippines promoted Essential National Health Research

A few key individuals in the Department of Health became convinced that implementing a strategy of Essential National Health Research would benefit the Philippines. The DOH became a prime mover and catalyst for ENHR, bringing together a group of scientists, decision-makers and community advocates who shared their convictions. A groundswell of support for the concepts behind ENHR gradually built momentum nurtured by a series of workshops, consultative meetings and national conferences. ENHR became a catch phrase, reinforced by pamphlets and other publications. Finally, this group of activists for health felt ready to raise ENHR to an official level, developing a conceptual framework and planning for its implementation in the Philippines, in conjunction with the Philippine Council for Health Research and Development. An administrative order formally established the ENHR programme. One of the programme's first activities was to set a 5-year agenda for health research based on national priorities. An ENHR desk was created in the DOH, supported by a cross-sectoral and interdisciplinary advisory body. This ENHR programme promoted health research with an annual Health Research Awareness Week, celebrated nationally and in the regions. It produces a number of regular, user-friendly publications - including a newsletter, executive summaries and programme papers. Research- and researcher-friendly, it has managed to raise the profile of health research and exert leverage on additional funds. In time, it became clear that an effective mechanism for ENHR needed more flexibility than was possible within the Department, and the ENHR Foundation, Inc. came into being. It is a relatively young organisation that has to generate its own resources for day-to-day operations. Members work part-time. As an autonomous organisation it suffers from the lack of direct, stable and well-defined links with policy-makers. Changing faces within the DOH also make communication continuity difficult. Despite these problems, the ENHR Foundation has made a name for itself and has had an effect on health research in the Philippines. Several points to note emerge from the Philippine experience: Through the efforts of a few country advocates, the idea of health research as an instrument for health and development took root and grew. The concept of essential national health research was not "owned" by any one organisation, but became a national strategy accepted by the Department of Health, the principal health research council, and health advocates outside the government. The process spawned a new organisation that strengthened ENHR, rather than divided the research community. Government and NGO were seen to be working together, drawing on their respective strengths, towards the common goal of better health for the people of the Philippines.

Source: Abaya E, De la Cruz A, Layo-Danao L, Lansang M, Paulino R, Raymundo C (1997). ENHR in the Philippines: The First Five Years 1991-1996. COHRED, Geneva

2.2 Reaching the objectives

2.2.1 Setting priorities

A starting point is for countries to review their *own* health problems, assess information gaps and existing research efforts, and develop a responsive national agenda. This process aims to identify immediate, emerging and future health priorities more clearly, and is a powerful way of shaping public efforts to promote health and development.⁶

Box 3: Building consensus in Vietnam - not rushing in with a prefabricated ENHR strategy

Vietnam's Centre for Social Sciences for Health has embarked on a steady programme to raise awareness of the potential contribution that health research can make. Its Deputy Director was appointed ENHR Focal Point by the Ministry of Health, leading to a programme of action for ENHR. Biannual meetings at the Council of Medical Sciences have drawn in participants from the National Institute for Hygiene and Epidemiology, the Department for Science Education, and the Health Policy Unit of the Ministry of Health - in an ever-widening network of health advocates. The publication of *Development of Health Research in Vietnam* was a landmark event, signaling broad consensus on the need to embark on a pro-active programme of research to address the health priorities of the country. Essential National Health Research is recognised in Vietnam as an important strategy to further develop and strengthen health research. Progress has been slow, but steady. The example of Vietnam illustrates the point that the process of raising awareness of the potential role of health research to address the priorities of the country is more pressing than efforts to *institutionalise ENHR*. Countries should not be looking for an *institutional home for the ENHR movement*. Rather, they need to find their own ways to give substance to the main messages behind Essential National Health Research.

Source: Council on Health Research for Development (1998) *The ENHR Programme in Vietnam*. COHRED, Geneva.

2.2.2 Aligning public and donor funding with priorities

A logical consequence of the priority setting process is to ensure that funds derived from the public and from donors are well aligned with national health priorities. This process needs to be incremental and non-coercive, as it is likely to fail if the national research community feels imposed upon. Two important strategies for success are:

- extensive participation in the process of setting priorities and discussion of resource allocation; and
- a system of public funding that allows for researcher discretion, but encourages priority research at the same time. A mix of core institutional funding and competitive allocation of public funds is a good start.

6 For an approach to priority setting, see *Essential National Health Research and Priority Setting: Lessons Learned*, COHRED 97.3, Geneva.

2.2.3 Mobilising additional resources

Advocates of effective health research seek additional public funding as a way of promoting health and development. One approach, espoused by the *Commission on Health Research for Development*, is to call for a minimum level of government spending on health research (a percentage of national budget).⁷ The best argument for more money is to show that current spending is effective. This is not to suggest that health advocates should not call for greater investment in R&D - below a minimum threshold R&D efforts will vegetate. Rather, the argument is that such calls should be backed up by evidence of benefit from existing investments.

The outcome of the priority-setting process is also likely to be attractive to international investors of various kinds. A well-defined, goal-oriented research agenda is more likely to turn heads than a plaintive cry for more money for *institutional capacity building* or *building a critical mass*. Many investors prefer to fund programmes that have a clear government commitment - and a research agenda aligned with national priorities is an opportunity to use limited country funds as leverage on additional investment from elsewhere. A clear agenda will also enable government and research agencies to assess the merits of research proposals from organisations both inside and outside the country.

2.2.4 Engaging the private sector

Purchasing trends in developed countries has largely driven new product development. But in many less developed countries an emerging middle class and growth of purchasing power has created new opportunities to redirect research spending. Rapid expansion of biotechnology over the next decade will provide a platform for joint government / private sector action around health problems that have been largely neglected in the past.⁸ This new environment presents exciting possibilities, not least of which is the prospect of the pharmaceutical industry devoting more energy and resources to the problems of the poor. There will be more opportunities for integrating university-based researchers, supported largely by government, into the dynamic production of new products. Part of the new challenge is to design public/private interactions that start much earlier in the production process rather than simply carrying out drug trials. But in most instances, pharmaceutical companies carry out very little R&D outside the developed countries (other than drug trials), and less developed countries will need to position themselves to contribute to international collaboration - with the pharmaceutical industry and with other countries that share common health priorities.

2.2.5 Setting country research in the global context

It is often hard for poorer countries to see their role in the global research community in terms other than as countries of origin of researchers going to wealthier countries, or as receivers of knowledge generated in those wealthy countries. For example, a 1992 study counted 20 000 researchers and engineers on the African continent, while UNESCO estimates that about 30 000 PhD graduates from Africa live elsewhere.⁹ In response, less developed

7 See Commission on Health Research for Development . *Health Research: Essential Link to Equity in Development*. Oxford University Press, 1990.

8 An excellent analysis of these new opportunities is provided in a paper by: Tim Evans, Ariel Pablos-Mendez (1999). Market Failures and Orphan Diseases. International Roundtable on 'Responses to Globalization: Rethinking equity in health. Geneva, July 12-14 1999.

9 <http://www.unesco.org/opi/scitech/facts.htm>

countries have tried to design strategies to counter the “brain drain”, build local capacity, develop North-South partnerships and mobilise adequate levels of in-country funding for *scientific development*. These strategies are part of the appropriate answer. But often there is an implicit assumption that the goal of these strategies is make countries *internationally competitive*. A commonly expressed desire is to have *top-class research infrastructure and scientific outputs that are on a par with the rest of the world*. There is nothing wrong with that, but it is only one side of an ever-flipping coin. National research strategies that are largely based on *keeping up with the Jones’s* can be very frustrating for countries that have less than a hundredth of the resources of the United States or Western Europe.

If new scientific discovery is one side of the coin, then the other side is learning from that discovery and applying it to different situations. For example, the tremendous R&D success of countries like Japan and South Korea was largely due to their emphasis on learning from others - taking existing knowledge and making it applicable to their own countries, rather than generating new knowledge from scratch. In applying existing knowledge to their own circumstances, Japan and South Korea shed new light on problems and discovered new solutions - adding, in turn, to the global pool of knowledge. The World Development Report 1998/9 cites Costa Rica as a country that has an unusually healthy population relative to its economic indicators, and ascribes this to a deliberate national policy of gaining access to state-of-the-art knowledge and learning from it.¹⁰

In essence, national research leaders need to ask themselves two questions:

- How do we best use existing knowledge - from within and without our country - to improve health?
- What is our contribution to advancing global knowledge about how health can be improved?

As commentators on R&D in South Korea and Japan point out, the learning process is not a passive one, merely absorbing ready-made solutions from industrialised countries.

Rather, learning and assimilation are inevitably an active process of research that leads to effective adaptation and, often, new knowledge.¹¹ (Box 4)



10 World Bank (1999) *World Development Report 1998/9: Investing in Knowledge*. Oxford University Press, New York.

11 Two useful papers about countries that have valued learning from existing knowledge as highly as new scientific discovery are: Nelson R, Pack H (1998) *The Asian Miracle and Modern Growth Theory*. Development Research Group, World Bank. (<http://www.worldbank.org/html/dec/Publications/Workpapers/WPS1800series/wps1881>) .

Krishna V. (1994) Science Policies to Innovation Strategies: “Local” Networking and coping with Internationalism in the Developing Country Context. *Knowledge and Policy* 6(3-4): 134-157.

Box 4: Country research strategies that promote learning and effective adaptation of existing knowledge

- Studies to improve efficiency of health interventions known to work well - “how can we use less resources to achieve the same effect?”
- Studies that make good health interventions even more effective - “how can we better use our limited resources?”
- Research that makes new technologies or interventions locally applicable
- Local studies that back up or refute national or international assumptions based on aggregated statistics
- Improved communication and knowledge sharing within and between countries

2.3 Risks of *putting countries first*

National research co-ordinators need to be aware of the pitfalls of putting country concerns first, if they are to avoid them. The most obvious pitfall is that *Countries First* is construed to be a call to *go-it-alone*. Such an interpretation runs contrary to the whole idea of knowledge sharing and learning - and is intended. But some of the other pitfalls need more careful review.

2.3.1 Biased or arbitrary priority setting

One of the real risks of priority-setting processes is that they reflect the priorities of those who participate. Even if fifty community groups are invited to participate, there are still many, many left out. In practice, we suspect that this is not the greatest problem related to limited representation. After all, community groups could be invited through a random process that represents a wider community. Probably a greater problem is trying to decide the relative influence of health ministries and different groups in the scientific community. The former will tend to reflect their short-term priorities and the pressing health problems facing the country now. The latter will probably reflect research priorities that have developed over the years - some appropriate, some not, some long-term, some not. The experience of Tanzania is instructive, in that their priority-setting process was designed to avoid many of the pitfalls described (Box 5).

Box 5: Priority-setting in Tanzania

Tanzania's starting point for setting national research priorities was the health problems experienced by people living in each of the country's 113 districts. A questionnaire was sent to every district medical officer requesting a list of the top ten diseases (either by morbidity, mortality or both), the top ten health systems problems and the five greatest socio-cultural problems in the district. This system of categorisation allowed for a research agenda to be developed around priority problems, drawing on all research disciplines and establishing a framework of action with short-, medium and long-term objectives. Forty-five districts responded, and it was generally agreed that "given the geographical, climatic and economic distribution, the districts that responded could be considered as representative of the country situation."

At a national meeting of interested parties held in February 1999, government officials, representatives of non-governmental organisations and researchers from universities and research institutes synthesised the district responses. The outcome was a set of national priorities that would guide future research efforts and help determine allocation of resources for research.

Source: Tanzania Essential National Health Research, Priority Setting Workshop 15-21 February 1999, National Institute for Medical Research, ENHR Secretariat.

2.3.2 Poor decisions may threaten existing infrastructure

A second real risk is that if priority-setting processes are arbitrary or biased, injudicious changes in resource allocation can threaten an already frail research infrastructure. While this risk is real, it is not an excuse for inaction. This pitfall can be minimised by careful analysis, deliberate planning and a good system of monitoring and evaluation. It requires careful listening to those who warn of the potential dangers of interfering with a fragile system. Research co-ordinators need to be able to distinguish between those who are well placed to judge unintentional consequences and provide early warning, and those who are primarily motivated by concerns about their personal stakes.

2.3.3 Changes may lead to even more researchers leaving

A further risk is that a change in research emphasis may accelerate the flight of researchers to the United States or Western Europe, if they perceive the changes as a switch to second-rate research. Advocates of ENHR need to pay particular attention to the factors - valid or not - that give rise to this perception. One argument is that ENHR imposes a level of social responsibility on researchers in developing countries that other researchers would scoff at: *In the States, we can pursue our research priorities without worrying about whether we are being 'relevant'*. One response to this argument is to point out that there is plenty of scope to pursue personal priorities within the broad framework of national priorities. We think that this response is correct, but it tends to obscure the fact that trade-offs will need to be made. We reiterate our view presented at the very beginning of this paper that the public has a right to expect the best returns on country investments, and that scientific endeavour should be judged in terms of societal benefit. Country research co-ordinators need to reconcile two important objectives. On the one hand, the scientific community must have the discretion and incentives to be innovative. On the other, co-ordinators need to ensure that public money best addresses public priorities. These are the fundamental challenges for a country's research leadership.

2.3.4 The private sector has private priorities

Cuddling up to the private sector is not without risk either: The central goal of publicly funded health research is to uncover new knowledge that improves health. Conversely, the main goal of private industry is to develop new technologies that are profitable to the company and its shareholders. There are obviously many shared objectives as well.

But those who are concerned about research as a science for the public good need to ensure that collaboration has mutual benefit, particularly that publicly funded research generates public knowledge. For example, patents are an important way of encouraging continued investments in R&D by private industry. However, patents can severely limit the availability of effective medicines and restrict research to uncover similarly effective medicines. Some universities are trying to institute a more limited form of patent in an effort to reconcile the need to protect intellectual property and generate public knowledge. Country research coordinators should work to ensure that public/private partnerships strengthen R&D for the country as a whole - and do not end up as merely a further public subsidy to private industry.

2.3.5 “Less developed countries do ‘country research’; ‘real science’ is done by developed countries”



A final concern of putting countries first is that poorer countries risk becoming even more cut off from the mainstream of scientific discovery. “Less developed countries worry about their own immediate problems; wealthier countries have the luxury of being concerned with the world’s problems - present and future.” This statement is based partly on a misconception, but it also points to a tough decision that faces less developed countries. The misconception is that R&D in wealthy countries is principally concerned with new scientific discovery and the problems of the world. In fact, most R&D that takes place in *knowledge-based economies* is applied - trying to build on existing knowledge and develop new applications that will benefit *that country*.¹² The tough decision is determining

the level of investment by developing countries in truly basic or fundamental research. Basic research is sometimes incorrectly equated with molecular or biomedical research. That is wrong - most laboratory-based work is geared towards finding applications. Basic research tries to uncover underlying systems, structures and causes, not necessarily in response to existing problems and not linked to application. Investment in basic research is critical to the continuing development of science and knowledge. But it is very expensive, difficult to measure in terms of direct public benefit, and very long-term.

In one sense, the distinction between basic and applied research is artificial (one can think of all health research as contributing towards improvements in health, now or at some point in the future). There is also much greater recognition of the constant feedback and interaction that is needed between every stage of R&D and every other stage. However, in the final analysis, countries need to decide where best to allocate limited resources. In making this decision, they may need to consider the following arguments. Those advocating substantial public investment in basic research point out that facilities for basic research and training provide a foundation for “downstream R&D”, that is R&D that is more closely associated with application. Others argue that the best use of limited resources in less developed countries

12 The latest World Development Report gives a good analysis of this observation [World Bank (1999)] *World Development Report 1998/9: Investing in Knowledge*. Oxford University Press, New York]

is to assimilate and apply existing knowledge. Without passing judgement it is useful to reiterate some earlier comments:

- Country investments in health research need to be consistent with short- and longer-term priorities;
- Probably the biggest challenge faced by research co-ordinators in countries with severe resource constraints is to foster an environment that will sustain research and development for the future, while recognising that the future will be bleak, if immediate problems are ignored;
- New knowledge emerges both through sparkling new scientific discovery, and the learning and applications that follow from it.

One point is clear. It is not unreasonable to expect basic researchers to engage more with those researchers working further “downstream” the R&D process. In this way, the process of identifying and developing different applications can be speeded up. But it is unreasonable to expect greater “relevance” from those involved in doing basic research. In Pavitt’s words, “dealing with deficiencies in R&D by making basic research more ‘relevant’ is like pushing a piece of string”.¹³

A further factor contributing to the perception of second-rate research is the constant tension between building capacity and producing high-quality research outputs. In less developed countries, small researcher pools and the high turnover of young researchers means that a high proportion are fairly inexperienced or in formal training. Wealthier countries can rely on the existing incentive structure within the scientific community to bring out the best researchers - and the best in researchers. Given that they can offer fewer incentives, less developed countries need to engage in a more deliberate process of capacity building, which often means accelerated promotion of researchers through the ranks. Consequently, these researchers generally have less experience and fewer publications than their counterparts in wealthier countries. Countries will only begin to address this problem, if they can retain the researchers who are good enough to be snapped up by developed countries. Remuneration is often a deciding factor, but equally important is the scientific reward system. Most researchers value the system of incentives within the scientific community very highly - peer recognition, publications and acknowledgement. National research co-ordinators need to work with scientists to try to bolster incentive structures within countries. But there is still much to be done to ensure that researchers based in countries that are not in the scientific limelight receive due credit and recognition. There seems to be an important role here for international agencies and investors.



Another argument is that an emphasis on community participation in research undermines the scientific worth of research. It’s probably true that many calls for community participation have oversimplified the relationship between research and the public. These calls have often assumed that the interaction between the two is direct and immediate, although in fact the conduct of much research does not require direct public

13 Pavitt K (1991). What makes Basic Research economically useful? *Research Policy* 20:109-119 .This article also provides a solid argument for public investment in basic research

input. National research co-ordinators need to cultivate a sophisticated understanding of the role of the public in research - as ultimate beneficiaries of the work, often as principal investors (taxpayers), as users of research (either directly or through the media, legislative and executive government or advocacy groups), as subjects of research, and occasionally as direct participants in studies.¹⁴

Box 6: A Community Advisory Board in support of HIV/AIDS vaccine trials in Trinidad and Tobago

In 1997, Trinidad and Tobago was accepted as a possible site for HIV/AIDS preventive vaccine trials, pending government acceptance. Preparatory activities for the trials included the creation of a Community Advisory Board (CAB) to serve as a watchdog for the community of Trinidad and Tobago, for both trial participants and the general public. The establishment of CAB involved recruiting two community leaders and forming a group of individuals and organisations actively involved in AIDS prevention and control in Trinidad and Tobago to oversee the proceedings. A meeting of interested parties was convened to facilitate the sharing of views and concerns on this matter. These concerns were collated and presented in 1998 at an international meeting in Trinidad, convened by UNAIDS on HIV vaccine trials. Following its launch in the glare of the media, the CAB has continued to meet on a monthly basis, convening education sessions for its membership and the general public, including the media and church groups. Most religious groups have voiced major opposition to vaccine trials in general, to HIV/AIDS interventions involving discussions of human sexuality with young people, as well as the promotion of condoms. In this context, CAB has become an important voice not only for the vaccine trials, but also in advocating for a better national response to HIV/AIDS and to support for persons living with HIV/AIDS.

Source: Francis C, Picou D (1999). Draft report on Community Participation in Trinidad and Tobago, Caribbean Health Research Council

If *Putting countries first* is to be more than a rallying slogan, countries will need to make deliberate decisions about how to:

- determine national priorities;
- use these priorities to influence future resource allocation;
- balance present and future needs;
- engage the private sector;
- balance national research efforts against participation in a global research effort.

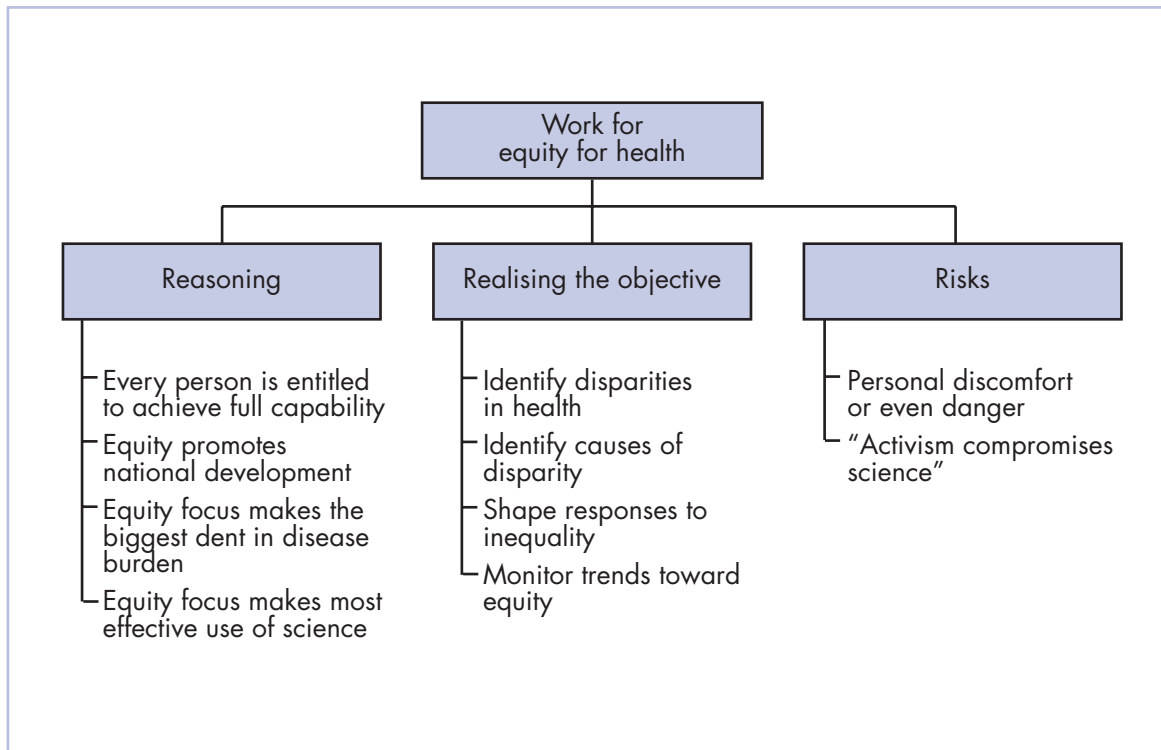
We hope that the above discussion has provided some insight into the issues that need to be considered by those who advocate the putting country priorities first in health research.

14 See the work of the COHRED Working Group on Community Participation in Research and country case studies (<http://www.cohred.ch>)

Strategy Two: Work for equity in health

Three principles of effective health research

- Put countries first
- **Work for equity in health**
- Link research to action for development



3.1 Reasoning

We're not going to beat around the bush here by presenting a range of arguments that we hope are persuasive in our call for equity in health. There are some arguments that are pretty compelling - and we'll describe them. All of them are arguable and have, in some guise or other, been the subject of social and development debates for over a century.

3.1.1 The moral argument for equity

The central argument is a moral one. The argument is that the health status of all people should not be determined by socio-economic standing or other distinctions such as race or age. And, in fulfilling its purpose of improving health, health research should actively work to eradicate such disparities. Underpinning this argument is a belief in the worth of every individual, and a belief that every person is entitled to realise that worth.

There are other strong arguments for a commitment to equity in health, such as:

3.1.2 Health for all promotes national development

The first is that countries deliberately hamstringing their economic growth and social development by under-investment in the health of the poor. A high burden of disease in countries - found largely among the poorest - limits both national growth and development and impedes international competitiveness.¹⁵ There is now growing evidence that equity-oriented strategies contribute directly to economic growth.¹⁶

3.1.3 Efficiency is improved by working for equity

A second strong argument for working towards equity in health outcome is one of efficiency. Countries can make the biggest dent in their burden of disease by concentrating on improving the health status of those who carry the biggest burden - almost inevitably the poor and other marginalised groups. In other words, countries can make the biggest difference by investing the marginal rupee or peso (at least, resources allocated to the health sector) in the health of the poor.

3.1.4 Working for equity improves the benefits we get from research

A third argument is one of effective use of knowledge. Unlike improvements in the health status of wealthier nations, which will require dramatic technological breakthroughs to make any giant leaps forward, relatively small investments in the application of existing knowledge could substantially improve the health of (at least some of) the poor. Arguably, society has not exploited science to its fullest in that we could achieve much better health outcomes within the limits of our present knowledge. In a series of simple but powerful graphs, the WHO Ad Hoc Committee on Health Research relating to Future Intervention Options demonstrated that the mere existence of efficacious technology does not necessarily lead to improved health outcomes. Although more than one quarter of the global burden of disease due to pneumonia cannot be averted with existing interventions, one fifth of the burden could be averted through improved efficiency, while a further fifth could be averted using known interventions that are not yet cost-effective. In other words, efforts to further reduce the burden of disease through existing technologies depends largely on enhanced technical efficiency, better allocation of resources and greater cost-effectiveness. With local knowledge and customised application, far more benefit could be squeezed out of existing interventions that have, to date, neglected the poor.¹⁷

15 The 1993 World Development Report was devoted to an analysis of health and development [World Bank (1993)]. *Investing in Health. World Development Report*, Oxford University Press, New York

16 An interesting, although rather technical book produced by the International Monetary Fund presents a growing consensus that high income inequality constrains economic growth: Tanzi V, Chu K (1998) *Income Distribution and High Quality Growth*. The MIT Press, Cambridge, Massachusetts. It's probably most useful for those with an economic background who are interested in the relationship between economic growth, poverty reduction and human development.

Another useful book that describes the effect of equity-oriented investments in health on economic growth and development is: Birdsall N, Jaspersen F (eds) (1997). *Pathways to Growth: Comparing East Asia and Latin America*. Inter-American Development Bank, Washington DC

17 Ad Hoc Committee on Health Research Relating to Future Intervention Options (1996) *Investing in Health Research and Development*. World Health Organisation, Geneva (Document TDR/Gen/96.1) p219

The arguments all add weight to the legitimacy of the call to work towards equity in health status. But a commitment to equity is first and foremost a *normative* one - that is, a universal standard to which humankind should strive.



One rather common but spurious argument is that equity in health outcome is unattainable, so it is a silly goal. An obvious response is that there is genuine concern about reducing gaps - and the more we reduce disparities, the closer we are to our ultimate goal. And reductions in the disparities in health status are quite measurable. A pragmatic approach in working towards equity in health outcome may be to:

- decide on a basic minimum of health for all (for example, an infant mortality rate of 20); and
- try to reduce the gap in health status between better off and worse off, by improving health among the *worse off* at a rate faster than for the *better off*.

This pragmatic approach combines two distinct elements, namely a basic minimum for all, coupled with attempts to achieve continuing improvements in health.

3.2 Reaching the objectives

Research is one of the main instruments for promoting equity in health status, for the following reasons:

3.2.1 Research can identify disparities in health status

Epidemiological studies are a very powerful way of revealing disparities in health status, and helping to identify which people are most at risk. They often help to unmask disparities that are hidden in the aggregated data at national level. Other local descriptive studies are often also very useful as a way of challenging or supporting national data.

3.2.2 Research can help uncover the causes of disparities in health status

Analytical studies of different kinds can help explain why disparities exist - a critical step if effective steps are to be introduced to reduce or eliminate gaps.

3.2.3 Research can help shape appropriate responses to reduce inequality

Research is instrumental in the design of responses that effectively reduce inequity. Health research has a special place in promoting equitable development, because health outcomes provide such a good measure of success of other sector interventions such as education and other social services. Health research can point out other sectoral activities that are most effective in promoting health amongst the poor. For example, an epidemiological study of health and nutrition may point to the need for micro-nutrient fortification of basic foodstuffs - a strategy that will be of greatest benefit to the poor.

3.2.4 Research can monitor trends towards equity

Having established where disparities lie, and how they can be best tackled, research can help ensure that responses are effective in promoting equity. Techniques include:

- disaggregation and analysis of routine collected epidemiological statistics
- household surveys that are repeated every few years to assess people's perceptions of their health and access to health care
- regular health facilities surveys aimed at assessing the quality of health care (as a proxy for health status)
- analysis of health care expenditures by sub-sector of the population and/or geographical area.

Box 7: Equity-directed research in Southern Africa

Inequalities in health status are particularly extreme in Southern Africa. Mozambique and Angola still have infant mortality rates of 130 and 170 per 1000 respectively, while South Africa and Botswana both have IMRs less than 50 per 1000.

EQUINET is a southern African initiative to develop a regional research programme that promotes equity in health. Participants from all countries in the region have contributed to an agenda of equity-oriented research. The purpose of the network is to share expertise and ideas, and to develop a strategic approach to the common problems of the region.

For the past three years, the South Africa's Health Systems Trust has produced a gauge of progress towards equity in health service provision in the country. Based on an annual survey of a representative sample of hospitals and clinics, and review of expenditure at district level, the gauge tries to reflect changes in resource flows and quality of care. Its real innovation was that the relevant indicators and associated research portfolio was developed in a series of meetings with national legislators.

Now the Ministry of Health and national parliamentary committees of health and finance have a very direct interest in the annual findings. Efforts are being directed at involving provincial legislatures more in province-specific equity gauges.

Source: Infant mortality rates: UNDP Human Development Report 1999, New York.
Health Systems Trust (<http://www.hst.org.za/hlink/equity.htm>)
Network for Equity in Health in Southern Africa (<http://www.equinet.org.zw/>)

The researcher's action for equity does not stop at producing good research results. There needs to be a process by which that research is used to inform and review decisions. It is likely that the health ministry, legislature, media, advocacy and community groups all have reason to put these results to good use, and researchers who are serious about promoting equity will ensure that there is real and continuing dialogue with all these user groups. Countries that are serious about promoting equity in health may find it useful to design a national portfolio of research, drawing on all the functions of research described above, that focuses specifically on improving the health of the poor and other vulnerable groups.

3.3 Risks of working for equity in health

3.3.1 Personal discomfort or even danger

A real concern for researchers working in some politically repressive countries is that challenging inequity may cause professional discomfort or even physical danger to the researcher. It is a concern that is voiced more often over coffee than in the plenary sessions of conferences and is sobering for those who proclaim the lofty ideal of equity, safely based in societies that tolerate (or even claim to support) these ideals. It is an issue that national research co-ordinators and researchers in many countries will need to confront and address in their own way. Almost all are likely to shy away from open confrontation with government - by default or deliberation. Occasionally, the research community may be an active participant in significant political and social change that improves health, reduces inequity and fosters development. We do not presume to understand the socio-political environments of most countries, nor to prescribe an appropriate response from researchers. But there are a few strategies that can give advocates of equity in health a stronger and less vulnerable voice. Firstly, the legitimacy of research for pro-poor or equity-oriented research should be negotiated before starting any controversial work. If the health ministry, the legislature and the media are all aware of - better still, have helped design - the research, then it is far harder for government to come down hard on researchers once unfavourable results start to emerge. One strategy, that has benefits well beyond protection of researchers, is to work with national and regional legislatures in developing a gauge for assessing progress towards equity, based on a number of measurable indicators.



Secondly, research conducted must be reliable and valid. Opponents of research findings are going to pick holes in it from all angles. Often the best that can be done is to ensure that the work can withstand close scientific scrutiny.

Thirdly, it is important to recognise that there are cultural differences in the way that findings, deemed unfavourable to government, are presented. Researchers do their cause no good by being unnecessarily hostile or insensitive. (Neither do they do their cause any good if they use cultural sensitivity as an excuse for stifling results!)

Finally, international agencies can contribute by backing-up researchers or deflecting some of the criticism towards themselves. Some may argue that there is a fine line between supporting advocates of change and meddling in country's affairs. Most bilateral and international agencies will probably shy away from such a role. We suggest that support and legitimacy for country advocates of equity in health could be one of the most important functions of such agencies.

3.3.2 Activism compromises science

Some may argue that a commitment to a value like equity compromises *scientific neutrality*. There are valid concerns that the reliability of research findings are compromised when researchers are wedded to a particular standpoint, and we don't want to give a trite response to an issue that is the subject of much important debate. But it is also true that all but the most basic research is working towards some goal or application. More importantly, being a researcher does not strip that person of some of the most basic attributes of humanity, namely personal and societal values. Just as the goal of health research in general is to improve health, so the goal of equity-oriented research can justifiably be to enhance equity. What is important is that researchers recognise and avoid biases, understand that their assumptions

of what leads to equity should be open to challenge, and define their own values.¹⁸ Ultimately, an advocate of equity will weaken his/her own cause if the research is demonstrably biased.

It has been argued that, despite compelling supportive arguments, a commitment to equity in health status is first and foremost a deliberate choice of values. The third principle of effective health research is rooted firmly in pragmatism.

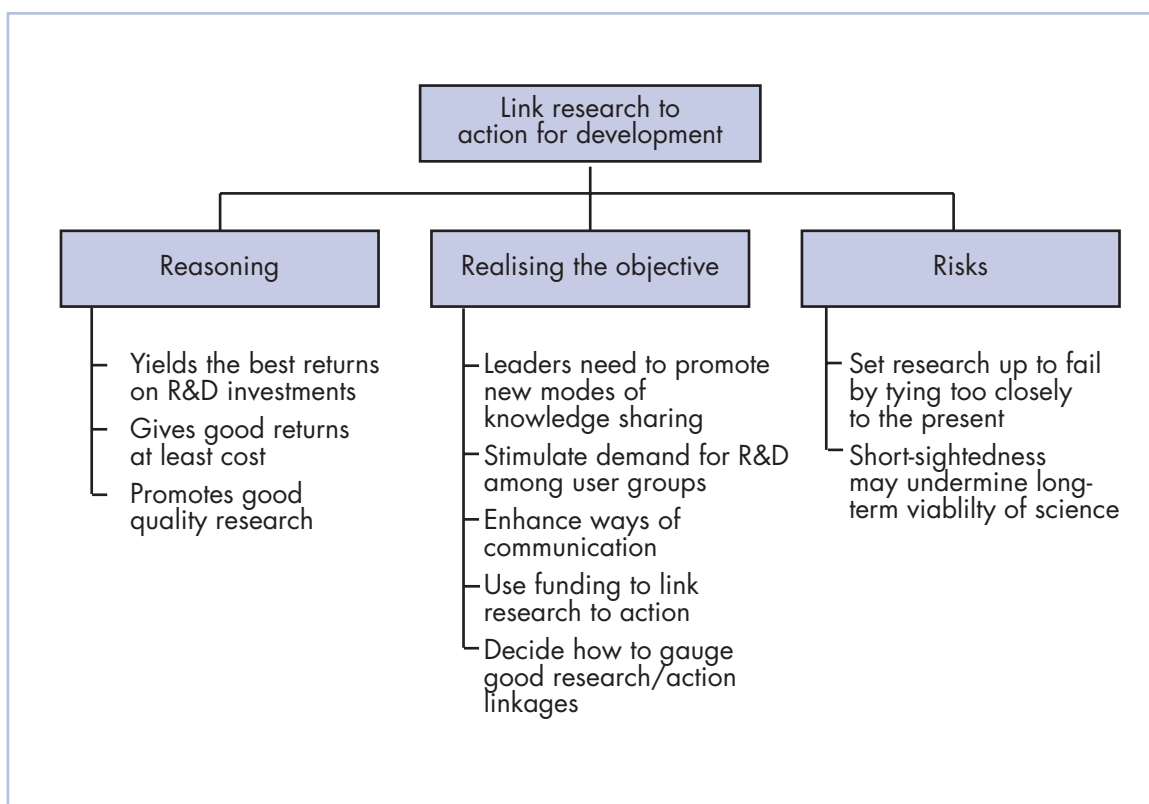


18 A good overview of bias avoidance and justifiable activism is: MacCoun R (1998). Biases in the interpretation and use of research results. *Annual Review of Psychology*, 49, 259-287.

Strategy Three: Link research to action for development

Three principles of effective health research

- Put countries first
- Work for equity in health
- **Link research to action for development**



The meaning of action

By *action* we mean the process of taking research results and using them as effectively as possible to promote health and development. In some instances, the action will be using new knowledge to get at more knowledge through further research. In other words, the original research is a stepping stone to direct action to improve health. Other research can lead directly to actions that improve health through, for example, the development of new technologies or improved cost-effectiveness of interventions. Some research may help to shape the opinions of the public and policy-makers, which in turn may lead to improvements in health. The suggestion is not that there is a direct causal link between every action that improves health, and research. But all health research should be appropriately linked to action to improve health. For example, policy and epidemiological research almost inevitably entails interaction with the shapers and makers of policy. Biomedical research often requires interaction with developers of new products and clinicians. Even basic researchers can accelerate

the transition from not-yet-applicable findings to applicable findings by dialogue and interaction with researchers working further “downstream”.¹⁹ All of this sounds a little obvious, but a lot of research fails to have its anticipated impact precisely because these links are weak or non-existent.

The meaning of development

By *development* we mean the process by which societies grow and improve. Its central goal is greater fulfilment of all human potential, as we co-exist with all other species on earth. Our understanding is that health both drives development, and is an outcome of development.

4.1 Reasoning

Why should research be linked to action for development? Put simply, there is very strong evidence that research linked to action is most effective. And in this regard, it is in the mainstream of thinking about research and development!

4.1.1 Research that is linked to action yields the best returns

The private sector is driven by profit and zeal to yield the best rate of return on investments. Perhaps that is why it - and not the public sector - lead the way in redefining processes of innovation, replacing fairly static and step by step approaches with those that are more dynamic and interactive. Within industries involved in new product development barriers that existed across disciplines have largely been broken down and researchers involved at every stage of production are working more as a team.²⁰ This change in approach was due to at least two major factors. First, as countries experienced a transition from industrialised to knowledge-based economies, they realised that their competitiveness depended on their ability to produce, apply and adapt knowledge fast. Traditional divides between university and industries, research and action, no longer made economic sense. Second, there was a growing appreciation of businesses as learning organisations, constantly revising and updating the way they worked, based on new knowledge and what worked for others.

There are many important differences between the priorities of private industry and those of the public, not least the global role of the public sector to safeguard and promote fundamental research. Nevertheless, we feel that researchers working to promote health can learn much from the experience of technological development.

19 We're not calling for more “relevant” basic research, but rather noting that the “probabilities of application are greater with an open and flexible interface between research and application” - Pavitt K (1991). What makes Basic Research economically useful? *Research Policy* 20:109-119 .This article also provides a solid argument for public investment in basic research.

20 Much has been written about new approaches to innovation. The World Development Report 1998/9 is a good place to start for those interested in reading further. Other references that provide a useful springboard for reading include:
OECD (1996). The Implications of the Knowledge-based Economy for Future Science and Technology Policy. Working Paper IV: 58, Paris.
Singh A. (1994). Global Economic Changes, Skills and International Competitiveness. *International Labour Review* 133 (2): 167 - 184.

4.1.2 Research that is linked to action yields good returns at least cost



An important idea that has emerged from *transaction cost economics*²¹ is that a weak demand for research by users of research may lead to inefficient outcomes (*coordination failure*). In other words, research will be done that does not meet the needs of potential users, or important research will not be done at all. There are at least three important implications of this position:

Firstly, researchers in less developed countries, who already experience severe resource shortages, handicap themselves even more by not using these scarce resources most efficiently. Secondly, researchers and national research co-ordinators can improve efficiency by stimulating demand for research through active engagement with user groups. Thirdly, although there is obviously a *demand* for research that improves the health of the poor - at least by the poor - this demand is not *revealed* in the *market for research*. This leads to under-investment in pro-poor research that is an inefficient use of national and global resources. Linking research to action that improves the health of the poor is a concrete way of overcoming inefficiency.

4.1.3 Research that is linked to action yields good quality research

Empirical research rooted in experimentation is a way of learning about the world through testing what we believe against what we observe in practice. Non-experimental research, like descriptive epidemiology, is an attempt to better define the state of affairs, so that social and political responses can be more appropriate. In other words, it shuttles back and forth between research and its application, constantly revising knowledge in the light of new experience and the learning that comes from it. Linkages between research and action facilitate this learning and help to achieve high quality research. Although this argument for linking research to action seems rather esoteric, it is nevertheless an important one for advocates of ENHR who engage the academic community. They may be less swayed by the preceding arguments of effectiveness and efficiency that are more likely to catch the eye of investors in research, including government. The sound argument that research linked to action can improve, rather than compromise the quality of research, is particularly important for the research community.

21 Transaction cost economics is based on the argument that “transactions” between those supplying and those demanding a service are not costless, as assumed by neoclassical economic theory. For example, if it is difficult for users of research to get that information, they will demand less, and so less “appropriate” research will be done.

Box 8: How malaria research in India led to action for development

Malaria is a major health problem in India. In 1994, 2.2 million cases were recorded (38% *falciparum* malaria). In fact, some development projects, like irrigation schemes, have actually made the problem worse. Field trials in the use of biolarvicides to kill the vector mosquito proved to be an unqualified success, convincing the Ministry of Health to accept the biolarvicides as part of the armoury of its Malaria Control Programme. As a result, India has a new tool for malaria vector control in urban areas that is safe, effective and environmentally friendly.

Following a major malaria epidemic in 1995, the Indian Prime Minister accepted a recommendation from the Medical Research Council to evaluate all major projects with regard to their malariogenic potential. This followed exposure in the press and Parliament of studies linking certain development projects to the upsurge in malaria.

How did research lead to action? Those who had carefully documented the relationship between the prevalence of malaria and new development projects were able to make best use of an opportunity - in this case a malaria epidemic - to get the press and legislators to pay attention. Their efforts paid off.

Source: Prevalence of malaria: WHO Weekly Epidemiological Record (No. 38 -1997) 72:285-292
Adibo M, Misra R, Bengzon A (1996) *How can research influence health policy?* International Health Policy Programme Occasional Paper. Washington, USA.

4.2 Reaching the objectives

4.2.1 Strategic leadership

National research co-ordinators play a crucial role in promoting a new way of doing research. Some co-ordinators of health research, especially those that were good biomedical researchers in the 1970's, are steeped in linear notions of research and development. An important starting point is to enable the research leadership, especially in less developed countries, to gain new insights into more dynamic concepts of R&D.²² These insights include the gains that can be made through:

- encouraging multiple sources of knowledge generation – not only universities
- better processes for managing knowledge production and exchange
- the breakdown of barriers between researchers of different disciplines working at different points in a cycle of innovation;
- investment in communication systems that are tailored to the particular needs of researcher groups;
- engaging different user groups as a way of stimulating demand for research.

Developing new insights into R&D should not be viewed as a one-off “corrective” action to update the knowledge of those co-ordinators who have fallen by the wayside. It is rather an opportunity for national research co-ordinators to further develop systems for continuing learning and sharing new knowledge. Co-ordinators need to be a relentless source of energy and innovation in a national coalition for learning.

4.2.2 Stimulate demand for research among users

The mismatch between supply and demand is a major cause of inefficiency in the conduct of research - inefficiency that less developed countries cannot afford.

There are a number of obvious opportunities for stimulating demand that go largely unnoticed. The media is eager for research that makes a good story, and is often a powerful vehicle for conveying messages and provoking debate. Advocacy groups may use research to bolster arguments or propose clearer solutions. Legislators are often eager for information and may want to commission research to gauge progress and guide decision-making. Other opportunities are better recognised. Health ministries can make research a central and dynamic part of policy formulation, planning implementation and evaluating programmes. Those involved in developing better health technologies need constant interaction with university-based researchers. Achieving the type of dynamic interaction described above needs creativity and perseverance. But stimulating the demand for research is one of the most important tasks for research co-ordinators, especially in developing countries where inefficiencies in research may be greater than in knowledge-based economies.

An important corollary is that efforts at capacity-building that are directed only at the *supply side* (more researchers, building critical mass, institutional development etc) may actually worsen inefficiency. Efforts also need to be directed at the *demand side*, helping user groups to tap into, and make best use of, research. Examples include working with:

- legislators to define and implement a legislative research agenda that helps them make decisions
- editors and journalists to improve the substance and extent of reporting on health research
- health ministries to implement a system for the regular review of current research
- advocacy groups to enable more substantive use of research findings.

4.2.3 Better communications

One of the greatest constraints contributing to the mismatch between supply and demand in developing countries is a poor communications system. If researchers are to be part of a continual process of learning, they need to be connected to each other, to users, and to people and organisations outside their country. Improving ways of communicating is critical for research and development. But we’re not only referring to hardware and software - important though that is. We are also concerned about the deliberate efforts that need to be made to

22 An exceptionally useful and readable book about the “new mode” of knowledge sharing is: Mansell R, Wehn U (eds) (1998). *Knowledge Societies: Information Technology for Sustainable Development*. United Nations Commission for Science and Technology for Development. Oxford University Press, New York.

establish regular communication - reasons why people should talk to each other. Communication systems need to be directed and task-oriented, if they are to be successful. Sometimes the first response to poor communication is to establish a committee of mutual interest. There may be a place for committees, if getting a particular job done needs round-table discussion. But by a communication system we mean a combination of electronic information, seminars, paper-based exchange of views, visits and 'phone-calls that all have a place in helping to share knowledge and exchange ideas.

Box 9: Action-linked research is a way of life at BRAC, Bangladesh

Research linked to action is the way of working within the Bangladesh Rural Advancement Committee (BRAC), an NGO that works in almost half the country. Research was seen as an important instrument for rural development, and BRAC has built up a strong research base over the years. A recent example of action-research by BRAC has been the development of a method for large scale, field level arsenic testing by trained village health workers using a field kit. This technology was developed in response to the discovery of arsenic in water drunk by millions of people in Bangladesh. The costs of testing in this way are less than half a US dollar per sample, far less than conventional laboratory testing.

The ENHR secretariat in Bangladesh is housed within BRAC, and is responsible for advocating action-linked research among policy makers, health officials and others involved in human development. Its quarterly newsletter *Liaison* publicises research findings and tries to demonstrate how powerful a tool health research can be. Development agencies play an important role in Bangladesh too, and the UNICEF country office there has adopted the ENHR strategy. A Programme Officer has been assigned to use health research as a way of improving the lives of Bangladeshi children. It is not yet clear that ENHR has been fully accepted by health officials, nor that the BRAC-based ENHR secretariat and the ministry work together as effectively as they could. ENHR has made a lot of sense to a development organisation that already recognised the importance of action-linked research.

Source: Arsenic poisoning: *Science* Vol 284 (4 June 1999).
Council on Health Research for Development (1998). *The ENHR Programme in Bangladesh*. COHRED, Geneva.



One crucial strategy for communication that is well recognised but poorly executed, is the presentation of research results. Put bluntly, stuffy research papers are of little interest to the media and will not be read by busy managers. An expectation of researchers should be that research outputs are packaged in a number of ways that best suit their respective audiences. Many researchers need to be assisted to develop public speaking and other presentation skills.

4.2.4 Use funding strategies to link research to action

Investors in health research, including government, may use funding strategies as incentives to link research to action. Universities and other research institutions may receive public funding through a combination of untied, tied and competitive funding to universities. Funding may be structured so that institutions have complete discretion over a portion of funds (to further basic research or other curiosity-driven research, for example). Other funds are tied to a restricted use, such as funds explicitly given to further research into the management of tuberculosis. Together these funds may serve as core public funding for that institution based on a formula for allocating resources fairly among different organisations. But in addition, funds may be allocated on a competitive basis, where institutions submit proposals linked to specific activities of the health ministry, for example.

A second funding strategy is to fully integrate research into programme activities. Research becomes one element of programme design, planning, implementation and evaluation. Research questions get generated throughout the process, and not just at the beginning or end of activities.

A third strategy is to invest directly in the use of research. For countries in which legislative support is weak, this may mean employing legislative aides who are skilled in communicating with researchers and synthesising relevant information. Given limited resources, aides could be accountable to bipartisan committees, rather than individual political parties. Foundations are well placed to fund health journalists attached to specific media organisations, where a specific task is to achieve more substantive reporting on health research. Similar opportunities exist for advocacy groups, where investors can develop the capacity of such organisations to use research more effectively.

Obviously, these are not the only funding strategies to link research to action. Neither does each example apply to all research. But they serve to give an idea of the potential that exists for stimulating the demand for research.

4.2.5 Decide how to gauge the effectiveness of research links to action

The very mention of trying to measure the effectiveness of linking research to action is enough to set off a severe episode of hand wringing among researchers. The task becomes less daunting, if we stand back and understand why we want to gauge effectiveness. The reason is surely to further improve the effectiveness of research to action, rather than to have an unequivocal and precise measurement of “this-point-in-time”. In other words, we can develop a series of measures that are fairly imprecise on their own, but that together give us a reasonably good indication of where there is room for improvement.

It would be contrary to the spirit of this argument to give an exhaustive list of indicators - countries are better placed to come up with a gauge that best serves their purposes.²³ But it may help to give some examples of measures that may contribute to our understanding of the effectiveness of research links to action, such as:

- the degree to which public expenditure on research is aligned with national priorities;
- the presence of a specific country research focus on the health of the poor, and the (degree of success of) implementation and use of a research portfolio that specifically aims to monitor and promote equity;
- the existence and strength of networks between researchers and users, and among users themselves;
- specific case studies where research has led to improved efficiency and effectiveness of health interventions.

Measures - both qualitative and quantitative - are important to provide an objective sense of effectiveness. But equally important is sitting around the table together to discuss what these measurements mean, and how effectiveness can be further improved. If this discussion strengthens links between research and action for development, it will have served its purpose.

4.3 Risks of linking research to action

4.3.1 Setting research up to fail by tying it too tightly to the present

We can have unrealistic expectations of what research can accomplish, especially if our concepts of research to action are very linear ones. Some research, especially health systems research, may lead directly to policy action. Sometimes discoveries, such as that of X-rays, open up new avenues of intervention that were previously closed to us. R&D in the pharmaceutical industry tests new chemical compounds or modifies existing ones to develop new drugs. However, we also have to accept that much research does not, of its own, lead to dramatic breakthroughs - and action is the consequence of cumulative research efforts. Acceptance of this fact is not in conflict with the notion of action-linked research. We have already argued



23 For an approach to measuring the effectiveness of health research as an instrument for improving health and fostering development, based on equity, see *How effective is your country's strategy for health research?* Attached herein as Annex I.

that researchers, even basic researchers, can do much to accelerate the pace of application of their work. But the risk is that we credit research with too great a sense of omniscience. The theory and design of all research reflects the current state of our knowledge, based on previous experiments and theories, and our own experience. The findings of individual studies may be way out. Research findings only represent the *truth* inasmuch as they are the best available knowledge at the time. Renowned for his work in research methodology, Donald T. Campbell argues that experiments should be seen as arguments, not as demonstrations of fact.²⁴

We set research up to fail, if we expect that it will produce a definitive answer for all time. We give applied research the best chance of success if it challenges and responds to previous experience and theories - and to its current context. And by success we mean action that leads to better health and promotes development, based on equity.

4.3.2 Short-sighted perspectives undermine the long-term viability of science

Contrary to the views of those who would put science on a pedestal behind an opaque screen, it is actually a very worldly activity. Put simply, it is the production and sharing of new knowledge for the good of the public. We have consistently argued that countries need to adopt a short-, medium- and long-term approach to health research, reflected in the way that priorities are generated, the form of capacity-building that is done, and the type of research that is funded. (But we have also argued that less developed countries may deliberately choose to invest relatively more in overcoming immediate problems than in contributing to the international effort to address global concerns).

National research co-ordinators must, however, beware of two pitfalls. The first is that the health ministry could completely co-opt the national health research agenda. If this happens, research may become captive to short-term concerns of the government of the day that may not necessarily reflect national priorities. The health ministry is a very important player in action for health. But almost by definition, its priorities may represent those national priorities that are confined to the health sector and are relatively short-term. Broad participation in priority setting and oversight of essential national health research to ensure that the full scope of health priorities are identified and addressed.



24 Campbell argues that “a dialectical perspective does more justice to the history of experimental physics than does an image of the experiment as a window through which nature is seen directly”. Campbell D.T. (1982). Experiments as arguments. In E.R. House (ed). *Evaluation Studies Review Annual* (vol.7, pp117-127). Newbury Park, California, Sage Publications.

Box 10: Nepal's "priorities first" becomes a rallying cry for the new democracy

Democracy is young in Nepal - a country challenged by rapid demographic transition and a heavy burden of disease. GNP estimates for each of the 23 million people was US \$220 in 1997. Its infant mortality rate is about 75 per 1000, while its maternal mortality rate is still 1500 per 100 000. ENHR has served as a way of bringing together different groups that did not meet in pre-democracy days: - decision-makers, health personnel and community members. Their common interest is to improve the health of the people of Nepal. The National Health Research Council led efforts to advocate ENHR. A series of consultative meetings was followed by the presentation of an ENHR concept paper in research conferences, workshops and meetings across the country. The first issue of the Journal of the Nepal Health research Council was devoted to ENHR as a mobilising strategy for health and development. A National Health Survey was been planned as the springboard for setting research priorities and implementing a national research agenda.

Where health research was formerly centralised, it is now seen as an activity that concerns the health ministry, universities, professional organisations, and the non-governmental sector. In line with the new democracy, decisions regarding health research are no longer seen as exclusive right of the government of the day.

Source: Demography and health statistics: UNDP. *Human Development Report 1999*, Oxford University Press, New York.

Sachetana, *Journal of Essential National Health Research, Nepal*. Vol.1 September 1998 (includes proceedings of the Conference on Prioritisation of ENHR Agenda - 1998).

Council on Health Research for Development (1998). *The ENHR Programme in Nepal*. COHRED, Geneva.

A second pitfall is that a shift of public resources towards the commercial application of scientific knowledge can undermine the long-term ability of a country to benefit from future advances in science and technology.²⁵ Strategies such as the conversion of medical research councils into corporations and the introduction of patent systems at universities need to be carefully structured. Countries need to ensure that, in their efforts to improve the interaction between universities, research institutions and industry, they do not end up reducing the knowledge that is publicly available - either now or in the future.



Conclusion

National research co-ordinators sometimes feel caught in a double bind. On one hand, their job is to foster the country's ability to do R&D as a way of signalling international competitiveness and a capacity to achieve good returns on foreign direct investment. On the other hand, there is a call for countries to do research that addresses their own health needs first. The discussion of the call to *put countries first* is an attempt to demonstrate that these two objectives do not have to be in conflict, but can actually reinforce each other.

The argument for *equity in health* as a goal of research is based, first and foremost, on a value system that recognises the right of every individual to realise his or her full potential. There are other persuasive arguments for striving for equity in health as an outcome of research, based on criteria of efficiency and effectiveness. The argument is made here that a commitment to equity can help drive national (and perhaps global) development.

It has been argued above that research *linked to action for development* can create a momentum of demand and supply that can lead both to better research and better health. Advocates of health research for development can draw on the experience of the private sector, knowledge-based economies and research theory to support their assertion that action-linked research makes for efficient, effective and good quality research.

The issues discussed above are complex, and there is considerable debate and disagreement about many of them. Perhaps that is good news for a publication dealing with promotion and advocacy of research. We make no claim to have the corner on the truth. But we have also tried not to fudge any issue, because that is not helpful to a reader grappling with exactly the same problems. We have tried to be aware that advocates of health research will face audiences that have different priorities and concerns. Health ministers may be principally concerned with the efficiency and effectiveness of public spending. The research community may be mainly concerned about improving the quality and quantity of research outputs. Often the best we have been able to do is outline some of the main issues and questions that advocates will confront, and provide some insight into the benefits and risks of different strategies. Country examples were often better illustrations of the issues at stake than our clumsy attempts to crystallise complex issues. Occasionally, we may have given the impression we are talking with a forked tongue. If there was any ideological inconsistency, we trust that it stems simply from the belief that improving the health of the poor and other marginalised groups is central to health research efforts - and a cornerstone of national and global development.

How effective is your country's strategy for health research?

An instrument for self-assessment purposes

How effective is your country's use of health research to improve health and promote development based on equity? The purpose of this self-assessment questionnaire is to help you determine if country and donor investments in health research are being used effectively. It will also help pinpoint areas for improvement. There is no score, and no way of rating research efforts as poor, medium or good.

We hope that these questions will enable you (together with others sitting around the table) to reflect on each of the important aspects of a health research strategy, and to develop concrete plans for building on strengths and addressing weaknesses. You may find that answering some of the questions requires a bit of homework. You may even choose to do some formal research to establish a baseline from which progress can be assessed in years to come.

The Council on Health Research for Development (COHRED) has designed this instrument as part of the effort, to support countries implementing Essential National Health Research (ENHR). Questions are arranged under the three major principles of ENHR, namely to:

- Put countries first
- Work for equity in health
- Link research to action for development.

Put countries first

- 1. Is there clear recognition that health research should aim to improve health and promote development, based on equity?**
 - Have policy makers (eg. ministries of health and science and technology) agreed on the need for a strategic plan for health research for the country?
 - Has such a strategic plan been developed? And implemented?
 - Is the research community generally supportive of a strategic plan for health research?
- 2. Is there a process for setting national research priorities, to guide decisions about funding allocations and the use of other resources?**
 - Is there a regular process for establishing and reviewing national research priorities?
 - Does the outcome of this process represent the views and conclusions of a wide range of stakeholder groups involved in research (both producers and users of research)?

- Does the priority setting process draw on different sources of information? (routine and survey population statistics, health service data from all levels, community sources of information etc)
- Does the outcome of this process reflect a serious effort to represent the views of communities across the country?

3. Are the plans for each research priority as efficient as possible?

- Are there clear short-, medium- and long-term plans for addressing each priority?
Or, if short or long-term research is excluded, is there a clear reason for this?
- Do the plans build on existing knowledge (when it exists, either locally or in other countries) rather than trying to “reinvent the wheel”?
- Do the plans seek to make existing health interventions/ technologies affordable and applicable for your country?
- Do they encourage collaboration between researchers of different disciplines, when this has obvious benefit?
- When long-term research is planned, is the nature of the research and the levels of funding consistent with the overall national health research plan?

4. Do the allocations of public funds match the research priorities identified?

- Is there a process for reviewing resource flows for health research, within the country and within national research institutions?
- Is the priority setting process used as the basis for allocating public funds for health research?
- Is there a plan for realigning the allocation of public funds towards national priorities – that recognises both the urgency of health priorities and the need to safeguard national research infrastructure for the long-term?
- Specifically, does the process of allocating funds provide incentives for researchers to work on national priorities?

5. Is funding that comes from outside the country consistent with national priorities?

- Does donor funding help in carrying out the national research agenda, or does it divert a lot of energy and people away from country priorities?
- Does funding from private sources (eg. pharmaceutical firms) advance or detract from the national research agenda?

6. Is there a clear strategy for building country capacity to use, and to do research?

- Has as much attention been given to stimulating the *demand* for research as improving the *supply* of research?
- Is there a programme in place to support and develop those who lead national and sub-national research organisations?
- Is there an institutional structure that can stimulate and support a wide range of capacity building initiatives?
- Are there capacity building efforts directed at *users* of research?
- Is there a clear plan to strengthen research disciplines that are particularly weak?
- Is there a clear plan to develop new researchers?

Work towards equity in health

7. Is equity in health outcome recognised as a goal towards which the country should strive?

- Is equity in health outcome the stated policy of the Ministry of Health?
- Is equity in health outcome a goal of other organisations of civil society that play a big role in advocacy, or in setting research priorities?

8. Is there a specific plan for promoting equity through the national research agenda? Has it been implemented?

- Are there both national and sub-national research outputs that are specifically constructed to reflect inequities in health?
- Is there a systematic programme of national and sub-national research that seeks to monitor the health of vulnerable groups and their access to key social services? How do you know whether gaps are becoming wider or narrower?
- Is there any way that national pictures of health and development can be confirmed or disputed by research that provides “snapshots” of local realities?
- Is there a way in which monitoring of trends can be linked to policy responses?

9. Is there a political expectation that researchers will portray realities accurately, or are researchers expected to “toe the official line?”

- Are researchers and advocacy groups free to present research findings that don't support, or even contradict, official versions?
- Do researchers who stick to their findings, however unpopular, find support from groups within the country (like legislators) and from outside agencies?
- Are institutions that advocate for ENHR seen as advocates for the poor and activists for social change?

Link research to action for development

10. Have research leaders and researchers adapted to changing methods of generating and communicating knowledge?

- Do national research strategies promote continuous learning through rapid knowledge uptake and “diffusion”?
- Are there deliberate strategies to break down unnecessary walls between research disciplines that hamper knowledge sharing?

11. Is more than half of the effort of research leadership directed towards stimulating the demand for research?

- Is there a serious effort to strengthen the links between researchers and user groups? (Media, legislators, advocacy groups, new product developers and manufacturers etc)
- Are researchers helped to design and package their research outputs to be “marketed” to specific user groups?

12. Does the funding structure of research provide incentives that encourage links between research and action?

- Is there a reasonable balance between core funding of institutions and competitive allocation of public funds?
- Is specific funding available for activities that promote the use of research?
- Is there evidence of increasing collaboration between implementation projects and research (whether public, donor-funded or private)?

13. Are communication systems being developed to facilitate links between research and action?

- Are researchers from different disciplines who are working on the same health research priority able to communicate on a day-to basis?
- Are there easy ways for communication to occur between researchers and health ministries, the media, legislative structures and advocacy groups?
- Do researchers have easy access to international networks and resources?

14. Have you decided how to gauge the effectiveness of links between research and action?

- Is there a process of reviewing research outputs and outcomes against original researcher intentions?
- Is there a way of documenting and sharing examples of research that have led to “action”?

15. Overall, do you think that the health research being conducted in your country is making the best contribution it can to improving people's health?

- Have you been able to successfully merge the two major objectives of
 - i) Responding to country health priorities, and
 - ii) Developing your country's long-term R&D capacity?
- Are there other factors limiting the effectiveness of health research?
- What are three practical strategies that could make a big difference to the effectiveness of health research? Are these strategies a good place to start?

