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Gender Equity in Science and Technology for Development
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Gender Equity in Science and Technology for Development

Gender Working Group,
United Nations Commission on Science and Technology for Development

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
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This book is dedicated to Stanislas Ruzenza, a member of the Gender Working Group. Professor Ruzenza died in June 1995, a victim of civil strife in Burundi.
Contents

Foreword — Oscar Serrate  ix

Preface — Geoffrey Oldham  xi

Acknowledgments  xv

Chapter 1
TAKING ACTION  1
Conclusions and recommendations of the Gender Working Group

Chapter 2
KEY PATHS FOR SCIENCE AND TECHNOLOGY  27
On the road to environmentally sustainable and equitable development
Bonnie Kettel

Chapter 3
CLAIMING AND USING INDIGENOUS KNOWLEDGE  55
Helen Appleton, Maria E. Fernandez, Catherine L.M. Hill, and Consuelo Quiroz

Chapter 4
WOMEN SPEARHEAD FOOD SECURITY  83
Science and technology an asset?
Shimwaayi Muntmema and Ruvimbo Chimedza

Chapter 5
A CRISIS IN POWER  107
Energy planning for development
Judi Wangalwa Wakhungu and Elizabeth Cecelski

Chapter 6
LOOKING AT HEALTH THROUGH WOMEN’S EYES  129
Soon-Young Yoon

Chapter 7
DOING THE RIGHT THING, NOT JUST DOING THINGS RIGHT  159
A framework for decisions about technology
Arminée Kazanjian
Chapter 6

Looking at health through women’s eyes

Soon-Young Yoon

A village woman from Tamil Nadu, India, packed her bag checking to make sure she had enough money to pay the doctor. A bus would take her to a strange city clinic. She had mixed feelings of anticipation and fear. This was the third time she had become pregnant and her husband’s family told her that this time she must have a boy. She had prayed to the gods, taken many herbal baths, and did almost everything the old village women told her to do. Had she committed a terrible sin? The last two times she gave birth, her husband had hardly looked at the babies. The family needed a son to keep it from financial ruin, because he would receive a good dowry from a bride. She hoped this new doctor’s test worked, but if amniocentesis showed that it was a girl, she would have an abortion and try again.

This story is relived in India, South Korea, and other countries where amniocentesis is used for sex selection. It is a glaring reminder that modern science and technology (S&T) do not necessarily mean better health for women. Indeed, modernization of health technology often replicates rather than challenges gender inequality. Amniocentesis, an advanced medical technique originally used to detect genetic defects in high-risk pregnancies, also reveals the sex of the fetus. In one hospital in West India, 700 people sought prenatal sex determination between June 1976 and June 1977: 250 of the male fetuses were borne to term, 430 of the 450 females were aborted (WHO/SEARO 1989a).

Why is this happening? One reason is that women are blamed for reproductive “failure.” In many countries, infertile women or women without sons become outcasts, even though it is the father, not the mother, whose gametes determine a child’s sex.

Many women and health activists think that the United Nations (UN) can influence governments to take action on women’s health issues. They also hope that scientists, researchers in women’s studies, and scholars will apply their knowledge to help them.
How far has the UN come in meeting this challenge? What can national governments do to improve the situation? What is the role of scientists in dealing with gender and health issues? The purpose of this paper is to address these questions. It deals with the wide range of related issues, such as why gender and health deserve attention within the S&T debate, the issues, and international and national trends. It also contains suggestions for strategic action and where it might lead. Although its main focus is on developing countries, it draws on some global data to illustrate international trends.

**Why gender and health?**

Why should S&T be concerned about gender and health? Shouldn't development take care of everyone's health problems? There are at least three reasons why this hasn't occurred: women have been victims of health systems, their contributions have been undervalued, and gender has been ignored in general health statistics and research.

**Women as victims in the health-care system**

Women in industrializing countries are the main health-care providers, caretakers of the aged, and decision-makers about child health. They are vital to national development as producers as well as reproducers. However, their own lives are often considered less valuable than those whom they feed and heal.

Recent studies note that a contributing factor to many adult women's health problems is a lifetime of gender discrimination. The first major review of the health implications of sex discrimination in childhood noted that girls were likely to suffer from a wide variety of discriminatory practices such as differential feeding, care during sickness, and other forms of childhood neglect (WHO 1986). Since then, the evidence has grown, particularly regarding gender differences in nutrition and infant mortality and morbidity. Initially thought to be restricted to northern India where nearly 50% of girls were below 70% of expected weight compared with 14% of boys (WHO 1992), neglect of girl children has now been reported in almost all developing regions.

Male-dominated cultural values are taught in the family and become a way of life. Many girls carry an unequal economic load in family chores; they carry water, gather fuel, take care of younger children, and "fill-in" for their mothers. Girls work longer hours than boys in less productive jobs (Yoon 1982). When times are hard, such as during the recent global recession, they may be taken out of school
so that their brothers' school fees can be paid. The UN Childrens Fund (UNICEF), the World Health Organization (WHO), and many governments have tried to draw attention to the health needs of girl children, but these efforts have limited impact if they are not reinforced by changes in economics, education, and elsewhere.

Teenage girls in many industrializing countries are the backbone of modern industries, such as electronics and textiles, and they work in hazardous occupations and sweatshops. In countries such as South Korea, girls aged 16–22 years make up nearly 75% of the labour force in export trade zones (Yoon 1982). Although many suffer from occupational health problems, they often do not report them or ask for treatment because they are afraid of being fired. The most tragic situation, however, is that of the girls who are exploited in the sex and tourism industry. The prevalence of sexually transmitted diseases and AIDS infections (acquired immune deficiency syndrome) is as high as 80% in some countries such as Thailand. Although girls may know that condoms should be used, they are powerless to avoid infection. Meanwhile, younger girls are being drawn into prostitution as male clients seek AIDS-free partners.

In the United States, teenage pregnancies are on the rise, a puzzle because contraception is relatively widely accepted and available. Unwanted teenage pregnancies lead to unhealthy babies and mothers, costing the public US$16–18 billion a year (Carnegie Foundation 1992). In sub-Saharan Africa, teenage pregnancies result in high-cost pregnancies and delivery complications such as toxemia, anemia, premature delivery, prolonged labour, and death. Maternal mortality rates are higher for 15- to 19-year-olds than for women aged 20–34 years (WHO 1992). Such trends mean that young women are more likely to drop out of school and take on the prime responsibility for their children.

Throughout their reproductive years, poor women carry an unequal economic and reproductive burden. As is often noted, women produce 40–80% of the world's food, but own less than 3% of the land. Except in North America, Australia, and western Europe, women still work longer hours per day than men (WHO 1992). In all regions, women still bear the main responsibility for household chores and child care (UNSO 1991). When women are the main wage earners, postpartum recovery periods are shorter and their nutritional and health status declines with each pregnancy (UN 1985a).

The health system's gender bias is also reflected in its concern for women's health only when they are mothers. Their health, according to the WHO definition of "total well-being," is disregarded. Their environmental, occupational, and mental health needs are thus not addressed. However, gender inequality increases health risks for
women in many ways. One of the most alarming health problems is violence against women. In the United States, every 15 seconds, a woman is beaten, and four battered women die each day (WHO 1992). Violence may also be related to rape during war, female sexual mutilation, or assaults on aged women. In all cases, the mental as well as physical well-being of women is at risk, and these, not just reproductive health, are equally important in assessing women’s health status.

Even with respect to reproduction, it is debatable whether technology has helped women control their bodies. The predominant methods of birth control — pills, intrauterine devices (IUDs), Norplant®, and other injectables — all require acceptance and compliance by women to external control of their normal hormone functions. In target-oriented population-control programs, many family-planning techniques have been aimed solely at women, even though men are often the ones who decide family size. Although women and reproductive-rights activists have protested this gender bias, only recently have researchers and family-planning programs paid more attention to male contraceptives and reproductive responsibility for men.

Although considerable attention has been paid to how gender inequality affects women as health-services users and consumers, less is known about the way it affects women as health-care professionals and providers. In industrialized countries, analysis of gender inequalities among women scientists and researchers, doctors, nurses, pharmacists, and health-services managers (WHO 1982) shows that the health sector is labour intensive and dominated by women, but the women are at the bottom of the hierarchy and pay scales. They are also less likely to exercise authority over others and factors such as race, ethnicity, caste, and class may create further barriers to job mobility.

In many poorer countries, large numbers of women make up the bulk of volunteers and “village health workers.” Working conditions vary, and they seldom receive fees for their services and time. Attrition is high and motivation low because of increasing demands on such volunteers without supervision or support from local health clinics. As one woman said, “We have to travel long distances just to inform people about immunization clinics, and we have to pay our own way on the buses. The men get travel money to do government work — why shouldn’t we?” (Yoon 1978).

Traditional birth attendants (TBAs), untrained midwives, and indigenous health practitioners are also women who play a variety of roles in health care. Many TBAs and herbalists have high status in the eyes of mothers, but in the overall traditional medical system,
their position is not necessarily so favourable. In rural Korea, for example, gender and professional hierarchies exist in both indigenous and cosmopolitan health systems (Yoon 1982). Those most associated with professional health cultures, even within the indigenous system, are mostly men who are literate in Chinese characters — the herbalists, acupuncturists, blind fortune tellers, and geomancers. At a lower level, the population health culture consists mostly of women — the shamans, intuitive fortune-tellers, three-spirit grandmothers (specialists in maternal and child health), and traditional midwives (mostly mothers-in-law).

Although there is much more information about the large numbers of women health care providers within the formal system, more attention should be given to the armies of young (often unmarried) nurse-aids, public hospital nurses, health educators, and nurse-midwives. These workers, who are the backbone of safe motherhood programs and primary health care (PHC) systems, are often overworked, have little voice in the health-care delivery system, and are expected to work miracles with little pay and few supplies. Gender discrimination combined with age hierarchy, caste, and sometimes racism exacerbated the poor working conditions, barriers to promotion, and even sexual harassment on the job that young female health workers face. In India, for example, nursing students who have night shifts are considered “fair game” for the advances of male interns and are unable to complain to superiors. Because they frequently come into direct contact with blood, they are considered “polluted,” unfit for marriage outside their caste. In some societies, they cannot do their job effectively because cultural norms forbid them to ride bicycles, even to visit patients. To understand how gender, race-class, and age structures intersect to define the work status of this category of health personnel, more in-depth research and action are required.

**Health for all through gender equality**

Rather than dwell on the problems of women as victims, many women and health activists are trying to show how women contribute to development. Women make up the bulk of “invisible” contributors to the economy and managers of natural resources and thus integrate health into all aspects of development.

Although many national policies recognize women as key links in achieving population targets, they do not necessarily provide women with the means to make real reproductive choice possible (Jacobson 1991). Women's groups in industrializing countries are justifiably outraged that some population and environment policies
are aimed at controlling women's fertility alone, while ignoring other factors contributing to the depletion of natural resources (Sontheimer 1991), such as excessive consumption especially by the North; unequal distribution of resources so that the landless are forced onto marginal lands; inadequate advances in S&T; poor internal and external migration policies; and insufficient social services, especially for health and family planning.

Women's active involvement in water and sanitation programs has demonstrated that women are not only part of the problem, they are also part of the solution. In Panama, village women helped engineers identify sources of fresh water that had been overlooked in the initial surveys. In Latin America, Africa, and parts of Asia, women volunteered their labour in the construction of a piped water system. In Lesotho and Tonga, they helped build latrines (INSTRAW 1989). Their role in helping to generate new financing for water projects has been shown to be important because women often reinvest in other family basic needs such as better education and improved child nutrition. The women's garden groups in the Casamance of Senegal and rural South Korea, for example, were key links between improved water supplies and income-generation for family welfare.

Gender as a scientific variable

The women's movement has proposed a third reason why "women's issues" must be taken seriously: the gender perspective is simply better "science" in the sense that it has greater heuristic value and generates more useful knowledge than orthodox medical paradigms. In recent decades, the "women's issue" has also become the subject of legitimate academic research. Women scientists and researchers have redefined the concept of gender and applied it to almost every field of science and the humanities, including health.

Often called "women's studies," this new body of knowledge is the scientific study of gender roles and is one of the fastest growing fields of study today. India, for example, has established a national women's studies association to ensure greater cross-fertilization between various fields within women's studies. Although "women and health" courses are only just beginning to appear in medical-school curricula of developing countries, they are common electives in the United States, Canada, and Europe.

In health research and statistics, the gender perspective changes conventional scientific paradigms, introducing gender roles as a new and significant variable. This has led to pioneering research in epidemiologic, biologic, etiologic, and health-behaviour studies.
National averages obscured important differences in statistics, such as the nutritional status of young children noted earlier. Epidemiologic data show gender differences in patterns of AIDS transmission (women are more easily infected than men) and of various noncommunicable diseases, such as lung cancer.

Numerous reports now reveal the fallacy of earlier data, such as cardiovascular information based almost solely on male subjects. Drugs once thought to be safe for women are being reconsidered after investigations showed that original tests were done only on men. In addition, studies of health behaviour and health-systems research are showing that gender roles make a difference in health outcomes. Scientists have noted that the effect of tropical diseases and opportunities for treatment can be quite different for men and women. For example, in Thailand, blood tests done in communities indicated that malaria affected men and women equally, but clinical records showed that more men were treated (WHO 1992). Studies in Colombia showed that women are less likely to assume the “sick role” and that they are slower to seek treatment (Wijeyaratne et al. 1993).

Gender inequality in health is one of the “root causes” of other health problems and is a social variable as significant as age, race, class, or marital status. Like kin status, ethnic identity, or economic conditions, gender roles are among the nonbiomedical factors that determine etiology, progress of illness, and eventual outcome of medical treatment. Through a variety of intermediate institutions such as religion, law, economics, and kinship, gender inequality affects morbidity and mortality rates and life-style differences. Similarly, it is a factor in determining demographic, migration, and fertility trends.

Combined with the other two arguments — that access to and impact of S&T are gender biased and inequitable and that women are a vital resource for the future — scientific emphasis is a powerful argument for focusing on gender issues. In my view, all three are valid and important points of view that can be used in advocacy to create a new ethical basis for health S&T development and assessment.

The issues

Issues specific to technology transfer at the national level can be categorized into three major areas: women’s access to health S&T, the impact of S&T on gender equality, and the development of health S&T. A complete situational analysis would require in-depth research of scholarly works, UN data, women’s studies reports, bulletins of
nongovernmental organizations (NGOs), and other national S&T information. A preliminary review is provided here with suggestions for future policy-related research.

Women's access to health S&T

Women's access to health S&T is a major problem of national health programs. Their views are supported by commonly used national health indicators, such as number of beds per person or patient–doctor ratios, which are designed to monitor progress. More specific gender-related information comes from family-planning services, where the monitoring of access is very refined.

According to national data, it appears that significant progress has been made in reproductive technology research, development, and provision of family planning services. The 1992 Demographic and Health Surveys and Family Planning Surveys report that about one-third of married women in the developing world (excluding China) are currently using modern methods of family planning; since the 1960s, fertility has declined from an average of six children per woman to four (PIP 1992).

Information, education, and communication (IEC) studies measure women's level of access to health information and the “science” of health. Again, family-planning programs have been particularly aggressive in evaluating the extent of women's and men's knowledge of basic reproductive functions and uses of specific contraceptive techniques. Results of the most recent Demographic and Health Survey indicate that more than 75% of women in developing countries could name at least one modern method of contraception (PIP 1992). Many also named traditional methods.

Water availability has also increased in both urban and rural areas; in 1990, 82% of the urban and 63% of the rural populations had access to water supplies. Sources and quality vary considerably — from hand-dug shallow wells to clean, potable piped water — but where water and sanitation have improved, there has been a direct impact on women as users and providers of health care.

- Stress and fatigue related to carrying water have been reduced;
- Women can encourage hygienic practices in the family;
- There has been a reduction in some water-borne pathogens (typhoid, cholera, amoebic infections, bacillary dysentery, and diarrheal diseases), thus making it easier for women as health-care providers; and
Many parasitic diseases, which in some countries are reported to be higher for women and girls than for other groups (for example, guinea worm, trachoma, hookworm, and schistosomiasis), are being controlled (Yacoob and Brieger 1991).

Despite these gains, problems surrounding increased access continue to be a focus for health activists, policies, and health services. Those working close to communities have argued that the issue of women's access to health and reproductive technologies is much more complex than currently measured by health statistics. Researchers have confirmed that effective access can only be ensured “if that care is considered affordable, appropriate and acceptable by the women it aims to serve” (Timyan 1993). In other words, it is more than an issue of availability of services or even having services nearby. Women must also find the quality and types of services acceptable and appropriate to their needs.

For example, many rural health clinics have special days set up for maternal and child health (MCH) and family planning services, but women who make long treks to the health clinic find that they cannot treat themselves. Instead, they must come back to the clinic for treatment, paying high costs in time and transportation. In urban settings, a middle-class mother, with a 7-year-old child with strep throat, is frustrated if she must return to the clinic to get treatment from yet another doctor for herself.

Women's general health is often overlooked because their health needs may be channelled through MCH services. Problems, such as reproductive-tract infections and infertility, health care for the elderly, and special care for young women are neglected.

For women who prefer traditional medicine, industrialization and agricultural development has sometimes undermined, rather than improved their access. In many countries, agricultural lands have expanded at the expense of forests that are rich sources of home remedies and herbal medicines. In other countries, such as France, India, Indonesia, and the United States, traditional medicines have been modernized, raising their cost and making them unaffordable — especially as health insurance does not cover many “alternative” medicines.

Critical areas for policy-related research are:

- How to improve women's access to health and reproductive technologies beyond MCH-family planning (MCH–FP) services, addressing quality as well as availability;
• How women's access to traditional medicine has been affected by its commoditization and lack of local free resources; and
• How access differs by subgroup of women: age, economic status, disability, rural or urban residence, and race or ethnicity.

The impact of S&T on women's health

Much less reliable data are available to elucidate the complex issue of the impact of health S&T on women's health status. Generally, it is difficult to isolate medical or health S&T from the effects of other development processes. Generally, it seems some progress has been made. Globally, health conditions around the world have improved more in the past 40 years than in all previous human history. Child mortality fell from 280 to 106 per 1,000 in developing countries and women in developed countries now outlive men, although they suffer more disability (WHO 1992).

Research on this topic involves more than an impact assessment of health S&T. It must entail a gender-specific understanding of basic needs-assessment and impact studies, many of which suffer from lack of adequate health data. The most crucial information needed is an analysis of cases in which there has been a positive, sustainable effect of development on women's health. By looking at these cases, it should be possible to uncover some suggestions for future strategies.

For example, in the newly industrialized countries, such as Korea, Taiwan, and now Thailand, there appear to have been important changes in the overall health status of the population, related as much to improved income distribution and education as to provision of health services. The demographic transitions that occurred are a general indicator that women have gained greater control over their fertility, that there has been a rise in age of marriage, and that the use of effective contraception and other techniques to reduce fertility and space children has increased. Equally important are the development processes that promote access and improve effect — notably women's education, better working opportunities and income, rise in social or legal status, as well as a general improvement in standard of living (World Bank 1993).

Concerning indigenous S&T, a number of policy changes and research are needed. Within the modern health sector, almost nothing is known about the iatrogenic causes of female morbidity and mortality, such as death due to in-hospital infections, malpractice, or
severe side effects from overuse of drugs such as antibiotics. Some studies indicate that causes of maternal mortality may actually occur within hospital settings because of delays in treatment, or lack of supplies (Tinker and Koblinsky 1993). The "medicalization" of women's health has also meant that, in many cases, medical procedures like hysterectomies and caesarean births are overused.

In addition to assessments of how the pluralistic health system affects women's health, studies are needed to document women's role in "blending" technologies. For example, Chinese women have had an exceptional opportunity to combine both health systems as government policy has favored modernization of traditional medicine and provides services as part of the national health services. However, little is known about Chinese women's health behavior and preferences regarding traditional medicine. Other examples at the community level can also be found. In one area, women leaders initiated a project to build traditional dams, but they used low-cost modern techniques, such as reinforcement with chicken wire, to build the dams larger. Supplementary benefits of the project included fish in the dam waters, vegetable gardens around the dams, water for cattle, and shallow water pumps convenient for washing clothes and personal hygiene.

In the safe-motherhood program, assessments of the TBA training courses are underway, particularly courses that have combined old and new methods. In a highly acclaimed TBA program in Myanmar, most trainees were women over 60 years of age, illiterate, and unaccustomed to modern medical practices. To make the training acceptable, the project head, Dr Tin Hmun, incorporated many of their traditional beliefs. For example, in Myanmar, umbilical cords are cut with a bamboo tool across a coin to bring good fortune to the infant. Dr Hmun tossed a coin into the pot of boiling water along with the rest of the birthing kit instruments so that it would be sterilized.

Another important research topic is how development has affected traditional women healers and their practices. The role of TBAs has been "medicalized" under the PHC-MCH programs. Under the supervision of the modern health system, most TBAs have been trained only to assist in specific areas of MCH; their other practices are either ignored or actively discouraged. In many African cultures, the TBA is actually the family physician, looking after infants as well as the elderly. In central Java, TBAs are more specialized, but they cooperate with other traditional practitioners to provide comprehensive care. Sometimes, integrating TBAs into the modern health-care delivery system actually undermines the TBA's local status. In my own field visits, whenever I asked a TBA if she was training her daughter to take her place, the answer has always been "no." Why?
Because the daughter should take on a more "modern" occupation with better job security and income.

There is also evidence that the general mixing of technologies and uses within indigenous systems is leading in the wrong direction. Colonialism was the first major influence that changed indigenous health systems by waging political battles against "superstitious" health practices. In most instances, this also meant suppression of women’s healing practices along with promotion of a patriarchal-biased colonial health system. Today, modern enterprise dominates the health culture. "Quack" healers as well as doctors mix modern drugs with traditional herbs and market them as new wonder drugs. "Injection doctors" take advantage of women’s ignorance concerning the use of drugs and provide injections for almost anything at a price.

**Women’s roles in the development of health S&T**

In many ways, women are always involved in the development of health S&T through their many creative approaches to home remedies, management of the environment, and their role as decision-makers in family health. However, their knowledge and methods are informal, outside the world of medical industries, commodities, and technology trade. It is rare for women and health groups to be consulted at the initial stages of developing modern health technologies. Part of this reason may be the general lack of consumer participation in the health industry. Other barriers include a serious communication gap among women as health consumers, researchers, and health-care businesses.

Women health activists have protested this exclusion, particularly with regard to reproductive technologies. For example, they have accused researchers of targeting mainly women as users — resulting in clinical trials hazardous to ill-informed women — while ignoring ways to make men take more responsibility. Women in sub-Saharan African countries would like attention to be paid to helping overcome infertility. Other issues attracting women’s attention are the lower-cost women’s condom (which can provide effective protection against sexually transmitted diseases (STD) without male knowledge), viricide, biotechnology research, and genetic research related to women’s cancers.

New ways are clearly needed to formalize dialogue and involve laypersons, including women, in the development of health S&T. Some positive experiences are reported by WHO’s Human Reproduction Program (HRP), in which women’s groups were invited to meet with scientists. In 1991, the first meeting to find "common
ground" included 14 women's health advocates, representing three regions and four international organizations, who met with scientists and scientific collaborators of the HRP to address the problem of the selection and introduction of fertility-regulation technologies. In 1994, a regional meeting in Asia was based on the same format and recommendations were made concerning policy, research, and services. At both meetings, women's concerns focused on safety and acceptability. Although the discussions were, at times, difficult and heated, all parties agreed that these meetings set a new precedent for a working relationship between scientists and women's health advocates.

Some social scientists and health professionals have argued that radical changes are needed at all stages of technology development. Bonair et al. (1989) have proposed an intriguing alternative model of medical technology innovations in developing countries. They strongly advocate broadening "the research process, by introducing knowledge about the factors influencing sustained use at the earliest possible stage of laboratory research." Applied to gender and health research, this would mean a closer interaction between social issues, such as how women perceive medical technologies and their capability to use them, and the early stages of health technology development. The societal conditions under which women have to use technologies would also be considered in defining preferred conditions, even at the laboratory research stage.

The need for a national S&T policy across sectors

The successful use of S&T to improve women's health depends most on women's ability to decide their own priorities with respect to access, impact, and the development of health S&T. To make these priorities effective, the transfer of health S&T must account for the social, economic, and political policies that support or undermine gender and health programs.

In some newly industrialized countries, economic changes have meant an increase in life expectancy and a decline in infant and maternal mortality, even without widespread access to "high-tech" medical services. Globally, technological progress and expanded health services helped eradicate smallpox in the 1950s. Reproductive technologies have also enabled nearly one-third of married women in the developing world to use modern family planning methods (PIP 1992).
Although these are important gains, there have been unexpected negative effects. In a number of countries, such as Brazil, India, and those of eastern Europe, industrialization and the Green Revolution have created "diseases of development," including upper respiratory infections associated with air pollution. Accurate data are scarce. However, a case study in New Delhi showed that over 30% of females aged 31-40 years suffer from cor pulmonale, thought to be due to kitchen smoke (WHO 1992). Elsewhere, chloroquine-resistant malaria appears as populations increase their intake of chloroquine and an evolutionary process selects for a new genetic strain of parasites. This is of particular concern for pregnant women whose immunity status changes. In the absence of treatment, morbidity and mortality rates are high for this group. In Zambia, many patients experienced abortions or premature labor because of malaria (Wijeyaratne et al. 1993). Dengue hemorrhagic fever, an incurable viral disease with high mortality rates for children 1-5 years of age, spreads as urbanization provides more freshwater containers, such as old tires, and other breeding sites for the mosquito vector.

Health "costs" of development that affect women include the shortened breastfeeding period that often accompanies better work opportunities in cities. Environmental hazards, such as pesticides, seem to increase the prevalence of breast cancer and birth defects. In some cases, environmental health problems caused by development (such as schistosomiasis) were brought under control. In others, industrial and agricultural technologies continue to undermine advances in health. For example, in some Asian countries, water and sanitation programs have trained women to maintain shallow tube wells and repair pumps; however, large-scale agricultural projects divert water in great quantities for cash crops. Deforestation and lack of watershed management have caused watertables to fall so much that the shallow wells have gone dry or become saline (Yoon 1993).

Another set of policies affecting women's health are those concerning traditional or alternative medicine. In most developing countries, a dominant modern medical system exists side by side with indigenous and "alternative" health systems that are widely accepted. Even in the United States, in the 1990s, nearly US$14 billion was spent on alternative health care — an amount equal to that spent on hospitalization. Combined use of technologies, usually does not follow a "rational" order and few practitioners of allopathic medicine are even aware of alternative health practices. In developing countries, colonialism and "cosmopolitan medicine" often undermine the status of the alternative system in which women healers dominate by discouraging their practices or absorb them into the
male-dominated modern system. The losers are women health consumers who go back and forth from one system to another.

Closely related to delivery of health services are transportation and infrastructure policies and employment opportunities. These should support rather than undermine national health plans. Studies concerned with social and economic costs to women of gaining access to health have recently recognized that clinic fees were only part of the problem. Lack of communications or high cost of transport can be equally important. In Mexico, the provision of a "good road" was associated with a 30% increase in the use of prenatal care (Timyan 1993). In a Thai village, increases in fuel prices meant an immediate reduction in the number of women and children attending clinics (WHO/SEARO 1989b). Privatization as a response to dwindling public health budgets has put further strains on women whose purchasing power is lowered during recession.

Finally, policies concerning women's access to information and communications should support a national gender and health policy. For example, self-care and prevention along with a more rational use of health services would be an ideal way to reduce costs. Yet, self-reliance in health has become more difficult as the gap between the specialists and the layperson widens.

At one end, sharing of medical knowledge and health information is prevented by medical politics, commercial patents, and lack of attention to public health-information services. At the other end, information systems in developing countries can seldom absorb the quantity of data. Because women have the lowest literacy rates, least mobility, and poorest networks, they are the last to gain access to health knowledge. Although studies show that providing health information is one of the most cost-effective ways of ensuring access to health services, it is low on the list of health spending priorities. Without information about correct use, availability of health technologies does not guarantee healthy people. Mediating institutions decide whether such technology is used to empower or further oppress women.

Health S&T policies alone cannot achieve health for women because of the overwhelming influence of other sectors and development trends. Economic and trade policies affects alternative medicine, transportation, and infrastructure, along with information and communications policies, all influence the ultimate effect of health-technology transfer on women's welfare. In brief, gender and health concerns must be considered within an overall S&T policy if national health policies are to have any real impact.
Meeting the challenge

The global activities of the UN, women's NGOs, international women and health movements, and other international bodies have increasingly brought national policy issues into the debates over international development. Compared with the those of the 1960s, current women and health issues are less likely to be analyzed as local or national issues. There has been a reemergence of a global consciousness within the women and health movement, encouraged by the last four UN women's conferences and in anticipation of the 1995 conference in Beijing. Through various resolutions and negotiations, governments and women's groups have exchanged experiences and reached consensus.

Women's conferences and NGO forums

At the international level, the UN has a vital role to play in advocacy and financial and technical support to the women's health movement. Through its various bodies, an international exchange of knowledge and information has become possible and national governments have increasingly addressed women's health issues through international conventions and resolutions. In the past 20 years, acknowledgement of the importance of the UN involvement has resulted in "summits" every 5 years to review problems, assess progress, and find new platforms for action. In parallel, NGO forums have brought together individuals and NGOs. Over the years, the forums have been used to apply increasing pressure at the UN meetings for a response to their demands for "democratization" of the UN process and for the UN to widen its political boundaries to include NGO input. Strategies have included confrontation, but more recently, effective lobbying and close interaction in preparatory regional meetings.

It would be timely to conduct in-depth research on the role that the forums and UN conferences have played in the evolution of women's health issues and their impact at the national level. However, in the absence of an intensive study, it is possible to present a general overview of recent conference results and the preparatory documents for the 1995 Beijing women's conference in the area of women's health (see Appendix B).

UN World Women's Conferences of 1975, 1980, 1985, and 1995: In the documents of the world women's conferences of 1975, 1980, 1985, and 1995, health has always been considered a crucial sector. Although emphasis has changed somewhat concerning issues of
access to health services to include HIV (human immunodeficiency virus)-AIDS and reproductive health, the recommendations generally reflect a concern for equal access to health technologies. The *Forward-Looking Strategies* from the 1985 conference is exceptional in its broad coverage of issues (UN 1985b). It includes recommendations on women as health-care providers as well as users of health services, the importance of women in managerial positions within the health system, ending stereotypes in health education, and emphasis on prevention and health promotion along with curative services.

*Convention on the Elimination of all Forms of Discrimination Against Women.* This excellent document does not identify issues by sector alone and, thus, provides a general strategy to protect women's rights that also have a health effect. Articles 5 and 16 are particularly noteworthy (UN 1979a):

States Parties shall ... modify the social and cultural patterns of conduct of men and women, with a view to achieving the elimination of prejudices and customary and all other practices which are based on the idea of the inferiority or the superiority of either of the sexes or on stereotyped roles for men and women.

States Parties ... shall ensure, on the basis of equality of men and women,... the same rights to decide freely and responsibly on the number and spacing of their children and to have access to the information, education and means to enable them to exercise these rights.

*Agenda 21:* This document, emanating from the UN Conference on Environment and Development (UNCED) in 1992, was clearly a conceptual as well as political turning point for gender and health. With considerable input from NGOs, *Agenda 21* puts gender and health at the centre of sustainable development issues. With NGO preparations in Miami in the same year and thousands of national and regional conferences, the UNCED “process” culminated in introducing a number of crucial social issues to the international environment discourse. One of the major entry points was the controversial population debate. Men and women advocating women’s rights successfully emphasized environmental impact is determined by consumption patterns as well as population size.

*Other forums:* The preparatory meetings for the 1994 population conference emphasized the importance of women’s empowerment as an end in itself and as a means to achieve sustainable development. The draft *Platform for Action for the International Conference on Population and Development*, held in Cairo, Egypt, identified a number of government actions that would contribute to achieving
gender equality (UN 1994b). Among them were economic measures such as assuring the end of discrimination in the workplace, as well as health actions such as eliminating violence against women and strengthening grassroots women's organizations.

The draft document for the Social Summit (UN 1994a), similarly, cites gender inequality as a major barrier to "social integration" along with problems of youth and indigenous peoples. Health is expected to be a major topic, although it is unclear what linkages will be made to the issue of gender and S&T.

Although it is easy to be cynical about "yet another UN meeting," the importance of such global exchanges should not be underestimated. They represent a collective working out of a consensus on the ethical basis for S&T policies related to gender and health, even when they do not explicitly mention S&T. Also, such UN conferences have been largely responsible for giving legitimacy to women's efforts at the national level to advocate, institutionalize, and develop strategies. Many national women's bureaus, ministries, and focal points were direct outcomes of the women's conferences. Also, the NGO forums were important meeting places for international women's health networks to form stronger regional and international ties.

However, there is considerable room for improvement. For example, structural position of NGOs has yet to be established. In some instances, such as at the recent preparatory conference for the 1995 population conference, NGO and government delegates were part of the same team, developing joint proposals and negotiating strategies. At the preparatory conference for the 1995 World Women's Conference in Beijing, however, NGOs held a parallel conference with input to the UN proceedings on an ad-hoc basis. The UN has opened its doors to NGOs and has greater understanding of the role they have to play internationally, but the mechanisms are not clear. Should all NGOs be allowed to participate in UN meetings or only those with official UN accredited status? Such questions are still under debate and will affect future interactions between NGOs and the UN.

A general weakness of past conferences has been the lack of attention to youth health issues. Again, UNCED appears to have been a turning point, as youth groups were given their own forums and visibility. In preparations for the 1995 World Women's Conference, for the first time, there is a youth focal point with the secretariats of both the NGO forum and the official UN conference.

Another problem has been a lack of funds for effective information, education, and communications (IEC) after the conferences. Women seldom know what their governments agreed to at the UN
meetings concerning gender and health and, thus, there is little chance that constituencies will support policy changes. Media centres, such as the International Women's Tribune Center (IWTC), have made important contributions by translating the turgid language of the UN meetings into concise messages with audiovisual material to reach over 2,000 network organizations.

The World Health Organization

As the lead technical agency in health, the WHO has a special responsibility to advocate and support women's issues. Since the 1980s, its director general's reports on women and health have assessed national progress and suggested policy directions. In 1992, the World Health Assembly took a major step forward when it chose "Women, Health, and Development" as the subject of its technical discussions. Government representatives along with bilateral funders, UN officials, NGOs, and an international panel of experts concluded that a series of proposals for action was required, expanding the mandate of WHO and creating a Women and Health Commission.

In 1989, the 44th World Health Assembly passed a series of comprehensive resolutions to further strengthen previous ones. Resolution 1 (WHO 1989a) urges member states to:

Accelerate the implementation of the measures for the improvement of the health status of women, their economic and social status, and their quality of life and for their full and equal participation in all aspects of national health and development activities;

Ensure that programs on women, health and development include action to: a) improve female literacy; b) support the role of women as health educators and providers of care; c) promote reproductive health, including family planning and safe motherhood; d) provide in particular for the social, economic and health needs of female children and elderly women; e) provide specifically for the prevention and management of chronic illnesses; f) promote and support women's income-generating opportunities to facilitate their health and development; g) cooperate with voluntary agencies in their activities on behalf of women, health and development.

Resolutions passed in 1992 emphasize the need for better representation of women in ministries of health and improving systems of reporting, coordination, and monitoring of policies.
Although the technical discussions that preceded these meetings emphasized the importance of a “gender” perspective to replace the “women-in-development” framework, the earlier terminology was preferred in resolutions. An expert group panel had emphasized linking gender and health to environment, particularly in areas of reproductive health, cancers, tropical diseases, and occupational health, but these were not specifically highlighted in the resolutions. However, various programs within WHO have taken up these issues.

Like the program on Tropical Diseases Research, the Human Reproduction Program (HRP) has been particularly attuned to the importance of the gender perspective. Although much more needs to be done to integrate gender perspectives into the program, it has established linkages between the basic components of reproductive science, technology, and production. As this involves a complex array of relations with various stakeholders, such as researchers, pharmaceutical companies, and national policymakers, the program has developed internal mechanisms to bring them together. It also has a research section that supports social and economic research on reproductive technology development, transfer, and acceptability.

Another significant thrust as been the promotion of interagency and intersectoral action. “The health problems of women are determined by diverse socioeconomic factors...” not just health services, concluded expert panelists at the World Health Assembly in Geneva in 1992. Those who drafted the Accra Declaration and participants at the interregional workshops on Women’s Participation and Leadership in MCH and Family Planning agreed that health services alone would not create health equality; changes in women’s education, economic, and legal status are also required.

Other WHO activities include work carried out by the Intersectoral Action for Health Program. Focusing on the most vulnerable groups, which included women and the poor, research results, meeting reports, and documents point out how the vital health objectives of Health For All can be defined at the outset along with macroeconomic objectives. Such activities are not confined to a few programs. Most WHO programs, such as those on Environment Health, Tropical Diseases Research, Expanded Program on Immunization, Nutrition, and AIDS, promote intersectoral cooperation at the national level to improve women’s health.

Internal mechanisms are intended to streamline intrasectoral coordination and planning in the area of women’s health. WHO’s directorate of Family Health is the main focal point for coordination of activities of regional and national counterparts. At the policy level, a special advisor assists the Director General’s office to
convene the Global Commission and advise on policy issues. Perhaps the two weak links lie at the regional and national levels.

In reviewing WHO's position, it is important to bear in mind that it is a specialized, technical agency, not a funder. Its main function lies in setting policy direction, providing a neutral zone for S&T knowledge to be pooled, and providing technical guidance to member states. In doing this, it provides a special place for gender and health issues to be discussed and worked out within the UN system. It may also be the appropriate unit to follow-up on the recommendation of the UN Commission on S&T.

**UN bodies, funders, and bilateral agencies**

The role of donors and other UN agencies is key in providing support to national health programs and WHO. Many health issues require joint actions in health (UN Fund for Population Activities (UNFPA), UNICEF, and UN Development Programme), education (UN Educational, Scientific and Cultural Organization and UNICEF), employment (International Labour Organisation), agriculture (Food and Agricultural Organization of the United Nations and International Fund for Agricultural Development), as well as the UN Development Fund for Women (UNIFEM)). Interagency collaboration on women's issues is already becoming a model of how collective efforts can pay off. The Inter-Agency Statement in preparation for the 1995 World Conference on Women demonstrates the willingness and importance of joint efforts directed toward a common goal. Also, at the WHO regional office for the Americas (Pan American Health Organization), all agencies including UNIFEM will collaborate to review gender training materials and training institutions in the region and prepare a report for the 1995 conference. WHO participation in interagency mechanisms such as the UN Division for the Advancement of Women, Vienna, the UN Commission on the Status of Women, and interagency meetings in preparation for the conferences on human rights (1993), population and development (1994), and women (1995) is also important.

Donors and other UN agencies could use these forums to strengthen interagency cooperation. Also, funders such as the Canadian International Development Agency, the Carnegie Foundation, the Danish International Development Agency, the International Development Research Centre, the Norwegian Agency for Development Cooperation, and the Swedish International Development Authority are seeking to improve interagency coordination at the national level and have valuable experiences to share on the problems and potential of such activity.
Strategic action and recommendations

What action can be taken that is cost-effective, has a long-term effect, and can be implemented immediately? Possibilities exist in four areas: focusing on youth, building on previous successful experiences, emphasizing IEC, and research and development.

A new generation: youth and adolescents

A higher priority should be placed on aiming health programs at young people (WHO/UNFPA/UNICEF 1989). As illustrated by anti-smoking campaigns, one of the most cost-effective strategies is to invest resources in changing the behaviour of the next generation. Young people are at an age when life choices are made. A 15-year-old unmarried mother may be able to continue her schooling, but a 25-year-old married woman may not even be allowed to attend a women's health meeting. In many rural settings, youth groups are more egalitarian than adult groups, and unmarried girls have more mobility than women.

However, gender issues are seldom considered in national health policies for youth. Except in terms of sex education, youth appear to have no gender. According to a WHO (1989b) report, health statistics and studies have often excluded adolescents and youth as a specific category and qualitative data on gender issues for youth are hard to find. Age together with gender discrimination accounts for the special problems of youth. For example,

✦ Consider the gender bias in the label “unwed teenage mother.” How does this stigma affect her willingness to seek prenatal care? What about the responsibility of the unwed teenage father?

✦ The blame for infertility falls mainly on girls who can be abandoned even after marriage if they do not produce sons, even though infertility is often the result of her poor health.

✦ Child prostitution is growing with the AIDS epidemic as clients look for AIDS-free partners; these children are powerless to avoid infection.

✦ Girls work as electronic and textile workers, in service industries and in small sweatshops, but sexual harassment, sexual exploitation by management, and wage discrimination are the rule; most factory girls fear being fired if they report even illnesses.
In addressing these issues, the strategy should include promoting youth leadership within the women's health movement and at international forums. Existing youth programs should be strengthened to include gender. UNICEF, UNFPA, and WHO's Adolescent Health Program and MCH–FP projects have raised self-esteem among youth, particularly girls, so that they are better prepared to assert themselves, rather than yield to peer pressures.

**Learning from previous successes**

Collaboration among the UN, governments, NGOs, and social movements has an important outcome. Looking at leadership role models for both men and women and sharing success stories of women's leadership and participation across many sectors will slowly dissipate the image of women as "victims" in the health system.

Educating women as a means to improve child health and reduce population growth rates is an example of a successful national policy intervention. This approach, which is supported by WHO, UNFPA, and UNICEF, appears to be one of the most successful inter-sectoral interventions with a health impact. Although the reasons for the correlation between women's education and health are still debated, data suggest a close cause and effect. Countries where almost all women are literate have significantly lower infant mortality rates, independent of income (WHO 1992).

The Expert Group Meeting on Population and Women in Gabarone, 1992, emphasized that women are not only users, but they are also providers of health services (WHO 1992). Many role models and success stories within the health-care delivery system can be found among the "heroines" of medicine: the midwives, volunteer health workers, nurses, and women doctors. In Bangladesh, for example, female workers spent more time with family-planning clients, were more likely to recommend a range of methods, and less likely to urge women to choose sterilization. In Matlab, when midwives working at the community level were empowered to refer complex cases or treat complications in the home, the result was a 68% reduction in maternal mortality in only 3 years (Thapa 1992).

With the assistance of the Carnegie Corporation, the Sierra Leone Midwives Association and Home Economics Association carried out a health-systems research project aimed at introducing appropriate technologies in rural areas. After gathering information on women's perceptions and practices, traditional technologies, and constraints, the project team identified the technology gaps. They noted the suitability and acceptability of a scale to weigh newborns and support technologies such as pregnancy-risk cards, delivery-
record cards, and birth cards. TBAs were trained and evaluations indicated that they were capable of providing the care needed to reduce maternal deaths. Replicability and feedback to national health planning was ensured as the government and NGOs were collaborators in designing and evaluating the project.

The Kenya Water and Health Organization was an experiment in close government collaboration with NGOs and community water management groups. In 1983, the project was developed to solve the water shortage and sanitation problems in two districts by testing 12 kinds of handpumps. It was soon recognized that local input would be needed to establish a maintenance system. Five years later, the project was on its way toward national coverage. In 1988, all local water-management committees included women. Nearly 70% had opened bank accounts with savings, which were used to buy spare parts and correct pump breakdowns. Success was a result of the recognition of the central role of women and communities. Women reported saving time and effort as they did not have to carry water long distances. Most important, the project had found a way to be responsible for its own technology development and keep the pumps working.

Most success stories are relatively small scale, but they represent significant "social mutations" because they succeed even when overall development trends are in a downward spiral. In India, for example, a women's group called CHETNA is making a difference in women's health through innovative means. Using puppets, plays, and women's networks, CHETNA is a major source of nutrition information for poor urban and rural women. A women's NGO in Bangladesh is changing the concept of "health" services. In a single clinic, a woman can get information on family planning, agricultural technologies (such as seed selection), banking and credit, and also get a medical check-up. Women's groups in the Pacific islands and the Caribbean have joined international NGOs, such as WorldWIDE, in global networks to share information about environmental issues and advocate national policies.

**Information, education, and communications**

IEC is another important entry point in addressing gender equality in health. Visual media are rarely used in a systematic manner to create awareness of major health issues (WHO 1991b). Neither are there sufficient communication skills among peripheral health workers to make person-to-person education effective. Participants at the inter-regional workshop on Leadership and Participation of Women in MCH-FP recommended that country teams implement mass-media
campaigns to make women aware of their rights and empower them through training.

To make these good intentions a reality, the medical profession must leave its ivory tower of documents and go into the streets with leaflets. IEC materials are only useful if they are the tools of a social movement, appropriate in terms of local language and images, and developed with the participation of the target audience. Slide shows, audiocassettes, videos, television, radio, and multimedia forms of IEC should provide research results in ways people can understand and remember.

Health knowledge is increasingly becoming an important health "technology." It is one of the most effective tools for prevention, as well as cure, because changing patterns of diseases like AIDS require changes in behaviour to prevent epidemics. Knowledge about the appropriate use of medical technologies will also be a key factor in determining their potential. Antibiotics sold "over the counter" in many developing countries are often used inappropriately; Korean women reported taking antibiotics to "warm up their wombs" and improve their chances of conception. Meanwhile, the problem of drug-resistant strains of pathogens is exacerbated. Judicious use of such medications will ultimately depend on buyers' knowledge.

Sound medical knowledge empowers women to be more assertive patients and make better use of health services and drugs. Typically, uneducated women believe that a well-equipped local hospital with qualified staff will solve all of the health problems, even when these could be better handled through improved nutrition and better hygiene.

Some governments attempt to reform medical-technology development to complement a national PHC policy. However, unless consumers are convinced, informed, and use the technology, public hospitals will soon be empty. Instead, a private sector is likely to do a booming business meeting the demands of a high-technology hungry clientele. As one report from the Philippines noted, private physicians have become major importers and users of medical technologies to improve their competitive status in a growing medical business.

Revising school and nonformal education materials to remove gender bias is another important part of an IEC strategy. However, this has often been recommended and is seldom carried out. Governments can take a bold step toward gender equality in education by finding cost-effective, feasible means to eliminate gender bias in medical education materials. For example, typically in water and sanitation education, the traditional division of labour is perpetuated by examples of mothers and girls carrying water instead of
having the man with the bicycle help them. In family-planning posters and portrayals of good nutrition for pregnant women, there are few images of fathers or husbands encouraging them to eat well. Invariably, MCH information is aimed at women. Where is the father in the chapter about low-birthweight children?

Specific subgroups for education are medical and nursing students, pharmacists, and medical researchers and scientists. Gender training for both female and male medical students sounds like a social issue, which usually gets a cold shoulder compared with hard sciences subjects. At times, women, health, and development training has rebounded to produce an even more hostile student body. Attention to extracurricular forms of presentation, such as movies and videos, as well as inclusion of gender issues (rather than "women's issues") at professional meetings may be effective in making inroads into student programs.

As a leading UN technical agency in health, WHO should set guidelines for research, development, testing, and pilot studies of IEC materials for students and medical education. Training is also needed within WHO and its agencies. However, gender sensitivity training should not be forced, but should focus on how including a gender perspective will make programs work better. Workshops might include project planning exercises during which participants are given evidence and data illustrating how gender issues have an effect on their particular program areas.

A comprehensive IEC approach would make the existing plethora of health information and data more comprehensible and accessible to women and media groups. This would require collaboration with women's education, training, communications, and media centres in developing countries or international ones such as the IWTC and Third World Women's Media. Computer networks and database systems are potential purveyors of information. Currently, medical references "on line" allow a health consumer to get information on side effects of pharmaceuticals and cautions. There is also a database on emergency first aid. A woman can gain access to medical networks used by health professionals, often at reasonable costs. However, there is little information on women's health in developing countries. Such material could be provided at low cost immediately, and made available internationally through the Internet.

Research priorities

It may appear that considerable research has been conducted on gender and health issues. However, both more and better quality data are needed. As *Women's Health: Across Age and Frontier* (WHO 1992) points out, much current information is based on limited case
studies, and national statistics are often inaccurate: maternal mortality and morbidity figures are often grossly underestimated due to underreporting and lack of standardization in registration; data on women's mental health and cases of violence against women are lacking in most developing countries. Although mapping out the best available information on women's health, the WHO document also highlights important research questions in a number of areas from neglect of the girl child to tropical diseases and aging.

NGOs, health groups, WHO documents, and other reports on women and health reflect a deep malaise within the women's movement about the ethical premises of current biomedical and health-technology research. Concerning reproductive technologies, activists have demanded a place on national ethics review committees so that women's welfare will be considered in choices affecting safety, efficacy, affordability, and acceptability of reproductive technologies (WHO 1991a). They also want health researchers and policymakers to look beyond narrow medical research paradigms and incorporate the social, cultural, economic, and personal realities of women. The following research approaches and priorities might facilitate the application of ethics to health research. They are also examples of major gaps in basic knowledge required to reorient health policies and planning toward a gender perspective.

Social, cultural, economic, and political data on etiology, epidemiology, and health behaviour: The research and database on which current health services are based are largely inadequate and even misleading. For example, health statistics may be gathered in such a way that the female population cannot be divided into social and economic risk groups. Employment and marital status are often omitted from survey information.

Although data disaggregated by sex and age are a fundamental requirement for health planning, they are still uncommon in most industrializing countries. Improving the quality of information, testing the results of case studies, and ensuring that these results are used in delivery of health care is a starting point. However, a gender and health paradigm that is useful to health development will also have to include better social, cultural, economic, and political data.

Safe womanhood: A second issue is looking at "safe womanhood" instead of simple "safe motherhood." While the global campaign for safe motherhood has been vital in improving the health status of the world's women, the focus on women's health needs to be expanded to include the determinants of health and health risks during a woman's entire life cycle" (Lewis et al. 1994). Interventions during the reproductive years alone have generally been limited because many health problems have developed before those years.
As common sense as this may seem, adequate longitudinal studies in gender and health are rare. Few studies have tracked cohorts of women over time. How does early socialization into gender roles affect self-esteem and female health behavior at different ages? What are the linkages to psychological disorders? What are the long-term consequences of environmental degradation and occupational health hazards on women and their children? Do these change the genetic base of the population? How can health services better cope with "environmentally caused" health problems?

Other areas for research: In addition to these two broad research approaches, the following more specific research topics would contribute significantly to gender and health:

- Integration of modern technologies into traditional medical systems: determining the impact of allopathic medical S&T on women's health regarding etiology, epidemiology, and quality of services, in the context of their complex interaction with traditional medical cultures, self-care, and traditional medicine.

- Women's health and the environment: testing indicators using women's health as a quantifiable, sensitive indicator of sustainable development; longitudinal studies of the impact of ecological degradation and poverty on the health of poor women and children; considering occupational and reproductive health.

- Women as scientists and health-care providers: studying gender discrimination within the health-care delivery system as it affects female health scientists, health-care workers, and professionals in developing countries, particularly young, single women, focusing on issues of work mobility, sexual harassment, and upper-level management training.

In addition, the following are research priorities in the area of reproductive technologies:

- Abortion: women's decision-making processes about the safety and appropriateness of traditional methods and new ones for menstrual "regulation" and abortion, such as RU486, compared with surgical or vacuum-aspiration abortion.

- Barrier methods: affordable barrier methods, such as the female condom, which is also woman-controlled, combined with microbicide to prevent HIV infections; socioeconomic research to ensure acceptability and low cost; other possibilities include male barrier methods, female diaphragms, vaginal sponges, and spermicide or viricide.
Sexually transmitted diseases (STDs): Basic research on user perspectives related to sexuality, treatment-seeking behaviour, and use of health services for the treatment of STDs and AIDS by men and women at different ages; research on the effects of psychosocial, cultural, and economic factors on health behaviours such as prevention, risk behaviour, and use of services.

Conclusion

What would the world be like if women could achieve health as a “state of complete well-being?” In the draft NGO Platform for Action for the 1995 Beijing World Women’s Conference, the answer lies in this statement:

Freedom from violence and coercions, whether physical, intellectual, or cultural, freedom from hunger, freedom of expression and reproductive choice are basic human rights of all human beings which should be exercised and enjoyed on an equal basis.

Women’s right to health is a fundamental human right. However, looking at health through women’s eyes, you do not see a vision just for women. Rather, it is one that transforms society for men and children as well.

Considerable effort and success on the part of women and health activists has resulted in better access to the health system for women. Concerning the impact of S&T on women’s health, much more research is required, particularly in the complex interactions between demographic transitions, environmental degradation, and the impact of modern medicine on indigenous medicine. The development of health technologies is a newer issue for gender and health activists, but there is some indication of progress, notably in reproductive health technologies.

At the global level, such institutions as WHO and conferences as the Social Summit, the Population Conference, and the World Women’s Conference, are important steps toward providing international support for national efforts. Among these is the recently formed Gender Working Group of the UN Commission on Science and Technology, which has the broad mandate to advise governments and the UN system on gender and S&T policies. Although WHO’s efforts are noteworthy, considerably more attention must be paid to gender training within the organization and on stronger linkages between NGOs and WHO.
Even these efforts cannot be effective at the national level unless there is greater coherence in the overall direction of S&T. A national S&T policy and advisory body would help ensure that policies are mutually supportive. Good gender and health policies cannot be effective if development, as a whole, is moving in the wrong direction. Policies in economics, communications, alternative medicine, and information technologies all affect women's health. Therefore, health S&T policies and institutions, such as medical research councils, must be closely linked to national S&T mechanisms.

S&T development alone cannot create gender equality or solve women's health problems. Indeed, the abuse of amniocentesis and the many problems associated with contraceptive research show that advanced medical technologies can be used to infringe on women's human rights.

Health is a "women's sector" in the sense that most traditional health caretakers, lower-level professionals, and family decision-makers are women. However, these greater numbers have not necessarily meant that women have been able to change how decisions about S&T are applied to health. Major changes are thus needed in the systems of decision-making, management, and monitoring of the health system for this to take place.

Strategic actions and entry points for implementing policies are feasible at this stage, but the social, economic, and political contexts of S&T must be looked at more closely and partnerships must be broadened to make S&T work. Youth, people in the mass media, and researchers, as well as the women's movements, are important groups to bring together to reexamine how to evaluate the broad effect of government S&T policies on health.

The UN and governments must also find room for women to take their place, not as victims, but as citizens in a new civil society based on participatory democracy. As the UN takes greater cognizance of gender issues in a wide range of technical fields, it invites greater interaction with the international women's movement. If the UN is to evolve and change, it must increasingly open its doors to NGOs, social movements, and individuals who challenge it to be accountable to the people it represents.

Through the work of the UN Commission on Science and Technology, the gender and health issue may become more firmly rooted within the S&T debate. However, this also requires an ethical stance in which women as providers and users of health technologies have the right to equal access and evaluation of the impact of health S&T. This "human right" must be safeguarded as the fundamental value basis of the gender perspective on health S&T.