

# **Expanding Capacity for Operations Research in Reproductive Health: Summary Report of a Consultative Meeting**

WHO, Geneva, Switzerland  
December 10–12, 2001



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Typeset and printed in Switzerland.

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## Acronyms and Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
CBD	Community-based distribution
CDC	Cairo Demographic Center
CST	Country Support Team
FHI	Family Health International
FP	Family planning
HIV	Human Immunodeficiency Virus
IUD	Intrauterine device
MIS	Management information system
MOH	Ministry of Health
MOU	Memorandum of understanding
OR	Operations research
PIH	Pregnancy-induced hypertension
RH	Reproductive health
RHR	[Department of] Reproductive Health and Research, World Health Organization
RTIs	Reproductive tract infections
STIs	Sexually transmitted infections
TA	Technical assistance
UNFPA	United Nations Population Fund
USAID	U.S. Agency for International Development
WHO	World Health Organization



## Executive Summary

Operations research —the application of systematic research techniques to improve programme operations—has been used in family planning (FP) programmes for more than 40 years to improve the efficiency, quality, effectiveness, and availability of services. The need for operations research (OR) has grown over time as programmes have increased in size and complexity to encompass broader reproductive health (RH) issues and faced new challenges. Concomitant to the need for empirical evidence for decision-making is the need for managerial capacity to understand and use this evidence.

Donor agencies that support operations research have invested in improving the capacity of local researchers and organizations to conduct operations research and utilize research findings. A major thrust of this effort has been the incorporation of operations research training in some universities and research organizations in developing countries. Institutionalizing training in other areas of RH has helped increase the technical capacity of health care providers, researchers, demographers, and epidemiologist in developing countries. To achieve similar success in institutionalizing operations research, international donors and local and regional training centres need to reach a consensus on who should learn operations research skills, how best to teach these skills, and how donors and training agencies can collaborate to increase impact of such training programmes and avoid duplication.

To promote operations research capacity building, the World Health Organization (WHO) and FRONTIERS/Population Council organized an international Consultation bringing together donor agencies, experts in reproductive health research, programme managers, and representatives of potential or existing operations research training centres.

The strategic objective of the Consultation was to promote capacity building in operations research and to identify ways to increase resources in support of capacity building (for concept paper, see Appendix 1). Specifically, the Consultation was organized to:

- ★ Create a shared understanding of the definition and benefits of operations research;
- ★ Define the need for operations research capacity building;
- ★ Identify effective strategies for capacity building;
- ★ Develop donor plans for mobilizing resources for operations research capacity building; and
- ★ Identify areas for collaboration in reproductive health operations research capacity building.

Participants developed a list of recommendations for future operations research and capacity building priorities. The Consultation covered the following main points:

- Operations research is a research technique that uses systematic data-gathering to support decision-making to improve the coverage, quality, and sustainability of services and programmes;
- Operations research is valuable to programme managers and donors because it can enhance programme quality and facilitates efficient resource use;
- Building capacity to conduct operations research involves institutionalizing operations research training courses at educational facilities in developing countries. This will increase the sustainability of operations research by creating a critical mass of researchers capable of conducting OR, increasing programme managers' ability to utilize research findings, and supporting the culture of evidence-based decision-making.



Participants made the following overall recommendations:

- ★ Continue and support efforts to facilitate dialogue between researchers and programme managers to increase the use of operations research to improve service delivery.
- ★ Continue efforts to identify emerging and key issues in reproductive health programmes and determine interventions and solutions that could be tested through operations research.
- ★ Establish networks of donors, researchers, trainers, managers, and trainers involved in operations research.
- ★ Expand training in applied research by adding courses in universities, Ministries of Health, and other venues.
- ★ Identify new groups for operations research training, including non-government organizations, researchers from other disciplines, and new operations research practitioners.
- ★ Organize regional meetings and conferences that bring together managers, researchers, and donors to discuss progress and new initiatives in operations research training.
- ★ Within the next two years, conduct a follow-on Consultation or conference presenting the results of operations research projects funded by WHO, FRONTIERS, and other organizations.

# 1. Evolution of operations research

## Objectives:

- ★ Provide participants with a shared understanding of reproductive health operations research; and
- ★ Present a rationale for continued support of operations research.

Major focus areas of Day One: Defining operations research and discussing its expanding relevance to programme challenges in a broad array of reproductive health areas.

## 1.1 Introduction

A major issue in providing health care is to ensure that the recipients of reproductive health services and technology—clients—optimally benefit from these services. Over the next decade, operations research will be a crucial tool for evaluating and developing new programmes. The tools or guidelines for addressing mortality and morbidity, improving reproductive health, and preventing and managing sexually transmitted infections (STIs) are available. However, programme managers need ways to show how to deploy these tools in the most effective and cost-effective manner. Operations research plays a key role in providing this evidence and guiding the process. However, this complex research will require collaboration from scientists and institutions from a wide range of fields, including epidemiology, biomedicine, economics, and the social sciences.

The challenge of this collaboration is to develop an evidence-based culture among providers, programme managers, and policy-makers. Its ultimate goal is to contribute to improved delivery of reproductive health services. Thus the presentations and discussions were designed to:

- Develop a common understanding of reproductive health;
- Share experiences in utilizing operations research results;
- Identify new areas that will benefit from operations research;
- Identify training and curricula needs; and
- Elicit a clearer understanding of the steps needed to expand knowledge of operations research.

The Consultation addressed:

- Priority areas for operations research;
- Recommendations for capacity building; and
- Recommendations for interagency collaboration.

## 1.2. Defining operations research

Summary: Operations research (OR)—the application of systematic research techniques to improve reproductive health programmes—is valuable to programme managers and donors because it enhances programme quality and facilitates efficient resource use. Building capacity to conduct operations research increases the sustainability of operations research as its benefits become more widely known.

### What is operations research?

Operations research (OR) is the use of systematic research techniques for programme decision-making to achieve a specific outcome. Operations research provides policy-makers and managers with evidence that they can use to improve programme operations. It is a type of social science research, distinguished from other kinds of research by the following characteristics:

- It addresses specific problems within specific programmes, not general reproductive health issues;
- It addresses those problems that are under control of managers, such as programme systems, training, pricing, and provision of information;
- It utilizes systematic data collection procedures, both qualitative and quantitative, to accumulate evidence supporting decision-making;
- It requires collaboration between managers and researchers in identification of the research problem, development of the study design, implementation of the study, and analysis and interpretation of results; and
- It succeeds only if the study results are used to

make programme decisions; publication alone is not a valid indicator of successful OR.

### Operations research and other social science research

Some programmes use operations research in combination with other types of social science research. WHO, for example, uses operations research to address the needs of programme managers and improve specific programmes, but mostly uses *formative research* (descriptive research to clarify the socio-cultural context, local knowledge, and attitudes related to a given issue) when little information is available. Formative research plays a different role from operations research—for example, giving insight into a difficult issue, or bringing sensitive topics to the public eye. Findings from formative research may be disseminated to fuel public debate, advocate for change, or promote best practices. It also may provide the basis for identifying and subsequent testing of interventions through OR.

Research is a continuum in which the study approach depends on the question to be asked. For example, if a problem or issue is poorly understood, an exploratory or diagnostic study may be required. If a problem is well defined, an intervention study—such as OR—may be appropriate; and if the effect of an intervention is unknown, an evaluation study is the best option.

### How operations research benefits programmes

A major weakness in the formation of public policy is the scarcity of data—factual information—to inform the development of policies and strategies. Another weakness is that there is little tradition of using data on programme operations in the decision-making process.

The value of operations research is that it provides empirical evidence to support programme decisions and thus enhances effective, efficient use of resources. Operations research capacity building creates local and international constituencies with the skills to conduct operations research and to identify gaps in programme operations that require OR. These constituencies consist of both producers—the professionals who carry out the research—and consumers of the results—the managers who control programme resources and want to invest in OR.

The following examples show the benefits that can ensue from OR—including identification of programmatic problems, examination of innovative solutions, and development of more effective policies:

- Basic data on a specific topic: A multi-country study on sexual knowledge and behaviour among adolescents showed that between 36 and 70 per cent of sexually active youth failed to use contraceptives.
- Testing service-delivery alternatives: in a Honduran agroforestry community, an operations research project tested whether improving men's knowledge of family planning would increase contraceptive use.
- Testing cost-effectiveness: An economic evaluation of community-based distribution programmes in Africa showed that several models of agent reimbursement can have the same level of effectiveness.
- Changing reproductive health policy and increasing acceptance of a contraceptive method: In Turkey, a successful pilot project that trained auxiliary nurse midwives to insert IUDs resulted in a national training plan for nurse-midwives, and the increased use of IUDs.

Capacity to conduct operations research benefits individual organizations by allowing them to determine their own research agendas. For donors, evidence from operations research also demonstrates programme change and helps ensure efficient use of funding. Capacity building also broadens the “gene pool” of operations research consumers and producers, which improves the sustainability of operations research as its benefits become more widely recognized and used.

### 1.3. From research to utilization: do results last?

Summary: Three decades' experience with operations research projects shows that operations research can effect lasting changes in programmes and in some cases, findings also can result in policy changes. Collaboration with policy-makers, provisions for sustainability, and responsiveness to local needs are among the ways of ensuring sustainability of programme changes that result from OR.

Accompanying the increasing demand for evidence-based programming is a need to evaluate utilization: how is operations research used to change service-delivery or influence policy in reproductive health?

The Population Council's Frontiers in Reproductive Health Program (FRONTIERS) currently supports operations research activities within the private and public health sectors in 28 countries. To examine utilization, Tulane University conducted a follow-up study of 27 operations research projects conducted during the past 15 years in Bangladesh, Honduras, and Senegal. The effects of the interventions were still observable two years later in 24 of the 27 projects. In about half of the projects, other institutions adopted the tested innovations. About 20 projects had progressed to the stage of scale-up, or expansion of a programme intervention to a broader range of settings. This suggests that operations research findings can result in lasting improvements that in many cases can be used on a larger scale.

Scale-up within a national health system is more likely when the subject of the operations research is a key concern for policy-makers. For example, a Johns Hopkins University operations research project in Russia tested an intervention to address high rates of pregnancy-induced hypertension (PIH)—a major health issue in Russia. The intervention consisted of implementing internationally accepted guidelines on PIH and increasing outpatient maternal care by midwives. The findings—that no PIH cases progressed to eclampsia, perinatal and neonatal deaths decreased, and hospital and patient costs dropped significantly—resulted in the expansion of the service.

Research findings also can influence policy—more often institutional or local policy, but also national policy. In Mauritius, after formative research revealed a 7 per cent abortion rate and a 20 per cent rate of repeat abortions, the government approved the use of Norplant® so as to make a more effective contraceptive method available. The Tulane evaluation of the Population Council operations research project showed that policy change resulted from slightly less than half of the interventions assessed. It is important to remember that the policy impact of operations research may

be difficult to attribute directly to the intervention, especially in the short term. Also, the effects of an intervention may occur along a range of policy levels, from facility-level operational policy through national policy.

Experience with operations research shows that certain factors are good predictors of utilization of findings. The research must:

- Respond to locally felt needs;
- Involve collaboration with local counterparts and decision-makers;
- Be grounded in local culture;
- Be undertaken by highly motivated researchers;
- Incorporate provisions for sustainability in the research design; and
- Include provisions for follow-up.

In meeting the reproductive health challenges of the coming decades, WHO and partner organizations interested in evidence-based programmes must focus on:

- Developing human resources to communicate and use research findings; and
- Enhancing relationships between researchers and decision-makers.

#### 1.4. The expanding relevance of operations research

Summary: operations research in reproductive health has evolved from its initial focus on family planning to become a tool for investigating numerous reproductive health issues of global importance. Conducting operations research on some topics may require varying approaches, such as increased community involvement with issues such as adolescent sexual health or HIV/AIDS.

During the last two decades, operations research has expanded both its focus and its area of application. Initially operations research focused on improving access to family planning by moving services from clinical settings to communities. However, during the 1980s this focus began shifting to address improving the range of family planning choices. By the 1990s operations research projects concentrated on increasing the participation of men and couples in the types

of services they need. Most recently, operations research has investigated integration of STI prevention and care into family planning, adolescent reproductive health, and male involvement in sexual and reproductive health and decision-making.

#### **The relevance of operations research to global reproductive health issues.**

Data provided through operations research has helped to identify gaps in reproductive health services across countries and regions. Expansion of operations research into new fields has in turn expanded the application of research to new questions.

- **Community-based distribution (CBD):** Early operations research work with community-based distribution of contraceptives led to significant programmatic changes through work conducted in Pakistan, Egypt, Ghana, and Kenya. operations research showed that there is a demand for family planning services within communities, and that CBD programmes can increase family planning use even in settings where the health care infrastructure is inadequate. operations research also identified issues that affect programme effectiveness, such as variations in agents' productivity and the effects of different types of compensation on programme productivity.
- **Alternative providers:** operations research showed that non-physicians can provide many reproductive health services, including IUD and implant insertion and removal, which can increase clients' access to FP methods.
- **Health resource allocation:** Economic evaluation can help policymakers apportion scarce health care resources. Researchers have developed a number of tools to determine the cost of an existing or planned service, project the effect of changes to service deliveryservice-delivery, and identify the costs and benefits of programme policies

The World Health Organization's Department of Reproductive Health and Research (RHR) has used operations research to assess the feasibility of introducing various interventions to improve provision of family planning services in a number of developing countries. Motivation for enhancing use of services has been tested amongst community groups which include women's organizations,

labour unions, school teachers, community leaders, traditional medical practitioners and midwives.

WHO has also used operations research to assess the impact of integrating family planning into maternal and child health programmes in India, Kenya, Peru, the Republic of Korea and Sri Lanka. It has used an approach where the evidence from formative research, such as that on acceptability of fertility regulating methods, contraceptive use dynamics, ascertaining the role of men, and defining unmet reproductive health needs, is incorporated into programme development and testing. In some instances, health service interventions were designed in light of findings from the formative research conducted in local socio-cultural settings and considered of high relevance in the local context.

The overall experience from the studies supported by RHR showed that both formative and operations research have potential for impact and the interventions tested in or introduced through operational research, which are based on good descriptive studies grounded in the local context, are more likely to succeed.

The next 50 years will bring a series of challenges in reproductive health, including meeting increased demand for services, monitoring the effects of health sector reforms, and expanding services with limited funds. Researchers have a vital role to play in the development of strategies and policies for meeting those challenges. The expansion of OR's relevance has led to studies that directly or indirectly address major global social and cultural challenges:

#### **Adolescent reproductive health**

In part because of the HIV/AIDS pandemic, the sexual behaviour and knowledge of adolescents has come under increasing scrutiny. A FRONTIERS study on adolescent reproductive health is investigating the effectiveness and cost of community- and school-based approaches to improving youth reproductive health. Previous studies have shown that numerous barriers prevent young adults from seeking or obtaining appropriate reproductive health care. Other studies have shown that family-life education is effective in teaching young people about sexual health. The global project is underway in Bangladesh, Kenya, Mexico, and Senegal. Study results will

help determine the effectiveness of this approach in various country and cultural settings.

### HIV/AIDS

The Population Council's Horizons Program conducts operations research on aspects of the HIV/AIDS pandemic. Operations research on HIV/AIDS differs from operations research on FP in that HIV involves a large number of target groups (including orphans, sex workers, and men having sex with men) and issues such as social stigmatisation that lie outside the parameters of traditional public health concerns. One study, for example, examines the effectiveness of peer education, presumptive treatment, and other interventions to address STI and HIV incidence in a South African mining area. Another Horizons study examines the effects of several interventions to prevent mother-to-child transmission of HIV.

Because it involves broad social issues, operations research on HIV/AIDS requires a different approach that goes beyond the public health perspective. In this arena operations research requires involvement with communities rather than individuals, and inclusion of social considerations (such as stigmatisation and abuse of women) that generally are not addressed in other types of research. Opportunities for operations research are numerous—and needed—along the continuum of care, beginning with research on prevention and early intervention. The need also exists to increase organizational capacity to carry out operations research on a topic of such sensitivity and broad social importance.

## 1.5. Operations research and quality of care

**Summary:** All programmes must address and incorporate some aspect of quality of care. With its emphasis on data-gathering and focused investigation, operations research can be an ideal tool for testing interventions to improve quality of care and the effects of such improvements.

Simply defined, *quality of care* is the way clients are treated by the system providing services. Quality is a programme attribute that includes both technical and interpersonal elements, and its measurement assesses whether providers have supplied the proper care in a way that meets the client's needs. It is believed that improving quality of care may affect client dropout rates, improve user satisfaction,

and reduce morbidity, although the relationship between improved quality and improved reproductive health outcomes is not well investigated. However, the conditions leading to quality care are within managers' control and can be studied through operations research.

The Population Council conducts operations research to investigate several issues in quality of care including: (1) whether quality of care affects behaviour; (2) whether improvements in quality of care are feasible, and (3) whether such improvements affect client behaviour. Quasi-experimental intervention studies in Pakistan, the Philippines, Senegal, and Zambia are examining the feasibility and outcomes of changes in quality of care. Analyses of study findings answer only some of the research questions. They show that it is feasible to improve quality and that quality does affect behaviour. But the challenge remains to identify interventions that can be shown to result in improved health outcomes.

WHO's Department of Reproductive Health and Research (RHR) uses a strategic approach to introducing contraceptives and addressing other reproductive health care issues. RHR developed this approach to incorporate users' needs and quality-of-care issues, and to increase programme managers' involvement. The approach involves three stages. The first stage is a multi-stakeholder assessment to determine needs. Findings from this assessment may lead to policy or programme changes, or to the second stage—intervention research—based on priorities identified during the assessment. The third stage focuses on utilization, dissemination, and scale-up.

In Zambia, RHR used the strategic approach to enhance contraceptive choice and improve quality of care. An assessment led to five research interventions, including the development and testing of a package to increase contraceptive choice and improve quality of care in the mining district. The intervention, included provider training, establishment of a referral system, the introduction of Depo-Provera and the female condom, and a "chiefs' tour," in which local chiefs toured the district and discussed major issues, including reproductive health, with local communities. Data showed that the intervention increased contraceptive choice and enhanced quality of care. Following the presentation of the findings, it was decided to scale up three aspects of the intervention: the training, increased

method availability, and the links between the health system and the community.

The project is now in a transitional phase before full scale-up. This phase includes three components: identification of a core range of methods for use in all districts, development of a self-instruction manual, and identification of centres of excellence that can provide grants to districts for specific projects.

## 1.6. Discussion

Participants discussed the following issues:

- **Terminology and operations research definition:** Within the field of social science research, various approaches to applied research, including operations research, have been known by different names. This serial naming, added to the close similarities among different research disciplines, leads to some confusion. operations research, for example, often is referred to as *health systems research*. Lines also may blur between formative research and operations research; these research methods differ more in content than in methodology. Formative research collects basic data and tends to be more descriptive, and, unlike operations research, often covers issues that are not under the potential control of programme managers or directly linked to operations of programmes.
  - **Cultural perception of research:** It is vital to change the decision-making environment to increase utilization. Many policy-makers have a cultural and social perception that research findings have only a limited and academic interest or utility. There is a need to involve policy and programme managers in the research-design process. There needs to be a discussion of how to convince managers to take the time needed to conduct operations research. A full understanding of the potential benefits from research and donor support are also necessary.
  - **Cost studies:** Cost studies generally do not include research costs, which are thought of as a one-time expense to the programme and thus as marginal in terms of financial impact on delivery systems. Assessments of cost often do not include the intervention's impact in terms of costs to clients or resulting social costs or benefits.
  - **Scale-up:** Little information is available on the cost of moving from the experimental operations research stage to broader application. There is a need to understand many aspects of this process—not only the cost of scale-up but also its effect on programmes. Some projects are scaled up before results have been fully analysed. In the case of the RHR strategic approach, there will be important lessons from scaling-up.
  - **Sustainability of operations research interventions over time:** operations research findings may be used in a very time-limited fashion—or they may not be used. When programmes change, or when local conditions change (with staff turnover or price increases for local supplies, for example), innovations implemented during pilot studies may never be put into place. Programme changes can constitute a barrier to utilization of findings; but operations research studies also can be used to help programmes adapt to changing environments.
  - **Evaluating impact:** Evaluation of the impact of innovations should be built into research interventions, and the timing of the evaluation is important. The evaluation should take place at least a year after the intervention, to determine the sustainability of the changes implemented. Besides assessing ways of improving the intervention, evaluations eventually must address whether programme changes have actively benefited the clients.
  - **Operations research and policy changes:** Both donors and researchers are concerned about the utilization of operations research findings in policy formation. However, even though operations research findings may be used in formulating or changing policy, such changes usually are not the primary goal of operations research studies. Utilization of findings in a programme is a more immediate goal than changes in health or social policy.
- Also, there are myriad levels of policy. operations research is concerned with promoting the use of research by managers; it addresses *operational* policy. Large-scale policy questions in reproductive health, such as whether or not a country needs a policy

for HIV/AIDS, may lie within the realms of formative or epidemiological research and politics. However, evidence also is needed for decision-making within these larger domains, because the sizes of populations and the magnitude of certain problems greatly increase the risks and costs associated with wrong policy decisions.

- *Isolating components of improved quality of care:* Research on quality of care needs to include analyses to assess a full complement of issues—including those related to provider behaviour—that influence quality of care in a specific setting. It is important to design interventions whose results will be certain to improve outcomes and benefit users.



## 2 Capacity Building

### Objectives:

- ★ Inform participants about the need for capacity building;
- ★ Describe activities of existing capacity building programmes;
- ★ Achieve a common understanding of who needs to be trained, on what topics, how, and by whom; and
- ★ Discuss ways to make capacity building resources available for the short- and middle term (2002–2004).

### 2.1 Overview: building operations research capacity

Summary: Institutional capacity building in OR, rather than individual training, is the best way to create a sustainable “critical mass” of institutions and individuals capable of producing and using research findings. Three models have been tested: on-the-job training; short training courses; and a package that includes training, small research grants, and technical assistance.

Institutional capacity building in operations research is likely to yield more sustainable results than training of individuals because it helps to develop a critical mass of trained researchers. This larger-scale capacity building requires a long-term commitment by donors. The expected outcomes of institutional capacity building are introduction of operations research training in the teaching curriculum at the participating institution; an increase in the number of operations research studies conducted by the institution; and increased concern for and ability to utilize research findings.

Three models for building institutional capacity have been tested in the past few years:

- **On-the-job training:** The State Institute of Health and Family Welfare, Uttar Pradesh, India. This state research and training agency provides management training to midlevel health officials. The agency lacked expertise on operations research and on reproductive health topics. Population Council staff worked for six months with eight Institute employees, dividing them into four groups of two each. Trainees received an operations research handbook and literature package and training on making computer presentations.
- **Short training courses:** Cairo Demographic Center (CDC). This regional research and training centre provides high-level degrees in demography, among other disciplines. Population Council staff, working closely with CDC, introduced two one-month courses in operations research for all demography diploma students. The Population Council provided study materials and helped CDC staff develop a curriculum on operations research. Following the intervention, CDC introduced 40 hours of operations research coursework into its curriculum. The centre has launched an initiative to organize short training courses in operations research at other institutions and has added a lecture on operations research to its training programmes.
- **Package of training, small research grants, and technical assistance:** M.S. University, Baroda, India. At this large university, Population Council staff identified candidates for training and had them produce a proposal, then provided technical assistance during proposal development. Twenty-six researchers attended a proposal development workshop. Of the 21 proposals that resulted, 15 were accepted for small grants with amendments and 1 without. In the 18 months following the intervention, the university modified the curriculum of five departments to include research training.

Additionally, they participated in ongoing operations research projects, developed an operations research proposal, and made two presentations to their institute. At the end of one year, the Institute had established a unit to conduct institutional and state research. Lectures on operations research also had been added to the curriculum for midlevel managers.

CDC has since provided a short operations research training course to two members of the teaching staff of Dhaka University, an institution that offers degrees in health economics to government and nongovernmental professional staff. Following four 10-day classes (two on operations research and two on economic evaluation of reproductive health programmes), Dhaka University moved to incorporate operations research into its diploma and master’s curricula; and the teaching staff have begun to undertake their own operations research projects.

Because the students pay for their courses, the training activities are self-sustaining.

Experience with operations research capacity building shows that the following conditions favour the institutionalisation of operations research:

- Interest in operations research among the institution's directors;
- Availability of trained staff;
- Opportunities to work closely with programme managers;
- Interest in applied research; and
- Opportunity to use operations research or other new research methods.

Essential topics to cover include:

- Introduction to operations research;
- Identification of the study problem and design;
- Research methods, including cost evaluation;
- Integration of qualitative and quantitative data;
- Report writing;
- Strategies for communication and dissemination; and
- Proposal writing.

## 2.2 Capacity Building Programmes

Summary: Several regional research centres have incorporated operations research in their teaching curricula and are providing instruction in the form of short courses, full introductions to OR, and fellowships. The centres' continuing outreach focuses on fundraising and establishing networks to increase the impact of the training.

### **Institutionalizing operations research at the Cairo Demographic Center**

CDC began its collaboration with the Population Council in 1999 with the objective of increasing the number and quality of researchers undertaking OR. As part of its original collaboration, CDC identified 20 participants for each class (nearly half of them women), including masters and postgraduate students from CDC, researchers from FRONTIERS projects in Egypt, and students from other Asian countries. During the first year, 41 participants took the class. CDC has signed an MOU with FRONTIERS to institutionalize OR.

The centre now provides 25-hour and 17-hour courses and also delivers short courses on specific topics, such as proposal writing. Beginning in 2001, about 70 students per year have received training in OR.

### **Makerere University, Uganda**

Makerere University's Regional Centre for Quality of Health Care provides leadership in improving the quality of health care services in the challenging region of eastern and southern Africa. In this region, decentralization and health care reform have added to the already-high demand for operations research capacity building to help identify best practices in reproductive health.

The university has worked with the Population Council to develop short (one-week) courses in operations research and economic evaluation for middle- and top-level health managers. For its diploma curriculum, the university also has developed a module on data-gathering and analysis, which includes both class- and field-based instruction. In addition, Makerere provides fellowships to allow students to experience operations research in field settings. Coursework also focuses on developing expertise on communicating and disseminating research findings. About 20 students receive training each year.

Makerere conducts outreach and networking with other donor and research organizations to increase the impact of this training. The major challenge, in addition to obtaining funding for research and technical assistance, is ensuring the use of operations research findings by managers. In many settings, managers lack the authority to implement the changes that the research suggests. Retention of trained staff also is a challenge, as trained individuals are much in demand.

### **A three-way capacity building partnership in Eastern Europe**

Eastern Europe has many serious reproductive health problems, including low contraceptive prevalence, high abortion rates, and high rates of maternal and infant mortality. In 2000, teams consisting of a researcher and a manager from eight Eastern European countries met with WHO and FRONTIERS to discuss opportunities for operations research capacity building. They agreed to form a three-way partnership for capacity building and development of operations research

projects. The partnership includes links to each country's Ministry of Health to ensure utilization of research findings.

Following a workshop in 2001, participants developed proposals on a variety of questions, including adolescent reproductive health, fetal monitoring, and perinatal best practices. WHO and FRONTIERS are reviewing the proposals, which on implementation will be linked to ongoing initiatives such as the Making Pregnancy Safer and Promoting Effective Perinatal Care strategies.

## 2.3 From Data to Policy

Summary: Several projects illustrate the application of research and reproductive health data at various levels—from development of an information management tool through the formulation of reproductive health policy at various levels.

### Developing capacity through management information systems in Asia

WHO has developed household-based management information systems (MIS) for use by the respective Ministries of Health (MOH) of Vietnam and China. In both cases the objective is to integrate all health information into a single system.

The Vietnam MIS is a pilot system designed to unify a group of about 40 health-data systems to improve management capacity at the district and community levels. It was developed through collaboration with Vietnamese officials, UNFPA, and other international partners, and is being tested in several areas of the country. This MIS integrates demographic information, such as births, deaths, and household information, with data on disease (including STIs and HIV/AIDS), maternal and child health, immunization, and family planning. Information is collected monthly and used to produce indicators at monthly, quarterly, and annual intervals.

The China MIS is an attempt to integrate reproductive health indicators with other health information. This two-year pilot project, which also develops local capacity for data management, will be shared with other Asian countries interested in such integration. The basic framework is household data collection, with monthly updates

to add individual data and new services. The system provides identification for each individual in the community. Monthly feedback can be used for statistical reports to officials at district, council, provincial, and central levels. Information also can be fed back to the individual-level database through the identification mechanism.

Work with these two MIS systems has yielded the following lessons:

- Development of MIS is a dynamic process that must be updated and adjusted during implementation;
- MIS development requires consensus from numerous stakeholders, which means that advocacy is crucial—including advocacy to sponsors, to convince them of the programme's value;
- Regional managers must be involved from the design phase onward;
- Coordination among participating ministries and departments is vital; and
- System design should include mechanisms to ensure utilization of the data generated.

### Bringing together research and service-delivery in India

Many research findings are not utilized because researchers lack understanding of programmatic challenges, and because programme managers do not know how to interpret or use findings to make decisions. To address this gap, the Centre for Research in Development and Change (CRDC) worked with public-sector health managers and academics in Gujarat, India to conduct operations research on locally significant reproductive health issues. The research, supported by the Ford Foundation and the Population Council, consisted of four projects, all at least partially successful:

- *HIV/AIDS counselling for truck drivers:* This six-month project included establishment of an HIV/AIDS counselling centre at a truck stop along a national highway and research on the sexual behaviour of 100 truck drivers. Based on research findings, condom banks were established at several truck stops. The project remains popular among truckers and the public, and over 37,000 condoms have been distributed. A shortcoming of this project is that it is not sustainable and that it lacks a mechanism for assessing impact.

- **Integration of family welfare services with services for reproductive tract infections (RTIs):** The project involved a situation analysis and staff capacity building. The situation analysis revealed numerous infrastructure problems that reduced the efficiency of service-delivery. The delivery was reorganized; additionally, physicians and auxiliary nurse-midwives received training on identifying and treating RTIs. The intervention resulted in streamlined clinical procedures and the introduction of syndromic management of RTIs. However, infrastructure weaknesses, particularly drug shortages, continued following the project's completion.
- **Deployment of female physicians at health posts:** A survey of 10 health centres showed that quality of care might improve if female providers tended to the female clients. Health officials accepted this finding, and posted female physicians on specified days at 28 clinics.
- **Meeting university students' need for reproductive health information:** A survey of more than 2,000 undergraduates revealed numerous gaps in their reproductive health knowledge. The survey findings were used to design a student curriculum on sexual health. Unfortunately, a change in the university's top administration required the process to begin anew.

Researchers remain involved in the formation of reproductive health policy in Gujarat; and training, monitoring, and evaluation are continuing. This effort showed that linking research to programme activities will require a long-term commitment and continuous involvement and advocacy by researchers.

#### **From research to reproductive health policy in Zimbabwe**

Cervical cancer is the second most frequent of cancers occurring among women. In developing countries it accounts for 20 to 30 per cent of women's cancers (compared to 4 to 6 per cent in developed countries). Of the approximately 500,000 cases that occur annually, 80 per cent are in developing countries. This cancer is linked to the human papillomavirus (HPV) and has a long latency.

In 1995, USAID gave a grant to the University of Zimbabwe through the Johns Hopkins University to compare the effectiveness of visual cervical inspection and cytology in detection of cervical cancer. Visual inspection was found to be a reliable and inexpensive technique. The university also compared the effectiveness of two treatments: loop surgery and cryotherapy. The cryotherapy, a less expensive method, was effective in 88 per cent of cases (compared to 99 per cent with loop surgery) and—provided the client was HIV-negative—the cure rate was good.

Following presentation of these findings, the university and the Ministry of Health (MOH) collaborated on a pilot project to train nurses and physicians in two districts to perform visual cervical inspection and treat lesions with cryotherapy. This intervention also includes the development of a referral system and of a client registry. A monitoring system was implemented through funding from PATH.

The effort is underway at 10 of the district's 14 public health clinics, with a total of 1,200 women screened as of July 2001, and nine cases diagnosed as of September of that year. As a way to address this preventable cancer, the combination of visual screening and cryotherapy should be implemented in other countries where health care infrastructure is weak.

## **2.4 Discussion**

Participants discussed the following points:

- **Whom to target for training:** Traditionally, capacity building efforts have targeted producers of research. There is a need to build capacity among consumers—those who use the research. This group includes programme managers and policy-makers. There also is a need to work with nongovernmental organizations to increase their capacity to do research. Other disciplines to target include economists and specialists in operational management and organizational behaviour.
- **Short-term versus long-term training:** Training in operations research has been short-term, ranging from one to four weeks. This approach could be appropriate for managers or policy-makers, but researchers really need a more extensive preparation covering a range of disciplines. Would it be possible to provide

12 months of operations research training for a master's level? Also, would it be useful to develop a scale for training, representing levels and training times appropriate for providers through full-scale operations researchers?

- ***Time and resources required to produce a researcher:*** Development of researchers takes multiple resources and more time than is available in training sessions. Another aspect of development is use of skills following training. Such use is vital for building and retaining skills, but very difficult to achieve in many settings. It is difficult for any single organization to provide all the elements needed to train researchers. This is an area in which collaboration is very important.
- ***Small grants:*** The quality of research produced via small grants has been mixed. Also, mentoring takes a tremendous amount of time.
- ***Types of short-term courses:*** Possibilities for courses include data analysis for beginners (not necessarily researchers), proposal development (for a multidisciplinary group), and electronic options (covering subjects like ethics or statistics). For some qualitative data, software packages might be more appropriate than a short course.
- ***Follow-up:*** There should be a mechanism for following up with persons who have received capacity building. The development of this mechanism could be an area for collaboration among donors.
- ***Rapid techniques:*** UNFPA Country Support Team (CST) advisers use a rapid methodology with several kinds of research, including qualitative and survey-based socio-cultural research and OR. CST programme has a series of courses in rapid-research techniques now operating in various countries. The training covers both operational and socio-cultural research and includes three weeks for course work and three weeks for a mentored research-training programme. There is a training-of-trainers element in that CST trains university researchers who go on to train programme managers and community members. The courses and field work have been taught to both single-discipline and mixed groups (researchers, providers, and others).



### 3. Advancing operations research capacity building

#### Objectives:

- ★ Present key topics for operations research training; and
- ★ Present ideas for collaboration among donors in capacity building

#### 3.1 Key topics in operations research training

Summary: operations research capacity building should provide all types of students (such as researchers, data analysts, and programme managers) with a basic understanding of the experimental approach and of the uses and dissemination of data; training should be tailored for the learning needs of specific audiences.

##### Intervention research

Operations research at the Population Council has focused on intervention research as an effective tool for measuring and evaluating the effectiveness of specific approaches to improving services. Central to intervention research is the use of experimentation to measure changes resulting from service innovations. Both producers (researchers) and consumers (managers) must understand the principles of experimental research.

Capacity building for researchers must cover the essential elements of the experimental approach, including:

- Formulating hypotheses;
- Operationalizing variables;
- Selecting the appropriate research design;
- Analysing the data generated; and
- Communicating the results to decision-makers and to wider audiences.

Training programme managers also is essential to the sustainability of intervention research. This training must provide an understanding of the following concepts:

- The effect of service-delivery systems on client behaviour and health;
- The nature, purpose, and characteristics of intervention research;
- The strengths and limitations of operations research at varying levels of programme organization;

- How to recognize proof of an intervention's impact; and
- How to use research results to shape programme policy and procedures.

It is crucial that newly trained researchers be able to practise their skills. Both funding and training organizations can help establish links between the training or research stage and further application within service organizations. Additionally, funding organizations should allot funds for intervention research within programmes.

##### Economic evaluation

Economic evaluation—the systematic assessment of the costs and the outcomes of comparable health care services—is a valuable complement to OR. This type of assessment provides a more complete understanding of how best to allocate scarce resources. It also enhances the ability to make informed decisions by specifying the costs of obtaining high-quality services. Skills in economic evaluation are relevant to both researchers and programme managers.

Three types of economic evaluations can be conducted as part of OR:

- Cost analysis, which determines the cost of an existing or new service;
- Pricing and revenue analysis, such as determining clients' willingness to pay for services; and
- Cost-effectiveness analysis, which identifies the costs and outcomes associated with alternative programmes or interventions.

Family Health International (FHI) has developed capacity building modules that can be tailored to fit the professional needs of specific audiences of researchers, programme managers, or trainers. Training for programme managers, for example, explains the key concepts of economic evaluation and teaches the interpretation of research findings. Training for researchers adds additional skills, teaching students to design and implement evaluations and to write proposals. Training for trainers adds to these skills a module on organizing and presenting material to trainees.

FHI presently is developing plans and instruments to facilitate economic evaluation by researchers, managers, data analysts, and trainers. Further

development of capacity in this discipline will require consideration of three questions centred on:

- Whose capacity to build;
- How to increase the likelihood that increased knowledge leads to better implementation; and
- Whether training should stand alone or be linked to operations research studies.

#### Developing a tool-based curriculum

An alternative to the traditional seminar-style, theory-based style of capacity building is a more participatory, tool-based curriculum. This type of curriculum uses conceptualising tools to help students understand research processes. Tools can be used primarily in three areas: (1) studying and identifying the research problem; (2) developing and implementing a solution; and (3) monitoring the results. An advantage of a tool-based curriculum is that it gives students a ready-made framework for analysing problems within their programmes.

Numerous tools have been developed through operations research and other research fields, including:

- Cause and effect diagrams—useful for visually organizing large amounts of organizational information and showing links between events and their causes;
- Flow charts—facilitating visualisation of steps in a procedure or elements in a system; and
- Run charts—showing variation in processes over time.

A tool-based curriculum could be appropriate for use in developing country health systems with limited access to other types of training. One means of delivering such tools could be a CD-ROM equipped with search functions and a tutorial on using the tools.

#### Dissemination and utilization

Effective dissemination and utilization of operations research results is essential to capacity building. Numerous factors enhance or impede the translation of research findings into programme or policy guidelines—including relationships between researchers and decision-makers, the extent and

type of dissemination used, and the existence or lack of resources to facilitate dissemination and utilization. However, capacity building should teach the importance of several key factors affecting utilization:

- The *relevance* of the research to decision-makers;
- The *perceived importance* of the project to institutional goals, as well as its potential for replication or scale-up;
- The *context* of the research in terms of the social and political climate, the role of the health service or facility, and the power of the scientific community;
- The *content* of the research—its innovation, quality, complexity, and urgency; and
- The *mechanisms* of interaction between researchers and policy-makers.

OR training should teach three concepts relevant to dissemination and utilization:

- Assessing the relevance and perceived importance of the proposed research and incorporating them in the research proposal;
- Designing and implementing complete plans for disseminating research findings; and
- Designing and implementing utilization plans.

### 3.2 Furthering collaboration in operations research capacity building

Summary: Networking and collaboration to establish links among research communities and across disciplines are central to the sustainability of OR. Stakeholders should form a wide array of links, not only to address continuing funding constraints, but to address the expanding relevance of operations research among various disciplines.

#### Facilitating collaboration across disciplines

OR is multidisciplinary, but it is rarely truly interdisciplinary. Researchers from many disciplines are needed to conduct OR. Often, however, professionals from different specialities view problems very differently and use different terminology and language, and thus cannot work together effectively to define problems. Major problems in interdisciplinary work and training include:

- Misunderstandings resulting from differences among disciplines;
- Use of varying kinds of logic—inductive versus deductive—within different disciplines; and
- Varying interests within the research community.

Suggestions to improve training across disciplines include:

- Develop training that specifically describes the concepts of certain disciplines;
- Incorporate explanation of specific disciplinary approaches in training;
- Fund studies that use the appropriate discipline to investigate specific research problems;
- Create a market for process research in addition to impact research;
- Fund a variety of disciplines, including organizational behaviour, operations management, political science (including policy analysis), and economics; and
- Fund collaborations of these disciplines to create teams.

The London School of Hygiene and Tropical Medicine conducts a short course to provide an overall picture of operations research to a variety of researchers, including anthropologists, sociologists, health economists, psychologists, demographers, and managers. The short course allows these researchers to see how they can incorporate other types of research into their work and how to interpret research from other disciplines.

The best way to promote interdisciplinary collaboration would be to fund the research-management process jointly with interventions, making the research a type of management consultation. Donors could specify the necessary interdisciplinary elements. A long tradition of such collaboration exists in developed countries; it should begin in developing countries as well.

#### Areas of collaboration in operations research capacity building

There are many rationales for collaboration among countries in operations research capacity building. Chief among them is the scarcity of resources among donor organizations and health care systems. Countries with similar needs and

problems can develop regional programmes to develop a critical mass of trained researchers and build local institutions that can meet the needs of the local populations. A south-to-south partnership is vital for the sustainability of OR.

Numerous opportunities exist for such collaboration to maximize the use of scarce resources:

- Use existing resources—work with regional institutions and build operations research into courses that are available within the region;
- Determine which groups or disciplines have priority for capacity-building;
- Ensure collaboration among funding agencies (allocate funding for specific activities so as to have the whole operations research process funded from research through utilization);
- Build partnerships between donors and funding recipients;
- Build partnerships between international and local or regional organizations, so that local organizations can continue working in a sustained fashion; and
- Establish south-to-south partnerships for mutual support and resource sharing.

### 3.3 Discussion

Participants addressed the following issues:

- **Intervention research:** Training in intervention research must teach students to understand experimental design and the implementation of interventions. Training in implementation should stress the need to understand the local context, as an unsupportive setting can thwart even the best-designed intervention.
- **Economic evaluation:** Cost analysis normally does not include the cost of the research, but does include the cost of institutionalizing the innovations tested. There are various types of evaluations. Cost-effectiveness evaluation looks at longer-term costs and whether they are reasonable relative to their impact. Sustainability analysis includes economic evaluation, but it is a broader type of research, including: (1) improving programme efficiency; (2) recovering costs; and (3) assessing demand for services, which can be an area for income generation. This is an area of multidisciplinary economic research. For

example, one African study compared various approaches for integrating STIs and family planning, and found that in Zimbabwe some approaches would cost 25 percent of the reproductive health budget. This is an example of a sustainability analysis coming out of cost-effectiveness research.

- ***Dissemination:*** Dissemination costs may vary, depending on what method is used. For example, a conference is likely to be more expensive than a booklet. Dissemination cost-sharing could be an area of donor collaboration. Researchers should be able to communicate to varying audiences. They must be able to produce articles or publications that are of use to policy-makers, community members, other scientists, and the press—all very different audiences.
- ***Changes in donor priorities and programme management:*** There is an urgent need for closer contact between donors and field researchers. Researchers need to know what role operations research findings play in decisions to scale-up projects or to change country programmes. These kinds of changes by donors also affect management and organizational behaviour. There should be more consultative meetings to look at the issues that affect research organizations—especially health sector reform.
- ***Impact of research:*** Many research organizations are required to show impact from their activities or risk losing their funding. But it is important to make it clear that impact assessment is very expensive and that it often is difficult to show impact in the short term. Also, the subject of some impact analysis has been thoroughly studied already—for example, it is known that a well-run community-based organization will attract new users. What is not known is how best to use limited resources.
- ***Follow-up by participants:*** Suggestions included beginning an e-network to keep discussions and initiatives moving, launching letter and advocacy campaigns from researchers to donors, and forming task teams to work on recommendations from the Consultation.

## 4. Highlights and recommendations from group discussion

Summary: During the Consultation, seven group discussions took place on two major topics: (1) priority programme issues for investigation through operations research and (2) improving various aspects of operations research capacity building. Participants were asked to identify major concerns related to their discussion topic, describe possible solutions, and suggest next steps.

### Day 1 Groups

#### Global and regional reproductive health programme problems and priorities for OR

The objective of the first day's discussion groups was to identify urgent reproductive health programme problems potentially amenable to solution by OR. Participants discussed the following topics:

##### 1. Making pregnancy safer

Group members identified three priorities for operations research: (1) increasing the number of skilled birth attendants and enhancing their skills; (2) improving referral and transport systems; and (3) increasing women's use of existing services.

- There is a shortage of skilled birth attendants; therefore operations research should test ways to train attendants more quickly;
- As an operations research priority, systems for referring women to higher level health care facilities and for perinatal transport need to be improved;
- The cost of services needs to be reduced, in connection with the need for economic evaluation in OR; and
- Low levels of service utilization are common to many programmes, and operations research should be used to find effective ways to recruit new clients.

*Next steps: operations research resources for safe motherhood programmes need to be strengthened. There is a strong need for training and seminars for managers in OR, and more researchers need to be engaged in applied research on safe-pregnancy issues. Donors need to make the same investments in safe motherhood operations research as have been made in FP and STIs, including HIV/AIDS.*

##### 2. Integrating operations research into family planning service-delivery programmes

Because family planning programmes now face new challenges with stagnant or declining funding, there is a need for operations research to establish the most cost-effective approaches. Priority issues vary by region. In Africa priorities are increasing the use of methods that provide dual protection against pregnancy and HIV/AIDS and providing services to adolescents. Concerns in Asia include improving programmes' financial sustainability and quality and increasing the availability of temporary FP methods. Latin America is concerned with sustainability and East Europe with increasing the use of contraception and reducing reliance on induced abortion as a FP method. operations research is especially necessary on the following operating systems and service-delivery modalities:

- Increased use of temporary methods in many areas will require improvements in logistics and promotion, including condoms for dual protection. operations research needs to be used more frequently to improve programme infrastructure. In many regions such as Africa, rural populations are not served by programmes; there is a continuing need to use operations research to develop cost-effective community-based delivery systems.
- In addition to operations research, formative and policy research are needed to remove administrative barriers, including age requirements, that impede provision of services to adolescents. Ways of effectively making contraceptives available in schools must be tested.
- Ways of improving programme efficiency and income generation need to be tested and disseminated.

*Next steps: operations research needs in FP programmes are becoming more region- and programme-specific. For this reason, donors need to encourage the development of local operations research initiatives and operations research capacity. The need to improve programme efficiency and cost recovery is universal, and economic evaluation needs to be a bigger part of operations research.*

### 3. Global and regional priorities for operations research in STI and HIV/AIDS programmes

Donors recently have started to support operations research in programmes dealing with HIV/AIDS and STIs. Operations research is being used to find ways to intervene in a wide range of problems from stigmatisation of people with HIV/AIDS, AIDS orphans, condom promotion, and voluntary counselling and testing, among many others. Recommended topics for operations research reflect the broad nature of the problem:

- Development of easily used indicators of programme outcome;
- Testing of the effectiveness of programmes for migrants;
- Improvement of programmes' ability to reach men and adolescents;
- Systematic evaluation of partner notification and treatment programmes to determine what is working and what is not working;
- Research on ways to improve programme sustainability by addressing the high cost of drugs and treatment;
- Ways of improving logistics systems and other infrastructure to support antiretroviral drug treatment; and
- Testing preventive interventions.

*Next steps: Donors have given little attention to building the capacity of local organizations and researchers to conduct research that will improve programmes that address STIs and HIV/AIDS. Restricting operations research to a relatively small number of developed-country research organizations will slow the emergence of solutions to many local problems. Donors should prioritize investment in HIV/AIDS operations research capacity building in developing countries.*

## Day 2 Groups

### Improving operations research capacity building

Four groups discussed ways in which operations research capacity building could be improved. Each group was homogenous in terms of participant background: representatives of donor and multinational agencies; specialists in management and research training; TAP/CST specialists; and representatives of operations research training centres.

### 4. Perspectives of national and international agencies on possible coordination among donors to improve operations research capacity building

Group members were especially concerned about avoiding duplication of effort and increasing utilization of operations research by sponsoring forums where researchers, managers, and donors could share results internationally.

- Avoid duplication of effort by dividing project support according to the preference of each donor;
- Sponsor meetings and other activities that bring together researchers and policy-makers to identify important research areas and ways to increase the utilization of programmatically relevant research;
- Earmark resources for electronic and other for a where researchers and health programme managers could share operations research results and lessons learned; and
- Hold meetings that bring together managers, researchers and donors to share results of operations research projects.

*Next steps: Next steps might include (1) regional or international meetings that bring together researchers and programme managers to review and discuss the results of recently completed applied research projects that have received support from WHO, FRONTIERS, UNFPA, or other international organizations and (2) an operations research listserv that would gather and redistribute studies and other information on applied research in reproductive health.*

### 5. Potential for integrating operations research into existing training programmes

The major barrier to integrating operations research into existing training programmes is that programmes emphasize either medical training or program administration, neither of which includes applied research. Some suggestions for integrating operations research were:

- Expose students to applied research early in medical and management training;
- Bring managers and researchers together so they can reconcile differing academic and program priorities in applied research; and
- Provide training not just in academic settings but also in job settings such as Ministries of Health.

*Next steps: One possibility would be to develop and test a course on programme-relevant research at one or more collaborating centres currently providing basic medical or management training. A regional operations research meeting (see above) could include a manager-researcher dialog.*

*Next steps: Encourage experienced applied researchers to participate in courses at training centres. Donors should sponsor more research through existing training centres. Finally, regional or international operations research conferences would be excellent venues for bringing leaders of training centres together.*

## **6. What can CST specialists do to advance operations research in reproductive health?**

Participants feel that UNFPA should be encouraged to fund more intervention studies designed to test solutions to program problems. There also is a need for studies that can be conducted in a short period of time. Some suggested immediate steps include:

- Development of country-level research and evaluation strategies;
- Prioritizing training in and dissemination of rapid research methodologies; and
- Securing resources for rapid, applied studies,

*Next steps: Groups already experienced in operations research should consider providing technical assistance for the development of country-level research and evaluation strategies. UNFPA, WHO, FRONTIERS and others should try to provide training to TAP/CST specialists. A special pilot training project could be developed, or specialists could be sponsored to attend existing operations research courses.*

## **7. What resources and technical assistance do existing operations research training centres need?**

Participants felt that the basic resource needed to provide training in operations research is a multi-disciplinary team with experience and interest in applied research. Most existing centres would like assistance to enable them to offer a range of experiences, including courses for researchers, orientation to operations research for managers, and training of trainers.

- Mentoring and co-teaching are among the most important technical assistance that new centres can be provide with because they strengthen staff and helps build credibility for the programme;
- Centre staff need opportunities to work on more applied research projects to increase experience with the subject matter.; and
- Representatives of training centres need the opportunity to meet and exchange experiences.



## 5. Summary and conclusions

Operations research is a valuable tool for developing solutions to many major challenges in reproductive health care—from integrating new services into existing programmes to addressing systemic changes in national health care systems. Participants at this Consultation were invited to form networks and working groups to build on progress made to date so as to build a critical mass of trained operations research researchers, facilitate the development of evidence-based decision-making, and increase the sustainability, relevance, and potential of operations research.

### Defining operations research and its importance

Operations research is a research technique that uses systematic data-gathering to support decision-making aimed at improving the coverage, quality, and sustainability of reproductive health services. operations research involves:

- ★ Investigation of programme elements that are under the control of managers;
- ★ Use of various research methods as determined by the research question; and
- ★ Collaboration between researchers and managers.

#### Benefits of OR:

- Operations research provides empirical evidence for a wide range of policy and programme decisions;
- Operations research facilitates identification of effective service practices;
- Operations research helps identify opportunities to strengthen programmes; and
- Operations research can be applied in a wide variety of programmes and fields, including among others family planning, STIs, HIV/AIDS, male involvement, and female genital cutting.

#### Rationale for supporting operations research:

- Operations research benefits programmes and donors by providing evidence of programme successes or weakness;
- Operations research helps organizations set their own research agenda; and

- Broadening the consumer and producer base improves the sustainability of operations research.

### Increasing capacity to conduct operations research

Building capacity for operations research by institutionalizing operations research training courses at educational facilities in developing countries will create a critical mass of trained researchers who can conduct operations research, foster the culture of evidence-based decision-making, and support the sustainability of operations research. This capacity building involves:

- Working with institutions rather than individuals;
- Creating a critical mass of trained researchers;
- Focusing on sustainability of training;
- Seeking long-term commitment from donors; and
- Encouraging donor collaboration.

#### Needs for operations research and capacity building

- Collaboration (no single donor or assistance organization can supply all of an institution's capacity building needs);
- Advocacy on operations research to involve all stakeholders and a broader range of academic disciplines;
- Action-based, hands-on training;
- Opportunities to conduct operations research following training; and
- Dissemination to ensure utilization of research.

#### Challenges for capacity building

- Shortage of funding;
- Turnover of trained staff;
- Difficulty of implementing research skills in programme settings;
- Reluctance or inability of managers to use findings;
- Need to evaluate capacity building procedures;
- Length of time needed to achieve critical mass of trained researchers and consumers;

- Need for more consumer-oriented training; and
- Need to improve linkages between researchers and managers.

#### **Expanding operations research capacity building**

- Identify new groups for training, such as NGOs, country programme directors, organizational behaviour specialists, consumers, undergraduates, and new operations research practitioners;
- Explore the potential of electronic learning;
- Include evaluation training to identify the best means to achieve objectives with scarce resources;
- Build networks among research institutions and among donors to enhance resources and avoid duplication of effort;
- Establish new training centres;
- Organise regional meetings and conferences to bring together managers, researchers, trainers, and donors to discuss progress and new initiatives in operations research training;
- Increase the donor base; and
- Within the next two years, conduct a follow-on Consultation or conference presenting the results of operations research projects funded by WHO, FRONTIERS, and other organizations.

## 6. Appendices

### Appendix 1: Consultation concept background paper

#### 1. Introduction

Operations research (OR) is the application of systematic research techniques to improve, develop, or scale-up programme operations. It is distinguished from other social science research by studying factors under the control of programme managers. In Reproductive Health, operations research has been used for more than 40 years to improve programme access, efficiency, and quality. Programme needs for operations research have grown over time as programmes have evolved and increased in size and complexity, requiring them to face new challenges and launch new initiatives.

Recognizing the need for programmatically focused research that complements normative and basic research, the World Health Organization (WHO), Department of Reproductive Health and Research (RHR), the United States Agency for International Development (USAID), and the Population Council's FRONTIERS project signed a Memorandum of Understanding (MOU) to collaborate in operations research activities. Improving the capacity of developing countries to conduct and utilize operations research has become an important part of the MOU. In addition to WHO, FRONTIERS, and USAID, other donors have been trying various approaches to develop the capacity of programme managers to use and appreciate OR. Programme managers are being encouraged to demand and use research to improve programme operations; donors and research organizations want to improve the ability of researchers to produce programmatically relevant OR; and other international donors have been trying various approaches to develop the capacity of programme managers to use and appreciate OR.

One of the main concerns with capacity building efforts has been to institutionalize training in universities and research organizations in developing countries to ensure capacity to produce better trained managers and researchers. In the past, donors have found this strategy successful in producing highly skilled reproductive health care providers, clinical researchers, demographers, and epidemiologists. To achieve similar success in the institutionalisation of operations research, international donors and local

and regional training centres need to arrive at a consensus about such basic strategic issues as who should learn operations research skills; what skills should be taught; and when, how, and where they should be taught. Donors and training institutions also need to discuss possibilities for inter-agency collaboration and ways to avoid duplication of effort or, conversely, to avoid leaving important areas uncovered.

FRONTIERS, WHO/RHR and USAID believe that bringing together international agencies, specialists in reproductive health research, and programme management with existing and potential training centres will contribute to improving the availability and quality of training in OR. In turn, this will stimulate the increased use of operations research and increased programme effectiveness, including quality and efficiency. To this end an international consultation on operations research capacity building was held on 12 December 2001 at WHO Headquarters in Geneva, Switzerland. The Consultation permitted sharing experiences regarding the capacity building models that have been tried already, successful case studies, and exploration of alternative approaches.

#### 2. Goal

To improve reproductive health programme operations and service-delivery through greater application of operations research and to enhance strategies for operations research capacity-building

#### 3. Objectives

The broad goals of the International Consultation are (1) to achieve consensus on the need for training in operations research, and the elements that should be included in operations research training, and (2) to examine models for expanding the availability of operations research training for both programme administrators and researchers.

Specific objectives include:

- Sharing experiences and needs in the utilization and application of operations research in relevant reproductive health programmes;
- Identifying priority operations research areas,

topics, and issues for improved reproductive health programmes;

- Identifying curricula needs, training centres, and profiles of managers and researchers who will benefit from operations research training;
- Establishing the assistance needs of potential training centres in OR; and
- Eliciting closer inter-agency collaboration and identify areas for potential joint initiatives.

#### **4. Participants**

The Consultation is planned for 30 to 40 participants. Approximately half are expected to be representatives of local and regional organizations involved in reproductive health training and research throughout the developing world and Eastern Europe. The remaining participants will be invited from international agencies such as UNFPA, government development agencies such as USAID, private foundations such as the Wellcome Trust, and agencies with experience in operations research training, such as the Population Council and University Research Corporation.

#### **5. Activities**

The Consultation will consist of presentations, panels, and discussion sessions. Participants also will meet in small-group discussions to make specific recommendations relating to capacity building strategies and activities. Time also will be set aside to allow organizations to discuss potential collaboration among participants.

#### **6. Product**

A Consultation report will be prepared and circulated by WHO/RHR and FRONTIERS. To aid in the production of the report, sessions will be taped. A joint follow-up evaluation also will be conducted to determine the impact of the Consultation in terms of new collaboration, donor and institutional initiatives, course changes, and so forth. A draft evaluation plan will be drawn up before the Consultation.

## Appendix 2: Consultation agenda

### DAY 1 (Monday, 10 December 2001)

#### Day 1 objectives:

- To provide participants with a shared understanding of reproductive health OR; and
- To present and discuss the rationale for providing support towards reproductive health operations research

09:00 – 09:30	<p><b>INAUGURATION</b></p> <p>Welcome remarks: Dr Paul Van Look, Director, RHR/FCH Dr John Townsend, Population Council Dr Marjorie Horn, FRONTIERS</p> <p>Introductions</p> <p>Objectives of the Consultation: Dr Michael Mbizvo, WHO/RHR</p>
09:30 – 10:15	<p><b>WHAT IS OR? WHY SHOULD DONORS SUPPORT OR? WHY SHOULD DONOR SUPPORT INCLUDE CAPACITY BUILDING?</b></p> <p>Presentation (<i>30 minutes</i>): Dr James Foreit, FRONTIERS</p> <p>Discussion (<i>15 minutes</i>)</p>
10:30 – 12:00	<p><b>HOW HAS OPERATIONS RESEARCH BENEFITTED RH PROGRAMMES?</b></p> <p>Panel and discussion (<i>presentations 15 minutes each; 30 minutes for discussion</i>)</p> <p><b>Presenters:</b></p> <p><b>Presentation No. 1:</b> Dr John Townsend, FRONTIERS: <i>“Results from the evaluation of recent Population Council operations research projects”</i></p> <p><b>Presentation No. 2:</b> Dr Bart Burkhalter, University Research Corporation: <i>“Impacts of quality-improvement research”</i></p> <p><b>Presentation No. 3:</b> Dr Iqbal Shah, WHO: <i>“Formative and operations research: revisiting the potential for programmes and policies”</i></p> <p><b>Presentation No. 4:</b> Dr Marjorie Horn, USAID: <i>“How operations research took reproductive health outside the clinic walls”</i></p>
13:30 – 15:00	<p><b>DISCUSSION GROUPS: REGIONAL RH PROGRAMME PROBLEMS AND OPERATIONS RESEARCH PRIORITIES</b></p>
15:00 – 15:15	Tea
15:15 – 16:45	<p><b>OPERATIONS RESEARCH ON GLOBAL RH PROBLEMS</b></p> <p>Panel and discussion (<i>presentations 15 minutes each; 30 minutes for discussion</i>)</p> <p><b>Presenters:</b></p> <p><b>Presentation No. 5:</b> Dr Andrew Fisher, HORIZONS: <i>“OR in HIV/AIDS Programmes”</i></p> <p><b>Presentation No. 6:</b> Dr Anrudh Jain, Population Council: <i>“Quality of care impact research”</i></p> <p><b>Presentation No. 7:</b> Dr Peter Fajans, WHO: <i>“The strategic approach to improving the quality of care of reproductive health services”</i></p>

**Presentation No. 8:** Dr Jay Satia, International Council on Management of Population Programmes, Malaysia: *“The strategic approach to the introduction of DMPA as an opportunity to improve quality of care for all contraceptive methods in Viet Nam”*

## **DAY 2 (Tuesday, 11 December 2001)**

### **Day 2 objectives:**

- To present major donor objectives and plans in reproductive health operations research capacity building;
- To inform participants of need for operations research capacity building and of existing capacity building efforts;
- To achieve a common understanding of who needs to be trained in what, how, and by whom; and
- To discuss mechanisms for making resources available for RH/OR capacity building in the short and mid-term (2001–2004).

### 09:00 – 10:15 **BUILDING INSTITUTIONAL CAPACITY IN REPRODUCTIVE HEALTH OPERATIONS RESEARCH**

Presentation (30 minutes): Dr M.E. Khan, FRONTIERS  
Discussion (15 minutes)

### 10:30 – 12:00 **OPERATIONS RESEARCH CAPACITY BUILDING PROGRAMMES** Panel and discussion: (presentations 15 minutes each; 30 minutes for discussion)

#### **Presenters:**

**Presentation No. 9:** Dr Magdi Ibrahim, Cairo Demographic Center: *“Institutionalization of operations research at the Cairo Demographic Center, Egypt”*

**Presentation No. 10:** Dr Joel Okullo, Regional Centre for Quality of Health Care, Makerere University, Uganda: *“OR capacity building activities at Makerere University”*

**Presentation No. 11:** Dr Jayanti Tuladhar, Country Support Team/WHO Thailand: *“Experience with operations research”*

**Presentation No. 12:** Dr Sandhya Barge, Center for Operations Research and Training, India: *“Strategies for bringing research and service delivery together”*

**Presentation No. 13:** Dr Mike Chirenje, University of Zimbabwe Medical School, Zimbabwe: *“Translation of research into district and national reproductive health programmes: the Zimbabwe case study”*

### 13:30 – 15:00 **DISCUSSION GROUPS: WHAT RESOURCES ARE AVAILABLE FOR CAPACITY BUILDING AND HOW DO WE MOBILIZE THEM?**

DISTRIBUTION OF DAY 1 DISCUSSION GROUP REPORTS

### 15:15 – 16:15 **PRESENTATION OF DISCUSSION GROUP CONCLUSIONS** (5 minute presentation by each group; 35 minutes for discussion)

### Day 3 (Wednesday, 12 December 2001)

#### Day 3 objectives:

- To present key topics that need to be included in operations research training; and
- To present ideas for collaboration between donors in capacity building activities.

- 09:00 – 10:45     **KEY SUBJECTS IN OPERATIONS RESEARCH TRAINING**  
 Panel and discussion (*presentations 15 minutes each; 45 minutes for discussion*)
- Presenters:**
- Presentation No. 14:** Dr Ian Askew, Population Council: *“Intervention research”*
- Presentation No. 15:** Dr Frederick Homan, Family Health International:  
*“Economic evaluation”*
- Presentation No. 16:** Dr Edward Kelly, University Research Corporation:  
*“Rapid and participatory problem-solving techniques”*
- Presentation No. 17:** Dr Enrique Ezcurra, WHO, *“Increasing dissemination and utilization of programme relevant research”*
- 11:00 – 12:30     **FURTHERING COLLABORATION IN OPERATIONS RESEARCH CAPACITY BUILDING**  
 Panel and discussion (*presentations 15 minutes each; 45 minutes for discussion*)
- Presenters:**
- Presentation No. 18:** Ms Maia Ambegaokar: *“How donors can facilitate communication and collaboration across disciplines”*
- Presentation No. 19:** Dr Richard Guidotti, WHO: *“A three-way capacity building partnership in Eastern Europe”*
- Presentation No. 20:** Dr Kim Dickson-Tetteh, Chris Hani Baragwanath Hospital, Johannesburg: *“Suggestions for areas of collaboration in operations research capacity building”*
- 12:30 – 13:00     **CONSULTATION SUMMARY**  
 Dr Michael Mbizvo, WHO



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