COMMENTARY

Population and Environment: Core Issues for PSR's Agenda on Peace and Security

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As Physicians for Social Responsibility (PSR) plans the scope and priorities for its peace and security agenda in the 1990s, core determinants that need to be addressed internationally are population growth, poverty and the status of women, and exploitation and degradation of the environment. These three core determinants are highly interrelated. PSR can play an important role in stimulating other organizations and agencies of governments to recognize these underlying causes of conflict and to recognize the need to take preventive approaches.

The PSR 1992 Annual Meeting was held as the world's media focused on the Rio U.N. Conference on Environment and Development, with its theme "Securing our Common Future." Remarkably, Rio's Agenda 21 almost completely, and deliberately, neglected the problems of population growth; the only statement was a tepid encouragement for each country to "adopt appropriate demographic policies." The limited debate of family planning cut across north/south divisions and was opposed by the Vatican, by conservative Islamic nations, and by some feminists who resent interference in women's lives by male-dominated governments.

The goals of the decades ahead of us should be "sustainable development" and "sustainable societies" --environmentally, economically, socially, politically. The threats to sustainable societies arise primarily from the activities of people. There can be little doubt that escalating numbers of people, people flowing across national boundaries seeking refuge or economic opportunity, women denied opportunity and choices about their lives, people living desperately in poverty conditions, and people trying to enhance their standard of living by using more natural resources and manufactured products put great stress on their environments and their societies.

For many centuries, the world's population was stable; death rates and birthrates were approximately equal. During and following the Industrial Revolution in the 18th and 19th centuries, sanitation, general public health measures, and improving economies and educational status helped lower both death rates and birthrates. The black death, periodic famines, terrible floods, world wars, and the influenza pandemic had restraining influences on population increase in recent centuries. By 1900, there were 1.25 billion people on planet Earth. That figure doubled over 50 years, then doubled again to 5 billion people in 1987 [1]. We are on a path to exceed 6 billion people before the year 2000 and 8 billion by 2020. During the 1980s, the U.N. Population Office officially projected the "population stabilization" figure at 10 billion late in the next century [2]; that figure has now been increased to 12 billion, and there are many reasons to suspect it may go higher [3].

What is the carrying-capacity of the earth? Have we not already exceeded it in some countries or some regions? Could Malthus be wrong, permanently? Not likely! How patient can we be waiting for the promised or projected stabilization of population?

1051-2438/1993/0301-0008$03.00/0

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Presented at the PSR Annual Meeting, San Francisco, California, June 12, 1992.

Supported in part by the Charles A. Dana Foundation Program in Eco-Genetics at the University of Washington.

How can PSR, physicians, and Americans in general influence a process in which more than 90% of the population increase will occur in less developed countries?

The pressures of population growth on the environment are reflected in needs for land, water, food, and fuels and in requirements for the social capacity and political will to provide housing, education, health services, and paying jobs. Economic expansion is essential to increase the standard of living per capita. With more people and more economic expansion come the problems of emissions and pollution from daily living, industry, commerce, and agriculture [4]. Land is overused; water, air, and soil are contaminated; agriculture is expanded to marginally productive and environmentally fragile lands; forests are destroyed and soils erode. Interruption and destruction of ecosystems may be irreversible; in any case, we know too little to assure effective restoration. We do know that effects are not limited to local areas, with chlorofluorocarbons (CFCs) causing stratospheric ozone depletion and with accumulation of greenhouse gases likely leading to global climate change [5]. Finally, through human experience and animal experiments, we know that population-density is associated with social conflicts of all types.

The key elements of population growth are numbers, the lag between the decrease in death rates and the decrease in fertility and birthrates, the population momentum of large proportions of children and young people, the standard of living, and the transboundary movements. The peak of average global population growth rates was passed in the late 1960s, but continuation of our present rates for the next hundred years would increase the world's population to 30 billion.

Demographic transiiton is the term used to describe the movement of societies from high birthrates and death rates to the low birthrates and death rates that are characteristic of today's industrialized countries [6]. Progress in agriculture and public health has contributed mightily to better survival, especially of children, and it is the better survival of children that must precede voluntary reduction in fertility and birthrates. In Austria, Germany, Denmark, and Hungary, death rates now exceed birthrates. In at least 25 industrialized countries, fertility rates are below the replacement level (2.1 children per two adults). Yet in sub-Saharan Africa, even with Botswana's markedly reduced fertility, there are still 6.6 births per woman, with no change over the past 20 years. There is a strong interaction between socio-economic progress and organized family planning program efforts in achieving declines in fertility rates [7].

Significant progress worldwide can be cited. Among developing countries, in the 20 years between 1965 and 1970, and 1985 and 1990, life expectancy increased from 52.7 to 61.9 years, adult literacy from 36% to 61%, primary plus secondary school enrollment ratios from 39% to 62%, men in nonagricultural labor force from 28% to 40%, women in the nonagricultural labor force (a crucial indicator of opportunity and independence for women) from 8% to 36%, gross national product per capita from 310 to 635 U.S. dollars, use of contraceptives from 15% to 50%, while crude death rates declined from 15 to 9.8 per 1,000, infant mortality rates from 116 to 78 per 1,000, and total fertility rate from 6.0 to 3.9 per adult woman. Note that the three rates declined by nearly identical percentages [6].

Another crucial concept in demography is *population momentum*. Less developed countries have very different age distributions than industrialized countries, with only a few percent over age 65 and huge proportions of children and young adults. These young people will have children and grandchildren, so that even if the world were magically to achieve replacement level fertility rates, the populations would continue to increase until the equivalent of a worldwide baby boom had worked its way through the life cycle.

An estimated 90% of the population growth in the coming decades will occur in the less developed countries. Medicine and public health can have a significant influence in accelerating the decreases in child mortality. The causes are well known, with diarrheal diseases, acute respiratory infections, measles, tetanus, malaria, pertussis, tuberculosis, polio, and diphtheria accounting for more than 14 million childhood deaths per year, most of them eminently preventable [4]. The WHO/UNICEF Global Programme for Immunization against diphtheria, pertussis tetanus, polio, measles, and tuberculosis is reaching very high proportions of young children, and is a great success [8,9].

In 1990, the average immunization levels of children in developing countries (about 15% when the global campaign began) reached 78% for measles and exceeded 80% for all the other vaccine-preventable diseases except neonatal tetanus (38%), which requires immunization of women [9]. In contrast, in the United States, only 70% of the children were

immunized against measles, mumps, and rubella; in many inner cities, only about one-half were protected [10,11].

The recent demonstration that vitamin A supplementation can reduce childhood mortality from infections, as well as protect vision, will have a further benefit [12]. Dissemination of oral rehydration therapy from the present levels of 8% of the population in sub-Saharan Africa and 23% of the population in southern Asia could save large numbers of additional lives. Renewed control of malaria vectors and development of malaria vaccines and prevention and treatment of river blindness and other parasitic diseases seem within reach, too. Such rapid reduction in death rates must be accompanied by shorter lags in reduction of birthrates, or else the population momentum effect will be tremendous [6], and the test of the carrying capacity of the earth will come sooner.

The health professions and health professionals who assist the first phase of the demographic transition also must assure that family planning initiatives will help improve the prospects for a better quality of life for these surviving children.

At the World Conference on Population in Bucharest in 1974, there were nasty disputes over whether economic development *or* family planning should be the primary instrument for moderation of population growth. The dominant theme was that "development is the best contraceptive." As in many dichotomous disputes, the answer lies not in either-or, but in effective combinations of approaches. Use of contraceptives is higher in developing countries in the high and upper middle economic stages, in countries with strong or moderately strong family planning program efforts, and especially in those with the combination [4].

Effective family planning programs comprise broad educational efforts to modify societal attitudes, behaviors, and tolerance for the decisions of women; incentives to change behaviors or use technologies; and very importantly, positive messages of the benefits for children, for women, for families, and for society. Technologies include oral contraceptive agents, injectable medroxyprogesterone acetate (Depo-Provera) (3 months) and levonorgestrel implants (Norplant) (5 years duration); intrauterine devices, condoms and other barrier methods; sterilization; and abortion. The combination of family planning or birth spacing with prevention of sexually transmitted diseases (STDs), including HIV/AIDS, is a powerful message, which social marketing has finally used to bring condoms and family planning to sub-Saharan Africa [13].

With regard to HIV/AIDS, demographers are debating how large an impact this epidemic may have on population growth rates; the consensus seems to be a modest effect on rates and increments of populations [6]. However, the social and political effects in some countries may be very serious as those who die are disproportionately among the leaders or potential leaders of the young adult population.

For PSR and physicians generally, we might find inspiration in the dictum from Rene Dubos to "Think Globally, Act Locally." In the United States there are all too many third world-like conditions among our rural and urban poor. Physicians, especially those who share the values of PSR, must combine their commitment to individual patients with a commitment to assess and overcome problems at the community and population level. Prevention of STDs and HIV infection, school-based health education, prevention of teen pregnancies, campaigns against smoking, alcohol, and other drugs all require comprehensive health and family planning services, education, and political action. The same community orientation should energize physicians to demonstrate the ties between health promotion and environmental objectives; too often the environmentalists and the health advocates are living and functioning in entirely separated worlds. Our medical facilities, including doctors' offices, need to practice pollution prevention, recycling, and energy conservation, just as we ask other sectors of the economy to find common ground between environmental and economic goals [14]. We should be able to answer patients' and families' questions about environmental and occupational factors in illness and injury. We should be advocates for scientific and environmental literacy.

Collectively, we need to push our country to show responsible leadership internationally in programs for child survival, comprehensive reproductive health services, improvement of the status of women, movement toward equity. We should substantially increase U.S. government and American and multinational nongovernmental organizations support for comprehensive reproductive health and child survival programs. We should enhance the development and diffusion of new family planning technologies. We should reverse the U.S. trade policy of maximal marketing of cigarettes and of banned or restricted hazardous products in developing countries. We should assure American women access to reproductive medi-

cines properly investigated and approved in other countries. We should bring a philosophy and a practice of prevention and surveillance to all health, environment, and national security challenges. ❧

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