

# Chapter 2

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## ***Complementary approaches for priority setting in health research: review and perspectives***

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*Deficiencies in priority setting*

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Essential National Health Research (ENHR)*

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*The approach of the Ad Hoc Committee on Health Research:  
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## Summary

Chapter 2 draws attention to the fact that, with the same resources, we could achieve a much higher level of health in the world, if we were able to reallocate some health research funds from lower to higher priority projects, from projects benefitting the few to those benefitting the large majority of the world's population.

How could this be done? Attempts have been made, particularly in the last 10 years, to systematize the approach to setting priorities in health research. The objectives were to make the process more transparent and to help decision-makers, particularly in the public sector, make more informed decisions, thus allocating limited research funds in the most productive way from a world perspective.

Major efforts to systematize priority setting include:

- Essential National Health Research (ENHR) of the Commission on Health Research for Development (1990) and the Task Force on Health Research for Development (1991)
- Five-Step Process of the Ad Hoc Committee on Health Research (1996)
- Visual Health Information Profile of the Advisory Committee on Health Research (1997)
- Combined Approach of the Global Forum for Health Research (1999-2000).

These attempts are not contradictory but largely complementary. This chapter outlines the main characteristics of each of these efforts and the perspectives for the coming years.

Although the various approaches tackle the problem from very different angles and with different terminologies and methodologies, there appears to be at least implicit consensus that the central objective is **to have the greatest impact on the health of the greatest number of people in the community concerned (world or country level) for a given investment.**

Whereas the Ad Hoc Committee and the Combined Approach propose to measure this impact in terms of DALYs averted as a result of health research outcome, the other two approaches are not specific regarding the actual measurement of the impact of health research, but both underline the importance of the burden of disease. On strategies and principles, most approaches stress the importance of ensuring that priorities are set by all stakeholders (participatory approach) and of applying a multidisciplinary approach.

The most frequently used criteria under the various approaches include the following:

- severity (degree of incapacitation) and magnitude of the problem (number of persons affected)
- expected cost-effectiveness of the interventions researched
- effect on equity: i.e. likely impact of the research on the poorer segments of the population
- probability of finding a solution
- scientific quality of the research proposed: this is a pre-condition in all approaches
- feasibility of the research proposed (availability of human resources, funding and facilities)
- ethical acceptability: this criterion is explicitly mentioned only in the ENHR approach
- impact on capacity strengthening of the research proposed: this is explicitly mentioned only in the ENHR approach; the other approaches are not specific on this criterion, but it could be integrated in the cost-effectiveness calculation.

## Section 1

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### Deficiencies in priority setting<sup>1</sup>

Failure to establish a process for priority setting or serious deficiencies in this process have led to a situation in which only 10% of research funds from both the public and private sectors are devoted to 90% of the world's health problems (as measured by DALYs<sup>2</sup>). This extreme imbalance in research funding has a heavy economic and social cost for society as a whole. To make matters worse, the 10% of research funds available are not being used most effectively within areas that would ensure the greatest gains in health. In other words, the 10% of funds available for priority problems also need to be better prioritized.

Far more could be achieved with the same resources if some health research funds were redirected from lower to higher priority projects, from projects benefitting the few to those benefitting the large majority of people.

There are numerous reasons for this imbalance in research funding:

#### **In the public sector:**

- Over 90% of research funds are in the hands of a small number of countries which, understandably, have given priority to their own health research needs.
- Decision-makers are unaware of the magnitude of the problems outside their own national borders and, in particular, of the impact on their own country of the health situation in the rest of the world, both directly (increasing travel, re-emerging diseases, development of antimicrobial resistance due to the misuse of antimicrobial drugs) and indirectly (lower economic growth, migration).
- The decision-making process is influenced by factors including the personal preferences of influential scientists or decision-makers, competition between institutions, donor preferences, tradition and local circumstances.
- There is insufficient understanding of the role the public sector could play in supporting the private sector in the discovery and development of drugs for “orphan” diseases.

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<sup>1</sup> This chapter is based on the discussions held at Forum 3 (June 1999) and a number of documents published by the Commission on Health Research for Development, the Council on Health Research for Development (COHRED), the WHO Advisory Committee on Health Research, the WHO Ad Hoc Committee on Health Research and the Global Forum for Health Research.

<sup>2</sup> DALY (Disability Adjusted Life Year): indicator developed by Christopher J.L. Murray and Alan D. Lopez for the calculation of the burden of disease combining time lost due to premature death together with time lived with a disability. The results are published in *The Global Burden of Disease and Injury Series, Volume I, The Global Burden of Disease, A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020*, Harvard University Press, 1996.

### **In the private sector:**

Decision-makers in the private sector are responsible for the survival and success of their enterprise and for the satisfaction of shareholders. Their decisions are largely based on profit perspectives, which inevitably limit investment in “orphan” diseases.

Efforts have been made, particularly over the past decade, to systematize the approach to setting priorities in health research. The aim is to make the process more transparent and help decision-makers, particularly in the public sector, make more informed decisions and take a global approach to health problems. These efforts have included:

- Essential National Health Research (ENHR) of the Commission on Health Research for Development (1990) and the Task Force on Health Research for Development (1991)
- Five-Step Process of the Ad Hoc Committee on Health Research (1996)
- Visual Health Information Profile of the Advisory Committee on Health Research (1997)
- Combined Approach of the Global Forum for Health Research (1999-2000).

These efforts are not contradictory but largely complementary. The following sections summarize the main characteristics of these efforts and prospects for the future.

## **Section 2**

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### **The approach of the Commission on Health Research for Development: Essential National Health Research (ENHR)<sup>3</sup>**

The concept of Essential National Health Research (ENHR) was advanced by the Commission on Health Research for Development (1990) and its successor, the Task Force on Health Research for Development (1991). While recognizing the major advances made in health in developing countries over recent decades, the Commission identified “a gross mismatch

between the burden of illness, which is overwhelmingly in the Third World, and investment in health research, which is overwhelmingly focused on the health problems of the industrialized countries”. In its findings, the Commission was the first to draw attention to the 10/90 gap in health research. To help correct this gap, one of the Commission's main recommendations was

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<sup>3</sup> This section was written on the basis of the following documents:

- Commission on Health Research for Development, *Health Research, Essential Link to Equity in Development*, 1990
- Task Force on Health Research for Development, *Essential National Health Research, A Strategy for Action in Health and Human Development*, October 1991
- Council on Health Research for Development (COHRED), *Essential National Health Research and Priority Setting: Lessons Learned*, June 1997
- Mary-Ann Lansang, *Research Priority Setting Using ENHR Strategies*. Paper presented at Forum 3, June 1999, Geneva.
- Marian Jacobs, *Priority Setting for Health Research, The Case of South Africa*. Paper presented at Forum 3, June 1999, Geneva.

the establishment in each developing country of an appropriate health research base: Essential National Health Research. This was strongly endorsed by the 1990 World Health Assembly, which started a worldwide movement for the promotion of ENHR in developing countries. To finance the development of this research base at the country level, the Commission recommended that developing countries invest 2% of national health expenditures for research and capacity strengthening, and that development agencies earmark at least 5% of their financing in the health sector for the same purposes.

This concept has been further developed by the Council on Health Research for Development (COHRED) during the past eight years through its practical application in a number of countries. The main characteristics of the ENHR effort are summarized below.

### **1. Global and specific objectives**

ENHR is a systematic approach for organizing and managing country-specific and global health research in order to promote health and development on the basis of equity and social justice, thus helping to correct the 10/90 imbalance. In the words of the Task Force, it is a critical tool for developing countries “to understand their own problems, to enhance the effectiveness of limited resources, to improve health policy and management, to foster innovation and experimentation, and to provide the foundation for a stronger developing country voice in setting international priorities.”

The Task Force Report states that the ENHR objectives are to :

- update the scientific knowledge base required for the establishment of priorities
- ensure the best use of available resources (efficiency), i.e. help decision-makers make rational choices in their investment decisions
- tackle unsolved problems and develop new drugs, vaccines and diagnostics; the situation analysis at country-specific level will highlight the residual problems which should be studied at the global level.

### **2. ENHR strategies and principles**

In pursuit of the global and specific objectives outlined above, ENHR has identified the following strategies and principles:

- Priorities are set by all stakeholders: these include research managers, policy-makers and health-care providers (the so-called “ENHR loop”, linking research, policies and actions); community representatives; and donors. In this way, both the supply and the demand side of health are represented in the process.
- The process should be inclusive, participatory, transparent and iterative.
- Priority setting should involve a multidisciplinary approach. Since the determinants of health are multifaceted, the strategy is to mobilize researchers in a variety of research disciplines, in health (biomedical research, clinical research, community-based public health research) as well as in sectors other than health (behavioural and social research in addition to research in environment, agriculture, education and economic policies). The strategy highlights the important benefits of overcoming the disciplinary barriers.

## Insert 2.1

### *ENHR: the case of Tanzania (1999)*<sup>4</sup>

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#### Objectives, criteria, process and main health research priorities

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##### Objectives of the priority-setting process

To allocate the limited research resources to priority problems so that the joint efforts result in positive and significant health changes and reduction in health problems.

The process should have the following characteristics:

- inclusiveness: community representatives, researchers, health service providers, decision-makers
- broad-based national and local consultations
- using both quantitative and qualitative methods
- steered by a small technical committee (National Forum for Health Research).

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##### Objectives of the workshop

- share experiences and outline problems
- discuss and identify obstacles to effective health planning and implementation
- develop together national health priorities based on feedback from regions and districts
- outline future plans to maintain and update health research priorities.

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##### Criteria for identifying priority research areas

- magnitude of the problem
- avoidance of duplication
- feasibility
- focused
- applicability of results
- add to new knowledge
- political and ethical acceptability
- urgency.

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##### Steps in the preparation of the health research priorities and agenda

- Step 1: Situation analysis in the field of priority setting, identifying the weaknesses and strengths of the present system, and the opportunities which present themselves.
- Step 2: Consultation of the 113 District Medical Officers, asking them to list the top 10 disease problems, the top 10 health systems problems and the top 10 socio-cultural problems.
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<sup>4</sup> National Institute for Medical Research, ENHR Secretariat, *Tanzania Essential National Health Research, Priority-Setting Workshop*, Arusha, 15-21 February 1999.

## Insert 2.1 (continued)

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- Step 3: Arusha Workshop with 40 stakeholders from key institutions (15-21 February 1999):
- presentation by six Tanzanian institutions of their experiences/lessons learnt in past priority-setting exercises
  - identification and agreement on the criteria for priority setting
  - ranking of diseases, health service problems and sociocultural problems
  - identification of researchable issues in each of the top problem areas
  - definition of the priority research areas by iterative process
  - overall assessment of the identified priorities by government, health research institutions and NGO representatives.
- Step 4: At a later stage, updating of results on a regular basis and monitoring of results.
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### Priority research areas

#### A. Top 10 priority disease problems:

Malaria, upper respiratory tract infection (URTI), diarrhoeal diseases, pneumonia, intestinal worms, eye infections, skin infections, STD, anaemia, injuries (then: schistosomiasis, tuberculosis).

#### B. Top 10 health service problems:

Lack of trained personnel, lack of equipment/drugs, lack of transport, underfunding, low level of health education, impassable roads, lack of infrastructure/buildings, lack of water supply, poor environmental sanitation, inadequate health facilities (then: cultural beliefs and taboos, poor cooperation with local leaders).

#### C. Top 10 socio-cultural problems:

Food taboos in pregnancy, poor latrine usage, alcoholism, polygamy, illiteracy, gender inequality, witchcraft, inheritance of widows, low use of family planning, use of local herbs.

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### Lessons drawn by the National Institute for Medical Research

- importance for ownership of identifying and adopting the criteria for priority setting by consensus
  - importance for ownership of identifying and adopting the priorities by consensus
  - ownership is probably the most important element in ensuring proper implementation of the national health research priorities.
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## Insert 2.2

### *ENHR: the case of Indonesia (2000-2005)*<sup>5</sup>

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#### Objectives, criteria, process and main health research priorities

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##### Objectives of the priority-setting process

- to develop the national health research priorities and the national health research agenda for policy-makers in Indonesia for the period 2000-2005
- to promote social accountability, ownership and shared responsibility for implementation of the research agenda
- to help strengthen national research capacity.

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##### Criteria for identifying priority research areas

- burden of disease: how big and urgent is the problem?
- avoidance of duplication: what research has previously been done?
- feasibility of the research
- expected impact of the research on the health status of the population
- political acceptability of the research
- applicability of the research
- ethical acceptability of the research.

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##### Steps in the preparation of the health research priorities and agenda

- Step 1: Collection of data relevant to the national health status and health-care system.
- Step 2: Situation analysis on: (i) trends in disease and risk factors/determinants; and (ii) health care, health personnel, health programmes, health facilities, health research systems and funding.
- Step 3: Situation analysis sent to all stakeholder representatives.
- Step 4: Round table discussions around the following eight health-related areas: health behaviours, health system, communicable diseases, demography, pharmacy/medicine, environmental/occupational health, food and nutrition and noncommunicable diseases.
- Step 5: Preparation by each discussion group of a preliminary list of priority research areas.
- Step 6: Discussion of the preliminary priority lists in a national meeting of 100 stakeholder representatives at Carita on 2-4 February 1999.
- Step 7: Preparation of a problem statement and a conceptual framework by each technical group and identification of the proposed research areas in successive voting rounds until the number of proposed areas is reduced to those of highest priority.
- Step 8: Identification (by each technical group at the Carita meeting) of policy- and decision-makers who will use the information generated by the research. The impact of the research must also be clearly demonstrated through the identification of its expected outputs.

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<sup>5</sup> ENHR Focal Point in Indonesia and National Institute of Health Research and Health Development, *The Development of National Health Research Priority and National Health Research Agenda for Indonesia, 2000/01-2004/05*.

## Insert 2.2 (continued)

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### Priority research areas

#### A. Health behaviour research agenda

Priorities are defined with respect to main health behaviours (level of exercise, eating/nutritional habits, smoking, alcohol consumption, drug abuse, driving safety and safe sexual practices) and their main determinants, i.e. regulatory aspects (policy and regulations, socioeconomic factors, cultural and psychological factors, standards for risk factors) and operational aspects (epidemiology of behaviour, information/education/communication, technology of communication for behaviour change and supply/demand factors for health information).

#### B. Health system research agenda

Priorities are defined with respect to the four pillars of the Healthy Indonesia 2010 plan, i.e. decentralization (what is the best structure for an efficient and effective operation at national, provincial, district and sub-district levels?), professionalism, health paradigm (giving central importance to prevention) and managed care (most appropriate guidelines).

#### C. Communicable diseases research agenda

The following disease categories are identified as research priorities: acute respiratory infections/pneumonia, tuberculosis, gastro-intestinal and liver infections (cholera, typhoid fever, viral hepatitis, etc.), malaria, dengue fever, STD, HIV/AIDS, emerging infectious diseases, food poisoning, vaccine-preventable diseases.

#### D. Demography research agenda

Areas of greatest need are identified as follows: a managed system for reporting of mortality and its causes; measurement of the demographic and epidemiologic transitions (fertility; mortality; morbidity; disability; contraceptive prevalence; impact of economic crisis on fertility, mortality, morbidity, disability); changes in mortality and morbidity; mobility (epidemiologic patterns in urbanized areas; burden of road traffic injuries; changes in health behaviours; accessibility of services for refugees).

#### E. Pharmacy and medicine research agenda

Priority research questions focus on the three primary pharmaceutical sectors: production (availability of raw materials, quality control standards, safety and efficacy norms, cost/benefit ratios for raw materials, availability of traditional medicines, norms for locally manufactured products, etc.); management (requirements to ensure provision of effective and efficient pharmaceutical services, procurement practices, equitable distribution of drugs, appropriate segmentation between the public and private sectors, improvement in the cost-effectiveness of drugs, rational utilization of drugs, etc); pharmaceutical services (drug regimens for selected diseases, effective surveillance method, etc.).

#### F. Environmental and occupational health research agenda

Priority research questions: human settlement (model for low-cost healthy housing); public places/sanitation (maintenance of basic sanitation; standards for indoor air pollution; model for solid waste disposal; model for safe water supply; standards for air pollution); working environment (model for improvement of working environment for targeted groups such as fishermen, farmers, home industries); occupational health (standards for prevention of accident in the workplace); fauna (appropriate strategies for vector and rodent control); flora (model for preservation of biodiversity, etc.).

#### G. Food and nutrition research agenda

Priority research areas: epidemiology of nutritional deficiency (prevalence, causes and consequences of protein energy malnutrition; micronutrient deficiencies, obesity, cataract); biomedical aspects of nutritional deficiency; nutrition technology (micronutrients, quality control, food supplementation); food technology (food security, control of toxic substances, appropriate surveillance and standards).

#### H. Noncommunicable diseases research agenda

Priority research areas: cardiovascular diseases; cancers (breast, cervical, lung, prostate, colo-rectal, nasopharyngeal, liver, ovary, pancreatic); injuries (traffic accidents, poisoning, violence against women and children); mental disorders (schizophrenia, dementia, drug abuse, depression, neuroses).

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## Insert 2.3

### *ENHR: the case of South Africa*<sup>6</sup>

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#### Objectives of the priority-setting process

- to develop the national health research priorities with a focus on equity and development
  - to promote the integration of efforts in the field of health research and promote the development of the necessary human resources.
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#### Characteristics of the priority-setting process

- be user driven and include participants from all sectors
  - be continuous, innovative and guided by the burden of disease analysis
  - address the needs of the poor and meet their basic needs
  - contribute to the development of human resources
  - include indicators of performance to track the impact.
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#### Steps in the preparation of the health research priorities and agenda

- Step 1: Rank health status (trends, morbidity, mortality)
- Step 2: Identify research areas by discipline (current interventions, research focus areas, need for new interventions)
- Step 3: Discuss research opportunities (human resources, chances of success, funding of of life, equity impact).
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#### Criteria for identifying priority research areas

- burden of disease
  - avoidance of duplication
  - feasibility of the research
  - expected impact of the research on the health status of the population
  - political acceptability of the research
  - applicability of the research
  - ethical acceptability of the research.
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#### Priority research areas

- injury/trauma/violence
  - tuberculosis
  - nutrition
  - HIV/AIDS
  - sexually transmitted diseases
  - cancer
  - diarrhoeal diseases
  - respiratory infections
  - mental health
  - malaria.
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#### Lessons learned from the Priority-setting Conference and the work of the ENHR Commission

- drew attention to the importance of involving local communities
  - helped strengthen linkages between various research efforts
  - helped focus the research efforts on bringing solutions to people's health problems
  - helped ensure accountability.
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<sup>6</sup> Marian Jacobs, *Priority Setting for Health Research, The Case of South Africa*. Paper presented at Forum 3, June 1999, Geneva.

### 3. Criteria for setting priorities

In the documents listed in footnote 3 above and in the national ENHR priority-setting exercises undertaken in a number of countries, the following criteria appear most often for the selection of priority research areas:

- economic impact, including both the severity of the problem (urgency, seriousness, degree of incapacitation) and the magnitude/prevalence of the problem (number of persons affected)
- cost-effectiveness of potential future interventions
- effect on equity and social justice
- ethical/political/social/cultural acceptability
- feasibility of the research: probability of finding a solution
- avoidance of duplication
- contribution to capacity strengthening.

It should be emphasized that not all these criteria have been systematically applied in ENHR priority-setting exercises in all countries. However, basic criteria such as economic impact (including severity and magnitude of the problem), effect on equity, and acceptability are present in most cases.

### 4. Lessons learned

A number of countries have started implementing the ENHR strategy by setting priorities for health research. A 1997 COHRED publication<sup>7</sup> summarizes the main lessons learned from the first four years of ENHR priority-setting exercises as follows:

- Broad consultation is possible but usually needs reinforcement. In many cases, it has been possible to bring together the various stakeholders for consultation, dialogue and decision-making, leading to a better allocation of health research resources. However, more substantive participation is still needed, particularly from representatives of the local communities and the private health sector.
- The demand side of the equation must not be overlooked: analysis of the health situation in the country on the supply side (analysis of the burden of disease and of the health care delivery systems, for example) must be balanced with analysis on the demand side, including health needs, people's expectations, societal trends and values.
- Priority setting is a political process that requires transparency and accountability. This can be achieved through inclusiveness and mutual respect, a common understanding of criteria, consensus on the selection process and skilful synthesis of research priorities.
- International aid agencies must pay close attention to the nationally defined priorities.
- Many issues must be treated at the global level as well as the national level. New mechanisms must be created to address issues relevant to the global and national levels, such as: resource flows, intellectual property rights, "brain drain" and subsidies for social pricing of biomedical products. The "upward synthesis (from the national to the global level) is achievable but still an elusive goal and can be achieved only with more systematic and credible priority-setting exercises".

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<sup>7</sup> *Essential National Health Research and Priority Setting: Lessons Learned*, COHRED, June 1997.

## Section 3

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### The approach of the Ad Hoc Committee on Health Research: the Five-Step Process<sup>8</sup>

In response to the key issue of how to allocate limited resources between a large number of possible research projects so as to have the greatest impact on the health of the largest possible number of people, the Ad Hoc Committee on Health Research proposed the following five steps to help decision-makers make a rational decision in the allocation of the limited resources:

#### **Step 1: Calculate the burden attributable to each main disease or risk factor in the country**

This can be measured in DALYs (disability-adjusted life years) or similar methods, indicating the number of years of healthy life lost due to premature death or to disability of one kind or another.

#### **Step 2: Identify the reasons for the persistence of the burden of the disease (i.e. identify the main determinants of the disease)**

This requires an analysis of whether the problem persists mainly because of:

- lack of knowledge about the disease and its determinants (in which case more strategic research is needed)
- lack of tools (in which case more operational research is needed)
- failure to use the existing tools efficiently (requiring both more operational research

and more health policy and systems research).

Based on this analysis and using data on the efficacy of the available interventions and information from field experts on the proportion of the population receiving effective interventions, the Ad Hoc Committee on Health Research designed an analysis box (Insert 2.4) to help identify the following elements:

- the portion of the total burden of each disease currently being averted in a given country
- the portion of the total disease burden which could be averted with better use of existing cost-effective interventions (thus requiring more research on health policies and systems)
- the portion of the total burden which could be averted but only with interventions which are not cost-effective (thus requiring more biomedical research to reduce the cost of these interventions)
- the portion of the total burden which could be averted only with new interventions (thus requiring more biomedical research to identify new interventions).

#### **Step 3: Judge the adequacy of the current knowledge base, including the cost-effectiveness of current interventions**

If current interventions are very expensive,

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<sup>8</sup> This section has been written on the basis of the Report of the Ad Hoc Committee on Health Research, *Investing in Health Research and Development*, WHO, September 1996.

this will strengthen the case for research into more cost-effective interventions. However, if the interventions available today are already highly cost-effective, the case for developing new interventions will be weaker.

**Step 4: Assess the promise of the research and development effort: is research likely to produce interventions which will be more cost-effective than the existing ones?**

This step involves the calculation of the cost-effectiveness of the potential intervention (in terms of total costs per DALY averted, including the cost of research and the cost of the intervention itself) and the comparison with the cost-effectiveness of existing interventions. The Ad Hoc Committee

concludes that any research leading to an intervention costing less than US\$150 per DALY averted in low-income countries is “attractive” to “highly attractive”.

**Step 5: What are the present resource flows for that disease/risk factor?**

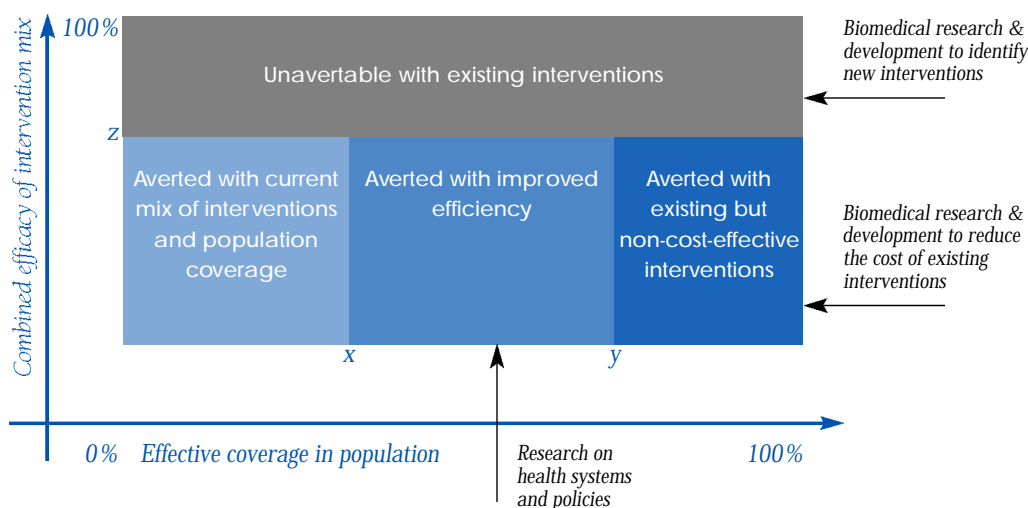
Given the present allocation of resources for this disease/risk factor, should more be invested or would resources be better invested elsewhere in research and development?

The application of the five steps described above should greatly facilitate the work of the decision-maker in identifying key research priorities for the country concerned or globally.

## Insert 2.4

### Analysing the burden of a health problem to identify research needs

#### Relative shares of the burden that can and cannot be averted with existing tools



Source: Ad Hoc Committee Report, p. 7

- $x$  — population coverage with current mix of interventions
- $y$  — maximum achievable coverage with a mix of available cost-effective interventions
- $z$  — combined efficacy of a mix of all available interventions

## Section 4

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### **The approach of the Advisory Committee on Health Research (ACHR): the Visual Health Information Profile<sup>9</sup>**

#### **1. Global objective**

The global objective of the ACHR Research Policy Agenda is to address the key problems for global health in a systematic way, making use of scientific research networks and partnerships around the world. Its vision is one of global cooperation between the scientific community, governments, nongovernmental organizations, the private sector and all partners in public health.

#### **2. Problems of critical significance to global health**

The ACHR Research Policy Agenda particularly addresses health problems which are “significant” and “global”, and where the need for action is “imperative”. Based on these criteria, the Research Policy Agenda identifies the following problems (also referred to as the underlying common determinants of health status) as having critical significance for the attainment of “Health for All”:

- population dynamics, including population growth and ageing
- industrialization and urbanization, including overcrowding and pollution
- environmental threats (particularly to food, water and air safety)
- shortages of food and water
- new and re-emerging threats to health
- behavioural and social problems such as stress, substance abuse and violence.

#### **3. Multidisciplinary approach**

Because these “problems of critical significance to global health” have multiple contributing factors, solutions correspondingly require inputs from a wide range of disciplines including:

- biomedical sciences
- public health sciences
- environmental sciences
- physical sciences and engineering
- economic sciences
- educational sciences
- social and behavioural sciences
- information and communication technologies.

#### **4. The Visual Health Information Profile (VHIP)**

The VHIP is a computer-based visual display showing the “totality of the health status of a country” in a way that enables comparisons of health status:

- for a given country (or region) over time
- between countries (or regions) at a given point in time.

It contains five main categories of health indicators:

- Indicators of disease conditions and health impairment: life expectancy, death rate, maternal mortality, under-five mortality,

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<sup>9</sup> This section has been written on the basis of the Advisory Committee on Health Research, *A Research Policy Agenda for Science and Technology to Support Global Health Development*, A synopsis, WHO, December 1997.

infant mortality, communicable diseases, noncommunicable diseases, injuries, disabilities, etc.<sup>10</sup>

- Indicators of health-care systems: access to care, total fertility rate, immunization coverage, expenditure on health (% GNP), etc.
- Environmental determinants: GNP per capita, access to safe water, access to adequate sanitation, population growth rate, energy consumption per capita, etc.
- Food and nutrition indicators: daily calorie supply per capita, food production per capita, etc.
- Socio-cultural characteristics: adult literacy, expenditure on education (% GNP), births under the age of 20, tobacco consumption, etc.

One example of VHIP is presented in Insert 2.5.

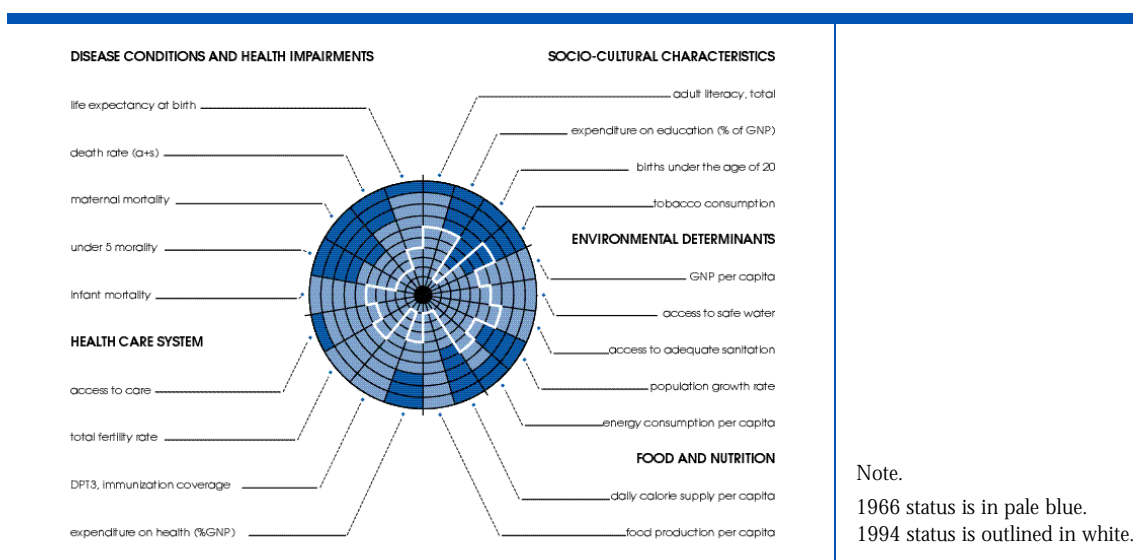
## 5. Priority research areas

On the basis of the above criteria, the following areas are listed high on the ACHR Research Agenda:

- Communicable diseases: acute respiratory infections, tuberculosis, vaccine-preventable diseases of childhood, diarrhoeal diseases, sexually transmitted diseases, HIV/AIDS, tropical diseases.
- Noncommunicable diseases: cardiovascular diseases, diabetes, cancer, violence and injuries, mental health disorders, substance abuse.
- Health policies and health systems research.
- Family, perinatal and reproductive health.
- Environmental health (particularly air, water and land pollution).
- Food and nutrition.
- Research capacity strengthening in the least developed countries.
- Healthy behaviour.

## Insert 2.5

### Visual Health Information Profile: Tunisia 1966-94<sup>11</sup>



<sup>10</sup> Each domain can be further disaggregated as far as the available data will allow.

<sup>11</sup> The Advisory Committee on Health Research, *A Research Policy Agenda for Science and Technology, A synopsis*, WHO, December 1997, page 29.

## Section 5

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### Comparison of the ENHR, Ad Hoc Committee and ACHR approaches

Since the publication in 1990 of the Commission Report,<sup>12</sup> which drew attention to the imbalance in the global allocation of health research funds, a remarkable amount of work has been undertaken to help decision-makers in the public sector set priorities in the allocation of limited resources. The main efforts were summarized in Section 2 (Commission on Health Research for Development), Section 3 (Ad Hoc Committee on Health Research) and Section 4 (Advisory Committee on Health Research) above. The most important conclusion of this review of past approaches is that they are not contradictory but largely complementary.

This section examines the three approaches, indicating their common denominators and main differences.

#### 1. Objective of priority setting in the public sector

Although the various approaches tackle the problem from very different angles and with different terminologies and methodologies, there appears to be at least implicit consensus that the central objective is to have the greatest impact on the health of the greatest number of people in the community concerned (world or country level) for a given investment. In the ENHR approach, this is complemented by a particular emphasis on the effect on equity of the research projects selected.

Whereas the Ad Hoc Committee proposes to measure this impact in terms of DALYs averted as a result of health research outcome (or number of years of healthy life saved), the other two approaches are not specific about the actual measurement of the impact of health research. However, both underline the importance of the burden of disease.

On strategies and principles, most approaches stress the importance of ensuring that priorities are set by all stakeholders (participatory approach) and of applying a multidisciplinary approach.

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<sup>12</sup> Commission on Health Research for Development, *Health Research, Essential Link to Equity in Development*, 1990

## 2. Criteria for priority setting in the allocation of public sector resources<sup>13</sup>

The aim of using explicit criteria is (i) to make the selection process as transparent as possible and (ii) to allocate limited research funds in the most productive way. There is a broad degree of consensus (explicitly or implicitly) on the main criteria to be applied. The most frequently used criteria under the various approaches include:

- **Severity (degree of incapacitation) and magnitude of the problem (number of persons affected):** these criteria are specifically mentioned in the ENHR approach; the ACHR/VHIP approach talks of the need to allocate resources to the problems deemed of “greatest global burden”; the Ad Hoc Committee incorporates these dimensions in the burden of disease measurement.
- **Cost-effectiveness of the interventions researched (estimated benefits accruing to society as a whole from research results as compared to their estimated costs):** this is one of the main criteria of the Ad Hoc Committee approach, where benefits are measured in terms of DALYs saved; it is specifically mentioned in the ENHR (economic impact of the proposed health research project) and is implicit in the ACHR/VHIP model.
- **Effect on equity (likely impact of the research on the poorer segments of the population):** this is one of the main criteria of the ENHR approach and particular attention was drawn to this issue in Forum 3 by the President of the Council for International Organizations of Medical Sciences (CIOMS).<sup>14</sup> In the ACHR/VHIP approach, a number of indicators

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<sup>13</sup> The criteria are somewhat different in the private sector. Being responsible for the survival and success of the enterprise and for the satisfaction of the shareholders, decision-makers in the private sector base their decisions mostly on the following criteria:

- profit perspectives: this corresponds to the cost-effectiveness criterion applied in the public sector; it could be termed the private cost-effectiveness of the proposed research project, i.e. the estimated benefits accruing to the enterprise from research results as compared to their estimated costs (return on capital); this overall criterion includes several other criteria, also present in the public sector calculations, such as the probability of finding solutions, the scientific quality of the research proposed, and the feasibility of the research proposed (human resources, funding, facilities). Although this is the most important criterion for the private enterprise, other criteria may also play a role, such as the ones mentioned below;
- social responsibility of the enterprise: the enterprise may decide to consecrate part of its resources to the correction of social ills locally or worldwide; this is the basis for a number of important drug donation programmes, including some research aspects at the level of development or distribution;
- public image of the enterprise: resources may be invested to promote a positive image of the enterprise, with the hope of reinforcing profit perspectives in the longer term.

<sup>14</sup> John H. Bryant, *Dilemmas in Setting Priorities for Health Research and Development* Paper presented at Forum 3, June 1999, Geneva. This paper draws particular attention to:

- the importance of specifying values and principles as a basis for priority setting; the values do not provide answers to the priority-setting task but provide indications of the trade-offs involved in choosing between different options;
- the fundamental conflict between equity and cost-effectiveness when those most in need are the most difficult to reach;
- the ready identification of equity as a necessary criterion and the difficulty of incorporating it in the policy framework and programme implementation;
- the Norman Daniels “benchmarks of fairness” providing indicators to assess the extent of fairness or justice in different models of health-care reform;
- the need for research to take into account the local cultural values, conditions and traditions when setting priorities.

These are largely ignored when the priority focus is on macro-systems.

## Insert 2.6

### Comparison of various priority-setting approaches

| Characteristics                                                              | Essential National Health Research Approach                                                                                                                      | Ad Hoc Committee on Health Research Approach                                                                                                                                                             | Advisory Committee on Health Research Approach                                                                                                                                            | Global Forum for Health Research “Combined Approach”                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.Objective of priority setting</b>                                       | <p>Promote health and development on the basis of equity.</p> <p>Help decision-makers make rational choices in investment decisions.</p>                         | <p>Help decision-makers make rational choices in investment decisions so as to have the greatest reduction in the burden of disease for a given investment (as measured by number of DALYs averted).</p> | <p>Address problems of critical significance for global health: population dynamics, urbanization, environment, shortages of food and water, new and re-emerging infectious diseases.</p> | <p>Help decision-makers make rational choices in investment decisions so as to have the greatest reduction in the burden of disease for a given investment (as measured by number of DALYs averted), on the basis of the practical framework for priority setting in health research (matrix presented in Insert 2.7).</p> |
| <b>2.Focus at the global or national level?</b>                              | <p>Focus on situation analysis at country level; residual problems to be studied at global level.</p>                                                            | <p>Focus on situation analysis at the global level; method also applicable at the country level.</p>                                                                                                     | <p>Priority to “significant” and “global” problems, requiring “imperative” attention.</p>                                                                                                 | <p>Method applicable at both global and national level.</p>                                                                                                                                                                                                                                                                |
| <b>3.Strategies/ principles</b>                                              | <p>Priorities set by all stakeholders.</p> <p>Process for priority setting should be iterative and transparent.</p> <p>Approach should be multidisciplinary.</p> | <p>Five- step process.</p> <p>Process should be transparent.</p>                                                                                                                                         | <p>Priorities should be set by all stakeholders.</p> <p>Process should be transparent and comparative.</p> <p>Multidisciplinary approach.</p>                                             | <p>Priorities should be set by all stakeholders.</p> <p>Transparent and iterative process.</p> <p>Approach should be multidisciplinary (biomedical sciences, public health, economics, environmental sciences, education sciences, social and behavioural sciences).</p>                                                   |
| <b>4.Criteria for priority setting</b>                                       |                                                                                                                                                                  |                                                                                                                                                                                                          |                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                            |
| <i>Burden of disease</i>                                                     | <p>Based on an estimate of severity and prevalence of disease.</p>                                                                                               | <p>Measured by DALYs (number of years of healthy life lost to each disease).</p>                                                                                                                         | <p>Allocate resources to the problems deemed of “greatest global burden”</p>                                                                                                              | <p>Measured by DALYs (number of years of healthy life lost to each disease) or other appropriate indicators.</p>                                                                                                                                                                                                           |
| <i>Analysis of determinants of disease burden</i>                            | <p>Analysis of multidisciplinary determinants (biomedical, economic, social, behavioural, etc.).</p>                                                             | <p>Analysis of mostly biomedical determinants.</p> <p>Other determinants implicit.</p>                                                                                                                   | <p>Analysis of multidisciplinary determinants (biomedical, economic, social, behavioural, etc.).</p>                                                                                      | <p>Analysis of determinants at following intervention levels:</p> <ul style="list-style-type: none"> <li>– individual/family/ community</li> <li>– health ministry and research</li> <li>– sectors other than health</li> <li>– government macro-economic policies.</li> </ul>                                             |
| <i>Cost-effectiveness of interventions (resulting from planned research)</i> | <p>Some attempts at measurement in terms of impact on severity and/or prevalence.</p>                                                                            | <p>Cost-effectiveness measured in terms of DALYs saved for a given cost.</p>                                                                                                                             | <p>Implicit reference to cost-effectiveness analysis.</p>                                                                                                                                 | <p>Cost-effectiveness measured in terms of DALYs saved for a given cost.</p>                                                                                                                                                                                                                                               |

## Insert 2.6 (continued)

| Characteristics                                                           | Essential National Health Research Approach                                                                                                         | Ad Hoc Committee on Health Research Approach                                                                                                                                                                                                                                                    | Advisory Committee on Health Research Approach                                                                                                                                                                                                                                                                                                     | Global Forum for Health Research “Combined Approach”                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>4.Criteria for priority setting (continued)</b>                        |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Effect on equity and social justice</i>                                | Central criterion in ENHR approach (not directly measured).                                                                                         | Inbuilt equity orientation, based on same weights given to year of healthy life saved for poor and rich population (effect on equity not directly measured as yet).                                                                                                                             | A number of indicators in the VHIP draw attention to the situation of the poorer segments of the population.                                                                                                                                                                                                                                       | Inbuilt equity orientation, based on same weights given to year of healthy life saved for poor and rich population (effect on equity not directly measured as yet).                                                                                                                                                                                                                                          |
| <i>Ethical, political, social, cultural acceptability</i>                 | This criterion is present, although in varying degrees, in various approaches, either explicitly (particularly in the ENHR approach) or implicitly. |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Probability of finding a solution</i>                                  | Specifically mentioned in the ENHR approach.                                                                                                        | Part of the cost-effectiveness analysis (step 4).                                                                                                                                                                                                                                               | Implicit.                                                                                                                                                                                                                                                                                                                                          | Part of the cost-effectiveness analysis.                                                                                                                                                                                                                                                                                                                                                                     |
| <i>Scientific quality of research proposed</i>                            | Pre-condition in all approaches.                                                                                                                    |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Feasibility (availability of human resources, funding, facilities)</i> | Specifically mentioned in the ENHR approach.                                                                                                        | Implicit.                                                                                                                                                                                                                                                                                       | Implicit.                                                                                                                                                                                                                                                                                                                                          | Feasibility is part of the list of criteria.                                                                                                                                                                                                                                                                                                                                                                 |
| <i>Contribution to capacity strengthening</i>                             | Explicitly mentioned in the ENHR approach.                                                                                                          | Not mentioned. Could be integrated in the cost-effectiveness analysis.                                                                                                                                                                                                                          | Not mentioned. Could be integrated.                                                                                                                                                                                                                                                                                                                | Can be integrated in the cost-effectiveness analysis.                                                                                                                                                                                                                                                                                                                                                        |
| <b>5.Critical problems and priority research areas</b>                    | Will depend on each country's situation.                                                                                                            | <p>Infectious diseases, malnutrition and poor maternal/child health.</p> <p>New and re-emerging infectious diseases due to antimicrobial resistance (TB, STD, HIV/AIDS, malaria).</p> <p>Increase in NCD and injuries.</p> <p>Inequities and inefficiencies in delivery of health services.</p> | <p>Infectious diseases: TB, vaccine-preventable childhood diseases, STD, HIV/AIDS, tropical diseases, maternal and child health.</p> <p>Noncommunicable diseases: cardiovascular diseases, diabetes, cancer, injuries, mental disorders, substance abuse.</p> <p>Health policies and health systems.</p> <p>Environment, nutrition, behaviour.</p> | <p>Health system research (efficiency and equity of health systems)</p> <p>Child health and nutrition (diarrhoea, pneumonia, HIV, malaria, vaccine-preventable diseases, nutritional deficiencies, TB)</p> <p>Maternal and reproductive health (mortality, STDs and HIV nutrition, family planning)</p> <p>Noncommunicable diseases (cardiovascular, mental and neurological conditions)</p> <p>Injuries</p> |
| <b>6.Implementation tools</b>                                             | Essential national health research plans.                                                                                                           | <p>Forum for investors in international health research.</p> <p>National agendas.</p> <p>Public/private collaboration.</p>                                                                                                                                                                      | Under preparation.                                                                                                                                                                                                                                                                                                                                 | <p>Analytical work for priority setting.</p> <p>Research networks (initiatives) for priority diseases.</p> <p>Annual meeting of partners to help correct the 10/90 gap.</p>                                                                                                                                                                                                                                  |

summarized in the VHIP diagram draw attention to the particular situation of the poorer segments of the population. In the Ad Hoc Committee approach, the same weight is given to a year of healthy life saved for a poorer or a richer person. Since costs are normally much lower to save one year of healthy life for a poorer person (for example: use of antibiotics, oral rehydration, vaccines) than for a richer person who already has access to these tools, there is an inbuilt equity orientation in the Ad Hoc Committee approach. However, the degree of this inbuilt equity orientation has not yet been measured and much more work is needed in this area to help define cost-effective poverty-oriented policies.

- **Ethical acceptability:** this criterion is explicitly mentioned in the ENHR approach only.
- **Probability of finding a solution:** this is specifically mentioned in the ENHR approach and implicit in the ACHR/VHIP approach. It is also part of the cost-effectiveness calculations in the Ad Hoc

Committee approach under step 4 (how cost-effective could future interventions be?) in the following way: the lower the probability of finding a solution, the higher the costs and the lower the cost-effectiveness.

- **Scientific quality of the research proposed:** this is a pre-condition in all approaches.
- **Feasibility of the research proposed (availability of the necessary human resources, funding and facilities):** this is explicitly or implicitly part of all approaches.
- **Impact on capacity strengthening of the research proposed:** this is explicitly mentioned in the ENHR approach only. Although the other approaches are not specific about this criterion, it could be integrated into the cost-effectiveness calculation.

This comparison of the three approaches is summarized in Insert 2.6.

## Section 6

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### The Combined Approach proposed by the Global Forum for Health Research

This section focuses on the Combined Approach (Insert 2.6), which incorporates the criteria and principles for priority setting defined in the ENHR approach, the Visual Health Information Profile proposed by the Advisory Committee on Health Research and the Five-Step Process of the Ad Hoc Committee on Health Research. These criteria and principles are then linked with the four broad groups of actors and factors determining the health status of a population to form a proposed matrix for priority setting in health research (Insert 2.7). During 2000-2001, the Combined Approach will undergo piloting and testing and must at this stage be considered as work in progress.

Based on this matrix, defining the health research priorities for a given community (at global or country level) would require the following analyses (adapted according to the specific circumstances):

#### **1. Situational analysis: calculating the burden of diseases and collecting the macro-data on the global factors affecting health**

The first efforts of the priority-setting team would be directed at assessing the burden of the main diseases and risk factors globally or for the country concerned (step I of the five-step process).

In parallel, the team would gather the available data to fill the Visual Health Information Profile proposed by the WHO

Advisory Committee on Health Research. This profile would summarize data, on an internationally comparative basis, between countries and over time, on key factors affecting the health status of the country's population (see Section 4.4 above).

#### **2. Filling the matrix table for each major disease (global or national level)**

The team would then fill in one such matrix table for each major disease. This should comprise all available information on the main questions raised by the Ad Hoc Committee on Health Research (steps II to V of the five-step process) for each of the diseases: (i) why does the burden of each disease persist? (ii) what is known today about existing interventions (and their cost-effectiveness) and about possible new interventions? (iii) is research likely to produce more cost-effective interventions? and (iv) what are the resource flows for that disease/risk factor in the country? These four questions should be raised for each of the four main groups of actors determining the health status of a community, corresponding to the following four intervention levels:

- **Individual, family, community:** What is known about the factors which are in the hands of the individual, the family or the community and which have an important impact on the particular disease or risk factor? Are the existing tools cost-effective? Are these tools widely recognized within the community? Are they applied? If not, why not? Are new tools necessary?

- **Health ministry, health systems and services, health research community:** How effective and cost-effective are the existing drugs/vaccines? Are the best policies and practices sufficient for treating the problem at hand? Are they applied? If not, why not? Is there a lack of biomedical knowledge about the disease or lack of tools? Inefficient health systems and services?
- **Sectors other than health with a major impact on health:** Are some of the causes rooted in sectors other than health? What is being done in these other sectors (agriculture, environment, education, etc.) which has an impact on the disease or risk factor at hand? How cost-effective are these interventions? What are promising new avenues for research?
- **Central government and macroeconomic policies:** Are government macroeconomic policies playing a negative role or are they effective for the health status of the population? Can they be made more effective? What research is necessary for making them more effective?

It is essential to look at all possible determinants, not only at the most immediate ones, such as the state of biomedical knowledge or the quality of the health services.

The advantage of the proposed table is that it will help summarize all available information on one disease and facilitate comparisons between the likely cost-effectiveness of different types of interventions. The information will inevitably be partial in the

first year, probably even sketchy in some cases, but it will progressively improve and even limited information is sometimes sufficient to indicate promising avenues for research.

### 3. Identifying the priority research areas for each disease

Through an analysis of each table, it will be possible to identify for each disease those areas that are likely to have the greatest impact on the health status of the population. It is important to examine the situation at each of the four intervention levels mentioned above.

### 4. Comparing key factors across tables

A comparison of the key factors across tables will draw attention to those research areas which will benefit several diseases at the same time.

### 5. Defining the priority research areas (global or national level)

The priority research agenda, globally or for the country, will then be defined on the basis of the priorities for each disease and across diseases. It will comprise those research projects having the greatest impact in terms of reduction of the burden of disease in the country. Although this is a long-term effort, the tool should demonstrate its usefulness at an early stage by highlighting the most important gaps in the information needed to make evidence-based decisions and by enabling some decisions to be made despite the limited availability of information.

## Section 7

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### **Perspectives for 2000-2001**

Despite substantial progress over the past decade, we are still at the stage of learning how to set priorities for health research effectively and how to transform the acquired knowledge into greater impact of research on people's health.

A number of priority-setting exercises are being planned for 2000-2001, using one

or other of the approaches reviewed above (at the country or global level). Some results will be available in the first part of 2000 and will be presented at the International Conference on Health Research for Development in Bangkok. These results will provide more information on the strengths and weaknesses of the methodologies applied and will permit further improvements in the instruments.

## Insert 2.7

### *The Combined Approach: a practical framework for setting priorities in health research*

| <b>Five Steps in Priority Setting</b>                                                   | <b>Data and Analytic Requirements</b>                                                  |  |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--|
| <b>I. What is the burden of the disease/risk factor?</b>                                | Health status<br>Assessment of the burden of disease (DALYs, QALYs, etc.)              |  |
| <b>II. Why does the burden of disease (BoD) persist?<br/>What are the determinants?</b> | Acquisition of knowledge about disease determinants                                    |  |
| <b>III. What is the present level of knowledge?</b>                                     | What is known today about existing interventions?<br>How cost-effective are they?      |  |
| <b>IV. How cost-effective could future interventions be?</b>                            | Is research likely to produce more cost-effective interventions than the present ones? |  |
| <b>V. What are the resource flows for that disease/risk factor?</b>                     | Assessment of the public and private resource flows                                    |  |

## Actors/factors determining the health status of a population (intervention levels)

| Level of the individual, family and community                                                                                                                                                    | Level of the health ministry, health research institutions, and health systems and services                                                                                                                                     | Level of sectors other than health                                                                                                                                                                                                                    | Level of central government and macroeconomic policies                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                  |                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                       | Tool of analysis: Visual Health Information Profile (VHIP) proposed by the Advisory Committee on Health Research                                                                                                                                              |
| <b>Analysis of:</b> <ul style="list-style-type: none"> <li>• Individual determinants</li> <li>• Family determinants</li> <li>• Community determinants influencing the BoD</li> </ul>             | <b>Analysis of:</b> <ul style="list-style-type: none"> <li>• Biomedical knowledge</li> <li>• Health policies</li> <li>• Health systems</li> <li>• Health services influencing the BoD</li> </ul>                                | <b>Analysis of sectoral policies having an impact on the BoD, for example:</b> <ul style="list-style-type: none"> <li>• Education</li> <li>• Environment</li> <li>• Working conditions</li> <li>• Security policies</li> </ul>                        | <b>Analysis of macroeconomic policies having an impact on the BoD, for example:</b> <ul style="list-style-type: none"> <li>• Budget policies, structural adjustment programmes</li> <li>• Research policies</li> <li>• Good governance</li> </ul>             |
| <b>Knowledge about factors influencing the C/E* of interventions at:</b> <ul style="list-style-type: none"> <li>• Individual level</li> <li>• Family level</li> <li>• Community level</li> </ul> | <b>Knowledge about factors influencing the C/E of interventions in:</b> <ul style="list-style-type: none"> <li>• Biomedical research</li> <li>• Health policies</li> <li>• Health systems</li> <li>• Health services</li> </ul> | <b>Knowledge about factors influencing the C/E of interventions in sectors outside health, for example:</b> <ul style="list-style-type: none"> <li>• School training in hygiene</li> <li>• Nutrition campaign</li> <li>• Pollution control</li> </ul> | <b>Knowledge about factors influencing the C/E of changes in macroeconomic policies, for example:</b> <ul style="list-style-type: none"> <li>• Structural adjustment programmes and health</li> <li>• Research policies</li> <li>• Good governance</li> </ul> |
| <b>Estimated C/E of potential interventions at:</b> <ul style="list-style-type: none"> <li>• Individual level</li> <li>• Family level</li> <li>• Community level</li> </ul>                      | <b>Estimated C/E of potential interventions in:</b> <ul style="list-style-type: none"> <li>• Biomedical research</li> <li>• Health policies</li> <li>• Health systems</li> <li>• Health services</li> </ul>                     | <b>Estimated C/E of potential interventions in various sectors outside health:</b> <ul style="list-style-type: none"> <li>• School training in hygiene</li> <li>• Nutrition campaign</li> <li>• Pollution control</li> </ul>                          | <b>Estimated C/E of potential changes in macroeconomic policies, for example:</b> <ul style="list-style-type: none"> <li>• Structural adjustment programmes and health</li> <li>• Research policies</li> <li>• Good governance</li> </ul>                     |

\* C/E: cost-effectiveness.

