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ABSTRACT

In much of the nonindustrialized world, women are the main providers of water, fuel, food, and other basic necessities, and thus often play the part of environmental managers. Because they are more directly connected to the environment, women are the most directly affected by environmental degradation, yet rarely have women been heard in discussions about global environmental problems. Economic development projects generally ignore women's needs and knowledge; most are oriented toward the expansion of cash economies and income generation, which often undermines stable subsistence economies, and displaces poor rural people who are then forced to destroy their own environment to survive. The solution to rapid population growth, also a factor in environmental degradation, centers on the need to improve levels of education and economic and social opportunities for women and girls. The importance of women in development and environmental management is being increasingly recognized by governments, lending institutions, and international development agencies, such as the World Bank, which has announced the education of girls as a top priority in its lending programs. Few tasks offer the potential for such sweeping improvements in both environmental protection and the quality of life around the world as does ensuring the equality of women. (TD)

UNION OF CONCERNED SCIENTISTS

BRIEFING PAPER:

WOMEN AND THE ENVIRONMENT IN DEVELOPING COUNTRIES

In much of the nonindustrialized world, women's stewardship of the natural environment is crucial to the survival of their households and communities. For many families, women are the main providers of water, fuel, food, and other basic necessities, and thus often play the part of environmental managers. Because of their responsibilities, women are also often the most directly affected by environmental degradation. They must work harder and longer hours as local resources become more scarce or less productive.

And yet, until recently, the voices of women were rarely heard in discussions about global environmental problems. Fortunately, this is now beginning to change. At meetings such as the Rio Earth Summit and the World Conference on Population and Development in Cairo, the critical importance of women is being widely recognized. Even conservative institutions such as the World Bank agree that one of the central prerequisites for combating environmental degradation will be to advance the economic, political, and social standing of women. UCS's own "World Scientists' Warning to Humanity," signed by over 1700 prominent scientists from across the globe, included sexual equality as one if its key recommendations. Although achieving this goal will be difficult in some societies, there are promising signs of progress, especially at the grassroots level.

Stewards of the Environment

Rural women in the developing world play many critical economic roles in addition to caring for children. They plant, weed, and harvest crops; tend small livestock; gather fuel, food, and fodder from forests or grasslands; collect water and manage household water use and sanitation; and practice herbal medicine. Although their role in agriculture has often been overlooked or underrated by policymakers, women produce more than half the developing world's food—more than 80 percent in sub-Saharan Africa, 50–60 percent in Asia, 46 percent in the Caribbean, 31 percent in North Africa and the Middle East, and more than 30 percent in Latin America.

Because of these roles and the direct dependence of rural Third World societies on their environment, women often have a detailed knowledge of the local ecology as well as an acute concern for conservation of natural resources. To

In many parts of the developing world, women, such as this farmer in Kenya, are responsible for agriculture, which often supplies the food—and sometimes the fuel—for their families. Photo: United Nations Environment Programme.

give a few examples: Women in Yemen recycle water three times or more, from personal and dishwashing use to clothes washing to drink for animals and cleaning floors. In parts of Africa and Asia, women are careful to use only branches, dead wood, and leaves as fuel (along with crop residues and weeds), rather than live trees. As a West Bengali woman said in response to the forestry department's practice of planting nonnative eucalyptus on public land, "You think of a tree as a piece of dead wood. For us it is living. It gives us fruit, fuelwood, fodder, and shade. We care for a tree like our own child. Only when our stomachs are empty would we think of cutting a tree."

Women's connection with—and respect for—the environment very often surpasses that of men, especially as men are drawn increasingly away from subsistence activities into cash-producing enterprises or migratory work; in a survey conducted in Sierra Leone, for example, women could name 31 products they gathered or made from the bush, while men could name only eight. Moreover, women exert an influence on their environment that goes far beyond their own direct interactions with it. It is largely women, as first educators, who transmit to younger generations knowledge of plants and animals, respect for the natural environment, sustainable ways of using it, and appropriate methods of waste disposal and recycling.

Misguided Development

Because of their many roles and responsibilities, it is critical that women be centrally involved in the design and implementation of sustainable development programs. Unfortunately, mainstream development programs on the whole are notorious for having neglected women's needs, interests, and knowledge. For example, although women are responsible for obtaining water in most societies and are the main managers of it, planners of water supply and sanitation projects failed to recognize this role until the late 1970s. As a result, women were not consulted about water sources or the design of pumps, laundry sinks, and latrines, which led to much wasted effort and resources. In some cases, women could not, for reasons of physique or custom, even use the new facilities. In a similar fashion, forest policies promoted by governments and international agencies have by and large overlooked women's central role as users and managers of forest resources. Between 1984 and 1987, for example, only one of 22 social forestry projects evaluated

Nepalese women carry wood for heating and cooking over long distances on their backs. As forests are destroyed, women around the world must spend greater percentages of their day foraging for this basic necessity. Photo: Sean Sprague/Impact Visuals.

by the World Bank mentioned women as a project beneficiary, and only four of 33 Bank-funded integrated development projects involving forestry included women in any significant way.

In addition to, and related to, their neglect of women, most development programs have been oriented toward the expansion of cash economies and income generation, while failing to consider the nature or importance of subsistence economies. Thus, for example, areas of natural forest or scrubland that yielded a diversity of foods, medicinal products, fodder, and building materials have been cleared to plant a single tree species for timber. Whatever benefits accrue from selling the timber often go to a relatively small number of people and do not make up for the loss to local communities. In Gambia, for example, planners designing a large irrigated rice project encouraged male farmers to devote their land to year-round irrigated rice for the national market, offering them cheap credit, inputs, and assured markets as part of the deal. However, it was women who had traditionally grown rice for household consumption and exchange, and they were now forced out to marginal lands. Not surprisingly, today the region must import more rice for local consumption.

An implicit assumption in much development policy has been that households are headed by men and that benefits accorded to men will extend to their wives and children. In fact, this is ever less the case. Increasingly, men who had participated in subsistence activities are migrating far from home in search of paid work. The amount of money sent back to wives and children in such cases often declines over time. Women now provide the sole economic support for one-fourth to one-third of households worldwide. Of the remainder, at least one-fourth rely on female wages for more than half of their total income. As a result of this trend—and because women are still often denied equal access to productive resources, land, and credit—the ranks of the poorest of the poor are increasingly populated by women (a trend visible in the North as well). If this "feminization of poverty" continues, by the year 2000 most of the world's poor will be in women-headed households.

One of the most discouraging trends has been the marked increase in time and effort that women in many parts of the world must spend to maintain their households. The labor available for subsistence farming decreases as men go into cash-cropping or migrate to faraway plantations or urban areas, leaving women to take on land preparation and other jobs that had once been considered men's work. Furthermore, as the poor get pushed onto marginal lands and as the quality of local resources declines, women must travel farther and work harder to produce food and to collect fuel, fodder, and water. In the Sahel, for example, the dry season used to be a time of less work; now, because of desertification, women must work up to 14 hours a day to collect water and fuel and to prepare food. For women in Sudan, the time needed to collect fuelwood is estimated to have quadrupled since the 1970s. In deforested rural areas of India, it now takes a typical woman and her children four or five hours to gather enough fuel to cook the evening meal. The shortage of fuel has serious implications for nutrition, as women are forced to prepare faster-cooking but less nutritious food, to undercook food, or even to cut out some meals altogether.

Obtaining water has frequently become more burdensome. The irrigation of large plantations is lowering the water table in countries such as Zimbabwe and India, reducing water availability for local use. The use of agrochemicals, such as fertilizers and pesticides, on cash crops is contaminating nearby water supplies, which means that women must go farther for water or settle for contaminated sources.

Displacement and Environmental Destruction

As development policies undermine stable subsistence economies without providing an adequate replacement, poor rural people are increasingly being forced to destroy their own environment in order to survive. In Côte d'Ivoire, for example, large coconut and oil palm plantations displaced women from their traditional plots into the Tai For-

Like this woman cutting brush in Pernambuco, Brazil, many women throughout the developing world are weighed down by ceaseless work, both at home and in the fields. Photo: The Washington Post.

est; this land, which is unsuitable for permanent agriculture, suffered damage as a result of their attempts to farm it. In India, rural women who had previously used their environment in a sustainable way are today collecting as much firewood and other products as possible from forests before they are sold to logging contractors.

These survival efforts have led some observers to conclude that it is the poor who are mainly responsible for destroying natural ecosystems in the developing world, but this view is not supported by analyses of changes in land tenure and use over time. For example, Costa Rica, which was once heavily forested and home to perhaps 5 percent of all species on earth, is suffering a high rate of deforestation. Coffee and other cash crops introduced since the late 1800s have contributed to this trend; the most recent boom has been large-scale cattle ranching, which began in the 1960s. As in other countries of Latin America, politically powerful cattle ranchers were heavily subsidized by international capital, receiving special credit and tax incentives unjustified by actual output. By 1983, about half of the country's arable land was in pasture, and only 17 percent of the original forest remained. Smallholders have been forced from their land and rural employment has dwindled, leaving the dispossessed few options other than moving to the cities or squatting on marginal lands on mountainsides or in forests.

In fact, among rural people who have lived in a stable relationship with their environment, dispossession and insecurity of land tenure are central reasons for turning to overharvesting of resources. As Alan Durning of the Worldwatch Institute remarks, "Access to a resource without control over it is calamitous. Nothing incites people to deplete forests, soils, or water supplies faster than fear they will soon lose access to them." One study shows, for example, that in Thailand's forests the quality of care for the land is highest among plot owners, somewhat lower among squatters with long-term rights, and lowest among squatters with no legal rights to the land—just as one might suspect.

Similarly, government regulations attempting to curb deforestation by blocking access to forests have actually had the opposite effect, since, once denied the right to use trees in a sustainable and productive fashion, people lose the incentive to protect or plant them. Policies denying people, especially women, rights to trees are believed to be at least partly responsible for heavy deforestation in parts of Haiti, Africa, and India.

Land ownership is increasingly an issue for poor rural men, yet women are in an even more precarious position. Where men hold title to the land—a common practice—women must often get permission from husbands to practice agroforestry or otherwise change land use. Where planting trees or making other improvements to the land is seen to confer rights to that land, men may block women from making such improvements. This has been noted in the Sahel, where owners of fields allocated to women have opposed anti-erosion or planting work on their land; in Kenya, where men have opposed women's attempts to plant fuelwood trees; and in northern Cameroon, where the only kind of tree some men allow their wives to plant is papaya, which is short-lived and does not confer land rights.

Women in developing countries must often care for their children and their households under unsanitary conditions. These people in Brazil are collecting drinking water. Photo: Sean Sprague/ Impact Visuals.

Population Growth

Population growth is another ingredient in the problem of environmental degradation in developing countries, and one in which women obviously play a central role. Population growth rates in a number of developing countries—and some industrialized ones—are alarmingly high. Rates in the South range from an average of 1.9 percent per year in East Asia to an average of 2.8 percent per year in sub-Saharan Africa, and in a few African countries the rate approaches 4 percent per year. As a result, the population of many developing countries will double in two or three decades, undoubtedly increasing the stress on local resources.

At least four factors work to maintain high birth rates in developing countries:

1. *Children are an important economic and social asset in many poor societies.* In some societies, a family's income and social influence depends directly on the number of its children and the extent of its connections, through marriage of offspring and relations, with other families. Young children often work in the family garden and tend livestock; older children earn income for the family as laborers. In societies without old-age pensions or unemployment benefits, children are typically the only source of security for aging parents. In African societies, in particular, the extended family is a central element of social and political life in both rural and urban communities, and there are consequently strong social pressures for couples to have children.

2. *Infant and child mortality rates remain high.* So long as parents are fearful that their children may not survive to maturity, they will tend to have many of them. As demographer Jean-Claude Chesnais writes, "the control of life would be inconceivable without a degree of control over death, and at the very least without the disappearance of traditionally high mortality." In fact, there appears to be a direct correlation between mortality rates and fertility rates that is quite consistent across societies. In 1990, the average infant mortality rate in sub-Saharan Africa, where fertility rates are highest, was 107 per 1000, whereas in East Asia it was just 34 per 1000 (in most industrial countries the rate is less than 10 per 1000).

3. *There is an unmet need for family planning services.* There is strong evidence that a lack of access to contraception and abortion information and services discourages or prevents some women from limiting births. The degree of unmet need—measured in opinion surveys—varies considerably, but is typically estimated to be in the range of 10 to 25 percent of women of fertile age. The United Nations Population Fund (UNFPA) estimates that if every woman had complete access to contraception, there would be a 38 percent reduction in births. In Kenya, which has the highest birth rate in the world, a survey found that, of the 62 percent of married women at risk for unwanted pregnancy, 23 percent cited lack of information and 12 percent lack of access as reasons for not using contraception. In some countries—particularly in Latin America—both contraception and abortion are outlawed, with the result that many women die from illegal, unsafe abortions.

Health services should make women's and children's health a top priority. Such services should reach out to the rural majorities in developing countries, as does this health worker in a Kenyan village. Photo: Paul Harrison/International Planned Parenthood Federation.

4. *The social and economic status of women is low in many societies.* Closely tied to the other three factors is the fact that in many—indeed most—societies, women do not have the same political, social, and economic rights as men. It is typical for families to invest less in the education of daughters than of sons, choosing to keep them at home to work rather than send them to school. Women's access to jobs or productive resources such as land, credit, and technology is often limited by law and custom. In such circumstances, women tend to marry at an early age. For example, over 40 percent of 15- to 19-year-old girls in Africa and Asia are married. For many women, marriage and bearing children are the only means of achieving economic security and social standing, and indeed a woman may be abandoned for failing to produce enough children, especially sons. There is considerable evidence that the status and roles of women in society may be the single most important factor influencing birth rates.

The solution to the problem of rapid population growth therefore centers on the need to raise standards of living and invest in health care, education, and old-age security, and in particular—and perhaps most important—to improve levels of education and economic and social opportunities for women and girls. Indeed, those countries that have made significant progress in some or all of these areas in the past few decades—such as Columbia, Costa Rica, South Korea, Sri Lanka, and Taiwan—have seen remarkable declines in birth rates to nearly the replacement level (although their populations will continue to grow for a generation or two because of their relatively large proportions of young people).

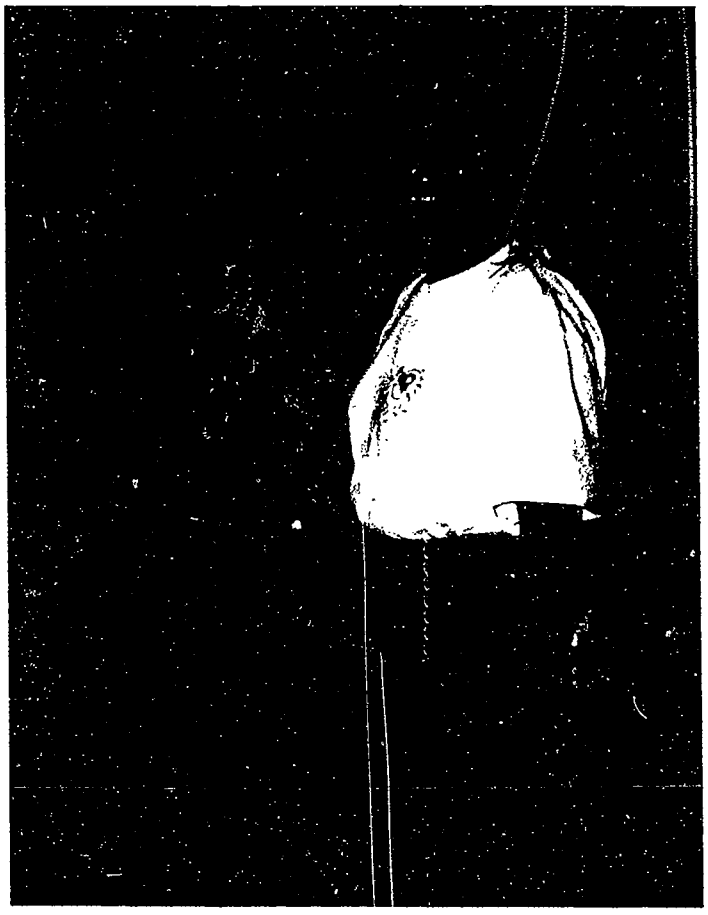
High-quality, voluntary reproductive health and family planning services are an essential part of any strategy to re-

duce birth rates—and access to them should be a basic right of all women. Unfortunately, past efforts at population control have too often focused solely on the need to get as many women as possible to use contraception, and this top-down, target-driven approach has led in some cases to coercive and low-quality programs that damaged women's health and restricted women's rights. In response to strong pressure from women's organizations worldwide, this situation appears to be changing, although it remains to be seen whether the new rhetoric on women's reproductive health and rights seen at international conferences will be translated into concrete changes in program direction and funding.

Women Organizing for Sustainable Development

In many parts of the world women are organizing themselves to counteract the forces that threaten their survival and that of their children. At the same time, they are challenging their traditional subordination as women. In some cases, the environmental crisis itself is impelling women to come together, take collective action, and fill new leadership roles. For example, one observer notes that in the Sahel, "women participate in antidesertification schemes on a massive scale, forming the majority of the workforce, working voluntarily. . . The women now find they have decisions to make, new responsibilities to carry out, and new tasks to accomplish."

Another, now-famous example is that of the Chipko movement of the sub-Himalayan region of India. The movement developed in the early 1970s in response to the threat of losing large tracts of ash forest to a sporting goods manufacturer. As direct victims of the floods, landslides, and scarcities occasioned by clear-cutting in the region, women quickly identified with the need to stop it. In the first act of mass resistance, women (the men had left in search of work) went to the forest and embraced the trees ("chipko" means "to hug" in Hindi), challenging the timber contractors to ax them. The contractors withdrew. Since that time, the movement has spread from one end of the Himalayas to the other. No longer just an ecological movement, it is empowering women to have greater control over other aspects of their lives.



In a remote mountain village of Oaxaca, Mexico, women organized themselves into a baking cooperative to gain more economic independence. Photo: Katherine Yih/Grassroots International.

Members of a textile cooperative of the Union of Palestinian Working Women's Committees. UPWWC provides technical and marketing assistance, giving women a critical role in economic life. Photo: Dan Connell/Grassroots International.

The importance of women in development and environmental management is increasingly being recognized by governments, lending institutions, and international development agencies. The World Bank, for example, has announced that it is making the education of girls a top priority in its lending programs. In meetings preparing for the Cairo International Conference on Population and Development, the US government emphasized women's reproductive rights, rather than the traditional aim of fertility reduction, as the central purpose of population policies.

But although such statements are significant in and of themselves because of the great influence of these institutions around the world, it remains to be seen whether there will be sufficient investment of both money and political will to overcome the disadvantages and oppression women face in most societies. The argument for concrete action is strong, for few tasks offer the potential for such sweeping improvements in both environmental protection and the quality of life around the world as does ensuring the equality of women.

Suggested Readings

Nick Eberstadt, ed., *Fertility Decline in the Less Developed Countries* (New York: Praeger, 1981).

Betsy Hartmann, *Reproductive Rights and Wrongs* (New York: Harper & Row, 1987).

Jodi L. Jacobson, *Gender Bias: Roadblock to Sustainable Development*. Worldwatch Paper 110 (Washington, D.C.: Worldwatch Institute, 1992).

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This briefing paper was written by Katherine Yih, with assistance from UCS Director of Research Michael Brower.

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