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## METHODOLOGY FOR PLANNING OF HUMAN RESOURCES FOR HEALTH

*Report of a Consultation  
Bangkok, Thailand, 23-27 March 1992*

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Division of Development of  
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WHO CONSULTATION ON HUMAN RESOURCES FOR  
HEALTH (HRH) PLANNING METHODOLOGY  
Bangkok, Thailand, 23-27 March 1992

REPORT

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Appreciation is also expressed to the Royal Thai Government for hosting the meeting in Bangkok.

## 1. BACKGROUND

The development of human resources for health (HRH) is a dynamic and never-ending process which should be supported by appropriate methodologies and tools for continuous improvement. Especially, in the areas of planning and policy analysis of HRH, we have witnessed emerging concerns on new issues such as decentralized planning and economic constraints. Also we are gradually acquiring a broader understanding of the roles, functions and implications of HRH. Furthermore, the use and availability of informatics have an increasing impact in many areas of public health. These developments underline the need to review and improve our planning and policy analysis methodologies and tools. This concern was specifically expressed in the World Health Assembly in May 1991. In response to such needs and requests from Member States, WHO/HQ launched a systematic review and the development of methodologies and tools in July 1991. This particular consultation was a specific activity under the overall WHO project "Development of Methodologies and Tools for HRH Planning and Policy Analyses". It was organized by WHO Headquarters and the WHO Regional Office for South-East Asia.

## 2. OBJECTIVES

The objectives of the Consultation were:

- 1) To review and update the characterization of existing HRH planning methodologies;
- 2) To specify the principal advantages and limitations of each methodology;
- 3) To identify criteria for selecting methodologies appropriate for specific HRH planning situations;
- 4) To identify enabling conditions for improving the application of HRH planning methodologies; and
- 5) To propose further action by WHO and Member States to strengthen HRH planning in the future.

## 3. MEETING PROCESS

Ten participants took part in the Consultation, which was officially opened by Dr Uthai Sudsukh, Permanent Secretary, Ministry of Public Health, Thailand.

The pre-planning for the Consultation began in Geneva and in New Delhi and was completed in Bangkok. The WHO secretariat/facilitators team members - Dr P.C.Y. Chen, SEARO, Dr A. Goubarev, HQ; Dr T.L. Hall, temporary adviser (USA) and Mr P. Hornby, temporary adviser (UK) - had a series of meetings with senior officials from the Ministry of Public Health, Thailand, when the Consultation objectives, programme of work and other relevant materials for participants were reviewed and further developed.

The List of Participants and Programme of Work appear in Annexes 1 and 2.

The Consultation evolved in three distinct stages:

Monday was spent reviewing WHO activities, the background materials, and the four major methods used to project HRH requirements, and Tuesday in describing current HRH planning activities in the six countries represented at the Consultation. With the presentations of the first two days as a point of departure, the participants then developed a set of eight priority topics for discussion during Wednesday and Thursday. Friday was then used to review and revise the Consultation's recommendations to Member States and WHO.

#### 4. OPENING SESSION

Dr Uthai Sudsukh, Permanent Secretary of the Ministry of Health, opened the HRH Planning Consultation by welcoming the participants to Thailand and stressing the importance of their deliberations. He noted that HRH represent the largest single cost component of health services and their critical importance to the effective delivery of health care.

Dr Paul Chen, Regional Adviser, Human Resources for Health, pointed out the key role of health personnel, on which 60-80% of the health care budget was spent. He mentioned that imbalances in HRH continue to be an important problem facing most countries in the South-East Asia Region. Thus, there is a need to collaborate with and provide support to Member States to strengthen national capabilities in the formulation, analysis and review of national HRH policies and plans. He concluded that in this respect the current meeting is an important step towards reviewing and further promotion of HRH planning methodologies.

Dr Alexandre Goubarev, Scientist, Planning of Human Resources for Health, WHO/HQ, then summarized topics covered in a paper he prepared for the Consultation entitled "The Current Issues and Perspectives of WHO Activities in the Area of Planning of Human Resources for Health." He reviewed the difficulties many countries have with HRH planning and plan implementation as evidenced by inappropriate skill mixes, personnel shortages and surpluses, excessive and unsustainable HRH costs, poor plan implementation, and inadequate linkage of HRH plans to policies. In response to these difficulties the main thrusts of WHO's efforts are now directed at: providing technical support to Member States in the formulation and implementation of national HRH plans; promoting and supporting the development and utilization of country-specific techniques for projecting HRH requirements; and at developing and distributing improved HRH planning methods and guidelines. He concluded his remarks with a listing and description of specific projects now being carried out by WHO/HQ.

Mr Peter Hornby, Temporary Adviser, next presented his background paper, "New Approaches to the Planning of Human Resources for Health," prepared for the Consultation.

After reviewing the four major approaches to planning HRH he then discussed ways to introduce performance indicators into planning and described various practical ways that had been developed to estimate requirements taking into account workloads, performance, efficiency, staff mix, and costs. In his view planning results have often been disappointing due to the failure to give sufficient attention to how planning is done, i.e., the planning process, and to exploring the relative costs and potential effects of alternative HRH policy options. During the course of this paper it was argued that HRH requirement planning remains too far away from many health services' goal setting to be effectively linked. To move it closer, it was suggested that projections of future national budget

share have to be introduced into the HRH planning process at the earliest possible stage. It was also suggested that more emphasis is necessary on the bottom-up approaches to HRH planning, using projected budget allocations and new approaches to setting staffing standards and patterns as the vehicle of HRH planning development.

Dr Thomas Hall, Temporary Adviser, concluded the Opening Session with a description of two WHO-sponsored projects of relevance to the HRH Planning Consultation. The first involved the preparation of a document entitled, "HUMAN RESOURCES FOR HEALTH: A Tool Kit for Planning, Training and Management," which provides on computer diskette a wealth of information useful for planners, educators and managers. The Tool Kit format provides Member States with far more, and more varied, resource materials, at much lower cost than is possible with traditional documents such as books and manuals, while at the same time making these materials more accessible for local adaptation. He also presented draft data input and output tables for proposed HRH supply and requirements projection models.

## 5. COUNTRY CASE STUDY PRESENTATIONS

Presentations were made on the second day on the experiences of Indonesia, Japan, New Zealand, Pakistan, Sri Lanka, and Thailand with HRH planning. The verbal presentations were supplemented by more than 60 pages of written documents describing the main events in recent years and the problems encountered. No brief summary could do justice to the diversity and complexity of the country experiences reported, so only a one paragraph statement is provided covering the central problems highlighted in each of the six presentations.

**INDONESIA:** Indonesia's health system has been moving towards greater decentralization of authority and responsibility. There has been a shift in the private/public sector mix with an expansion of the role of the private sector in the provision of health care services. Concerted efforts have been undertaken to assure adequate and equitable distribution of human resources especially in "urban slums", rural, remote and border areas. Since the early 1980s increasingly complex planning methods have been used, with considerable emphasis on determining the staffing norms and staff workloads required to achieve specific targets for the provision of services. Experience implementing these methods suggests: problems using fixed staff ratios which limit the flexibility of task distribution among different categories of HRH; difficulties in measuring and using workload indicators, developing adequate organizational incentives for HRH planning and for plan implementation; and difficulties with the acquisition of a basic data set for HRH planning.

**JAPAN:** There has been relatively little attention to HRH planning in Japan in recent years. The main concern at the present time is with the rapid increase in the doctor-to-population ratio, projected to continue well into the 21st century. This increase was a result of the doubling of medical school capacity in the 1970s in response to the rising demand for medical care from the implementation of a universal medical insurance plan in 1961 and to the new health policy ("each medical school in each prefecture") in 1970. A study was conducted in the mid-1980s that projected a doctor surplus and the Ministry of Health and Welfare is now embarking on a more detailed study to determine whether

these projections are accurate or alternatively, whether the rapid aging of the population will more than absorb the increase in doctors.

**NEW ZEALAND:** New Zealand has undergone a number of major health care reforms during the past decade that have included the way HRH planning is done. Special emphasis has been given to planning the nursing workforce, starting with detailed supply and requirements projection models that were first used in the mid-1980s. The data base makes use of an annual (March 31) census of employed nurses in both the public and private sectors, and data obtained from a practising certificate obtained on annual re-registration. Substantial work has been done to compare the projections of the two models with subsequent experience. Based on these comparisons New Zealand authorities conclude that: the supply model has been relatively accurate, though national economic up- and downturns can have a significant short-term impact on nurse retention rates; the demand model, based on nursing employment, has been useful, especially in a highly regulated, economically and politically stable country such as New Zealand; and recent public sector reforms, with decentralization of government control, may reduce the effectiveness of the requirements planning in the medium-term.

**PAKISTAN:** With Asian Development Bank assistance, Pakistan recently completed a major effort to develop a comprehensive, long-term HRH plan for all four provinces and for the country as a whole. The entire plan was completed in less than one year and made extensive use of steering, task and advisory groups that ensured the active involvement of all major interest groups while at the same time providing participants with a good orientation to the importance and methods of HRH planning. The first step of the planning process was to identify broad sectoral goals that enjoyed the support of all major interest groups. The consultation process used in Pakistan helped ensure the general acceptance of the plan and the country has now started on its implementation. An important aspect of the plan was the testing of its economic feasibility, an especially critical consideration in Pakistan due to the dual concerns of rapid population growth in the face of rather moderate economic growth.

**SRI LANKA:** The Ministry of Health recently developed 5- and 10-year supply and requirements projections for all technical staff with 1+ years of training, projections which will later be extended to non-technical categories. Staffing norms were prepared using expert judgments and taking into account workloads, health needs, job profiles, technology improvements, and proposed new services. These norms were then converted into the required staff for different types of institutions and norms for the distribution of institutions in relation to their catchment populations. Projections were also developed of training institution outputs and probable losses were taken into account using the stock-and-flow method. Though the plan will provide useful guidance, this will be limited somewhat by the following: the inability to take into account the private sector and several other small segments of the health sector due to limited data; the probability that the projected HRH requirements are in excess of Sri Lanka's ability to train and pay for them, and perhaps even of likely effective consumer demand for services; the lack of more detailed location-specific projections; and limited attention to staff mix.

**THAILAND:** Health planning has been done in Thailand for at least 30 years but HRH planning has generally been limited to aggregate quantitative targets based on ratios, and with limited attention to how these targets could be achieved. HRH planning started in the early 1980s and considerable effort is now made on this activity. Various methods have been used, including: staffing standards for different types of MOH facilities; nursing requirements based on available and projected bed capacities; doctor requirements based on bed capacities; needs for dental care; anticipated workload for different types of medical specialists; projected expansion of health care facilities; and personnel-to-population ratios. Based on these experiences Thai authorities have concluded: HRH planning needs to be given high priority; application of the diverse methods has had only moderate success so far due to limited data, and inappropriate or incomplete application; planning estimates need to be disaggregated in order to take into account different regional patterns and needs; careful attention must be given to the private sector and its probable evolution; and the qualitative aspects of HRH should receive greater attention.

## 6. DISCUSSIONS

Most of the substantive discussions of the Consultation centred around eight priority topics, identified by group consensus at the end of the second day. For each of these topics a list of questions and statements was prepared as a basis for initiating the discussion, and then the participants ranged widely over the issues involved. The eight topics are given below and provide a framework for summarizing the discussions that occurred over the next two days, as well as for the resulting recommendations.

- A. Enabling conditions for effective HRH planning
- B. Decentralization: Implications for HRH planning
- C. Linking planning to policy and policy to implementation
- D. Criteria for selecting a projection method(s)
- E. Methods for taking economic feasibility into account
- F. Estimating the HRH requirements in the private sector
- G. Methods for setting staffing standards and skill mix
- H. Achieving a balance between qualitative and quantitative HRH planning.

A. Enabling conditions for effective HRH planning. The HRH Planning Consultation felt that a fundamental prerequisite for improving effectiveness was strong links between HRH and health service planning, and between both types of planning and health policy. It will be possible to say that the types of planning activities are integrated only when HRH supply and requirements are fully consistent with health programme objectives.

Several problems were noted with defining the number of years an HRH plan should cover. First, many countries develop medium-term plans covering either their national development period (eg, five years), or the government's expected term in office, plans which are often as much political as technical in character. These medium-term plans often make it difficult for HRH planners to accommodate changing circumstances that become evident during the early plan period. The nature and scale of uncertainty with which most

health service and HRH planners must cope is such that it is likely to require moving towards rolling plans whereby fixed term plans are updated and extended annually, and where the first year of the planning period is linked to the budget. Alternatively, planners may work to encourage interim near-term adjustments at the sub-national, or decentralized, level.

A second problem has to do with danger of only engaging in medium-term plans since there is such a long lag period between the time actions are taken to impact the quantitative or qualitative aspects of HRH, and when they have a significant effect. Accordingly, the HRH Planning Consultation recommended that planners make projections, depending on the occupational categories covered, that go out at least 10 years and preferably 20 years or more. It should be emphasized, however, that although HRH projections may be long term, they will have relevance only for near term decisions since the projections must be updated every few years to ensure their continued validity.

Careful monitoring of plan implementation was seen as a key requirement for effective HRH planning since interim events both internal and external to the health sector can profoundly effect the validity of the planning assumptions used and the implementation process itself. While such monitoring can be accomplished through mid-term reviews at the national level, it is likely to be more effective if operated on a "bottom-up" approach, with annual updates linked preferably to the budget cycles and taking into account interval changes in the basic planning assumptions and targets.

Throughout the HRH Planning Consultation participants discussed the importance of strong links between HRH planning and health services planning. While some planners may be specifically trained in the techniques of HRH planning or in health services planning, each type of planner should have substantial cross-training in the other field, and they should have a shared understanding of and involvement in the other's activities. Wherever possible the two types of planning should occur in the same planning unit or alternatively, be functionally, if not physically, co-located.

For those countries in which many different institutions have responsibility for HRH planning and production it will be important to have a high level body charged with reviewing plans and coordinating policy. Otherwise, the Ministry of Health may prepare a plan but due to lack of authority over much of the sector, be unable to direct or even coordinate its implementation. For such bodies to be maximally effective, however, it is essential that they have adequate staff support, an agenda that is seen to be relevant, and consistent attendance by senior officials who are not permitted to send substitutes or observers.

HRH planning, as with other types of planning, will be effective only to the degree that planners are seen to be answering questions important to senior administrative and political authorities. Accordingly, planners must ensure frequent and close consultation with such persons, take their interests fully into account, and otherwise seek opportunities to make themselves relevant to the larger system of which they are a part.

The HRH Planning Consultation believes that an effective way to link the HRH plan to the health service plan is through the "service targets" planning method, though care will still need to be taken to ensure a more appropriate balance between the quantitative and qualitative aspects of planning, as is further noted in Section H, below.

B. Decentralization: Implications for HRH planning. The HRH Planning Consultation discussed at length the widespread trend towards decentralization of health services administration, including many aspects of HRH planning. This was considered a desirable step for HRH planning as long as certain preconditions were met. As compared with centralized authority, the principal advantages of decentralization are that local authorities are apt to be more aware of local needs, resources and capabilities, and to be more effective at programme implementation. Within a decentralized system local authorities are directly responsible for managing their staff complements to achieve local goals and objectives.

The concept of "decentralization" was contrasted with that of "devolution," with the latter being considered a broader concept that implies a near irrevocable shedding of most or all responsibilities in a given area to lower level authority. In most cases the HRH Planning Consultation believes that decentralization is the more usual, and appropriate, situation with regard to HRH planning.

For decentralization of certain aspects of HRH planning to be meaningful it must be accompanied by:

- o a political will for decentralization;
- o a decentralized (bottom-up) health planning process;
- o enhanced local financial control relevant to HRH;
- o the requisite responsibility for management; and
- o adequate HRH planning skills.

Whether these pre-conditions can be achieved through health sector changes alone or require a general movement throughout the public sector appears to vary between countries depending on political attitudes.

The HRH Planning Consultation agreed that whatever form decentralized planning and management of HRH takes, it will still remain for central authorities to:

- o manage the overall human resources development process;
- o set national guidelines regarding staffing standards, quality and performance;
- o provide an HRH policy framework and guidelines;
- o maintain a reasonable balance between the different geographic regions;
- o integrate the health planning process with HRH planning.

Local authorities can then be given responsibility for establishing local objectives within these national guidelines and they should be held accountable for their successes or failures.

C. Linking planning to policy, and policy to implementation. The purpose of HRH policy is to ensure that the right numbers of health workers with the proper skills are available in the places where they are needed, when they are needed, and with attitudes that favour the attainment of health service goals. While HRH Planning Consultation participants could cite some examples of policy changes to achieve specific HRH outcomes, there was relatively little experience with using policy at either the strategic or operational level to sustain HRH objectives. Reasons given for limited policy interventions included:

- o excessive focus on the production of new staff at the expense of improving the effectiveness of existing staff, i.e., the preference for quantity over quality;
- o a tendency to confuse "policy" with "regulations," such that the latter are used to affect the production, recruitment, promotion, utilization and termination of HRH in the absence of an over-arching and internally consistent statement of goals and objectives;
- o limited policy control by most ministries of health such that responsibility for policies affecting HRH are divided among various, poorly coordinated, public and private bodies; and
- o weak links between policy-makers, planners and managers at the central level, and weak links between HRH policies and health service policies.

The HRH Planning Consultation felt that policy could be a powerful instrument for manipulating the production and utilization of HRH in the future. Examples of HRH policies might include statements that express the government's intention: to add no new medical schools for a specified period of time; to give preference to upgrading the existing stock of health workers rather than to training new workers; and to give preference to improving the quality of services over increasing their quantity. Both Thailand and New Zealand have policy simulation models in place to permit the exploration of policy impact on HRH. It was concluded, however, that for HRH policies, and indeed for health service delivery policies, to become a routine and regular part of the planning process will require:

- o more emphasis on improving health service efficiency;
- o a defined locus for the formulation and promulgation of HRH and health services policies at the national and regional levels;
- o decentralization of the health service planning and management functions to the maximum extent consistent with each country's circumstances in order to bring these responsibilities down to the level where decisions can best be made and implemented;
- o greater attention to the art and science of policy analysis, i.e., the deliberate and careful consideration of the probable costs and benefits of alternative policy options under consideration;
- o closer linkages between HRH and health service planning, policy-making, and policy implementation, linkages which in turn will require a greater involvement of policy-makers and managers in planning; and

- o greater use of rolling plans and less reliance on fixed term plans.

The HRH Planning Consultation supported the accelerated development of models that can facilitate testing the impact of alternative assumptions on plans and on their potential costs and effects. Such models will find primary use at the central level but can also be useful at lower levels of the health system, along with more detailed personnel models to simulate the effects of different personnel policies affecting promotion, salaries, staffing, etc. It was also recommended that more effort be directed at the prompt sharing of international experience with planning and policy formulation.

D. Criteria for selecting a projection method(s). The HRH Planning Consultation reviewed the four basic approaches that have been described for converting a projected population into the health workers required to serve them. These methods, amply described elsewhere, are briefly summarized below:

- o Health needs, in which the professionally determined needs for health care are specified for the different age and sex groups of the population, and these needs are then converted first into the health services required to meet them, and then into the HRH required to produce them;
- o Health demands, in which the health service utilization rates for the different segments of the population are determined as a function of age, sex, residence, income, and other variables, and then these utilization rates are applied to the projected characteristics of a future population in order to determine the number of services required, which are then converted into the HRH required to produce them;
- o Service targets, in which several different methods are used to project the number of services that should be produced in a future year in order to satisfy the likely requirements for care, which are then converted into the HRH required to produce them; and
- o Population:personnel ratios, in which desired ratios of personnel to population are developed and then applied to the projected population to determine the number of HRH required.

The general consensus was that these methods are still the four principal ones in use, that there is no clearly preferable method, suitable for all situations, and that each method has its advantages, limitations, and indications. Even though there is no ideal method, the HRH Planning Consultation participants agreed that the service targets method is the most widely used projection method and is generally the best approach for public sector planning situations since it readily accommodates use of several different methods in combination and facilitates a detailed analyses of staff productivity and utilization.

Consultation participants emphasized the importance of selecting a planning method appropriate to each specific situation, and of making effective use of micro-planning techniques such as task and job analysis, workload indicators, and qualitative assessments. These latter techniques can help ensure that efficiency and performance considerations are

taken into account as well as personnel numbers, though their use should be consistent with a country's ability to apply them effectively and to use the results.

As important as the specific method adopted for projecting HRH requirements are the planning processes and underlying assumptions used in the planning cycle. The HRH Planning Consultation agreed that planning assumptions should be clearly stated and their validity subjected to critical examination; key input data should be subjected to sensitivity analysis within a range of plausible values in order to determine the degree to which errors could affect the conclusions; and the planning model's logic should be evident and comprehensible to those who are to use its results.

A common question has to do with the selection of HRH categories to study. With most health systems having at least 50 and often more than 100 distinct health worker categories, the task of planning for such a diverse workforce can be challenging. Criteria useful for deciding on which categories to include are:

- o category is numerically large and/or economically important;
- o category requires specific health-related training;
- o a shortage or surplus in the category could cause significant problems elsewhere in the health care system; and
- o category is involved in a high priority health programme.

The HRH Planning Consultation did not discuss in detail the various methods to project supply since all methods must address the three major issues of current stock, new increments, and losses. Several different approaches to projecting losses were briefly noted, including the cohort method, stock-in-flow method, and working life table analysis. The choice among these and other methods will depend largely on the availability of data, the degree to which changes in the cohort-specific loss rates are expected over time, and the degree of precision to be attempted. Few countries have a data base adequate for developing occupation-specific working life tables but most will be able to make approximate estimates of loss rates using census data or surveys. The potential impact of changing economic conditions on loss rates in those professions that are normally subject to significant losses, eg, nursing, was demonstrated by the experience of New Zealand. When economic conditions deteriorated, loss rates declined sharply and when they improved, losses increased. While average rates may suffice for long range supply projections, short range projections of 1-3 years may be in error by a substantial margin.

E. Methods for taking economic feasibility into account. Sound planning of HRH requires assessing the economic feasibility of projections. Moreover, the ground work for making such an assessment should start early in the planning cycle with the collection of data and consultation with relevant authorities. Even though the importance of costing out each alternative projection seems obvious, the HRH Planning Consultation noted that many countries, especially those at the lower end of the income scale, have either not done so or have given economic considerations insufficient attention.

Long range health sector costing methods are relatively crude and are still in an early phase of development. There are no precise methods, nor is it likely that there ever can be, for making long range projections of such variables as national economic growth, of public sector income, or of unit costs for different resource inputs. These are all subject to human decisions and human institutions, which cannot be predicted with accuracy over an extended time period. Despite these intrinsic limitations much can be done to assure that the planned growth of the health sector does not significantly exceed the economy's ability to support and sustain it. The essential first step is for planners to give explicit consideration to the sustainability of the projected increase in the supply of HRH. This can be done even in countries with very limited or deficient economic data. The starting point is the apparent balance between the current supply of health workers and the ability of the country to employ them. If there is a current surplus obviously future growth should be relatively slower than would otherwise be justified based on population growth and distribution alone. And if supply and requirements are in approximate balance, then the projected supply increase can be compared with projections of the national population, with the urban population (which tends to require more, and more expensive, health workers than does the rural population), and with the historic rate of economic growth.

Assessment of the economic feasibility and sustainability of a projected HRH growth scenario is most applicable to longer range projections, and is more applicable to some HRH requirements projection methods (needs, targets, and ratios) than to others (demands). The HRH supply usually cannot be changed very much in less than five years and in most cases ten or more years are necessary for substantial changes to be made. Over the short-term, economic cycles of growth or slowdown can have significant and often unpredictable effects on the supply of trained health workers available for employment. In most cases these short-term fluctuations cannot, and should not, be taken into account, with emphasis instead being given to assuring that the projected supply will be approximately adequate for the assumed average rate of economic growth.

Diverse economic indicators can be used to project the likely ability of a country or region to sustain HRH. These include the historic and projected growth rates of the gross domestic product, of public sector expenditures and of public health sector expenditures. This last category should be disaggregated, if feasible, into recurrent and investment expenditures, and into salaries as a percentage of recurring expenditures. Ideally, the projections should take into account such factors as the probable sources of funds directed through the public sector, eg, user charges, health insurance coverage, any extraordinary anticipated expenditures in major projects, eg, water and sanitation, major facility construction, and the past and probable capacity to absorb effectively available funds. Baseline economic projections of funds available to the public health sector should be conservative and easily defended as reasonable. In particular, they should not necessarily assume a long-term continuation of a period of rapid growth in the past, or of substantial assistance derived from sources outside of the country.

Economic assessments will require projecting the likely cost of the health workforce. This estimate should be based on the projected gross salary cost, taking into account all significant costs, eg, overtime, bonuses, housing, pensions, and the like, for all major health care worker categories. Numerically small but otherwise important categories may be safely omitted from the cost model since requirements for such categories can be taken into account in special studies. No attempt should be made to take into account the effects of inflation

since it is usually safe to assume that the government will, over the long run, increase nominal salaries to keep up (approximately) with inflation. It may be necessary to develop a separate model of the projected costs of, and national income available to, the private sector, perhaps based on assumptions regarding the growth of per capita income in the urban sector and on the elasticity of demand for private medical care. Consideration of the private sector will become increasingly important as it comes to account for a substantial portion of the total health sector economy.

Economic feasibility testing will generally involve comparing the relative economic burden of HRH to national income in the base year of the projection, with that projected for the target year(s). By way of illustration, if HRH public sector salaries accounted for, say, 50% of all public sector expenditures in the base year, and if the public health sector accounted for 3% of the national income, then what are the comparable estimates for the target year(s)? Does the relative economic burden increase, decrease, or remain the same? If there is a projected decrease in the economic burden then the HRH projections may be too moderate, if the economic burden is similar, plus or minus about 10%, then the projected HRH growth is probably sustainable, and if the target year economic burden is 10-15% higher than in the base year, the underlying assumptions should be carefully reviewed. A projected increased or diminished economic burden is not necessarily wrong and may indeed be justified, but does require additional substantiation.

The HRH Planning Consultation primarily considered methods of economic testing for the entire health sector. Though long range testing of the sustainability of HRH projections for a region or district is more uncertain due to the flows of money and HRH within a country, such testing may be possible and appropriate, especially over the mid-term.

The effects of alternative assumptions on HRH supply and flows can also be tested in order to attain an improved public sector salary structure, though this will be useful only if government has any latitude for change in this area. Such changes could involve differential increases, over time, in the salaries paid to the different occupational categories, or improved differentials between starting and end-of-career salaries. These changes are often difficult to implement but may, over the long run, lead to substantial improvements in morale, the ability to recruit and retain key categories of health workers, and in equity.

The cost implications of training HRH can also be taken into account. Though these costs will be of importance to the health training institutions, from a macro-economic perspective they will represent but a small percentage of the cost of operating the health sector. In most countries the cost of training a health worker, however great, will probably equal no more than one or two years of the cost of employing that worker and will be far exceeded by the lifetime employment cost.

F. Estimating the HRH requirements in the private sector. In many countries the private sector employs a significant, and often increasing, proportion of total HRH supply. Since health personnel are free to move between the public and private health sectors, private sector HRH requirements must be satisfied if government is to be assured of obtaining the personnel it requires. Indeed, the public and private sectors are often in competition with each other for health workers, a competition in which the private sector may have important advantages such as higher incomes, greater flexibility of staff deployment and, for private practitioners, independence from government regulations and controls. As a result private

sector employment may become disproportionately attractive leading to rapid growth, which in turn can endanger the public sector's ability to recruit and retain personnel and can result in a distortion of public sector services.

The private sector is not always harmful to the public sector and indeed in many situations it can function as a valuable adjunct to the public sector such that in some countries government is working to privatize much of the public health system. First and foremost is the private sector's ability, in most cases, to deliver needed and quality services which, if not produced, would have to be provided by government. Additional benefits include the private sector's potential for greater efficiency, responsiveness to community needs, and for innovation and experimentation. Healthy private sector competition can also help keep the public sector vigorous.

Even in situations where the private sector is clearly beneficial, some measure of government guidance and regulation may be required. Examples of specific problems that may have to be addressed include: part-time government health workers, especially doctors, who use their government positions to enhance their private practices; lack of services provided to the poor and underserved, or of preventive and public health services; grossly unequal public and private sector workloads; production of unacceptably poor quality services; inappropriate and wasteful duplication of services; excessive costs paid for government services provided by the private sector; and an excessive loss of personnel to the private sector.

In order to minimize these and other adverse effects, the HRH Planning Consultation concluded that private sector HRH requirements must be considered in the supply and requirements projection models. The "private sector" is not easy to define, however, since many health services may be funded, at least in part from public sector funds, but delivered through private practitioners and hospitals. Consultation participants operationally defined the private sector as "that portion of the health sector that is not directly controlled by an agency of the government." Thus, the private sector may include both for-profit and not-for-profit health facilities, services may be both industry-based and insurance programme-based, some of the private sector services may be partially funded or reimbursed from public funds, and it may include para-statal industries, i.e., that have been created by government statute but which are not controlled by government.

Several approaches can be used to estimate private sector size. The best, and most complex and costly method, is to conduct a sample survey of health workers to determine where they work, how they divide their time among diverse activities and employers, and from what sources they receive their income. Simpler methods include: (1) subtracting known public sector health worker time from an estimate of total health worker time available; and (2) use of informed respondents to develop a simulation model of the size, cost, and other characteristics of the private sector. If feasible, private sector HRH should be disaggregated into their different occupational categories and major activities, eg, hospital-based, ambulatory care, etc., to the same degree as is done for the public sector.

Several methods can be used to project private sector growth. Probably the most useful is extrapolation, with or without adjustment for major interval events, of the past rate of growth. If past growth has been very rapid planners must be careful to avoid assuming that this growth can continue indefinitely. Other predictors of growth include planned extensions

in insurance coverage, the rate of population growth in urban areas, and the rate of growth in disposable per capita income, especially if there is reason to assume a high elasticity of demand. High public-private sector HRH income differentials are a warning of public sector problems in the future.

The baseline HRH requirements projection should include an allowance for private sector requirements and multiple alternative projections can test the potential effects and costs of policies designed to affect the public-private relationships and to reduce potential inter-sectoral problems. For most low income countries, taking into account the private sector's HRH requirements and looking at public-private sector interactions will be a relatively new experience. Accordingly, it will be important for WHO to facilitate the exchange of information so that countries can benefit from the experiences of others.

G. Methods for setting staffing standards and skill mix. A key part of HRH planning is the determination of appropriate staffing standards (or norms) and skill mix. These standards will have a major impact on both local and national plans since they affect HRH requirements, productivity, efficiency, performance, training, and how different occupational categories relate to and work with each other. Because of their great importance they may prove difficult and controversial to develop. They represent a vital step in the application of three of the four major planning methods. They may not be useful in the case of the population-personnel ratios method since this method converts "people" directly into "health personnel" without the intermediate steps of services to be produced.

Among the various methods used to determine these standards are the following, listed in ascending order of increasing complexity:

- o standards obtained from external sources, eg, other countries or health care systems;
- o standards based on the expert opinion;
- o standards based on the empirical experience of the health service; and
- o standards based on task and functional job analysis.

The first two methods are self-explanatory. Those based on empirical experience are usually derived from the staffing patterns in use by health facilities and programmes that are judged to be operating efficiently and effectively. The most complex methods - task and functional job analysis - can be very informative but must be used selectively because of their considerable demand on scarce health services research resources. All of these methods will benefit from a careful assessment of staff productivity, workloads, efficiency and, if feasible, effectiveness. Methods useful for the review and revision of staffing standards are described in some detail in several WHO publications or documents:

WHO Guidelines for Health Manpower Planning: A Course Book.

Hornby P., Ray D.K., Shipp P.J., Hall T.L. Geneva: 1980; WHO Development of Methodology to Determine the Optimal Mix of Human Resources for Health. Report of a National Workshop. Yangon, Myanmar, 13-17 February 1990, WHO/SEARO. (Unpublished WHO document HRH/90.6); and: WHO HUMAN RESOURCES FOR HEALTH: A Tool Kit for Planning, Training and Management, prepared for WHO by Thomas L. Hall, 1992.

Several guiding principles are useful in the selection and application of methods for determining staffing standards. First, those that are based on actual national experience are to be preferred over those from other countries, since the latter are often inapplicable or misleading. By using national experience planners can be assured that the standards can indeed be attained, at least in some locations, under national conditions. Second, "natural experiments," i.e., those variations in staffing patterns which occur naturally in a health system without having been designed explicitly to test a hypothesis, can often suggest improved ways of organizing HRH to provide services. These variations provide an indigenous vision of what might be accomplished, and their presence and achievements can help to break the mold of traditional thinking. Irrespective of the method used, the resulting standards should allow for ample flexibility in order to accommodate legitimate regional variations.

Good standard setting can be a slow process so detailed staffing studies should be planned with care and should start with high priority programmes and occupational categories. This is especially true if the more costly methods such as task and functional job analysis are to be used. One approach is to use a resource input-output screening technique that can quickly identify programmes that are operating efficiently and with a presumed high degree of effectiveness. These selected programmes should be studied in more detail to determine what factors account for their success and to assess the degree to which these factors can be applied nationally. Based on these more detailed studies planners can then test the effects of the proposed new standards on task reallocation, costs and HRH requirements.

Revised and improved standards will have at least three major applications. The most obvious one is in the conversion of long range projections of required health services according to the needs, demands, or target method of projection, into the required numbers and types of personnel to produce them. Second, these revised standards, especially if they are based on task analysis and/or involve a substantial reallocation of tasks among the various occupational categories, can have a major impact on training programmes - their duration, content, and enrolments. Third, and most immediately, the revised standards can help guide local authorities in their staff planning, development, and management activities. In this regard, extensive local involvement in the standard-setting exercise can facilitate their eventual implementation.

H. Achieving a balance between qualitative and quantitative HRH planning. HRH planning has both quantitative and qualitative aspects. The former involve projections of the numerical requirements while the latter are more concerned with the details of what health workers do, how necessary functions and tasks are distributed among the various occupational categories, how health worker performance is monitored and rewarded, how they interact with each other, and with the quality, efficiency, appropriateness and effectiveness of the care provided. The HRH Planning Consultation expressed a general

consensus that there was insufficient attention given to these qualitative aspects of HRH planning and management - what might be termed the "flesh and blood" aspects of the health system - and that most attention still seems to be focused on projecting numbers.

While various assessment methods for determining HRH performance and skills exist in most of the countries represented at the HRH Planning Consultation, they were infrequently used due to:

- o lack of any specification of expected performance in terms of efficiency or effectiveness;
- o little emphasis on system or individual accountability, especially as it relates to the ultimate accountability to the population served by the health system; and
- o the centralized control of most planning, financial and managerial functions; and
- o the lack of trained personnel available to do health services research.

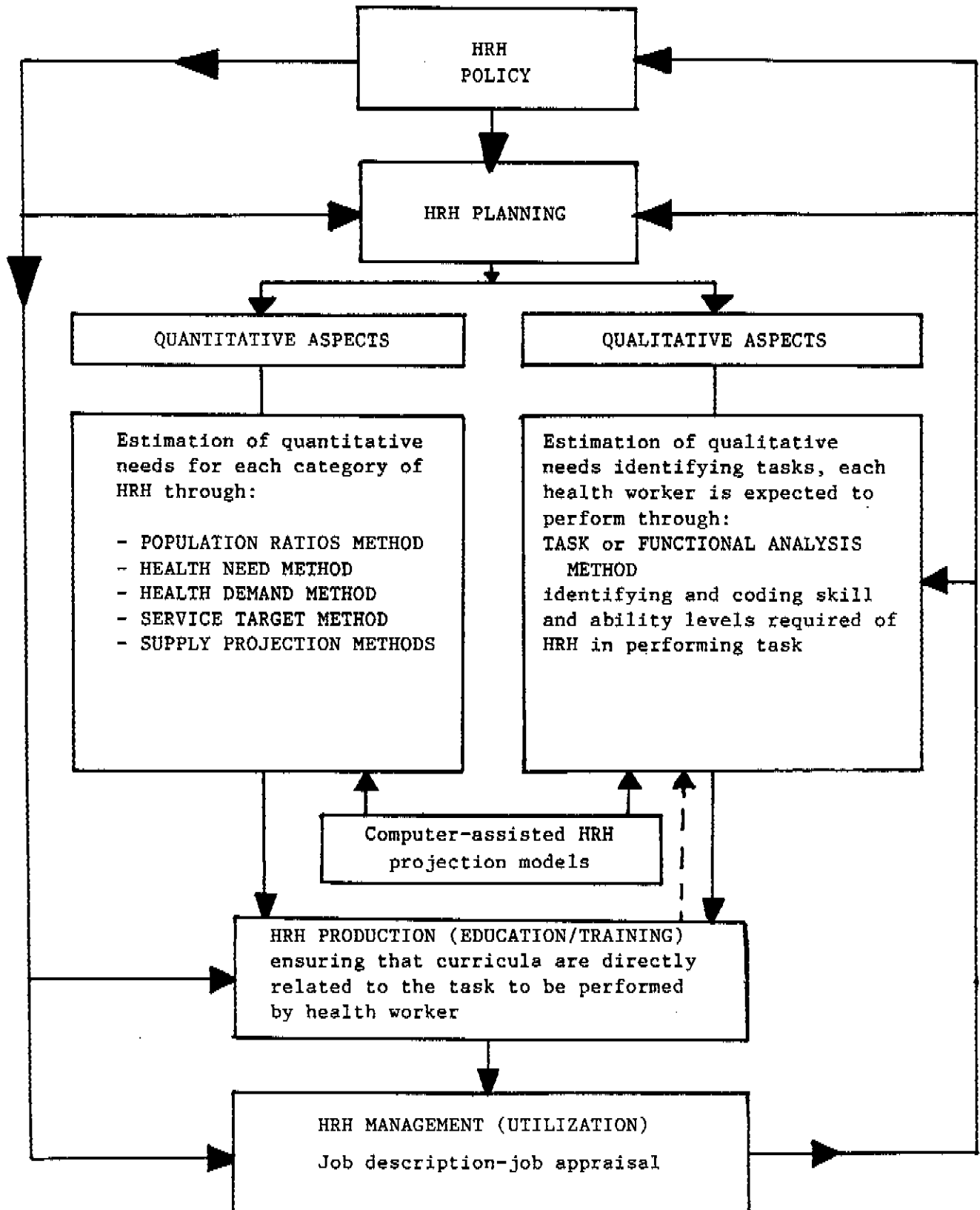
The HRH Planning Consultation accepted and discussed a wide range of methods for examining individual skills and group performance, some of which were referred to in the preceding section. It was felt that greater effort was needed to address the qualitative elements of HRH planning. The role for planners was to turn service activities into roles and functions of specific types of staff, either directly or through the efforts of others, and then for educators to translate these roles and functions into curricula. Figure 1, which shows the role of quantitative and qualitative aspects of HRH planning in the overall development of Human Resources for Health, was designed and discussed by the participants.

There was general acceptance that adequate emphasis will not be given to the qualitative aspects of HRH planning until progress has been made with some of the important prerequisites to effective planning that were mentioned earlier in this report, especially decentralization, widespread involvement in the planning process, managerial accountability for programme results, and close linkages between health services and HRH planning. However, even when progress is slow in these areas, planners could make important contributions in this area by promoting and facilitating operational studies on selected critical jobs and/or occupational categories or job teams in order to answer such questions as who does what, to what level of performance, to what ultimate benefit, and at what cost. Central level planners can use the results of such studies to improve their approaches to guiding future HRH development, educators can use them to convert desired health worker roles and functions into curricula, and planners and managers at lower levels of the health system can use them to fine tune staffing and supervisory arrangements.

HRH Planning Consultation participants noted that in many situations planners do not need to actually carry out such studies, and indeed it may often be better that others have responsibility for executing them. Planners can help determine field research priorities and define the problem(s) to be studied, they can facilitate collaborative arrangements for study

implementation, and they may provide specialized expertise when relevant, but otherwise minimize their direct involvement. This promotive and facilitative role for planners will help economize the use of scarce planning resources while at the same time making it more likely that the final results of qualitative studies will be accepted by those who have responsibility for implementing their recommendations.

**Figure 1**



## 7. CONCLUSIONS AND RECOMMENDATIONS

Based on the wide-ranging discussions of the HRH Planning Consultation, and with particular reference to the enabling conditions that were identified for effective HRH planning, a number of conclusions were drawn and these, together with the resultant recommendations proposed for the Member States and WHO, are presented below.

### Recommendations to Member States

Planning should be decentralized to the level of implementation. In view of the potential benefits of decentralizing health services planning and HRH planning on subsequent plan implementation, it is recommended that Member States consider decentralizing appropriate planning functions to the level at which implementation occurs. National and regional health authorities should retain responsibility for overall coordination of planning, standard setting, and the equitable distribution of human resources.

Planning should involve all relevant interest groups. The product of the planning process is informed and implemented decisions, not plans. For this to occur in the absence of compulsion, the majority of those affected by the decisions must be in general agreement that the decisions are reasonable and that the objectives to be attained are desirable. Accordingly, it is recommended that Member States seek the early, sustained and substantive involvement of all those likely to be most affected by HRH planning, or ultimately responsible for plan implementation.

HRH planning should be closely linked to health services planning. Health personnel are the primary means of delivering health care, and hence HRH planning is a derivative of health services planning. Wherever possible HRH planning and health services planning should occur in the same planning unit or alternatively, be functionally, if not physically, co-located.

Planning should be closely linked to health policy. Recognizing that for HRH planning to lead to action it must be closely linked to health policy, it is recommended that Member States give attention to the involvement of HRH planners in providing informational input into health policy formulation, to the potential use of simulation models to examine the interaction between alternative policies and HRH, and to a shift from fixed term plans to rolling plans.

Planning should cover a wide range of projection periods and provision made for regular plan monitoring and update. Due to the long lag period between action and effect, HRH plans must extend out to at least 10-20 years and sometimes longer. Member States should therefore make long-term plans while at the same time covering short- and medium-term periods. Since planning circumstances undergo constant change, arrangements must be made to establish a basic HRH planning data base, to monitor plan progress, to evaluate major plan components, and to incorporate changing conditions into plan updates.

HRH plans should be economically realistic. Bearing in mind the need to ensure that HRH plans are realistic and sustainable, it is recommended that, among other essential actions, Member States should assess the economic feasibility of HRH projections by taking into account projected economic resources, the sources of funds, salaries and other significant costs, and should update these projections on a regular basis. HRH planning should in practice start from economic resource availability rather than using economic resources to check the feasibility of HRH plans at a late stage in the HRH planning process.

Qualitative aspects of HRH planning are as important as quantitative aspects. To assist in meeting the pressing need to economize on staff numbers, while at the same time increasing the quantity and quality of health care provision, it is recommended that Member States promote operational studies into such qualitative issues as staff performance, efficiency, morale, task assignments, and to utilize the findings of these studies both in projecting HRH requirements and in health service management.

Careful selection should be made of HRH planning methods. In view of major differences in the underlying assumptions, data requirements, and consequent results of different planning methods, it is recommended that Member States give careful attention to selecting supply and requirements projection methods appropriate to their individual circumstances. The HRH Planning Consultation participants agreed that the Service Targets method is probably the method of first choice for most countries since it is relatively less demanding of detailed data, is generally easier to understand and apply, and since it can make use of other planning methods where appropriate for specific kinds of services.

High priority should be given to setting staffing norms and skill mix. With a view to the economical and effective utilization of HRH, it is recommended that Member States review current staffing and staff mix standards and, where necessary, develop, test and apply revised standards appropriate to their needs and resources.

Private sector requirements for HRH should be taken into account. Mindful of the significant portion of HRH in the private sector, and the effects of a rapidly growing private sector on public sector HRH, it is recommended that Member States include HRH private sector requirements in HRH plans, taking into account significant factors such as changes in the financing of health care, the elasticity of the demand for care, and projected economic growth.

The training and retention of persons qualified to do HRH planning should receive high priority. Despite devoting considerable effort to training health and HRH planners, planning activities have often been compromised by high turnover among those trained and inadequate supervision and continuing education. It is therefore recommended that Member States give greater attention to providing their planning staffs with stable and professionally satisfying working conditions, to giving them good training at the start of their careers, and to offering them opportunities for career advancement and continuing education.

### Recommendations to WHO

A full line of HRH planning reference materials should be developed. WHO has identified and is now developing certain high priority reference materials including field guideline documents on workload indicators, nurse staffing, task analysis, and policy development, and the HRH Planning Tool Kit to assist HRH planners and policymakers. The HRH Planning Consultation Group strongly endorsed these efforts and urged WHO to proceed as rapidly as possible with implementation, field testing, and dissemination.

Information about planning resources should be compiled and disseminated. Mindful of the diverse needs of those involved in health service and HRH planning, WHO should prepare, disseminate and periodically update a compendium of resource materials and information relevant to both health services and HRH planning. Examples of relevant materials include: ongoing training programmes, institutes and centres experienced in providing short- and long-term training in planning; an annotated listing of journals, books, manuals and guidelines, other written materials, and software programmes relevant to the planning of health services and HRH; and a selection of plans and policy statements that could be made available, perhaps on loan, to facilitate workshops and consultancies.

Computer-assisted models for the projection of HRH supply and requirements are needed. In order to facilitate and accelerate the preparation of quantitative HRH estimates and the testing of alternative policy options, WHO should continue to support the development, field testing, and eventual dissemination of microcomputer-based HRH supply and requirements models. These models should accommodate user-defined health worker and health facility categories, should take into account economic assumptions, and should be suitable for countries with varying levels of data. The possibility of developing a hypertext version of the model should be considered.

The exchange of experiences and expertise in HRH planning should be facilitated. In order to facilitate the efficient exchange of experiences and expertise relevant to HRH planning, WHO should consider the possible creation and support of a network of institutions and individuals involved in health services and HRH planning.

Train-the-trainer workshops are needed. In recognition of the importance of having a core of persons in each large country or region able to organize and lead training activities relevant to health services and HRH planning, WHO should sponsor train-the-trainer workshops that would accomplish this objective through the transfer of the necessary substantive knowledge and requisite didactic skills.

Product-oriented planning workshops would be very useful. With improved planning methods, new materials, and computer-based planning models soon to become available, WHO should sponsor one or more inter-country workshops oriented toward the development of HRH plans, the field testing of planning methods, and the training of planners. One approach to these product-oriented workshops is as follows: invite a small group of countries at approximately the same level of health sector development to a 1-2 week workshop to review basic HRH planning objectives, methods for determining priorities, and data requirements; during the next six months the country participants, in collaboration with other interested parties, would collect the necessary planning data; a second 1-2 week workshop is now held with the same participants to assemble the data and, using supply and requirements projection models, to test alternative assumptions, and draft the key elements of the resulting plan. Country participation in such workshops should be contingent on full Ministry commitment to the project since the outcomes would be both plan components as well as training. The participation of several persons from each country, preferably from both the service and education sectors, could also contribute to their effectiveness.

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WHO CONSULTATION ON HRH PLANNING METHODOLOGY  
Bangkok, Thailand, 23-27 March 1992

List of participants

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Programme of Work

DAY 1 (MONDAY, MARCH 23, 1992)

Morning

Opening ceremony (Dr. Uthai Sudsukh, Permanent Secretary, MOPH,  
Dr P.C.Y. Chen, Regional Adviser, HRH, SEARO, and Dr A. Goubarev, PHR/HRH/HQ)

Self-introductions

Appointment of meeting officers

Break

Review and adoption of the proposed objectives and outcomes

Review and adoption of the proposed meeting agenda

Overview of Secretariat paper "The Current Issues and Perspectives of WHO  
Activities in the area of Planning of Human Resources for Health" -  
Dr A. Goubarev

Review of the background paper "New Approaches to the Planning of Human Resources  
for Health" - Mr P. Hornby

Review of the HRH Tool Kit and projection models - Dr T. Hall

Lunch

Afternoon

Review and update of existing HRH planning methodologies, eg:

- Population ratios methodologies
- Health needs methodologies
- Health demands methodologies
- Service targets methodologies
- Supply projection methodologies
- Other methodologies

Guidance for Day 2 and the country presentations

DAY 2 (TUESDAY, MARCH 24, 1992)

Morning and afternoon

Presentation and discussion of six country case studies

Indonesia  
Japan  
New Zealand  
Pakistan  
Sri Lanka  
Thailand

(Participants were provided with written country case study reports. These reports were briefly summarized and supplemented by analytical comments covering points such as those noted below, followed by general discussion.)

- Processes and criteria used to select among the methods
- Processes used to link planners with decisionmakers
- Finding a proper balance between...
  - quantitative emphasis and qualitative emphasis
  - macroanalysis and microanalysis
  - planning processes and planning products
- Problems encountered in the application of planning methods
- Problems encountered in dissemination of plan results
- Problems encountered in implementing plan recommendations
- Alternative approaches that might have been better

Setting the agenda for Days 3-4

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DAYS 3-4 (WEDNESDAY and THURSDAY, MARCH 25-26, 1992)

Eight major topics and a number of additional minor topics in small groups were discussed. The major topics were:

- A. Enabling conditions for effective HRH planning
  - B. Decentralization: Implications for HRH planning
  - C. Linking planning to policy and policy to implementation
  - D. Criteria for selecting a projection method(s)
  - E. Methods for taking economic feasibility into account
  - F. Estimating the HRH requirements in the private sector
  - G. Methods for setting staffing norms and skill mix
  - H. Achieving a balance between qualitative and quantitative HRH planning
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DAY 5 (FRIDAY, MARCH 27, 1992)

Review, discussion and approval of the draft Conclusions and Recommendations