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## **SPECIAL FOCUS:** *Famine: Natural or Man Made?*



*Child victim of the Holodomor, Poltava region, Ukraine, 1933*

**SOURCE:** <http://en.wikipedia.org/wiki/Holodomor>

All through human history, we see the frequent occurrence of famine dating back to 400 B.C. when data becomes first available. It is not difficult to understand the reasons for famine in the past centuries when poor technology and static economic systems hampered human beings from getting access to food, especially in the face of regional natural disasters. But why does food insecurity persist? The number of countries currently experiencing severe food shortage has almost tripled since 1990. Even though current global food supplies are sufficient to feed the world's population, an estimated 20 percent of people in developing countries – more than 800 million people – still lack access to enough food on a regular and predictable basis. To understand this stubborn question, we first look at definitions.

### **What is Famine?**

Of course, the word "famine" is difficult to define and is a political "hot potato." Famine is like insanity, hard to define but glaring enough when recognized. There are dozens of definitions, but not yet one that everyone agrees on. No government likes to hear the "F-word" in connection with its country; neither do aid agencies or international donors. It implies that they have failed to stop a food shortage from turning into a major humanitarian crisis.

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**Education brings choices.  
Choices bring power.**

• According to common usage as found in Wikipedia, famine is a widespread shortage of food that may apply to any faunal species, a phenomenon which is usually accompanied by regional malnutrition, starvation, epidemic, and increased mortality.

• According to Médecins Sans Frontières, famine is a situation where more than five people in 10,000 are dying every day due to malnutrition and hunger.

• USAID says a famine is a “catastrophic food crisis that results in widespread acute malnutrition and mass mortality. It is a process, rather than an event, with a beginning, a middle and an end.”

• The World Food Program says a famine occurs when a serious food crisis is made worse by “governments’ failure to deal with the situation”. In most of the 80 countries where WFP operates, people are on the brink of a food crisis.

• According to the New Palgrave Dictionary of Economics, Thomas Malthus, the eighteenth-century British economist, theorized that famine, along with war and disease, was an adaptation to the imbalance between available food and population size.

• Stephen Devereux and Paul Howe, from the institute of Development studies of University of Sussex, in their article about “Intensity and Magnitude Scales for Famine”, suggest the definition of famine is “where the number of people dying is between 2-4 people per 10,000 population per day, and/or wasting is between 20-40 percent (that is the proportion of children aged between six months and five years old who are less than 80 percent of the average weight-for-height). Coping strategies are exhausted and people adopt survival strategies. Markets begin to close or collapse.”



SOURCE: <http://www.hizb.org.uk>

World Information Transfer

2 World Ecology Report

Winter 2008

• The international famine center ([www.ucc.ie](http://www.ucc.ie)) defines famine as follows: Famine may be seen as “the regional failure of food production or distribution systems, leading to sharply increased mortality due to starvation and associated disease”.

The definitions above suggest the following points:

First, it is regional, not family failure, and points to the importance of markets and, by implication, of shifting market demand for different foods in addition to their aggregate supply. Second, famine also identifies “excess

*famine also identifies “excess deaths” -  
deaths that otherwise would not have occurred*

deaths”– deaths that otherwise would not have occurred as the core feature of famine; and attributes those deaths to morbidity as well as to seriously reduced consumption. Abnormally high mortality may be the hallmark of famine, but societal breakdown is its essence. Most famine-induced mortality tends to occur after the worst of the food crisis is over but while the crisis of infectious disease persists. Third, famine is the endpoint of a lengthy process in which people in increasing numbers lose their access to food. Most famines have long gestation periods, typically covering two or more crop seasons. Because it is also typically shrouded in ambiguity, early detection is rarely definitive and seldom produces early response.

Moreover, famine entails more than a severe shortage of food and grotesque distortions of normal food prices. Famine features a deepening recession in the entire rural economy, one affecting production and exchange, employment, and income of farm and non-farm households alike.

In Niger, for example, the government reacted angrily to some reports calling the situation there a famine. President Mamadou Tandja said Niger was not experiencing a famine but a “food shortage”. He put it this way in an interview in August 2005 with the BBC: “There are three signs of a famine: when people are leaving the countryside and going to live in shantytowns; people are leaving the country; and there are beggars all over the place. Those three things do not exist in Niger at the present time.” The U.S. government’s international development agency, USAID, and the Washington-funded early warning service FEWSNET both describe the situation in Niger as a “very severe, but localized food security crisis”. Meanwhile, the World Food Program says Niger is experiencing “pockets of severe malnutrition”. Other agencies range between calling the situation a “humanitarian emergency” and “an acute livelihood crisis”. Food aid professionals have been known to debate whether a crisis was a famine or not for many years after the event.

## **What are the major causes of Famine?**

Traditionally, famines are thought to be caused by reduction in food output or a population outgrowing its regional carrying capacity. In this perception, the operative cause of famine is an imbalance of population with respect to food supply (and could thus be solved by population control methods). Famine could also come from the problem of food distribution and poverty, as observed by economist Amartya Sen.

And while food shortages can certainly cause famines, it does not follow that all famines must necessarily be caused by food shortages. Famine implies that some people do not have adequate access to food, it does not imply that food itself is in short supply.

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Nearly a century ago, Cornelius Walford in the *Famines of the World Past and Present* (1878-1879) listed 12 causes of famine, classifying them into natural causes beyond human control and artificial causes within human control. Historically, natural causes include drought, excessive rains and flood, unseasonably cold weather, typhoons and other high winds, tidal waves, depredations by vermin and such insects as locusts, and plant diseases. They chiefly tend to reduce production of food and to destroy stocks. Occasionally, though mostly for short periods, floods or frosts restrict the flow of foodstuffs from surplus to deficit areas.

The artificial causes were commonly political—poor governmental policies, misguided or deliberate public policies, and repressive political systems. They include warfare that involves siege or blockade or destruction of food stocks or growing grain, and wartime strains on economics that diminish manpower, machines, or fertilizers, thus reducing cultivated acreage, yields, and production. Revolutions, particularly when they involve a struggle between peasantry and officialdom, may reduce food acreages and yields and thus contribute to famine. Political instability, armed conflict, corruption, misguided economic policies and mismanagement in handling food supplies, and trade policies that harm agriculture, political design to impoverish or marginalize certain populations are also important causes. Today, in Africa, AIDS is also having long-term economic effects on agriculture by reducing the available workforce, and is creating new vulnerabilities to famine by overburdening poor households.

People have learned to modify some of the natural causes as well as to minimize their impact. And in recent

history, most famines were caused by a combination of natural, political, economic and biological factors. Famines can be exacerbated or even caused by poor governance or inadequate logistics for food distribution.

Michael Chossudovsky, from the University of Ottawa, thinks that while “external” climatic variables play a role in triggering a famine and heightening the social impact of drought, famines, especially in the age of globalization, are man-made. They are not the consequence of “a scarcity of food” but of a structure of global oversupply which undermines food security and destroys national food agriculture. Tightly regulated and controlled by international agro-business, this oversupply is ultimately conducive to the stagnation of both production and consumption of essential food staples and the impoverishment of farmers throughout the world.

In some modern cases, it is political strife, poverty and violence that disrupt the agricultural and food distribution processes. Modern famines have often occurred in nations that, as a whole, were not initially suffering a shortage of food. One of the largest historical famines (proportional to the affected population) was the Great Famine in Ireland, which began in 1845 and occurred as food was being shipped from Ireland to England because only the English could afford to pay higher prices.

Some cases caused by the unintentional result of government policy occurred in North Korea in the mid-1990s, and Zimbabwe in the first years of the 21st century. Famine is sometimes used as a tool of repressive governments as a means to eliminate opponents, as in the Ukrainian famine or Holodomor, of the 1930s when food was shipped by Stalin to Belgium, France and Germany while starving the population of Ukraine. In other cases, such as Somalia, famine is a consequence of civil disorder as food distribution systems break down.

*political strife, poverty and violence that disrupt the agricultural and food distribution processes*

It is also important to note that famine occurs not only because a certain chain of events but also because nothing prevents or curtails the process. It is rare for the governments of famine-prone countries to possess the means with which to intervene to prevent a famine. The most effective way of preventing and preparing famine-prone areas is through economic development. We know how effective intervention works and it is through political will that the solution of famine can be resolved in the future.

## **Future perspective of Famine**

On today’s Earth, approximately 40% of the world’s agricultural land is seriously degraded. In Africa, if cur-

rent trends of soil degradation continue, the continent might be able to feed just 25% of its population by 2025, according to the United Nations University's (UNU) Ghana-based Institute for Natural Resources in Africa. As of late 2007, increased farming for use in biofuels, along with world oil prices at nearly \$100 a barrel, has pushed up the price of grain used to feed poultry and dairy cows and other cattle, causing higher prices of wheat (up 58%), soybean (up 32%), and maize (up 11%) over the year. Food riots have recently taken place in many countries across the world. An epidemic of stem rust on wheat caused by race Ug99 is currently spreading across Africa and into Asia and is causing major concern.

Beginning in the 20th century, nitrogen fertilizers, new pesticides, desert farming, and other agricultural technologies began to be used as weapons against famine. Between 1950 and 1984, as the Green Revolution

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transformed agriculture around the globe, world grain production increased by 250%. These agricultural technologies temporarily increased crop yields, but there are signs as early as 1995 that not only are these technologies reaching their peak of assistance, but they may

now be contributing to the decline of arable land (e.g. persistence of pesticides leading to soil contamination). Developed nations have shared these technologies with developing nations with a famine problem, but there are ethical limits to pushing such technologies on lesser developed countries. This is often attributed to an association of inorganic fertilizers and pesticides with a lack of sustainability.

Water deficits which are already spurring heavy grain imports in numerous smaller countries, may soon do the same in larger countries, such as China or India. Various water scarcity issues including falling water tables due to overpumping and disappearing glaciers leading to floods followed by droughts, will eventually lead to cutbacks on grain harvest in the coming decades.

One study concludes that the agricultural crisis will only begin to impact us after 2020, and will not become critical until 2050. The oncoming peaking of global oil production (and subsequent decline of production), along with the peak of North American natural gas production will very likely precipitate this agricultural crisis much sooner than expected. Geologist Dale Allen Pfeiffer claims that coming decades could see spiraling food prices without relief and massive starvation on a global level such as never experienced before.

Famine looms as a potential threat to human beings in the new century. Whether this will result from nature, human politics, or the combination of both, remains an obstinate question, just as it has over the millennia. The answer to whether famine can be prevented in the future depends on sound, humane planning as much as on perceptions of a crisis.



North Korean children suffering from malnutrition

**SOURCE:** [www.flatrock.org.nz](http://www.flatrock.org.nz)

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## Chronology of Famines\*

- ❖ **400 and 800**, Rome, the population of the city of Rome fell by over 90%, due to famine and plague.
- ❖ **800-1000**, Mayan Empire, severe drought killed millions of Mayan people.
- ❖ **1315-1317**, Great Famine in Europe.
- ❖ **1601-1603**, Russia, famine claimed up to one-third Russian population.
- ❖ **1630-1631**, Deccan famine in India kills 2,000,000.
- ❖ **1693-1694**, France, famine in which killed 2 million people died
- ❖ **1696-1697**, Finland, famine wiped out almost a third of the population
- ❖ **1708-1711**, East Prussia, famine killed 250,000 people or 41% of its population
- ❖ **1783**, Iceland, famine caused by Laki (volcano) eruption claiming one-fifth of Iceland's population
- ❖ **1810, 1811, 1846, and 1849**, China, Four famines together killed nearly 45 million people.\*\*
- ❖ **1830**, Cape Verde, famine killed almost half the population
- ❖ **1845-1849**, Ireland, Potato Famine caused by potato blight and crop destruction killed more than 1 million people.
- ❖ **1850-1873**, China, as a result of Taiping Rebellion, drought, and famine, the population of China dropped by over 60 million people.\*\*
- ❖ **1866**, India (Bengal and Orissa), one million perished due famined caused by limited rainfall.
- ❖ **1869**, India (northwest and central provinces), 1.5 million died due to famine caused by drought.
- ❖ **1870-1871**, Persia, famine is believed to have caused the death of 2 million people.
- ❖ **1876-1879**, China, famine in northern China killed 13 million people, caused by drought.\*\*
- ❖ **1876-1878**, India, 5.25 million died in the Great famine, caused by drought.
- ❖ **1892-1894**, China, famine in northern China claimed 1 million casualties, caused by drought.
- ❖ **1896-1902**, India, famine estimated to have caused 5 million deaths due to drought and widespread diseases.
- ❖ **1907**, East-central China, famine claimed 4 million people due to excess of rain.
- ❖ **1914-1918**, Mount Lebanon region, famine during World War I which killed about a third of the population caused by war and Ottoman Empire's policy toward the population of region.
- ❖ **1914-1918**, Belgium, famine resulted from World War I.
- ❖ **1917-1919**, Persia, as much as 1/4 of the population living in the north of Iran died in the famine.
- ❖ **1921-1922**, former USSR, especially Ukraine and Volga region, lost about 1/3 of its population, or about 9 million people, caused by drought and war.
- ❖ **1928-1929**, Northern China, famine caused by drought resulted in 3 million deaths.
- ❖ **1932-1933**, Soviet famine in Ukraine (Holodomor), some parts of Ukraine and North Caucasus area lost an estimated 10 million people killed by famine resulting from Stalin's policy of forced collectivization.\*\*
- ❖ **1932-1933**, Kazakhstan, famine killed 1.2-1.5 million, due to Stalin's policies of collectivization as above.
- ❖ **1936-1938**, Sichuan, China, famine killed an estimated 5 million people.
- ❖ **1942-1944**, Bengali Famine in India took between 1.5-3 million casualties, partly due to war, British policy failures, crop failures, food hoarding.
- ❖ **1946-1947**, Soviet Union, famine caused roughly 1.2 million deaths due to poor harvest and policy failures.
- ❖ **1959-1961**, China, Great Leap Forward / The Great Chinese Famine. The official statistic is 20 million deaths caused by droughts, floods, and poor government policy.\*\*
- ❖ **1965-1967**, Bihar, India, famine caused by drought was responsible for 1.5 million deaths.
- ❖ **1967-1970**, Biafra, Nigeria famine took more than 1.5 million lives caused by civil war.
- ❖ **1968-1972**, Sahel drought created a famine that killed a million people,. causes were drought, but worsened by corruption and mis-management of international aid.
- ❖ **1974**, Bangladesh, famine claimed between 500,000 to 1.8 millions lived due to drought.
- ❖ **1975-1979**, Cambodia, under the Khmer Rouge, an estimated 2 million Cambodians lost their lives to murder, forced labor and famine.
- ❖ **1983-1985**, Sahel Belt, Africa, 22 million people died in the region due to prolonged drought originating in late 1970s.\*\*
- ❖ **1984**, Ethiopia, famine claimed 600,000 to 1 million casualties, caused by war, and drought.
- ❖ **1996**, North Korea, famine killed roughly 0.6-1 million casualties, due to poor harvests and policy failures.
- ❖ **1998-2004**, Congo, famine and disease killed about 3.8 million people due to war.

\* The famines included in this list caused a minimum of one million deaths or reduced the population by 20% according to available data.

\*\* The famines included in this list caused at least 10 million deaths according to available data.

**Sources:** *Famine. The International Encyclopedia of Social Sciences. 1968; The Macmillan Encyclopedia of Death and Dying: <http://www.deathreference.com/En-Gh/Famine.htm>*



## DID YOU KNOW?

### **Precautionary Principle Ignored**

Although there was significant agreement at IFCS Forum VI that the health and environmental problems posed by the international trade of lead and cadmium warrant coordinated international action and support, many countries, especially developing countries and countries with economies in transition, are unable to address the problems via unilateral action. A sad illustration of this reality occurred just 13 kilometers from the Forum VI conference site in Dakar, where 22 children died from lead poisoning over a three month period, and in June a further 31 children were found to have potentially lethal levels of lead in their blood. To that end, the IFCS (Intergovernmental Forum on Chemical Safety) secretariat included the international transport of lead and cadmium via trade as a proposed emerging issue in its submission to the Chemical Safety Management Secretariat, or SAICM.

#### **Sources and more information:**

<http://www.irinnews.org/report.aspx?ReportId=79291>; <http://www.chem.unep.ch>

### **Fish Farming Industry**

Fish farming has expanded to meet the soaring global demand for seafood. On average, each person on the planet is eating four times as much seafood as was consumed in 1950. The average per-capita

consumption of farmed seafood has increased nearly 1,000 percent since 1970, in contrast to per-capita meat consumption, which grew just 60 percent. In 2006, fish farmers raised nearly 70 million tons of seafood worth more than \$80 billion-nearly double the volume of a decade earlier. Experts predict that farmed seafood will grow an additional 70 percent by 2030.

Farmed seafood currently provides an estimated 42 percent of the world's seafood supply, yet there are no widely accepted standards for what constitutes "good" fish farming. By comparison, the organic food industry has strong international and national standards, even though it constitutes just 3 to 5 percent of the world's food supply. The need for more sustainable fish farming is critical, according to the Worldwatch report, *Farming Fish for the Future*.

**Source:** <http://www.worldwatch.org>

### **Children's Health and Welfare**

- There was a 68 percent reduction in measles deaths globally from 2000 to 2006.
- There was a 91 percent reduction in measles deaths in sub-Saharan Africa from 2000 to 2006
- In Nigeria, confirmed cases of wild polio virus dropped from 830 to 286 from 2005 to 2007.
- In India, confirmed cases of wild polio virus increased from 66 to 864 from 2005 to 2007.
- In 2007, 31 countries included key child protection indicators in their national plans, compared to only 14 in 2005.
- In 2007, 119 countries ratified the Optional Protocol to the Convention on the Rights of the Child on the involvement of children in armed conflict, compared to only 3 in 2000.

**Source:** UNICEF – *Data Companion to the Annual Report of the Executive Director (June 2008)*

### **50 Percent of Food is Wasted Causing Water, Food and Hunger Crisis says SIWI, FAO and IWMI**

In order to meet the challenge of feeding the growing global population and to combat global hunger, the Stockholm International Water Institute (SIWI), the Food and Agriculture Organization of the United Nations (FAO) and the International Water Management Institute (IWMI) released a policy brief this summer titled, "Saving Water: From Field to Fork – Curbing Losses and Wastage in the Food Chain," which calls on governments to reduce the amount of food that is wasted after it is grown by half and outlines attainable steps to do so.

The Report highlights an often overlooked issue: we are providing food to take care of not only our necessary consumption but also our wasteful habits. Noting that wasting food also wastes the water used to grow and transport the food, the report draws attention to the rising demand for water-intensive agricultural products, such as beef and bioenergy. In poorer countries, a majority of uneaten food is lost before it has a chance to be consumed. Depending on the crop, an estimated 15-35 percent of food may be lost in the field. Another 10-15 percent is discarded during processing, transport and storage. In richer countries, production is more efficient but waste is greater: people toss the food they buy along all the resources used to grow, ship and produce it. The Report stresses that the magnitude of current food losses presents both challenges and opportunities.

**Source:** <http://www.siwi.org/sa/node.asp>

## **Intergovernmental Forum on Chemical Safety (IFCS), Forum VI**

Based upon the decisions of the UNEP Governing Council (22/4 and 24/3), paragraph 57 of the WSSD POI (Plan of Implementation), the Budapest Statement on Heavy Metals of the Fifth Forum of the IFCS, the objective of the session titled: "International Transport of Lead and Cadmium Via Trade: An International Concern?" was to provide a platform for further consideration of the question on whether the international transport of lead and cadmium via trade rises to the level of an international concern and thus warrants coordinated international action.

**Source:** *www.IPEN.org, Report from IFCS meeting, Dakar, Senegal, September 2008*

## **Climate Change:**

### **• Threatens indigenous populations**

An estimated 370 million people, representing at least 5,000 different indigenous groups in more than 70 countries, currently reside in areas particularly susceptible to global warming. They are often the first to experience erratic weather and suffer its results. In food production, traditional knowledge and practices can facilitate adaptation to climate change. For example, in Peru, potatoes planted in the traditional ways were the only ones to survive record-breaking frost temperatures.

**Source:** *FAO Newsroom*  
<http://www.fao.org/newsroom/en/news/2008/1000906/index.html>

### **• Global emissions totals**

The world's carbon dioxide emissions in 2007 grew 3 percent from 2006 according to an annual report from the Global Carbon Project. The climb in overall emissions last year was especially surprising given the economic downturn that was ex-

## **Diabetes Update: POPs now associated with diabetes**

On July 10, 1976, a reactor at a chemical plant near the town of Seveso in northern Italy exploded causing the release of a toxic cloud that contaminated close to 18 square kilometers of land with TCDD, an industrial dioxin. The immediate effects of the explosion were relatively mild: 15 children were hospitalized with skin inflammation; approximately 3300 small animals were killed. The long term effects of the explosion have left far more severe effects on the people of Seveso, including premature deaths from cancer, cardiovascular disease, and surprisingly, diabetes.

A small group of scientists now believe that diabetes can be triggered by a family of toxic chemicals known as persistent organic pollutants, or POPs. Ever since, the dioxin released near Seveso has been listed among the most highly toxic POPs and has been banned by the Stockholm Convention. U.S. veterans from the Vietnam war, who were exposed to dioxin-contaminated Agent Orange, are among victims like those in Seveso who have developed diabetes.

Once POPs enter the food chain and are consumed by the body, they take up residence in fat. They have long been known to cause birth defects, cancer, immune dysfunction, and endocrine disruption. In spite of the ban of 12 of the worst POPs in 2004, POPs remain present in the environment and food chain due to their continued use in the developing world and because of the fact that the chemicals take decades to break down.

The standard explanation for the incidence of type 2 diabetes—that it is a "lifestyle disease" caused by laziness and over eating—is being challenged by epidemiologists who, in the past decade, have found an association between exposure to POPs and the risk of developing diabetes later on in life. Research has been recently conducted (using the US National Health and Nutrition Survey as their source of analysis) to analyze the relationship between exposure to POPs and diabetes. While results indicate that those who are obese are no more likely to have or develop diabetes than those who are not obese, the study suggests that POPs plus obesity may trigger diabetes, and the fatter you are the higher the risk.

When the researchers examined the link with body mass index, they found that in people with high levels of POPs, the odds of being diabetic were much higher for the obese than the lean. This suggests that something about excess fat may be enhancing the toxicity of POPs. It is premature to conclude that persistent organic pollutants themselves cause diabetes, but the global epidemics of both obesity and diabetes raise the need for ongoing research into the role played by these highly toxic chemicals.

**Source:** *From issue 2673 of New Scientist magazine, 15 September 2008*

pected to help curb emissions. For the first time, developing nations took the lead in overall CO<sub>2</sub> emissions, accounting for 53 percent of the total, according to the report. China took the lead as the world's largest CO<sub>2</sub> polluter, accounting for approximately 60 percent of the rise in worldwide emissions in 2007. Alarming, the report found that the world's natural carbon sinks, including oceans and forests that keep carbon out of the atmosphere, have been absorbing about 3 percent less CO<sub>2</sub> pollution since 2000 than they did in the first half of the 20th century.

**Source:** <http://www.grist.org/news/2008/09/26/CO2up/>

● *May be linked to rise in Legionellosis*

Legionellosis, the oldest of the "new and emerging" infections of the past few decades, has been clinically present for more than 30 years. In the US, the incidence of legionellosis (calculated from voluntary nationwide reporting to the CDC) remained steady at about 1250 cases annually for 1990-2002, and then suddenly soared to more than 2000 cases annually for 2003-2005. The surge reflected higher incidences in the Northeast and Southern US and a disproportionate increase among middle-aged people (age range, 45-64). Rates in men exceeded those in women in all age groups both before and after this surge, with the sex disparity particularly notable among older individuals. The rise in cases may be related to changes in local weather patterns which should be studied carefully, as hotter, muggier conditions might well lead to more cases, according to the researchers.

**Sources:** *Journal Watch General Medicine* September 9, 2008(<http://general-medicine.jwatch.org/cgi/content/citation/2008/909/1>)



**GOOD NEWS**

**Renewable Energy: Comparative Costs**

Renewable Energy in the forms of hydro, solar, geothermal, biomass and wind energy, have emerged as the world's leading substitutes for fossil fuel as the fight against climate change continues. The economic costs and benefits of alternative energy have been argued often on the fears of losing jobs or incurring prohibitively high expenses. A more accurate picture of renewable energy forms comes into focus when we compare the cost of generating 1kWh of power with the potential gain on investing the generated unit of power

**Biomass:** Co-firing systems of biomass energy offers power plants low-cost/low-risk methods to increase production of energy. Currently, generation costs for direct-fire biomass power plants are about \$.09 /kWh, which are expected to decrease to \$.05/kWh. **Geothermal:** The lowest cost of geothermal energy, the energy formed from the heat stored within the earth, is \$.015/kWh. However, operation and maintenance costs result in a \$.015-\$.045/kWh price range. **Hydropower:** Hydropower is the least expensive alternative energy source, generating power for \$.024/kWh. Small hydropower systems are somewhat more expensive, ranging somewhere between three and twenty-five cents per kilo-

watt-hour. **Solar:** While solar technologies generate current costs of \$.08-\$.012/kWh, future advancements are expected to decrease costs to \$.04-\$.05/kWh. **Wind:** Wind power costs have decreased to less than \$.05/kWh, and future technology is expected to make wind even more inexpensive.

Investment in renewable energy has risen significantly in the past year, with worldwide investment up to \$71 billion in 2007 compared to the \$55 billion invested in 2006. Increased investment in Solar and Wind energy sources accounted for the majority of the \$16 billion growth. Germany increased spending on alternative energy the most, followed by China and the United States, respectively. Investment is expected to double from 2008-2010 as the global community becomes more aware of the necessity and viability of alternative energy.

**Source:** *Energy News Central*, September 22, 2008, "Renewable Energy Technology"

**International Group Commends PR's Mercury-Free Health Care System**

Health Care Without Harm (HCWH) - Southeast Asia commended the recent signing of an Administrative Order which will make the Philippine health care system mercury-free by 2010. Administrative Order 2008-0021 instructs all hospitals to stop the distribution of mercury thermometers in patient admission /discharge kits. In addition, it requires all hospitals to follow the guidelines for the gradual phase-out of mercury in two years. Additional provisions of the AO is the requirement of all new health care facilities applying for a license to submit an inventory of all mercury-containing devices that will be used in their facility and a mercury elimination program corresponding

to such. The Administrative Order also mandates that all other health care facilities other than hospitals shall have a Mercury Minimization Program in place. The Department of Health (DOH) and HCWH agreed to come up with the AO outlining the gradual phase out of mercury devices in the country, including the thermometer and sphygmomanometer, during the First Mercury in Health Care Southeast Asia Conference in February 2006.

**Source:** *Health Care Without Harm (HCWH), Southeast Asia, August 19, 2008, <http://www.hcwh.org/us/mercury/issue>*

### **Foreign direct investment may have peaked in 2007, annual Report reveals**

Geneva, 24 September 2008 - Foreign Direct Investment (FDI) in South-East Europe and the Commonwealth of Independent States (CIS) rose to US \$86 billion in 2007, reveals UNCTAD's World Investment Report 2008. This was a 50% increase over 2006, and the seventh consecutive year of climbing foreign investment in the region .

UNCTAD's global investment survey, subtitled "Transnational Corporations and the Infrastructure Challenge," was released today.

Inward FDI flows to South-East Europe and the CIS remained concentrated in a few economies, with the top three recipients - the Russian Federation, Kazakhstan, and Ukraine, in that order - accounting for 85% of the total (figure 2). In the Russian Federation, investment opportunities in energy and other natural-resource-related activities, the fast growing local consumer market, and the removal of restrictions on foreign participation in some local industries, such as electricity generation, drove FDI inflows up by 62%, to \$52 billion. Flows to Kazakhstan and Ukraine amounted to \$10 billion each. In these countries, the largest investments went into the development of

oil and gas fields and into the recently more open banking industry.

Developed countries, mainly members of the European Union, remained the largest sources of FDI to the region.

**Source:** *UNCTAD/PRESS/PR/2008/034 24/09/08; further information available online at: The World Investment Report and its database are available online at <http://www.unctad.org/wir> and <http://www.unctad.org/fdistatistics>*

### **World's First Power-Free Circuit Board Developed**

Rohm Co., a Japanese semiconductor manufacturer, announced in May of this year that it has developed a new technology that uses a non-volatile logic circuit in a register, which is the available memory. The company's new technology allows for memory to store data even without the power turned on. Rohm reports that when testing the technology with the CPU of a game console, the CPU's power consumption was reduced by 70 percent. This is because a CPU with non-volatile memory needs no standby power, which is otherwise required frequently during a game. The company expects that the CPU's power consumption can be further reduced by 95 percent or more. This technology also has potential with saving energy in home electronics, since many use standby power to store data when turned off.

**Source:** *<http://www.japanfs.org/db/2195-e>*

### **Japanese Burger Chain Using More Petroleum-Free Containers**

MOS Food Services, Inc., a major Japanese hamburger chain, is stepping up its efforts to use non-petroleum materials for its takeout containers instead of traditional plastics. During the course of a voluntary environmental agreement with the Ministry of the

Environment from 2006 to 2007, the company managed to convert 50.7% (by weight) of their containers to non-petroleum products. Some of the switches it made are: Styrofoam to paper, plastic to paper, plastic to bioplastic, and polyethylene to paper. Although it is no longer bound by the agreement, MOS plans to help mitigate global warming with future ecofriendly actions.

**Source:** *<http://www.japanfs.org/db/2192-e>*

### **Saving endangered species**

Lawsuits brought on by the Center for Biological Diversity against the Secretary of the Interior, Julie Macdonald's violations of Marine Mammal Protection Act and illegal Endangered Species Act decisions made by political interference during the past years, is giving relief to a number of endangered species, including the polar bear, declared "protected" last May; the Hawaiian Monk Seal; and almost 60 imperiled animals and plants..

**Source:** *Center for Biological Diversity - [kieran@biologicaldiversity.org](mailto:kieran@biologicaldiversity.org), Environment News Service*



**SOURCE:** *[www.exzoobrance.com](http://www.exzoobrance.com)*

*Good News continuing on page 11*

## Chornobyl Update: OVERVIEW

On April 26th, 1986, steam explosions destroyed the Chornobyl Nuclear Power Station's Unit Four Reactor. For the next ten days the reactor burned uncontrollably, releasing 100 times more radioactive emissions than both the atomic bombs dropped on Hiroshima and Nagasaki combined. In an attempt to curtail continuing radiation leaking from the destroyed Chornobyl reactor, a "sarcophagus," or covering, was built around the reactor. The sarcophagus, seen as only a temporary measure, was constructed very quickly (in only six months) and under extremely difficult conditions. The sarcophagus was constructed from a distance using large cranes to drop components into position. Consequently, these components were not welded together and gaps between them remained. One estimate noted there are as many as a thousand square meters of openings in the sarcophagus. These openings allow wind, water, and animals to go in and out carrying high doses of radiation into the surrounding area. Furthermore, the sarcophagus was built on top of the old reactor structure which was ravaged by the initial explosion and the resulting fire. As such, the sarcophagus's foundation is not structurally sound and is susceptible to collapse.

If the sarcophagus surrounding the Chornobyl Nuclear Reactor were to collapse, the results would be strikingly similar to the initial Chornobyl nuclear accident spewing radiation throughout Europe. Therefore, it is imperative that immediate action be taken. Most importantly, a new shelter must be constructed. In 2003, a design was finally chosen. The new shelter is a dome, large enough to hanger three 747 aircrafts. The dome is to be built off site and then slid into place over the reactor and existing sarcophagus. Unfortunately, the cost of building this new sarcophagus is estimated at \$1.1 billion USD. Previous attempts to raise funds for a new sarcophagus have been unsuccessful. There are two major reasons for Ukraine's inability to raise the necessary funds. First, a lack of awareness limits the avenues from which these funds can come. Second, any funds that are raised are mishandled; Ukraine like the other former Soviet Republics, is rampant with corruption. If the population of Europe was aware of the necessity for a new sarcophagus and of how the absence of one could have a grave impact throughout Europe, these funds could undoubtedly be raised and adequately administered.

In the interim period, before the new sarcophagus is built, it is necessary to provide for the possibility of collapse by planning ahead to help mitigate the consequences of such a disaster. First, rapid modeling of radioactive plume dispersion will be necessary to aid in faster containment and evacuation of contaminated



WIT CEO Dr. Christine K. Durbak and Amb. Nina Kovalska in front of the old sarcophagus. **Source:** WIT

areas. Second, communication networks capable of handling evacuation and health care needs must be established. Third, evacuation and medical resources need to be readily available. Fourth, provisions need to be made to ensure the continued mental health of the affected populations. Finally, accurate monitoring of events must be made available to the general public via the media.

It is important to realize that the issues regarding the Chornobyl sarcophagus have global ramifications. Not only would a sarcophagus collapse affect all of Europe, but with the proliferation of nuclear power Chornobyl provides a valuable case study for the handling of future nuclear disasters. The lessons learned from the initial incident, as well as planning for a potential sarcophagus collapse, can be applied to any nuclear disaster. Just last July, the Tokaimura nuclear fuel-processing plant in Japan experienced a severe uranium leak resulting in radiation levels 15,000 times higher than normal, thus highlighting the very real risk faced world-wide. Nuclear power is an essential energy resource that the world continues to rely on. As a consequence, it is absolutely imperative that the world garner the knowledge from the totality of the Chornobyl disaster and utilize it to prepare for, and protect against, the possibility of any future nuclear accidents.

# "New Safe Confinement" Structure

The "New Safe Confinement" Structure, or NSC, will be an all steel hemispherical building measuring 150m long by 257m wide and 105m tall. Large tubular steel pieces will be fabricated off site and transported to the exclusion zone where the two halves of the arch shaped structure will be separately constructed just 180m west of the Unit 4 reactor. Simultaneously, a concrete and steel structure will be sunk into the radioactive soil around the perimeter of the reactor. This structure will serve two purposes. It will act as the foundation or anchoring point for the NSC. Also, it will have steel tracks built into it which will guide the two halves of the arch into position over the reactor.

Once the track/foundation has been installed and the two arch halves have been erected, they will be pulled into position over the reactor using computer controlled cable winches. This will be the most delicate phase of construction as there is a chance that the movement of the two arch structures into position could cause a collapse of the original Sarcophagus. Further complicating the situation is the fact that a mobile structure of this size has never been employed before. In order to minimize this danger, this entire



phase will be completed in just under 24 hours. After which point the reactor will be essentially secure.

The third and final stage of construction will involve the installation of 4, 100 ton remote controlled gantry cranes inside the structure as well as shielded cable cars for transportation of experts inside the NSC. These features will allow for the safe deconstruction of reactor 4 and the original sarcophagus.

While this design is likely the best possible solution, there are an unfortunate number of issues with its construction. First, as previously mentioned, during the second phase there is a serious risk of collapse which would have catastrophic results. Second, the installation of the foundation/track system will require workers to be in the immediate vicinity of the reactor and it will necessitate excavation of highly contaminated soil. Third, because of the immense logistics of moving a structure of this size, the fabrication will take place just 180m west of the reactor exposing workers to radiation. Finally, the dismantling process, which will take place after the NSC is in place, will at times, require specialists to enter the structure.

**Sources:** World Information Transfer: 15th International Conference Commemorating Chornobyl - remembering Hiroshima/Nagasaki; IEEE: Engineering Chornobyl [www.theiet.org/engtechmag](http://www.theiet.org/engtechmag) 9 February - 22 February 2008 Engineering & Technology.

Good News, continuing from page 9

## UNICEF – Sustainable Elimination of Iodine Deficiency

Over the past 20 years, there have been increased efforts to reduce the cases of iodine deficiency. A diet low in iodine, is particularly detrimental in the early pregnancies and is the number one cause of preventable mental retardation. Other such effects are stillbirth and miscarriage, both increasing infant mortality. In fact, every year, 38 million newborns in developing countries are unprotected from the consequences of brain damage associated with iodine deficiency disorders (IDDs). Fortunately, this problem can easily and inexpensively be prevented by iodizing all salt for consumption.

**"Information can be one of the most effective tools for overcoming political resistance."** -

UN Millennium Project:  
Task Force on Water and Sanitation,  
London: Earthscan, 2005, p.63

At the time of the World Summit for Children in 1990, less than one-fifth of all households were using iodized salt. Since then, iodized salt consumption increased in every region of the world. There are a few especially notable cases; in Latin America and the Caribbean, 85 percent of the households are consuming adequately iodized salt and in East Asia, it is 84 percent. By 2000, the international average had jumped to some 70 percent, a remarkable achievement considering that 48 countries with acknowledged IDD problems had no salt iodization programs at all.

Right now, more than 120 countries have implemented salt iodization programs, an increase of over 30 percent in just six years. A total of 34 countries have reached the universal salt iodization goal and an

Good News, continuing from page 11

additional 28 are well on their way, covering more than 70 percent of their households. Severe instances of IDD have virtually disappeared from rural Bhutan, Bolivia, China, Ecuador, and Zimbabwe. Afghanistan, Bangladesh, Egypt, Kyrgyzstan, and the Philippines have shown steady progress even during recent years.

IDD is an extremely widespread problem. However, it is not without a viable solution: iodized salt. Within a mere two decades, the percentage of households consuming iodized salt jumped from a paltry 20 percent to a staggering 70 percent. With further commitment to continuing the efforts of today, the children of tomorrow would not have to suffer the consequences of the easily preventable deficiency of iodine.

**Source:** UNICEF Publications:

*Sustainable Elimination of Iodine Deficiency:*  
[www.unicef.org/publications/index\\_44271.html](http://www.unicef.org/publications/index_44271.html)

## NEC's New Data Center Server Cuts Power Consumption by Up to 40%

NEC, a prominent Japanese electronics company, announced in May of this year that it has developed a power-efficient two-way rack server for data centers, and promptly began sales of its new Express5800/i120Ra-e1. Consuming only 126 watts during operation, a reduction of 40 percent when compared to previous models, this server derives its efficiency by the efficiency of the component parts, including CPUs, chipsets, and memory. Not only is it environmentally friendly, but it is economically beneficial as well. Being extremely space efficient, more servers can be placed in the same amount of physical space; being electrically efficient, more servers can be used without increasing total power consumption.

**Source:** <http://www.japanfs.org/db/2193-e>



**VOICES**

## Mexico to Host 2009 World Environment Day

Mexico to Host 2009 World Environment Day under the Theme 'Your Planet Needs You - 'Your Planet Needs You- Unite to Combat Climate Change,' on June 5th, 2009. World Environment Day was established by the UN General Assembly in 1972 to mark the opening of the Stockholm Conference on the Human Environment. Another resolution, adopted by the General Assembly the same day, led to the creation of UNEP. Mexico, a country at the crossroads of the Green Economy and one increasingly in the centre of regional and global affairs, will host the international 2009 World Environment Day celebrations.

The decision in part reflects the growing practical and political role of the Latin American country in the fight against climate change, including its growing participation in the carbon markets. Mexico is also a leading partner in UNEP's Billion Tree Campaign.

**Source:** UNEP News Release, Mexico City/Nairobi, 22 September 2008

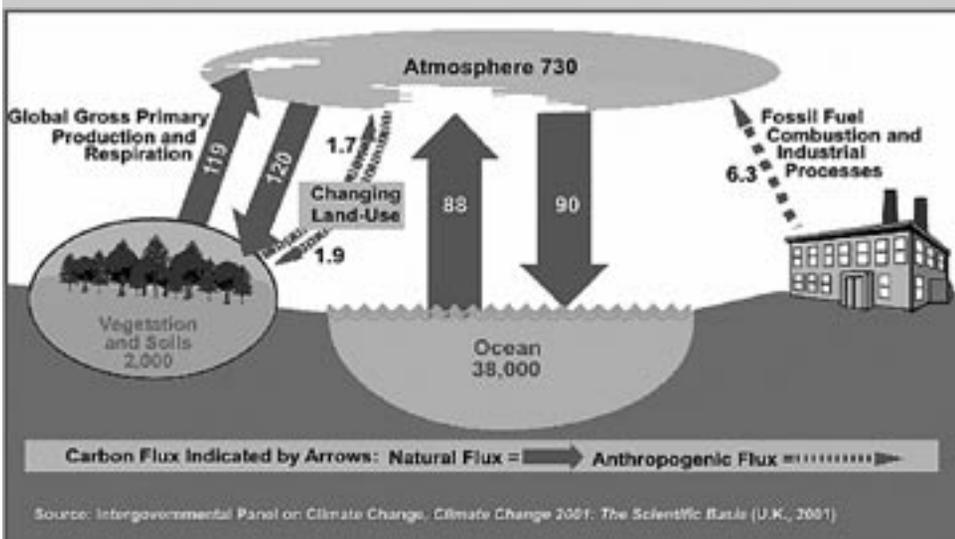
## Progress for Children: A Report Card on Maternal Mortality (No. 7)

Millennium Development Goal 5 is to improve maternal health, and its bold target is to reduce the maternal mortality ratio by three quarters be-

## MEXICO AND CLEAN DEVELOPMENT MECHANISM PROJECTS

Mexico accounts for about 1.5 per cent of global greenhouse gas emissions. New findings on Mexico and the Clean Development Mechanism (CDM) estimate that Mexico's CDM projects accumulated to 187 projects by September 2008, up from 4 in 2004. In relation to other Latin American countries, Mexico is now second after Brazil with 303 projects. The lion's share of Mexico's CDM projects is currently agricultural and involves the flaring of methane produced by animal wastes. 55 per cent of CDM projects are in this category. Close to 30 per cent of the projects are renewables which includes wind, solar, biogas and biomass. Biogas represents 70 per cent of Mexico's CDM renewable where the methane from wastes is harvested to generate electricity rather than flared.

**Source:** UNEP News Release, Mexico City/Nairobi, 22 September 2008



tween 1990 and 2015. Still, each year more than half a million women die from pregnancy-related causes that are avoidable. At the present rate of progress, the world will fall well short of the MDG 5 target. This report details progress in maternal health and highlights areas where improvements are needed.

**Source:** Direct Link to Report: [http://www.unicef.org/publications/files/Progress\\_for\\_Children-No.\\_7\\_Lo-Res\\_082008.pdf](http://www.unicef.org/publications/files/Progress_for_Children-No._7_Lo-Res_082008.pdf)

## **INCHES (International Network on Children's Health, Environment and Safety), Launches International Film Competition**

As part of the 10th Anniversary celebrations starting from 15 September 2008, the International Network on Children's Health, Environment and Safety (INCHES) is launching an International Film Competition on Health and Environment, sponsored by several organizations. The competition is called "Focus on Children in a Healthy Environment" and is centered on the themes "Climate" and "Environmental Health". It will run until 1 March, 2009 and will be open to all nationalities and ages. Several cash prizes of 2500 euros will be awarded to the winners of both categories. There are also separate cash prizes for films up to 5 minutes of duration and up to 15 minutes.

Full details of the competition's rules and regulations, information on how to submit films, and an application form can be read and downloaded at [www.inchesnetwork.net/filmcompetition.html](http://www.inchesnetwork.net/filmcompetition.html)

## **Young Consumers Guide to Eco-Friendly Living**

UNEP and UNESCO Announced a new and updated edition of the

popular YouthXchange Training Kit. The 2008 Training Kit, now in its second edition, is a train-the-trainer tool that aims to promote sustainable consumption patterns among young consumers worldwide. This updated guide includes a chapter on how to find a balance between youths' consumer aspirations of dressing cool and fashionable while at the same time being aware of the impact of their consumption on, for example, climate change. New to the guide are the following features: a clear link between our consumption patterns and climate change; a more substantial e-waste section; updated

data and scientific information; and two new chapters: one on the UN Decade on Education for Sustainable Development and one on fashion. YouthXchange has been translated and adapted in 19 languages and is available in a bilingual (French and English) website.

**Source:** UNEP-UNESCO News Release, Paris/Nairobi – 1 October 2008; for more information visit: [www.youthxchange.net](http://www.youthxchange.net); [http://www.time.com/time/specials/packages/article/0,28804,1841778\\_1841781\\_1841805,00.html](http://www.time.com/time/specials/packages/article/0,28804,1841778_1841781_1841805,00.html)

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## **PLENTY: THE WORLD IN GREEN MAGAZINE AND WEBSITE DISCUSS REDUCING METHANE GAS EMISSIONS FROM COWS**

A typical cow belches hundreds of liters of methane every day, accounting for more than 18 percent of global emissions coming from the world's 1.5 billion cattle. Methane is 25 times as potent a greenhouse gas as carbon dioxide, though its overall climate impact is nearly half as significant because there's less of it in the atmosphere. But with livestock emissions predicted to double by mid-century, researchers are wording on a bovine version of Beano. Some flatulence-busting technologies include: food additives to cow feed like sunflower seeds, molasses, and garlic; high-tech grass containing highly concentrated organic acids; switching cattle to a diet of grain, clover, and wild flowers; and harvesting the methane given off as the dung decomposes. The gas can either be used as a fuel or burned to convert it into less harmful CO<sub>2</sub>.

**Source:** [http://www.plentymag.com/features/2008/10/bovine\\_beano.php](http://www.plentymag.com/features/2008/10/bovine_beano.php)

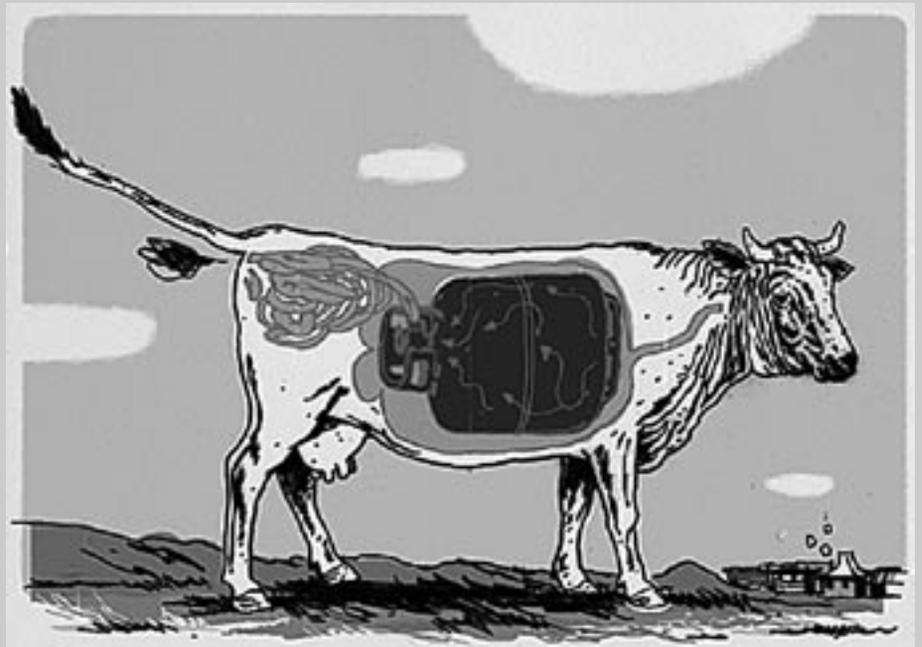


Illustration by Josh Cochran

*Continuing from page 16*

of the century the net effect will be largely negative.

- The Great Plains of the US and Canada are expected to be particularly vulnerable as will crops such as wine grapes which have already reached their threshold for temperature.

### **Energy use:**

- It is expected that overall energy demand will increase as demand for energy for air-conditioning and other climate sensitive processes, such as pumping water for irrigation, increase as well. This is true even when taking into account the likely decrease in demand for space heating.

- Because most of our energy is generated using technologies that emit GHGs, increased energy demand will only perpetuate the cycle.

### **Water resources:**

- All regions show a net negative impact on water resources.

- In some areas it is expected that runoff, and therefore fresh water resources, will decline.

- In areas where runoff is expected to increase, other issues will arise such as increased variability of precipitation and seasonal shifts in supply, not to mention floods and risks to water quality.

### **Costal Zones and Sea Level Rise:**

- In the last century, sea levels rose between 5-6 inches, whereas in this century, levels are projected to rise between .6-2 feet.

- This will destroy sensitive costal zones and their extreme biodiversity

- It will also result in the reclamation, by the sea, of large swaths of land which we currently inhabit.

- This will also result in the salination of costal fresh water supplies such as the Florida everglades.

### **Ecosystems and Biodiversity:**

Phonological changes (changing in timing and growth) are already well documented in a plethora of plant species, and because our ecosystem is interconnected, this is bound to have widespread effects that are as of yet unknown.

The Intergovernmental Panel on Climate Change (IPCC) concluded that human activity has significantly caused the rise in greenhouse gasses. The steady expansion of the world's population, from about 6 billion currently to 9 billion by mid-century, greatly complicates the efforts to control and adapt to global warming. Global preferences for industrial growth and consumerism suggest that our current patterns of life will be adopted by the 3 billion yet to be born by 2050. It appears that we are leaving it to the next generations to figure out how to adjust our consumer/shopper behaviors to their tougher environmental conditions.

Humans have proven to be a malleable species, so one might conclude that our current doom and gloom worries will get resolved in the future. One thing we might consider, however, is how or whether fewer people would have a positive effect on our ecosystems and natural resources everywhere in the world. We know that the carbon footprint of a child born in a rich, developed nation is much greater than the footprint of a child born in a less developed one. Population statistics demonstrate that populations will grow the fastest in the

developing world, in the world's poorest places, where a child will use the fewest resources and create the smallest footprint. However the large number of children may be equivalent to the one child in the developed world.

Just as we talk about reducing our carbon emissions in daily life today, and as leaders try to agree to international carbon limits, we now might incorporate the notion of population reduction as another means to curtail greenhouse gasses. Typically, population issues are examined in relation to how global warming will harm particular groups. What if another question is asked: How does population change affect global warming? The answer is easy, if the current status quo continues. More people will flock to coastal cities where intensified storms will cause death and destruction on a wider scale than we know. As resources diminish, people will go to war with each other causing more death and destruction, and as new diseases emerge and known ones mutate, even more people will die. Thus, Nature will strike a new balance with the human species and 9 billion may not be realized.

One of the most difficult challenges posed by our warming world - indeed possibly the hardest thing of all - is to change the status quo behaviors that led us to our current circumstances. And the surest way to accomplish that is through a fair education for each capable girl and boy, emphasizing the value of every person as a contributing member to a global society. Knowledge, after all, is power.

**Source:** *The World Health Organization: Climate and Health, [www.who.int/mediacentre/factsheets/fs266/en/index.html](http://www.who.int/mediacentre/factsheets/fs266/en/index.html)*

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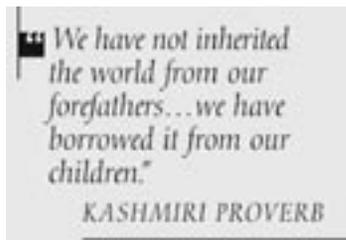
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World Information Transfer, Inc., (WIT) is a not-for-profit, non-governmental organization in General Consultative Status with the United Nations, promoting environmental health and literacy. In 1987, inspired by the Chernobyl nuclear tragedy, WIT was formed in recognition of the pressing need to provide accurate actionable information about our deteriorating global environment and its effect on human health. WIT exercises its mandate through:

- **World Ecology Report (WER).** Published since 1989, the World Ecology Report is a quarterly digest of critical issues in health and environment, produced in four languages and distributed to thousands of citizens throughout the developing and developed world.
- **Health and Environment: Global Partners for Global Solutions Conference.** Since 1992, WIT has convened what we believe to be one of the world's premier forums for the presentation of scientific papers by international experts on the growing clinical evidence supporting the link between degrading environments and diminished human health. The conference has been convened as a parallel event to the annual meeting of the UN Commission on Sustainable Development. The scientific papers presented at the conference are available on WIT's web site.
- **Health and Development CD ROM Library.** This project consists of a library of CDs each of which focuses on a subject within the overall topic of Development and Health information. Our Human Information CD ROM Library offers one bridge across the "digital divide" for both developed and developing countries. The project is continuous with future topics being developed.
- **Health and Development CD ROM Library for Ukraine.** In conjunction with UNDP, WIT has developed a country specific library disc for distribution in schools and centers in Ukraine.
- **Humanitarian Aid.** WIT provides humanitarian relief to hospitals and orphanages in areas devastated by environmental degradation. Our shipments have included medical equipment for pediatric medical facilities, computer and telephone systems, clothing, toys, prosthetic devices for gifted children.
- **Internship Program.** WIT provides an internship program for young people interested in international diplomacy, international health, and sustainable development.
- **Scholarship Program.** With the support of the K. Kovskyevych Foundation, WIT offers scholarships to intellectually gifted university students in need of financial assistance to continue their studies in areas related to health and environment.
- **www.worldinfo.org** WIT provides through its web site up to date science based information on the relationship between human health and the natural environment, including the papers from the WIT's annual conference, the archived World Ecology Reports, and our new Ecology Enquirer, an e-newsletter written by our Interns targeted to young people.
- **Centers for Health & Environment.** The aim of the Centers is to promote research, education and solutions. The first center was opened in Ukraine in 1992, and the second center opened in Beirut, Lebanon in 1997 at Bir Hasan, United Nations Street, Al-Salaam Building.

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Winter 2008

# Point of View:

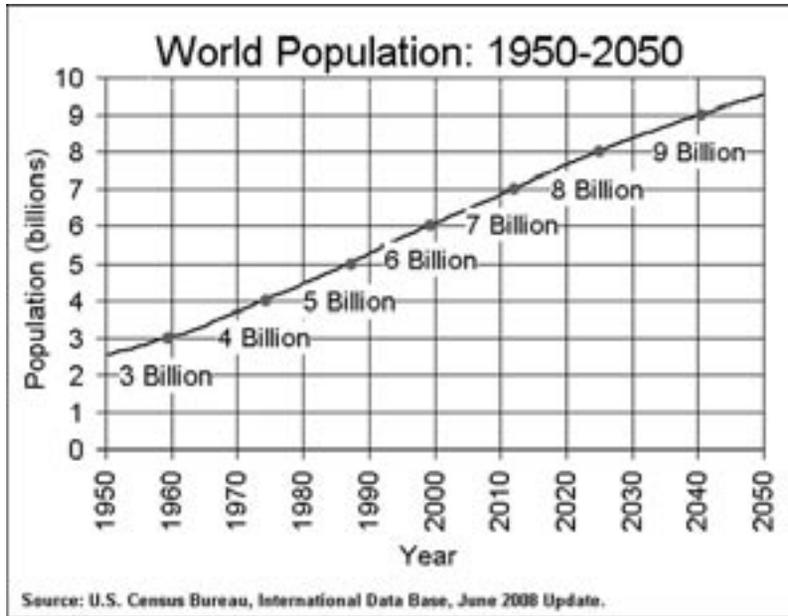
## THE GREENHOUSE EFFECT ON 9+ BILLION PEOPLE

Although fewer and fewer people deny the facts of global warming, some continue to ignore the key role human progress plays in causing greenhouse gas emissions, the key source of our warming planet.

The greenhouse effect, a natural occurrence, causes about 2/3rds of the sun's radiation to become trapped in the earth's atmosphere increasing temperatures

to a level which makes Earth habitable to humans. However, since the 1800s the concentration of carbon dioxide, the green house gas (GHG) primarily responsible for the greenhouse effect, has increased by over 30% which has resulted in more solar radiation being trapped in the earth's lower atmosphere.

The significant increase in GHGs has profound consequences besides the obvious increase in global temperatures. GHGs affect health, agriculture and food supplies, energy use, water resources, costal zones and sea levels, ecosystems and biodiversity.



### Health:

- Extreme cases of heat and cold can cause potentially fatal illnesses such as heat stress or hypothermia as well as increasing the severity of heart and respiratory diseases. As was the case with the heat wave in Europe in 2003 which was associated with hundreds of deaths.

- Stagnant weather traps airborne pollution

which can impact respiratory health.

- The range of vector borne diseases has increased with temperature.

### Agriculture and Food Supplies:

- The frequency of heat stress, droughts, and floods have had significant negative effects on crop yields and the health of livestock.

- While some areas will benefit from slightly increased temperatures in the next 50 years other areas will see a comparable decrease in production. Towards the end

*Continuing on page 14*



### HOW YOU CAN HELP:

WIT is a non-profit, international, non-governmental organization, in consultative status with the United Nations, dedicated to forging understanding of the relationship between health and environment among opinion leaders and concerned citizens around the world. You can help us with your letters, your time, and/or your donations.

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*"Never doubt that a small group of thoughtful committed citizens can change the world. Indeed it's the only thing that ever has."*

MARGARET MEAD

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