

# REPORTING ON POPULATION, HEALTH, AND THE ENVIRONMENT

## A Guide for Central American Journalists

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## **A Guide for Central American Journalists**

### **Acknowledgments**

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The Population Reference Bureau **informs** people around the world about population, health, and the environment, and **empowers** them to use that information to **advance** the well-being of current and future generations.

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## 1 Why Report on Population and Environment Linkages?

### To Whom Does Population and Environment Matter?

It matters to the mother in Guatemala who must carry firewood for miles to cook her family's food.

It matters to the parents in Nicaragua whose children are sick with diarrhea because drinking wells are too close to open sewers.

It matters to the community in Honduras whose homes and schools have been destroyed by a devastating hurricane

This is the human face of population and environment. The well-being of families, a clean environment, planning for current needs, and sustaining a resource base for future generations matters to policymakers, to local communities, and to journalists.

Economic development, equity, human health, environmental sustainability, reducing poverty—these are issues that journalists want to cover. But the story is not a simple one. These issues are intertwined in a complex web of associations about where people live, the rates at which families are having children, the movement of people from one place to another; and the relative risks people face in their daily lives. Furthermore, public policies, technological applications, and cultural norms may ease or exacerbate the impacts of these associations on the environment and people. Ultimately, how do you, the journalist, disentangle these issues to present a compellingly vivid and accurate story that will interest your editors and audiences?

This guide provides suggestions and sources to help you in this effort. It focuses on how you can understand and report on the issues that are most important to Central America: pollution, human health, economic development, loss of natural resources, food production, and the risks to vulnerable groups such as the poor, the elderly, and women.

This guide provides a rich array of information on the local, national, regional, and international significance of these issues for your audiences. We hope that you will use it in your work and we look forward to hearing from you about your use of this guide.

Roger-Mark De Souza  
Technical Director  
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## 2 Understanding Population, Health, and Environment Linkages

The environment and human well-being are inherently connected. People rely on food, air, and water for life. The environment provides energy and raw materials for human activities, and those activities, in turn, affect natural resources and ecosystems. Pollution and damage to those environmental goods adversely affect people's health and well-being.

### Important Facts

- Central America is growing, with a population of 149 million and a relatively high growth rate of 1.9 percent per year (2006).
- About one-third (34 percent) of Central Americans are under age 15, ensuring continued population growth for several years to come as these people become parents themselves.<sup>1</sup>
- More people are living in urban areas, contributing to environmental pressure and health risks. In the region, 40 percent of the population was urban in the 1950s vs. 70 percent in 2005.<sup>2</sup>
- As household size decreases (couples have fewer children and fewer extended family members live in the same house), households are using more materials on a per capita basis to build and sustain their homes.
- The number of infants dying has decreased (today, 24 infants die for every 1,000 live births), but infants are still exposed to increasing levels of pollution.

### Demographic Implications

Demographic trends highlight planning and natural resource management needs:

- Reporting on demographic trends—such as the current population size, the growth rate, the percent of the population under age 15, and migration patterns—will help your readers and listeners understand existing population pressures.
- High urbanization trends suggest that cities might experience more construction and the need for greater services—such as wastewater management, schools and health facilities, and employment opportunities—as these areas try to meet increasing demands.

Demographic trends also provide a sense of the health and well-being of the region's population:

- The infant mortality rate is one of the key indicators of a country's health status. Services such as access to prenatal and postnatal care, having a professionally assisted delivery, and spacing the timing of pregnancies all help lower infant mortality rates.
- Central America's average life expectancy of 74 years shows improved well-being, especially for infants and children. Low life expectancies in developing countries are in large part the result of high infant mortality rates.

### Consequences for Health

Human health depends on clean air and water, along with safe sources for food, which in turn are dependent on the natural functioning of ecosystems.

- Environmental conditions affect the spread of communicable diseases, which account for about one-fifth of annual deaths worldwide.
- More than 60 percent of the diseases associated with respiratory infections are linked to air pollution.
- Simple environmental interventions could help avoid 90 percent of the global burden of disease from diarrheal disease, and 50 percent from chronic respiratory conditions.<sup>3</sup>

### Urban Poverty in Central America

Central American countries are urbanizing rapidly, at a pace similar to that of their South American neighbors 20 years ago. While the expansion in urban population ensures a steady supply of labor for economic growth, the addition of thousands more people every year—people who have comparatively few resources—strains the ability of big cities to provide basic services. According to the World Bank's World Development Report 2003, the future economic success of these cities depends on their ability to provide services in pace with their growth. Without this, cities could become mired in poverty, pollution, congestion, and crime. The report explored urbanization in San Salvador, El Salvador; Tegucigalpa, Honduras; and Panama City, Panama, and found that:

- National economy: The big cities in Central America generate a high percentage of gross domestic product—44 percent in the case of metropolitan San Salvador.
- Labor participation: Heads of poor households have a low rate of participation in

the formal labor market (67 percent in metropolitan San Salvador, 77 percent in Tegucigalpa).

- Water and sewer services: National water agencies often still take charge of water delivery. Often these agencies do not know how many people are in need of service or where gaps in service are because the municipalities lack detailed information, are poorly managed or have insufficient funding.
- Gaining access to water and sewer connections can take the poor up to five years.
- In Panama City, 88 percent of the population has access to safe drinking water and 40 percent to sewer services.

These results also have implications for the environment and human health. For example, when people lack basic sewer services, an increasing amount of human waste is dumped directly into nearby rivers, adversely affecting water quality and human health. In addition, human health is often hindered by a lack of financial resources.

Source: Allison Tarmann, "Easing Urban Poverty Key to Economic Growth in Central America," *Population Today* 30, no. 7 (2002).

### Environmental Impacts

Humans influence the natural environment in many ways.

Direct human impacts:

- The loss of plant and animal species through overexploitation may have adverse impacts such as reduced nutritional intake with the loss of important food sources.
- Clearing forests for timber, agriculture, or infrastructure can lead to adverse impacts including soil erosion, siltation, run off, changes in the water cycle, and the rerouting of rivers. (See the section on deforestation for more information.)
- Groundwater withdrawals can become a problem if the water drops below the level of the well, leaving a community without water. For coastal communities, withdrawing too much fresh

groundwater may change water flows so that brackish (or salty) water contaminates the source, leaving communities without safe drinking water.

#### Indirect Human Impacts

- The burning of fossil fuel releases carbon dioxide into the atmosphere. As more carbon dioxide accumulates in the atmosphere, climatic patterns could change and lead to flooding in some places and dry spells in others.
- Ships sometimes carry harmful plant and animal species into new areas (crowding out or harming the native species).
- Insecticides used to protect harvests reduce insect populations, which are then unable to pollinate wild plants.

### Story Ideas

- Where is population growth occurring in your country? Where is population declining (possibly the rural regions or a certain section of a major city)? What factors are encouraging or holding back growth—for example, job opportunities, space, lack of health care access and supplies?
- What is a major environmental issue in your country? In what ways does it affect the local community? Does it affect some population groups, such as the youth, the elderly, women, or men, more than others? In what ways are population changes contributing to the environmental concern?
- Who has access to health care in your country and who doesn't? Are there any implications of these trends? How might you compare access to health care for people in communities near a clinic or hospital and those far from one? Consider looking at not only general health, but also infant and maternal mortality rates, access to advice and family planning, and family size. How do environmental factors affect these health trends? Visit and interview health center staffs, local midwives, community leaders, and others to develop a human face to your story, particularly if local data to support your story are not available.
- Does the major city you are writing about have an urban growth plan to guide its future? Are planners and regulators considering population projections for your country in determining future city needs? Is there widespread support for their plans or any major opposition?
- How do investments in education and health care and the quality of these services vary throughout Central America? What is the effect of these trends?
- Are population growth and development efforts balanced with programs of pollution control and environmental management? What could be done differently? Try to use examples of programs that have worked elsewhere, such as the sustainable community approach in Curitiba, Brazil ([www.solutions-site.org/artman/publish/article\\_62.shtml](http://www.solutions-site.org/artman/publish/article_62.shtml)) or the Millennium Villages ([www.earth.columbia.edu/mvp/about](http://www.earth.columbia.edu/mvp/about)).

### Sources

1. Carl Haub, *2006 World Population Data Sheet* (Washington, DC: Population Reference Bureau, 2006).
2. United Nations (UN), *World Urbanization Prospects: The 2005 Revision Population Database*, accessed online at <http://esa.un.org/unup/>, on Dec. 11, 2006.
3. Roger-Mark De Souza, John S. Williams, and Frederick A.B. Meyerson, "Critical Links: Population, Health, and the Environment," *Population Bulletin* 58, no.3 (Washington, DC: Population Reference Bureau, 2003): 28.

## Population and the Economy

	Population (millions)		Total fertility rate	% of population <15	% urban	% of married women 15-49 using contraception		GNI PPP per capita 2005	% population living below US\$2/day
	Mid-2006	Mid-2025				All	Modern		
<b>Central America</b>	149	187	2.7	34	68	66	57	8,640	25
Belize	0.3	0.4	3.3	41	50	56	49	6,740	—
Costa Rica	4.3	5.6	1.9	28	59	80	72	9,680	8
El Salvador	7	9.1	3.0	36	59	67	61	5,120	41
Guatemala	13	20	4.4	43	39	43	34	4,410	32
Honduras	7.4	10.7	3.9	42	47	62	51	2,900	44
Mexico	108.3	129.4	2.4	32	75	68	59	10,030	20
Nicaragua	5.6	7.7	3.3	40	59	69	66	3,650	80
Panama	3.3	4.2	2.7	30	62	—	—	7,310	17
<b>United States</b>	299.1	349.4	2.0	20	79	73	68	41,950	—
<b>More developed regions</b>	1,216	1,255	1.6	17	77	68	58	27,790	—
<b>Less developed regions</b>	5,339	6,685	2.9	32	41	59	53	4,950	56

— Data not available.

Note: More developed regions, following the United Nations classification, comprise all of Europe and North America, plus Australia, Japan, and New Zealand. All other regions and countries are classified as less developed.

Source: Carl Haub, 2006 *World Population Data Sheet* (Washington, DC: Population Reference Bureau, 2006).

## Environment and Human Health

	Energy use per capita, 2002 (kg oil equivalent)	% surface area protected	% population with access to improved sanitation		Infant mortality rate (per 1,000 live births)	Maternal mortality ratio (per 100,000 live births)	Life expectancy (years)
			Urban	Rural			
<b>Central America</b>	1,314	12	88	45	24	120	74
Belize	—	30	71	25	31	140	70
Costa Rica	904	23	89	97	10	43	79
El Salvador	670	1	78	40	25	150	70
Guatemala	616	31	72	52	35	240	67
Honduras	504	20	89	52	30	110	71
Mexico	1,560	9	90	39	21	83	75
Nicaragua	544	18	78	51	36	230	69
Panama	1,028	25	89	51	19	160	75
<b>United States</b>	7,943	23	100	100	6.7	17	78
<b>More developed regions</b>	4,878	14	100	92	6	20	77
<b>Less developed regions</b>	893	12	73	31	57	440	65

— Data not available.

Note: More developed regions, following the United Nations classification, comprise all of Europe and North America, plus Australia, Japan, and New Zealand. All other regions and countries are classified as less developed.

Sources: Carl Haub, 2006 *World Population Data Sheet* (Washington, DC: Population Reference Bureau, 2006); and for energy use per capita: Carl Haub, 2005 *World Population Data Sheet* (Washington, DC: Population Reference Bureau, 2005).

## 3 Persistent Organic Pollutants and Human Health

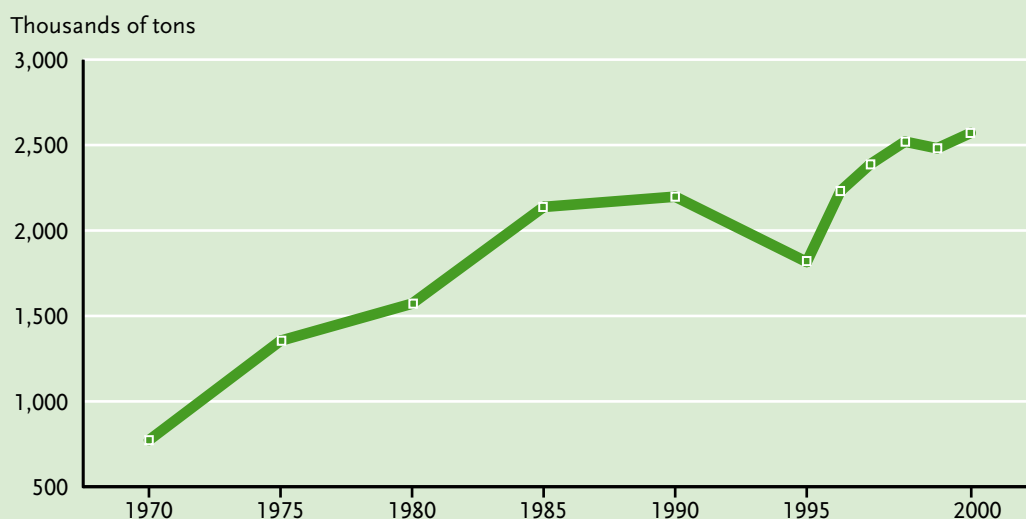
Persistent organic pollutants (POPs) are chemicals that do not degrade easily. They persist in the environment, contaminating air, water, and soil and accumulating in the food chain. DDT (dichlorodiphenyltrichloroethane, a pesticide), and PCBs (polychlorinated biphenyls, found in industrial chemicals), are two common POPs. Industrial processes and the use of pesticides in agriculture and for the control of disease-carrying insects are the principal ways that POPs enter the environment.

Globally, approximately 85 percent of pesticides are used for agriculture, 10 percent are used for public health programs to control mosquito-borne illnesses, and the remaining 5 percent are applied in specific sites such as buildings, transportation, and residential areas.<sup>1</sup> People who come into contact with pesticides that are being applied to crops or who consume food that is carrying pesticide residues can become ill. Pesticides can also seep into the ground and contaminate drinking water.

### Important Facts

- According to the United Nation's Food and Agriculture Organization, the use of fertilizers in Central America grew from 773 thousand tons to 2.6 million tons from 1970 to 2000.<sup>2</sup> In fact, as of 2000, Central America uses 1.5 kilograms of pesticides per person each year, more than any other world region.<sup>3</sup>
- Exposure to POPs in women of childbearing age and to unborn fetuses has been linked to reduced fetal and infant growth, neurological deficits, delayed development of motor functions, and impaired short-term memory.
- Between 1980 and 2000, pesticide use in Latin America increased an estimated 280 percent.<sup>4</sup>

### Trends in Central American Fertilizer Use



Source: United National Environment Programme, GEO Latin America and Caribbean: Environment Outlook 2003: 262 ([www.unep.org/geo/pdfs/GEO\\_-\\_lac2003English.pdf](http://www.unep.org/geo/pdfs/GEO_-_lac2003English.pdf), accessed Nov. 15, 2006).



## What Health Effects Can Result From Exposure to POPs?

- Evidence links long-term, low-level exposure to certain POPs with reproductive, immunological, neurological, and other problems in humans and marine life.
- POPs can also cause cancer, allergies, and hypersensitivity reactions and disorders of the hormonal system.
- Exposure to certain agricultural and industrial chemicals increases women's vulnerability to illness during pregnancy and childbirth, and increases risks of infant mortality and childhood developmental disabilities and illness.
- Men can also suffer from reproductive health problems, such as testicular cancer and lower sperm counts, as a result of exposure to pesticides and industrial wastes.
- POPs can accumulate in the breast milk of exposed women, and can have hazardous health effects for the breastfeeding infant.
- Children are more susceptible to toxins like POPs because they eat and drink more per unit of body weight, making them likely to absorb higher amounts of pesticides from food and water.
- Symptoms of pesticide poisoning in children resemble those in adults, and include eye, skin, and respiratory irritations and higher rates of long-term health problems such as cancer.

Source: Liz Creel, *Children's Environmental Health: Risks and Remedies* (Washington, DC: Population Reference Bureau, 2002): 4.

## How Are People Exposed to POPs?

Contamination of food with chemical residues from pesticides can occur when crops are directly sprayed with these substances or when toxins have polluted the soil in which food is grown. Through what is known as the "grasshopper effect," POPs can travel great distances through a repeated cycle of evaporation and precipitation, so that even people living in areas with relatively low environmental exposure to POPs can still be affected.

## Spotlight on International Agreements and Central American Policies

In order to reduce the threat from pesticide exposure, international organizations, national governments, and industry have stepped up efforts to limit the exportation of dangerous chemicals, help affected countries develop national action plans for handling and disposing of pesticides, and encourage the use of environmentally friendly alternatives. As of June 2002, more than 150 countries had signed the Stockholm Treaty on Persistent Organic Pollutants ([www.pops.int](http://www.pops.int)), which phases out or restricts the use of 12 chemicals, including nine pesticides that persist in the environment and accumulate in the food chain. The treaty, which became legally binding on May 17, 2004, when France became the 50th country to ratify it, commits governments to eliminating production and environmental releases of the 12 covered chemicals. These changes benefit human health and the environment, as well as strengthen the overall scope and effectiveness of international environmental law.

### Central American Countries Party to the Stockholm Convention on Persistent Organic Pollutants

Country	Signature	Ratification
Belize	14 May 2002	—
Costa Rica	16 Apr 2002	6 Feb 2007
El Salvador	30 Jul 2001	—
Guatemala	29 Jan 2002	—
Honduras	17 May 2002	23 May 2005
Mexico	23 May 2001	10 Feb 2003
Nicaragua	23 May 2001	1 Dec 2005
Panama	23 May 2001	5 Mar 2003

— Not yet ratified.

Source: United Nations Environment Programme ([www.pops.int](http://www.pops.int), accessed Feb. 12, 2007).

Most Latin American countries still provide certain subsidies that directly or indirectly encourage the use of harmful substances, such as tax exemptions for fertilizers and pesticides. However, there is some encouraging news. Costa Rica is fostering pesticide-free organic farming by devoting more than 9,000 hectares to organic cultivation of 30 crops. In fact, organic crops in Latin America now account for 22 percent of the area classified as under organic agricultural management worldwide. Costa Rica (1994), Guatemala (1994) and Belize (1995) have national regulations on the control of pesticides.<sup>5</sup>

## Story Ideas

- Globally, what alternatives exist to using POPs? What conditions need to be in place for these alternatives to be adopted locally? What factors support and/or limit the adoption of these alternatives?
- In your country, how many people are exposed to POPs and how many of these are particularly susceptible groups?
- Are researchers at your local university or health department examining the long-term health risks of exposure to POPs? Compare and contrast the population health risks that are more immediate with those that may be experienced in the future.
- How does the use of POPs affect the water supply and/or food quality?

## Sources

1. Leticia Yáñez et al., “Overview of Human Health and Chemical Mixtures: Problems Facing Developing Countries,” *Environmental Health Perspectives* 110, supp. 6 (2002): 903.
2. United Nations Environment Programme (UNEP), *GEO Latin America and Caribbean: Environment Outlook 2003* (Mexico City: UNEP, 2003): 45.
3. Linda Rosenstock, Mark Cullen, and Marilyn Fingerhut, “Occupational Health,” *Disease Control Priorities in Developing Countries*, 2d ed. (New York: Oxford University Press, 2006): 1129.
4. Yáñez et al., “Overview of Human Health and Chemical Mixtures: Problems Facing Developing Countries”: 904.
5. UNEP, *GEO Latin America and Caribbean: Environment Outlook 2003*: 173, 195, 198.

## 4 Deforestation and Economic Development

Almost one-half of the forests that originally covered the earth have been cleared, fragmented, or otherwise degraded. The remaining ecologically intact natural forests—called frontier forests—are valuable because they house indigenous cultures; shelter global diversity; store carbon; contribute to local and national economies; and provide resources for recreation, ecotourism, and spiritual and aesthetic needs.

### Important Facts

- Latin America, the most heavily forested region in the world, lost 47 million hectares of forest (4.6 percent of its total) between 1990 and 2000.<sup>1</sup>
- Nearly all Central American countries are losing forest area, some at a rate of over 5 percent in just a five-year period.
- Forests are home to 300 million people around the world and contribute to the livelihoods of many of the 1.2 billion people living in extreme poverty.
- Of the remaining intact forests worldwide, 39 percent are threatened by logging, mining, and other large-scale development projects.<sup>2</sup>
- More than 1.1 billion people live within the 25 global biodiversity hotspots that ecologists describe as the most-threatened species-rich regions on Earth.<sup>3</sup> Latin America and the Caribbean contain seven of these hotspots.<sup>4</sup>

### Changes in Central American Forests

	Percent change in total forest area, Central America		Current forest area as a percent of original forest area
	2000–2005	1990–2000	1996
Belize	—	—	95.7
Costa Rica	0.6	-7.3	34.9
El Salvador	-8.0	-13.6	9.9
Guatemala	-6.4	-11.4	46.2
Honduras	-14.4	-26.5	51.6
Mexico	-2.0	-5.0	63.4
Nicaragua	-6.3	-15.3	44.3
Panama	-0.3	-1.6	62.0

— Data not available.

Source: World Resources Institute, *EarthTrends Environmental Information* (<http://earthtrends.wri.org>, accessed Dec. 6, 2006).

### Understanding Deforestation and its Key Causes

Globally, during the 1980s and 1990s, agricultural expansion, logging, development, and other human activities caused the deforestation of more than 120,000 square kilometers each year. In contrast, an area only one-tenth that size was regained due to reforestation efforts and natural regrowth.<sup>5</sup> During the 1990s alone, human activities resulted in the gross deforestation of an area roughly the size of Colombia and Ecuador combined (146 million hectares, or 563,709 square miles).<sup>6</sup>

Deforestation is directly attributable to humans clearing land for agriculture or pasture, building roads, logging, and extracting forest products. Furthermore, the direct causes of deforestation are themselves symptoms of underlying demographic, social, and economic conditions. For instance, some less developed countries may exploit their own forest resources to pay down debts, import goods for economic development, or meet the needs of consumers in other countries.

The overlap of protected areas with agricultural lands is also notable. (Agricultural lands are those on which more than 30 percent of land is covered by crops or planted pastures.) In Central America, many protected areas are interspersed with agricultural lands, and increasing population density is closely associated with deforestation.

### Consequences of Deforestation

Deforestation can have harmful and even deadly consequences for both people and the environment. Some of these consequences are:

- Less precipitation, higher temperatures, greater flooding. As trees that normally help induce precipitation in an area are removed, the area's climate becomes increasingly arid.
- Loss of food, medicine, and fuel. Forests serve as important and dependable sources of food, medicine, and fuel; as they are degraded, species of plants and animals are lost, yet these same species may contain precious genetic resources that could lead to new pharmaceuticals or provide important traditional medicines.
- Declining crop yields, loss of vital soil nutrients, and degradation of surrounding ecosystems.
- Spreading tropical diseases. As forest animal species disappear, disease-carrying insect populations can swell, facilitating the transmission of potentially fatal tropical diseases.
- Reduced quantities of safe water. Deforested areas lose the ability to absorb and retain water, changing how water filters through soil and potentially leading to falling per capita supplies of water.
- Exacerbating climate change. Trees absorb carbon and when forests are cleared or burned, this carbon is released back into atmosphere as carbon dioxide, which traps the sun's energy and raises global temperatures.
- Loss of aesthetic value and natural beauty.

### The Functions of Forests

Forests provide a number of "source" and "sink" functions to people and the environment.

"Source" functions are those that have to do with the provision of resources relied upon by inhabitants for their well-being or livelihood. Examples of "source" functions include:

- The reliance of rural households on wood for fuel.
- The reliance of millions of poor families on nontimber forest products (such as rubber, nuts, and medicinal plant extraction) for their livelihood.
- Use of forest timber as export products, such as paper and lumber.

"Sink" functions are those that related to pollution absorption and other cleansing functions. Examples of "sink" functions include:

- Regulating climate variability.
- Buffering soil erosion and land degradation.
- Protecting biological diversity in delicate and fragile ecosystems.
- Supporting human health and well-being by naturally purifying air and water.

Source and sink functions are disrupted when forests are destroyed or fragmented. For example, collecting fuelwood has become a major cause of soil erosion and deforestation. At the same time, nutrition suffers when fuelwood shortages force households to economize on fuel by skipping meals, or by shifting to less nutritious foods that can be eaten raw or partially cooked.

## Links Between Population Growth, Density, and Forest Loss

Deforestation studies have shown that at extremely low population densities (fewer than one to two persons per square kilometer), it is possible to maintain large amounts of forest intact where the population can be sustained primarily through the harvesting of nontimber forest products (such as plants, fruits, or nuts) rather than by agriculture.<sup>1</sup> However, even in sparsely inhabited areas, external demand for timber or cattle can lead to deforestation that is not closely related to local population growth. In addition, human population growth rates in the biodiversity hotspots are higher (1.8 percent average)

than the world on average (1.3 percent). This is due to both high fertility rates and people migrating to these areas. In Petén, Guatemala, forest loss with each additional person is estimated at four to seven hectares.<sup>2</sup>

In Central America, population density and loss of forest cover are closely related at many scales: at the regional and national level, and in local areas inside and near forest reserves, such as the Maya Biosphere Reserve in Guatemala. This relationship may overpower efforts to manage forests in protected areas, particularly where the local population is primarily dependent on subsistence agriculture.

### Sources

1. Frederick A.B. Meyerson, "Population Growth and Deforestation: A Critical and Complex Relationship," (June 2004), accessed online at [www.prb.org](http://www.prb.org), on Dec 6, 2006.
2. Melissa Thaxton, "Population, Health and the Environment: Gender Makes the Difference," *IUCN Gender Brief Series* (San Jose, Costa Rica: World Conservation Union, 2004).

Continued deforestation at current rates will have grave consequences for the health of both humans and ecosystems around the world. The role of population dynamics (growth, density, and migration) should always be considered in combination with other causes of deforestation.

Deforestation often has a greater impact on women than men. For example, in most developing countries, women have the primary responsibility for collection of fuelwood and water, so fewer of these resources demands more of a woman's labor and time.

## Story Ideas

- In what ways are the forests in your country used? How do the people rely on the forests for their economic and/or cultural livelihood?
- How does the loss of forests affect biodiversity in the region? What are the economic impacts on the livelihood of individuals and/or the nation?
- What are the potential effects of climate change on forest health? Look for research into the impacts in your region on specific plant or animal communities. How might this relate to human health effects or be altered by changes in population growth/density? For instance, what happens to the health of girl children when they must walk farther to retrieve firewood? What happens to food resources from the forest if population density there suddenly increases?
- What people and groups have interests in what happens to the forests? How are these interests competing or partnering and what is the outcome on forest resources?
- Interview community leaders about the changes in the local forests and what they see as the impacts of these changes on human health and the economy. How do they think local agencies could better manage forests to reduce the negative impacts of deforestation?
- How does deforestation affect women differently than men?

## Spotlight: Deforestation Causes Loss of Biodiversity

As forests are destroyed, degraded, or fragmented, native habitats are lost and many plant and animal species are threatened or eliminated. The substitution of planted forests for natural forests is still a net loss for biodiversity because less-diverse tree plantations cannot support as many species. In addition, replanted forests often consist of few tree species, making them more vulnerable to disease, drought, and other

natural stresses. According to the World Conservation Union (IUCN), worldwide nearly one-quarter of all mammals and one-eighth of all birds are threatened primarily by habitat loss and overexploitation. In addition, only about 11,000 (out of the estimated 265,000 to 422,000) plant species have been assessed and, of these, about 40 percent may be in danger of extinction.

### Number of Threatened Species\* in Central America, End 2006

	Mammals	Birds	Reptiles	Amphibians	Fishes	Plants	Total
Belize	5	3	5	6	19	30	68
Costa Rica	11	19	8	64	15	111	228
El Salvador	4	4	7	11	7	26	59
Guatemala	9	11	11	79	16	86	212
Honduras	9	6	11	59	16	110	211
Mexico	74	62	21	204	109	261	731
Nicaragua	6	8	8	10	19	39	90
Panama	18	20	7	60	19	196	320

\* Threatened species are those listed as critically endangered, endangered, or vulnerable.

Source: IUCN Red List ([www.iucnredlist.org](http://www.iucnredlist.org)).

## Sources

1. United Nations Environment Programme (UNEP), *GEO Latin America and Caribbean: Environment Outlook 2003* (Mexico City: UNEP, 2003): 53.
2. Population Reference Bureau staff, *World Population: More Than Just Numbers* (Washington, DC: Population Reference Bureau, 1999).
3. Roger-Mark De Souza, John S. Williams, and Frederick A.B. Meyerson, "Critical Links: Population, Health, and the Environment," *Population Bulletin* 58, no.3 (Washington, DC: Population Reference Bureau, 2003): 24.
4. ECLAC, *The Millennium Development Goals: A Latin American and Caribbean Perspective* (2005), accessed online at [www.undp.org/rblac/mdg/RegionalInteragency.pdf](http://www.undp.org/rblac/mdg/RegionalInteragency.pdf), on Dec 6, 2006.
5. Frederick A.B. Meyerson, "Population Growth and Deforestation: A Critical and Complex Relationship" (June 2004), accessed online at [www.prb.org](http://www.prb.org), on Dec 6, 2006.
6. Jonathan G. Nash with PRB staff, *Healthy People Need Healthy Forests* (Washington, DC: Population Reference Bureau, 2001): 1.

## 5 The Future of Food Production and Marine Catch

Many less developed countries have the potential to increase their food production substantially, yet only a small fraction of the increase is likely to come from expanding the amount of land under production. The challenge is to maintain the current agricultural land as productive. Erosion, salinization, leaching of nutrients, and increased toxicity from use of chemical fertilizers and pesticides may all contribute to degradation. There are ways to increase yield and maintain soil quality. One way is to alternate planting legumes such as mung beans or soybeans with rice crops to help replenish nitrogen in the soil. Current plant-breeding programs could provide additional yield increases by improving plant stocks.

### Important Facts

- Globally, there were 2.2 billion more people to feed in 2002 than there were in 1972.<sup>1</sup>
- Irrigation of crops has been key to the rapid increase in food production over the last half-century.
- Biotechnology may become a principal source of further productivity gains as scientists bioengineer genes for insect and disease resistance.
- Soil erosion and agricultural runoff are reaching coastal waters and damaging the Mesoamerican Barrier Reef, important to tourism and fisheries.<sup>2</sup>
- Aquaculture, the controlled cultivation and harvest of aquatic plants and animals, is in its early stages in Latin America, and is becoming increasingly important from an economic perspective.

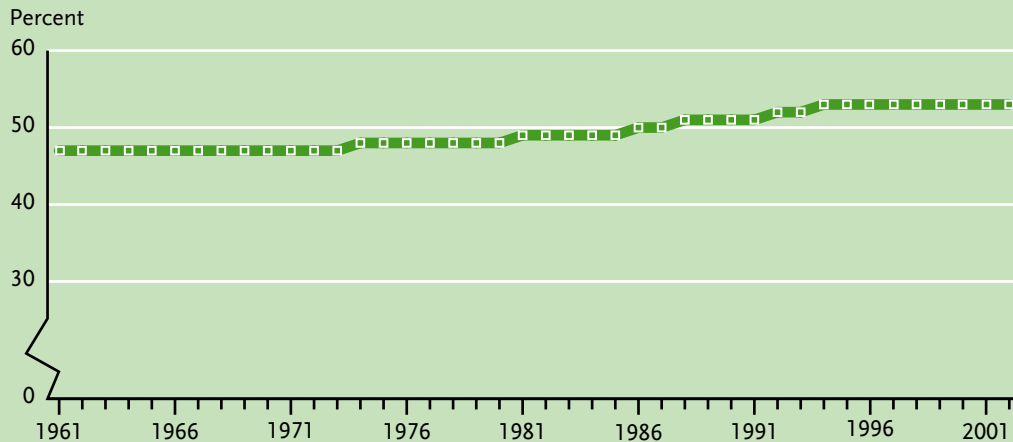
Future increases in food production are likely to come from more intensive use of current farms rather than from expanding farmland and technological innovations such as improved seeds and the use of chemical fertilizers, insecticides, and herbicides.

### Genetically Modified Organisms

Genetic improvements through crop and livestock breeding have played a major role in increasing production. A newly developed set of agricultural improvement tools, generally referred to as genetic engineering, now enable specific traits to be directly inserted into the genetic material of a crop or animal. A plant may be genetically altered by inserting a single gene from the same species or an entirely different organism that contains desired characteristics, such as herbicide resistance or an antibacterial compound. Bioengineering may also increase the yield of some crops by reengineering the photosynthesis process, reducing the need for pesticides or water, or increasing the tolerance to saline soils.

Some scientists and segments of the public have economic, social, health, and ethical concerns about genetically modified (GM) crops. Public and scientific concerns about GM foods fall into two main categories: risks to human health and risks to ecological integrity. Risks to human health appear to be minimal. Furthermore, chemical techniques used in food testing screen out possible toxic or allergenic foods. Less is known about environmental risks and benefits. One concern has been the potential for genes to migrate from domesticated GM crops into wild plants, just as genes already migrate from conventionally bred crops to wild relatives.

## Agricultural Land as a Proportion of Total Land Area in Central America



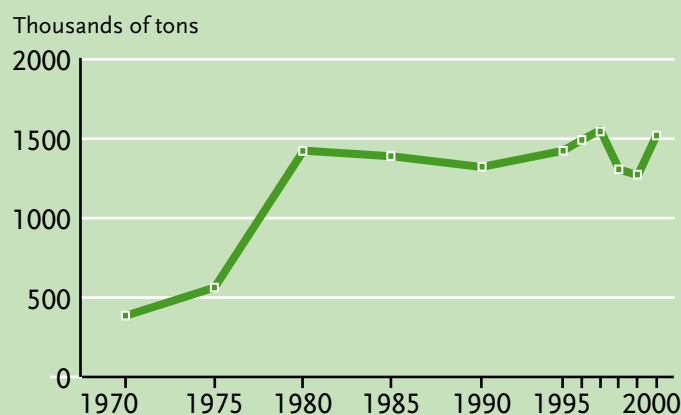
Source: United Nations Environment Program, sub-regional data request on agriculture from the GEO Data Portal (accessed online at <http://geodata.grid.unep.ch> on January 24, 2007).

Besides GM crops, agricultural policies may help boost food production in less developed countries over the next few decades. Giving farmers better access to credit, improving rural infrastructure, and encouraging more competitive private markets are among the many reforms that could strengthen incentives for food production.

## Marine Fisheries and Aquaculture

Marine fishing in the Latin America and Caribbean region reached its maximum level at over 26 million tons in 1994 (almost 28 percent of the world catch at that time).<sup>3</sup>

### Total Marine Fish Catch in Central America



**Total marine fish catch in Central America was just over 1.5 million tons of fish in 2000.**

Source: United Nations Environment Programme (UNEP), *GEO Latin America and Caribbean: Environment Outlook 2003* (Mexico City: UNEP, 2003).

Maintaining a healthy coastal habitat for marine organisms is critical because the majority of the world's fish catch produces its young inshore and feeds on organisms in coastal waters.

Coral reefs, often located near coasts, are habitats for many economically viable fish populations and are home to many critically endangered species. Twelve percent of the world's coral reefs are located in the Greater Caribbean Region, which has the world's second-largest barrier reef, extending for 700 kilometers along the coasts of Mexico, Belize, Gua-

temala, and Honduras. Sediment from inland deforestation; removal of coastal mangroves; industrial pollution; and nutrient pollution contributed by sewage, fertilizers, and urban runoff have all damaged coral reefs.

The United Nations Convention on the Law of the Sea (UNCLOS) has been the general legal framework for international marine policy for several decades and especially since it entered into force



in 1994. For more information on the agreement, including a list of experts, go to: [www.un.org/Depts/los/index.htm](http://www.un.org/Depts/los/index.htm).

## Story Ideas

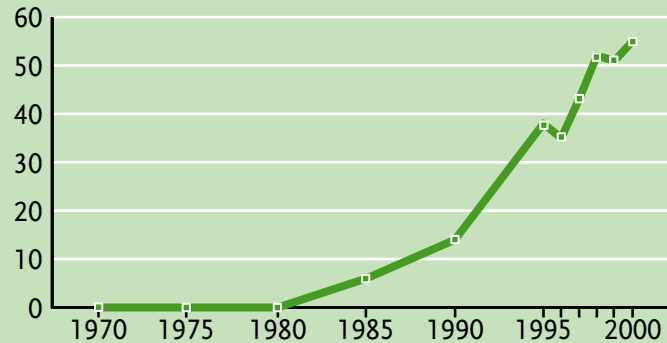
- What methods are local/regional farmers using to increase crop yields? What effects might these methods have on the environment? If there are local farmers who are trying to increase yields in a sustainable way, try to interview one or two.
- Are there any local conflicts between farmers and others for the use of land or water? You could illustrate this by interviewing individuals on each side.
- How do population growth and/or in-migration in the area strain the community's food supply? What local, regional, or national action is being taken to address these concerns?
- To what degree are farmers growing local/native crops vs. exotic/foreign plant species? If they are growing many exotics, how is this changing the biodiversity in agricultural areas?
- How does changing soil quality affect food supplies? Try to visit an area with degraded soil so you can describe this problem directly.
- Compare the total available water in your area to the amount used for human consumption. Are there any concerns about quantity of water used compared with the water availability in lakes and rivers to sustain other species? What is the breakdown of water consumption for agricultural, industrial, and household use? Is water used efficiently? What are the legal and financial incentives and disincentives for using water efficiency?

## Sources

1. Roger-Mark De Souza, John S. Williams, and Frederick A.B. Meyerson, "Critical Links: Population, Health, and the Environment," *Population Bulletin* 58, no. 3 (Washington, DC: Population Reference Bureau, 2003): 19.
2. World Resources Institute, "Protecting Coral by Managing Land Use," accessed online at [www.wri.org/biodiv/topic\\_content.cfm?cid=4221](http://www.wri.org/biodiv/topic_content.cfm?cid=4221), on Dec. 12, 2006.
3. United Nations Environment Programme (UNEP), *GEO Latin America and Caribbean: Environment Outlook 2003* (Mexico City: UNEP, 2003): 101.

## Total Aquaculture Production in Central America

Thousands of tons



**In 2001, aquaculture produced 6.3% of Latin America and the Caribbean's total fishery production value, a value of US\$3.9 billion, representing 7.1 percent of world production by value.**

Source: United Nations Environment Programme (UNEP), *GEO Latin America and Caribbean: Environment Outlook 2003* (Mexico City: UNEP, 2003).

## 6 Role of Women in Natural Resource Management

Women and men have different gender-based roles and different knowledge of, access to, and control over natural resources, as well as different opportunities to participate in decisions regarding natural resource use. Gender refers to the different social roles that women and men play, and the power relations between them. From a conservation perspective, projects that have applied gender equity and promoted affirmative action plans to include women's contributions in protected areas have been more effective and balanced. More important, they have strengthened the social fabric of communities and, consequently, have supported environmental goals.

### Important Facts

- In 2005, there were 74 million women in Central America and their literacy rate was 94 percent.<sup>1</sup>
- Only 38 percent of Central American women over the age of 15 are economically active in the formal sector, compared with 81 percent of men in this age group.<sup>2</sup>
- In 2004, women represented 17 percent of parliaments in Central America, an increase of 5 percent from 1995.<sup>3</sup>
- In most Central American countries, the largest proportion of female-headed households is among those households considered impoverished.<sup>4</sup>

### Factors Contributing to the Low Participation of Women in Conservation and Natural Resource Management

- Lack of support from the community.
  - Low self-confidence.
  - Illiteracy.
  - Childbearing and childcare duties.
  - Low visibility in their work.
  - Low level of access to conservation decision-makers (which results in a low likelihood of being consulted about the management of natural resources).
  - Insecure land tenure (which makes women and other marginalized groups less likely invest time and resources or adopt environmentally sustainable farming practices, since they do not own the land).
- Examples from Central America:
    - Despite several decades of land reform, as of the late 1990s, fewer than 5 percent of the reform's beneficiaries in El Salvador and Honduras were women.
    - In the early 1990s, community leaders in El Salvador informally banned fishing in estuaries due to concerns about the over-fishing of shrimp and other sea life in the estuary. Women were not consulted in this process and lost a vital source of household protein and income.<sup>1</sup>

Source

1. Manuel Benítez et al., "A Platform for Action for the Sustainable Management of Mangroves in the Gulf of Fonseca—Bring Women and Communities Into Decisionmaking," accessed online at [www.unesco.org/csi/wise/fonseca14.htm](http://www.unesco.org/csi/wise/fonseca14.htm), on Dec. 12, 2006.

## How Do Depleted Natural Resources Affect Women?

The amount of time individuals spend on household duties may dramatically increase with the depletion of resources. Given the variety of women's daily interactions with the environment to meet household needs, they are often most keenly affected by its degradation. For example, because girls are often responsible for collecting water and fuelwood, water scarcity and deforestation contribute to higher school dropout rates for girls. The World Health Organization estimates that the energy used to carry water may consume one-third of a woman's daily calorie intake.<sup>5</sup> As women travel longer distances for fuelwood, fodder, and water, they expend larger amounts of energy.

## Gender Policy in Central America

Policy and institutional changes in Central America have brought about greater high-level policy attention to gender issues. The World Conservation Union (IUCN) worked with governments in these countries to develop policy declarations that pledge to incorporate gender into their environmental policies at the national level. These declarations outline each ministry's commitment to gender-sensitive environmental policies and provide the basis for more concrete action plans with specific goals and strategies. For example, three countries (El Salvador, Costa Rica, and Mexico) have created gender units within their environmental ministries to monitor and evaluate gender-sensitive programming. These efforts led the countries of Central America to issue a joint statement about the importance of incorporating gender into environmental projects and policies to achieve sustainable development.<sup>6</sup>

### The Importance of Sex-Disaggregated Data

Collecting sex-disaggregated information is a first step toward developing gender-responsive policies and programs. Data that provide information on women's and men's resource use, access to resources, and participation in environmental decisionmaking contribute to sound policy. The table below illustrates data reported in sex-disaggregated form, whereas the aggregate data could disguise disparities in social conditions between men and women.

### Examples of Sex-Disaggregated Socioeconomic Indicators

	Life expectancy		% enrolled in secondary school		% economically active (ages 15+)		Estimated earned income (PPP US\$)*	
	Male	Female	Male	Female	Male	Female	Male	Female
Belize	67	74	68	74	79	34	9,674	3,760
Costa Rica	77	81	66	68	80	42	12,878	5,969
El Salvador	67	73	56	56	79	46	7,074	3,077
Guatemala	63	71	41	38	74	23	6,604	2,130
Honduras	67	74	—	—	85	43	3,964	1,771
Mexico	73	78	73	78	81	38	14,202	5,594
Nicaragua	66	70	52	61	91	36	5,524	1,747
Panama	73	78	67	72	79	46	9,300	5,219

— Data unavailable.

\* PPP: Purchasing power parity. A rate of exchange that accounts for price differences across countries, allowing international comparisons of real output and incomes. That is, PPP US\$1 has the same purchasing power in the domestic economy as \$1 has in the United States.

Sources: Carl Haub, *2006 World Population Data Sheet* (Washington, DC: Population Reference Bureau, 2006); Lori Ashford and Donna Clifton, *2005 Women of Our World* (Washington, DC: Population Reference Bureau, 2005); and Kevin Watkins, *Human Development Report 2006* (New York: United Nations Development Programme, 2006).

## Including Women in Natural Resource Management Is Valuable

Understanding women's relationships to the environment plays an important role in developing solutions for more sustainable use of natural resources. International aid agencies recognize this important link and are increasingly requiring that projects incorporate a gender focus in their programs. In general, gender-responsive environmental policies and programs seek to achieve environmental outcomes while explicitly taking into account both men's and women's opinions, needs, and interests. Specifically, programs to increase women's empowerment do so by:

- Involving women and men in activities from the beginning, in the definition of the project objectives and the design of the activities.
- Giving women access to information, skills, services, and technology.
- Encouraging women's participation in decisionmaking.
- Adopting and promoting policies and incentives to encourage sharing of project information and to support both females and males working on natural resource management issues to organize themselves and increase their capabilities.

## Story Ideas

- Interview a local leader about her/his ideas on how to create environmental protection policies and programs that are responsive to both women's and men's needs. What can leaders at the local level do and what do leaders at the regional or national levels need to do?
- Do family responsibilities (childbearing and childrearing activities) affect women's ability to participate in conservation and natural resource management activities in your country? How can women's perspectives be better integrated into environmental planning?
- Pick a local female leader and talk with her about her environmental knowledge. Ask whether she thinks there are differences between how women and men perceive environmental impacts. How does access (or lack of access) to natural resources affect her family?
- For any story on population or environment, how could you highlight the differences or similarities between men and women?

## Sources

1. Lori Ashford and Donna Clifton, *2005 Women of Our World* (Washington, DC: Population Reference Bureau, 2005).
2. Ashford and Clifton, *2005 Women of Our World*.
3. Ashford and Clifton, *2005 Women of Our World*.
4. Godfrey St. Bernard, *Major Trends Affecting Families in Central America and the Caribbean*, accessed online at [www.un.org/esa/socdev/family/Publications/mtstbernard.pdf](http://www.un.org/esa/socdev/family/Publications/mtstbernard.pdf), on Dec. 12, 2006.
5. Justine Sass with PRB staff, *Women, Men, and Environmental Change: The Gender Dimensions of Environmental Policies and Programs* (Washington, DC: Population Reference Bureau, 2002).
6. Sass, *Women, Men, and Environmental Change*.

## 7 Population, Natural Disasters, and Environmental Mitigation

Natural disasters are generally seen as sudden events, such as hurricanes, floods, and earthquakes. Disasters disrupt the functions of society or ecosystems and cause such significant losses to people, infrastructure, and the environment that individuals are unable to recover without national or international assistance. Examples of losses include deaths or severe injuries, collapsed buildings, and destroyed fish nurseries by mud covering wetlands or coral reefs. Developing countries contain 90 percent of the human victims from natural disasters and bear 75 percent of their economic damages.<sup>1</sup>

### Important Facts

- Between 1974 and 2003, there were almost 22 million victims (people killed or otherwise severely affected) of Central American natural disasters, with \$35.2 billion of economic damage (reported in 2003 US dollars).<sup>2</sup>
- Natural disasters have negatively affected the pace of economic growth in the region. For example, GDP growth in Honduras was 3 percent in 1998, compared with -2 percent in 1999 after Hurricane Mitch.<sup>3</sup>
- The combination of environmental degradation, poor land use patterns, and high population growth worsen the impact of natural disasters.
- The poor often have no choice but to occupy land most susceptible to natural disasters, such as flood zones, and usually are the least financially able to rebuild their homes and replace their possessions after a disaster, thus increasing their vulnerability to further injury, disease, or hunger.

### Poverty and Settlement Patterns

The World Bank estimates that 80 percent of the poor in Latin America—compared with 60 percent of the poor in Asia, and 50 percent of the poor in Africa—live on marginal lands characterized by poor productivity and high vulnerability to natural degradation and natural disasters.<sup>4</sup> Where the poor live in the developing world contributes enormously to their vulnerability to natural disasters and the aftermath. These people often have no choice but to occupy the least valued plots of land in disaster-prone areas such as river banks, unstable hillsides, deforested lands, or fragile water-catchment areas. These patterns predetermine not only the poor's susceptibility to natural disasters, but also their capacity to cope with the aftermath. Poorer families may be forced into increased debt in order to rebuild their homes, replace assets, and meet basic needs until they are able to recommence income-generating activities.

### Environmental Changes

Environmental degradation also increases vulnerability to natural disasters. For example, with tropical storms, serious coral bleaching (loss of color and essential nutrients that occurs when the coral's algae die from excessive water temperature or disease) and mangrove loss make coastlines more susceptible to flooding. Similarly, deforestation contributes to droughts, flash floods, and landslides.

Hurricane Mitch (1998) was the deadliest Atlantic hurricane of the century because of its high winds (290 km/hr) and long duration (14.5 days). But, environmental degradation also increased

the region's vulnerability to the hurricane's devastating impacts. The high rate of deforestation of hillsides and watersheds was one cause of the many landslides and flashfloods. In addition, the droughts and forest fires in early 1998 degraded the soil's ability to absorb and retain water. More than 5,000 people died in Honduras alone and the damage totaled billions of U.S. dollars.<sup>5</sup>

Global warming could also contribute to a rise in the number and the intensity of hurricanes that will hit the Central American region, although scientists are still debating the precise impact of such warming. Recent research suggests that, by 2080, seas warmed by rising atmospheric concentrations of heat-trapping greenhouse gases could cause a typical hurricane to intensify about an extra half-step on the five-step scale of destructive power. Rainfall up to 60 miles from the storm's core would also be nearly 20 percent more intense.<sup>6</sup>

## Disaster Mitigation Recommendations

Reducing vulnerability to hurricanes in Central America must include an understanding of how population trends and environmental changes interact with geographic predisposition to natural hazards, policy choices, and economic drivers of change. At the World Conference on Disaster Reduction (WCDR) in Japan in 2005, world leaders recognized these important linkages.

The resulting International Strategy for Disaster Reduction (ISDR) Secretariat and the United Nations Development Programme developed five focus areas for understanding, guiding, and monitoring disaster risk reduction at all levels. These areas are: governance, risk identification, knowledge management, risk-management applications, and preparedness and emergency management.

Each area carries considerations of the population and environment dimensions of disaster mitigation. Specific recommendations for participating nations include:

- Strengthen policy and donor attention on population and environment dimensions of natural hazards.
- Produce maps that reflect the spatial distribution of risk and the magnitude and frequency of events likely to occur.
- Improve information management and communication about population and environment drivers of disaster.

For more information, go to: [www.unisdr.org/wcdr/](http://www.unisdr.org/wcdr/).

## Story Ideas

- What were the environmental impacts of recent natural disasters in your country?
- What steps have been taken to protect populations and environments vulnerable to natural disasters?
- What effect do population growth and/or in-migration have on the vulnerability of people to natural disasters?
- How can the community prepare itself for the effects of a natural disaster while protecting the environment from severe consequences?
- What are the social, economic, and environmental impacts—for example, people displaced, loss of jobs, mudslides, or loss of vegetation—of the latest natural disaster? How could you tell this story through interviewing the people affected?

## Significant Natural Disasters in Central America Since 1980

Year	Country	Type of hazard	Deaths	Total population affected	Total damage (1998 dollars)
May 1982	Nicaragua	Floods	80	70,000	\$599 million
1982	El Salvador	Earthquake, drought and tropical storm, floods	600	20,000	\$216 million
1982	Guatemala	Heavy precipitation, drought, tropical depression	610	10,000	\$136 million
1982	Nicaragua	Floods and drought	—	—	\$588 million
1985	Mexico	Telluric movements	8,000	150,000	\$6.2 billion
1986	El Salvador	Earthquake	1,200	520,000	\$1.4 billion
1988	Nicaragua	Hurricane Joan	148	550,000	\$1.2 billion
1992	Nicaragua	Volcanic eruption: Cerro Negro	2	12,000	\$22 million
1992	Nicaragua	Tidal wave	116	40,500	\$30 million
1996	Costa Rica	Hurricane Cesar	39	40,260	\$157 million
1996	Nicaragua	Hurricane Cesar	9	29,500	\$53 million
1997–1998	Costa Rica	El Niño (flooding and droughts)	—	119,279	\$93 million
1998	Regional	Hurricane Mitch (Honduras and Nicaragua hardest hit)	9,214	1,191,908	\$6 billion
2001	El Salvador	Earthquake	827	1,160,316	\$1.3 billion

— Data not available.

Source: United Nations Environment Programme (UNEP), *GEO Latin America and Caribbean: Environment Outlook 2003* (Mexico City: UNEP, 2003): 143.

## Sources

1. Roger-Mark De Souza, "In Harm's Way: Hurricanes, Population Trends, and Environmental Change," accessed online at [www.prb.org](http://www.prb.org), on Dec. 15, 2006.
2. Debarati Guha-Sapir, David Hargitt, and Philippe Hoyois, *Thirty Years of Natural Disasters 1974-2003: The Numbers*, accessed online at [www.emdat.net/documents/Publication/publication\\_2004\\_emdat.pdf](http://www.emdat.net/documents/Publication/publication_2004_emdat.pdf), on Dec 15, 2006.
3. Céline Charvériat, *Natural Disasters in Latin America and the Caribbean: An Overview of Risk* (Washington, DC: Inter-American Development Bank, 2000): 21.
4. De Souza, "In Harm's Way: Hurricanes, Population Trends, and Environmental Change."
5. United Nations Environment Programme (UNEP), *GEO Latin America and Caribbean: Environment Outlook 2003* (Mexico City: UNEP, 2003): 143.
6. De Souza, "In Harm's Way."

## International Agreements

Gatherings of government leaders at international conferences can be a catalyst for local and national action: They can influence government policies through international “peer pressure”; advocates can use the documents to put pressure on governments to fund or approve actions that support the agreements; and the goals and benchmarks in the documents can serve as tools for monitoring national progress and encouraging action. Relevant conferences are highlighted below and the websites include press contacts and updates.

### Millennium Development Goals (MDGs)

In 2000, leaders of 189 nations gathered at the Millennium Summit to discuss solutions to widespread social ills. They agreed on eight Millennium Development Goals to achieve by 2015 regarding poverty and hunger, education, gender equality, child mortality, maternal health, AIDS and other diseases, environmental sustainability, and development. Relevant targets and measurements are highlighted below:

#### Goal 3 on Gender Equality

**Target 4:** Eliminate gender disparity in primary and secondary education, preferably by 2005, and at all levels by 2015

**Select Indicators**

- Ratio of girls to boys in primary, secondary, and tertiary education
- Share of women in wage employment in the nonagricultural sector

#### Goal 4 on Reducing Child Mortality

**Target 5:** Reduce by two-thirds, between 1990 and 2015, the under-5 mortality rate

**Select Indicators**

- Under-5 mortality rate
- Infant mortality rate
- Proportion of 1-year-old children immunized against measles

#### Goal 5 on Improving Maternal Health

**Target 6:** Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio

**Select Indicators**

- Maternal mortality ratio
- Proportion of births attended by skilled health personnel

#### Goal 7 on the Environment

**Target 9:** Integrate the principles of sustainable development into country policies and programs and reverse loss of environmental resources

**Select Indicators**

- Proportion of land area covered by forest
- Ratio of area protected to surface area for maintaining biological diversity



### **For More Information**

- [www.unmillenniumproject.org/goals/goals03.htm](http://www.unmillenniumproject.org/goals/goals03.htm)
- For information on meeting the MDGs in LAC, see: [www.undp.org/rblac/mdg](http://www.undp.org/rblac/mdg).
- For reports from specific MDG taskforces, see: [www.unmillenniumproject.org/reports/reports2.htm](http://www.unmillenniumproject.org/reports/reports2.htm).

## **World Summit on Sustainable Development (WSSD), Johannesburg**

The Johannesburg Declaration stated that globalization had created new opportunities, but that the global environment has continued to suffer from the loss of biodiversity, depletion of fish stocks, advancing desertification, worsening climate change, and more frequent and devastating natural disasters.

WSSD in 2002 assumed a collective responsibility for the pillars of sustainable development—economic development, social development, and environmental protection—at the local, national, regional, and global levels.

### **For More Information**

- [www.un.org/events/wssd](http://www.un.org/events/wssd)
- The Commission on Sustainable Development (CSD) provides oversight in implementing agreements related to WSSD. For more information, see: [www.un.org/esa/sustdev/csd/aboutCsd.htm](http://www.un.org/esa/sustdev/csd/aboutCsd.htm).

## **International Conference on Population and Development (ICPD), Cairo**

This watershed UN-sponsored conference brought together 11,000 cross-sectoral representatives in 1994 and resulted in a Programme of Action for future population and development policies that included family planning, safe pregnancy and delivery services, prevention and treatment of sexually transmitted infections, and information and counseling on sexuality.

### **For More Information**

- [www.unfpa.org/icpd/icpd.htm](http://www.unfpa.org/icpd/icpd.htm)

## **Fourth World Conference on Women, Beijing**

The Beijing Platform for Action in 1995 recommended strengthening women's participation and leadership as part of a holistic, multidisciplinary, and intersectoral approach to sound environmental management.

### **For More Information**

- [www.un.org/womenwatch/daw/beijing/index.html](http://www.un.org/womenwatch/daw/beijing/index.html). See Chapter 4 of the Platform for Action on Women and the Environment.

## 9 Sources for Reporting on Population and Environment

### Criteria for Evaluating Information From the Internet

The following questions can help you assess the appropriateness of a resource found on the Internet. A brief assessment starting with the content, accuracy, and authority will address if the resource is reputable. The other questions will help assess if the resource would be useful for your specific need. For example, you might be looking for the most recent fact, seeking out opposing opinions, or writing a story for youth, and you would modify your approach based on your goals.

**Content:** Is the information factual or opinion? If it is a research article, has it been peer reviewed?

**Accuracy:** Is the information in the resource accurate? You may wish to check this against other resources or with a trusted expert in the subject area. Are there political or ideological biases? Biased sources are great for opinion pieces but caution should be taken when using them as factual sources.

**Authority:** Does the resource have some reputable organization or expert behind it? Does the author have standing in the field? Are sources of information stated? Is the information verifiable? Can the author be contacted for clarification or to be informed of new information? For Internet sources, examining the URL can give clues to the authority. For instance, a tilde “~” usually indicates a personal web directory.

**Breadth and Depth:** Are all aspects of the subject covered? To what level of detail in the subject does the resource go?

**Time/Currency:** Is the information limited to certain time periods? When was the resource published or created? What time periods are associated with the data contained within the resource?

**Purpose:** What is the purpose of the resource? Is it clearly stated and does the resource fulfill the stated purpose?

**Audience:** Who are the intended users of this resource? To what level is the resource pitched: a subject expert, a layperson, or a student? Will the resource satisfy the needs of the intended users?

**Reviews:** What do other reviewing services say about the site? Has the article been cited in other articles or is it considered a “seminal” piece in the field?

Source: Alastair Smith, “Criteria for Evaluation of Internet Information Resources,” accessed at [www.vuw.ac.nz/staff/alastair\\_smith/evaln](http://www.vuw.ac.nz/staff/alastair_smith/evaln), on Nov. 14, 2006.

## Suggestions for Finding Sources to Interview

- **Look to universities and research institutes.** Keep in mind both small and large universities.
- **Regional offices of international organizations.** Almost every scientific discipline has a monitoring mechanism, often associated with an agency of the United Nations, and associated experts you could contact.
- **Evaluate the source's connection to your question.** You don't want someone who has no connection to your story idea. At the same time, you'll want to know about institutional and financial connections to a project. It's fair to ask who is funding a scientist's research.
- **Be geographically open-minded.** Sometimes it helps to go outside your own geographical region, especially if locals are too likely to have a biased interest in your story. However, don't overlook local scientists—ask them about who else they'd recommend you talk to and who disagrees with them.
- **Interview sources from different technical fields.** An environmental story may have many social angles—so talk to natural scientists and social scientists, including demographers and public health experts. But be cautious; each of these experts may define the term “population” a little differently. You'll want to know if their definition encompasses population growth, migration, reproductive health, and consumption, or if it narrowly focuses on only one aspect.

Source: Robin Meja, “Interviewing Scientists,” *SEJournal* 13, no. 3 (2003).

## 10 **Organizational and Internet Resources**

Here are organizations and Internet resources that may help you find additional information and data for reporting on population, health, and environment.

### **Population, Health and Environment Linkages**

#### **Green Facts**

**[www.greenfacts.org](http://www.greenfacts.org)**

Green Facts is an independent nonprofit organization with a multistakeholder governance and a nonadvocacy policy. Their mission is to bring complex scientific consensus reports on health and the environment to the reach of nonspecialists.

#### **People & the Planet**

**[www.peopleandplanet.net](http://www.peopleandplanet.net)**

This website is devoted to the interrelated issues of population, poverty, consumption, health, and the environment. Key topics offered include population pressures, food and agriculture, reproductive health, pollution, coasts and oceans, renewable energy, poverty and trade, climate change, green industry, ecotourism, biodiversity, mountains, forests, water, and cities.

#### **Population-Environment Research Network**

**[www.populationenvironmentresearch.org](http://www.populationenvironmentresearch.org)**

This project of the International Union for the Scientific Study of Population provides an annotated eLibrary of resources, membership invitation, conference calendar, listing of jobs/funding, cyber seminars, and links to related sites.

#### **Population Reference Bureau (PRB)**

**[www.prb.org](http://www.prb.org)**

PRB informs people around the world about population, health, and the environment, and empowers them to use that information to advance the well-being of current and future generations. This website offers web-exclusive articles; 236 country fact sheets; data sheets; policy briefs; reports; educational materials; a searchable database of population, health, and environment variables for more than 200 countries and the 50 United States; e-mail newsletters; and descriptions of PRB projects and programs.

### **General Resources: Latin America and the Caribbean**

#### **Pan American Health Organization (PAHO)**

**[www.paho.org](http://www.paho.org)**

PAHO is an international public health agency that serves as the specialized organization for health of the Inter-American System. The organization collaborates with ministries of health, social security agencies, other government agencies, nongovernmental organizations, universities, community groups, and many others to strengthen national and local health systems and to improve the health of

the peoples of the Americas. The website provides links to technical information, country health profiles, publications, public information, library services, and links to related websites.

### **Inter-American Development Bank (IADB)**

**[www.iadb.org](http://www.iadb.org)**

The Inter-American Development Bank was established in 1959 as a regional development institution for Latin American. Its website provides regional information corresponding to many of the issues covered in this guide under its “Topics” section. Also features an extensive “News” section.

### **Economic Commission for Latin America and the Caribbean (ECLAC)**

**[www.eclac.cl/default.asp?idioma=IN](http://www.eclac.cl/default.asp?idioma=IN)**

ECLAC was founded for the purposes of contributing to the economic development of Latin America, coordinating actions directed toward this end, and reinforcing economic relationships among the countries and with the other nations of the world. The promotion of the region’s social development was later included among its primary objectives.

### **Central American Bank for Economic Integration**

**[www.bcie.org/english](http://www.bcie.org/english)**

The largest financial institution in Central America, its strategic goals center on the fight against poverty, regional integration, and the competitive insertion of Central America in the global economy.

## **Disasters**

### **Emergency Disasters Data Base (EM-DAT)**

**[www.em-dat.net](http://www.em-dat.net)**

Provides extensive information about disasters; searchable by country profiles, type of disaster, and disaster list (including timeframe). Also includes a glossary of disaster terms, figures, and a listing of publications.

## **Gender Issues**

### **UNIFEM—Americas and the Caribbean**

**[www.unifem.org/worldwide/americas\\_caribbean.php](http://www.unifem.org/worldwide/americas_caribbean.php)**

UNIFEM is the women’s fund at the United Nations, providing financial and technical assistance to innovative programs that foster women’s empowerment and gender equality. Focus areas include reducing feminized poverty, ending violence against women, reversing the spread of HIV/AIDS among women and girls, and achieving gender equality in democratic governance in times of peace as well as war. Resources include fact sheets and resolutions.

An affiliated site, Women Watch (**[www.un.org/womenwatch](http://www.un.org/womenwatch)**), is the UN’s Internet gateway on the advancement and empowerment of women.

### **World Health Organization: Department of Gender, Women, and Health**

**[www.who.int/gender](http://www.who.int/gender)**

The main focus of GWH is to promote the inclusion of gender perspectives in the work of the WHO by collaborating with other departments and regional and country offices. It aims to increase knowledge of gender issues by conducting selected research, training, and advocacy on how sociocultural factors and discrimination affect health. The website provides useful links to bibliographic databases in each subject focus area as well as a lengthy publications list. See also PAHO’s Gender, Ethnicity, and Health Unit (GH), **[www.paho.org/english/ad/ge/home.htm](http://www.paho.org/english/ad/ge/home.htm)**.

## **International Center for Research on Women (ICRW)**

**[www.icrw.org](http://www.icrw.org)**

The International Center for Research on Women is a private, nonprofit organization dedicated to promoting social and economic development that includes women's full participation. ICRW generates empirical information and provides technical assistance on women's productive and reproductive roles. The website provides links to ICRW programs, publications, and an extensive list of links to other women's organizations.

## **Center for Development and Population Activities (CEDPA)**

**[www.cedpa.org](http://www.cedpa.org)**

CEDPA is a women-focused international organization that strives to empower women at all levels of society to be full partners in development. This website provides detailed information on CEDPA's training programs. The website also includes a comprehensive publication index with information on training manuals, handbooks, published curricula, and other publications.

## **Environmental Health**

### **World Health Organization—Health and Environment Linkages Initiative**

**[www.who.int/heli](http://www.who.int/heli)**

The Health and Environment Linkages Initiative is a global effort by the World Health Organization and the United Nations Environment Programme to support action by developing country policymakers on environmental threats to health.

### **World Health Organization (WHO)—Water, Sanitation, and Health**

**[www.who.int/water\\_sanitation\\_health](http://www.who.int/water_sanitation_health)**

WHO works on aspects of water, sanitation, and hygiene where the health burden is high, where interventions could make a major difference, and where the present state of knowledge is poor.

## **Environmental Issues**

### **EarthTrends (World Resources Institute)**

**<http://earthtrends.wri.org>**

EarthTrends is a comprehensive online database, maintained by the World Resources Institute, that focuses on the environmental, social, and economic trends that shape our world. This portal leads to information on regional and country-specific coastal and marine ecosystems, water resources, climate, population and health, economics, energy, biodiversity, agriculture, forests, and environmental governance and institutions. Under each topic you will find a searchable database, data tables, country profiles, maps, and features.

### **Eco-Index**

**[www.eco-index.org](http://www.eco-index.org)**

The Eco-Index includes profiles of more than 900 projects in the Neotropics. This includes information about each project's goals, achievements, lessons learned, interviews, and reports. Allows users to search for a project and sign up for an e-mailed news bulletin.

### **Encyclopedia of the Earth (National Council for Science and the Environment)**

**[www.eoearth.org](http://www.eoearth.org)**

NCSE is a nonprofit organization working to improve the scientific basis for environmental decisionmaking. The encyclopedia is a free, fully searchable collection of articles written by scholars, professionals, educators, and experts who collaborate and review each other's work. The articles are written in nontechnical language and will be useful to students, educators, scholars, professionals, as well as to the general public.

## **Food and Agricultural Organization (FAO)—Newsroom**

**[www.fao.org/newsroom](http://www.fao.org/newsroom)**

The FAO is one of the largest United Nations' specialized agencies, mandated to raise levels of nutrition and standards of living, improve agricultural productivity, and to better the conditions of rural populations. Its site provides a wealth of information on FAO activities, including access to statistical databases and reporting on agriculture, economics, forestry, fisheries, sustainable development, nutrition, and more.

## **GEO: Global Environment Outlook Regional Reports (UNEP)**

**[www.unep.org/geo/regreports.htm](http://www.unep.org/geo/regreports.htm)**

Regional GEO reports present an overview of environment and development issues, analyze the state of the environment and policy, discuss human vulnerability to environmental change, present visions of the future, and provide options for policy actions. A data portal, data compendium, and electronic references are also included.

## **IUCN Red List of Threatened Species**

**[www.iucnredlist.org](http://www.iucnredlist.org)**

The World Conservation Union (IUCN) is the world's largest conservation network, bringing together 82 states, 111 government agencies, more than 800 nongovernmental organizations, and some 10,000 scientists and experts from 181 countries in a unique worldwide partnership ([www.iucn.org](http://www.iucn.org)). The Red List catalogs and highlights animal and plant species that are facing a high risk of global extinction. Included are species' taxonomy details, scientific name, common names, assessment date, country/region of occurrence, population trends, and data sources.

## **World Bank's Environment Information**

**<http://lnweb18.worldbank.org/essd/envext.nsf/41bydocname/environment>**

The World Bank's work on environmental issues is categorized under themes, strategy, regions, mainstreaming, projects, analytical and advisory assistance, operational policies, capacity development and knowledge sharing, publications, partnerships, and media contacts. Each category provides links to relevant activities and resources across the bank's many sectors.

## **World Wildlife Fund (WWF)**

**[www.panda.org](http://www.panda.org)**

WWF's site provides regional and country-specific conservation program information, WWF strategy and partnerships, news, fact sheets and other publications, and activist information.

## **Worldwatch Institute**

**[www.worldwatch.org](http://www.worldwatch.org)**

Worldwatch informs policymakers and the public about emerging global problems and trends and the complex links between the world economy and its environmental support systems. The website contains publications, a resource center, a press room, scheduled live discussions with a researcher, and information on global partners.

## **Population and Health**

### **World Bank—Health, Nutrition, and Population**

**[www.worldbank.org/lachealth](http://www.worldbank.org/lachealth)**

The World Bank supports health and critical social services in Latin American and Caribbean (LAC) countries. This website provides background information describing World Bank projects and programs, publications, news, and data.

## **CARE**

**[www.care.org/careswork/whatwedo/health](http://www.care.org/careswork/whatwedo/health)**

CARE is an international relief and development organization dedicated to the reduction of worldwide hunger, promotion of economic development, basic education, and health care. This website provides tools, guidelines, and best practices in the fields of children's health; and reproductive health; and water, sanitation, and environmental health.

## **World Health Organization (WHO)—Media Center**

**[www.who.int/mediacentre](http://www.who.int/mediacentre)**

The World Health Organization (WHO) is the United Nations' specialized agency for health. This website provides relevant news, event announcements, and media contacts. It also provides fact sheets on a wide array of health topics, coverage on disease outbreaks, and a wealth of resources.

## **Population and Reproductive Health**

### **International Planned Parenthood Federation (IPPF)**

**[www.ippf.org](http://www.ippf.org)**

IPPF works in the field of sexual and reproductive health including family planning. This website provides the latest information on reproductive health; an extensive resource list which includes bibliographies, courses, online journals, and bulletins; links to IPPF work in various regions; and an extensive links page to organizations that work in family planning, population, and reproductive health. The website includes a News Section, which contains IPPF's daily international news roundup for all issues relating to sexual and reproductive health. See also **[www.ippfwhr.org](http://www.ippfwhr.org)**.

### **Johns Hopkins INFO Project: Population Reports**

**[www.infoforhealth.org/pr](http://www.infoforhealth.org/pr)**

Population Reports are designed to provide an accurate and authoritative overview of important developments in family planning and related health issues. This website provides access to full-text documents in multiple languages as well as information for ordering the reports.

### **Johns Hopkins SPH: Population Information Online (POPLINE)**

**<http://db.jhuccp.org/ics-wpd/popweb>**

POPLINE is a bibliographic population database consisting of over 335,000 citations with abstracts to scientific articles, reports, books, and unpublished reports in the field of population, family planning, and related health issues. This website is maintained by the INFO Project at the Johns Hopkins Bloomberg School of Public Health.

### **Population Council**

**[www.popcouncil.org](http://www.popcouncil.org)**

The Population Council website includes information on biomedical, social science, and public health research under three major program areas: HIV and AIDS; Poverty, Gender, and Youth; and Reproductive Health.

### **Reproductive Health Outlook (RHO, published by PATH)**

**[www.rho.org](http://www.rho.org)**

RHO is a valuable resource produced by PATH, which provides summaries of up-to-date information, links to the best in-depth reproductive health information on the web, and the chance to communicate with international experts and peers through the community forum message board. This website provides useful information on family planning, safe motherhood, reproductive tract infections, HIV/AIDS, infertility, cervical cancer, harmful traditional health practices, gender and sexual health, and men and reproductive health, as well as an extensive list of related reproductive health links.



## **United Nations Population Fund (UNFPA)**

**[www.unfpa.org](http://www.unfpa.org)**

This website provides background information on UNFPA, links to publications, ICPD+5 information, a description of UNFPA technical support services, and the Interactive Population Center, providing information about population issues.

## **General Resources**

### **Eldis**

**[www.eldis.org](http://www.eldis.org)**

Eldis aims to share the best in development, policy, practice, and research. Eldis provides over 18,000 online documents, 30 subject-focused guides, country profiles, newsfeeds, and e-mail newsletters.

### **Linkages (International Institute for Sustainable Development)**

**[www.iisd.ca](http://www.iisd.ca)**

This site provides the latest news, information, and analysis from international environmental and development negotiations including meetings, media reports, publications, and online resources.

### **Society for Environmental Journalists**

**[www.sej.org](http://www.sej.org)**

The mission of the Society of Environmental Journalists is to advance public understanding of environmental issues by improving the quality, accuracy, and visibility of environmental reporting. Their website provides resources to support responsible environmental journalism, including tip sheets, listservs, a news service, and information on conferences.

### **United Nations Population Information Network (POPIN)**

**[www.un.org/popin](http://www.un.org/popin)**

POPIN identifies, establishes, strengthens, and coordinates population information activities at the international, regional, and national levels. The website provides an extensive collection of publications, bibliographic databases, and information on current world population trends.

# 11 Glossary

Select terms are included below. For a complete glossary of population, health, and environment terms, see the Population Reference Bureau's Glossary of Terms: [www.prb.org/Educators/Resources/Glossary.aspx](http://www.prb.org/Educators/Resources/Glossary.aspx)

## **Agricultural land**

Area in which more than 30 percent of the land is covered by crops or planted pastures.

## **Biodiversity**

Reflects the number, variety, and variability of living organisms; includes diversity within species (genetic diversity), between species (species diversity), and between ecosystems (ecosystem diversity).

## **Deforestation**

The loss of forests due to collection of fuelwood, commercial logging, shifting cultivation, grazing, road construction, ranching, mining, and fire. Leads to soil erosion and flooding and endangers wildlife through habitat destruction.

## **Demography**

The scientific study of human populations, including their sizes, compositions, distributions, densities, growth, and other characteristics, as well as the causes and consequences of changes in these factors.

## **Environmental health**

Comprises those aspects of human health, including quality of life, that are determined by physical, chemical, biological, social, and psychosocial factors in the environment. It also refers to the theory and practice of assessing, correcting, controlling, and preventing those factors in the environment that can potentially affect adversely the health of present and future generations.

## **Family planning**

The conscious effort of couples to regulate the number and spacing of births through artificial and natural methods of contraception.

## **Genetic engineering**

The technique of removing, modifying, or adding genes to a DNA molecule in order to change the information it contains. By doing this, genetic engineering changes the type or amount of proteins an organism is capable of producing, thus enabling it to make new substances or perform new functions.

## **Infant mortality rate (IMR)**

The number of deaths of infants under age 1 per 1,000 live births in a given year. The infant mortality rate is one of the key indicators of a country's health status.

**Maternal mortality ratio**

Death related to pregnancy or childbirth; usually expressed as a ratio of the number of deaths per 100,000 live births in a given year.

**Morbidity**

The frequency of disease, illness, injuries, and disabilities in a population.

**Mortality**

Deaths as a component of population change.

**Persistent organic pollutants (POPs)**

Chemical substances that persist in the environment, bioaccumulate in the food chain, and pose a risk of causing adverse effects to human health and the environment.

**Population density**

Population per unit of land area; for example, persons per square mile or persons per square kilometer of arable land.

**Population distribution**

The patterns of settlement and dispersal of a population.

**Population growth rate**

The number of persons added to (or subtracted from) a population in a year due to natural increase and net migration; expressed as a percentage of the population at the beginning of the period.

**Population projection**

Computation of future changes in population numbers, given certain assumptions about future trends in the rates of fertility, mortality, and migration. Demographers often issue low, medium, and high projections of the same population, based on different assumptions of how these rates will change in the future.

**Renewable water**

The surface water runoff from local precipitation, the inflow from other regions, and the ground-water recharge that replenishes aquifers.

**Reproductive health**

Reproductive health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes.

**Total fertility rate (TFR)**

The average number of children that would be born alive to a woman (or group of women) during her lifetime years if she were to pass through her childbearing years conforming to the age-specific fertility rates of a given year. This rate is sometimes stated as the number of children women are having today.

**Salinization**

The buildup of salts in soils. Occurs frequently from overirrigated soil when evaporation of water at the surface draws salts from underground rocks and soils, causing salts to crystallize and interfere with root growth.

**Sex-disaggregated data**

Data that are collected and presented separately on men and women. Aggregate data may disguise disparities in health or social outcomes due to gender-related circumstances.

**“Sink” environmental functions**

Pollution absorption and other cleansing functions which, for instance, support human health and well-being by naturally purifying air and water.

**“Source” environmental functions**

Natural functions that have to do with the Earth’s provision of resources relied upon by inhabitants for their well-being or livelihood

**Sustainable development**

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

**Under-5 mortality rate**

Probability of dying between birth and exactly 5 years of age expressed per 1,000 live births.

**Urban**

Countries differ in the way they classify population as “urban” or “rural.” Typically, a community or settlement with a population of 2,000 or more is considered urban.