

Global Issues

Introduction

We're not passengers on Spaceship Earth; we're the crew. We're not residents; we're citizens. The difference, in both cases, is responsibility.

Rusty Schweickart, Apollo astronaut

The idea of issues that are truly global in scale is new to us. It emerged late in the twentieth century, perhaps when humans first saw images of the Earth from space – a small blue-green planet devoid of boundaries and arbitrary political divisions. The concept is still new enough to be ridiculed or resisted by individuals and institutions that see the world from the traditional perspective of state sovereignty.

Regardless of their novelty, global issues are so important that they may literally determine the future of the human species. Global issues impact all social, environmental, economic, health, and security concerns. And those concerns are, in themselves, global issues.

At this point, there seems to be only minimal agreement among nations and policymakers about the scope and scale of global issues. National perceptions and interests still drive most analyses of, and responses to, them. There is, in fact, no internationally agreed upon definition of global issues, nor is there a concerted plan of action to deal with them.

For the purpose of this guide, we will define global issues as issues that:

- Have significant impacts for large numbers of people
- Are trans-national
- Are persistent, or long-acting
- Are interconnected

To expand upon this, global issues are those that have, or hold the potential for, far-reaching impacts on large numbers of people. The issue of peace and conflict is one example. Populations and communities in areas of conflict suffer the direct humanitarian and environmental impacts of war, while refugees may impact neighboring countries or regions. Citizens of nations far away may be forced to pay taxes to support peacekeeping, military intervention, or containment efforts, and all nations and people may be threatened should the conflict escalate and weapons of mass destruction, such as chemical, nuclear or biological devices, be employed.

Global issues are trans-national, or trans-boundary, in that they are beyond the capability of any one nation to resolve. The United States, for example, despite its vast wealth and powerful military, cannot by itself address global warming. Even though the U.S. could suffer severely from climate change – including inundation of coastal communities, casualty losses from extreme weather events, crop failures due to heat or drought, or inflows of refugees from other affected areas that are less able to deal with such impacts – it cannot offset this potential disaster without a comprehensive agreement with most other nations.

Global issues are persistent or long acting in that they may take years, decades, or even generations to be fully felt, and may require similar time frames to be resolved. World population, for example, has expanded exponentially for the past several hundred years. It has doubled just since 1960, and could potentially do so again in just 40 years. Even if all the nations of the world were to focus energy and resources on stabilizing population, such a goal would likely require several decades to achieve.

Global issues are interconnected, which means that a change in one – whether for better or worse – exerts pressure for change in others. Narrowing the gap between rich and poor, for example, could positively impact food security, health, population, and the economy. Food security is not only a matter of production and distribution, but also of population size, economics, human rights, and health. It also has significant environmental impacts because of the damage done in the process of that production and distribution.

Global issues are separate from events; they are the driving forces behind events. The nuclear disaster at Chernobyl, for example is not a global issue. It is an event, which is part of a larger pattern that includes Three Mile Island, global warming, and the Gulf War. Underlying that pattern of events is the global issue of energy.

A model that is helpful here is the "iceberg" example often used in systems theory. Just as only the tip of an iceberg is visible above the surface of the sea, events are visible indicators. We tend to concentrate on these events, because they are easy to see, and we often tend to base our decisions on them. If we are able to look below the surface, however, we will find these events are only part of a pattern of related events. And if we look deep enough – at the broad base of the iceberg that makes up most of its mass – we will find the systemic structures that generate those patterns and events.

When studying global issues, it is helpful to remember this model. If we truly want to understand and resolve these issues, we have to understand and change the systemic structures that generate them. Most important of all, we have to understand that the most powerful components of any structure are the paradigms – the mental models and assumptions – of the people who create and participate in those structures. If we truly wish to change the structures that generate the patterns and events that threaten us, it is as simple – or as difficult – as changing the way we think.

Some of the most critical global issues confronting us at the beginning of the 21st century:

- Population
- The Rich – Poor Gap
- Food and Water Security
- Environment
- Health
- Economy
- Energy
- Peace and Conflict
- Governance

Some readers may well identify others. Some of these global issues – such as food security, which has challenged human beings throughout history – may be resolved in our lifetimes. Others will likely arise.

What is important to remember as we explore these issues is that while they may be daunting – and at times even frightening – they also provide us with rare opportunities. As Israeli statesman Abba Eban said, History teaches us that men and nations behave wisely once they have exhausted all other alternatives. As other alternatives disappear, and as the impacts of these issues multiply, the imperative and the opportunity for positive change increases.

Global Issues on the UN agenda

Africa	Environment	Peace & Security
Ageing	Family	Persons with Disabilities
Agriculture	Food	Population
AIDS	Governance	Refugees
Atomic Energy	Health	Terrorism
Children	Human Rights	Volunteerism
Climate Change	Human Settlements	Water
Decolonization	Humanitarian Assistance	Women
Demining	International Law	
Democracy	Oceans/Law of the Sea	
Disarmament		

Environment

Introduction

Human impacts on the natural world are both more apparent and more widespread than ever before in human history. It is increasingly more difficult to clean up existing environmental disasters and halt further degradation of important natural resources. But public awareness about the key role that we can play in protecting nature and natural processes is growing. Destruction and protection hang in the balance at this crucial time in human history.

As we scan the globe, signs of environmental degradation are everywhere. Almost 40 percent of the Earth's surface has been converted to cropland or pasture and half of the tropical forests have been destroyed or degraded. Past productive pasturelands are turning into deserts at an alarming rate while low-lying coastal areas appear to be threatened by flooding from the effects of global warming.

In the atmosphere surrounding us, the protective ozone layer has been damaged, but not irreparably. Power plant and automotive emissions create widespread air pollution; in a number of the world's largest cities, the air quality is frequently below international health standards. Fresh water is declining in quality and quantity.

Globally, an estimated three unique plant and animal species go extinct every hour. As a result of over fishing, many species of fish exist only in small, isolated pockets in the oceans of the world. Plant species that form a natural pharmacological laboratory are disappearing with the tropical rainforests.

As world population grows, one of the biggest questions we must ask is: how many people can the Earth and its environment support? This "carrying capacity" of the globe is affected by the way we use its resources and protect the environment. Ultimately, the environmental footprint of each of the Earth's inhabitants will determine how many people the globe can sustain. Today, the average human footprint is estimated to be just over 7 acres, while the available ecological space is only 5.5 acres. The collective human footprint is bound to have a significantly negative impact on the environment.

The current environmental crisis offers an opportunity for the economic engines of the world to convert to environmentally sustainable practices that are, in fact, good business. As a result we're beginning to craft approaches to protect this fragile natural world. This means addressing the root causes of environmental degradation:

- 1) Economic and social policies that promote the over-consumption and the unsustainable production models of rich countries; and,
- 2) Economic and social inequalities in poor countries.

A remediation economy offers numerous benefits not just to the environment but also to all of the Earth's inhabitants. It brings with it the promise of improved employment and a narrowing of the gap between rich and poor as well as enhanced food and water security and adequate health care. Environmental remediation is a major leverage point for global change.

First Decade of the 21st Century: Major Impacts on the Environment

Human history has recorded our impact on the environment. Whether we're clearing land for agriculture, damming rivers, or extracting ore from the ground, the natural world is always affected by our actions. But until the 20th century, the most destructive environmental practices were usually local in scope. Today, even the local is global as acid rain and global warming affect the entire world. A web of interdependence assures that the smallest action by a citizen of one country can impact everyone else.

World population growth has fueled an increased impact on the environment. United Nations experts predict that, at the current fertility rate, there could be as many as 13 billion people in the world by 2050, more than double the present population. Nearly all of that growth will take place in the developing world, where many countries are doubling their population every 30 years. We also know that the number of people living in cities has tripled since 1950, and now constitutes more than 40 percent of the global population. Dense concentrations of people place intense demands on the environment.

Many would argue that the Earth can absorb billions more people, but only if its resources are both distributed more equitably and used in a truly sustainable way. We're aware of the huge appetite of the industrialized countries for energy,

commercial fuels, wood, and steel products as well as all other natural resources. If those patterns of consumption prevail, natural resources will be exhausted and environmental degradation will be irreversible.

Compounding that problem is the fact that, drawn into the global economy, many of the developing countries are approaching rich nations' standards of consumption and waste. We need to pay attention to the harmful by-products of what we produce. Today's emphasis on freer and more open markets can exacerbate the problem, because it often places a lower value on Earth's natural resources and lessens the perceived need to manage them sustainably.

The industrialized nations pride themselves on their productivity; in fact it is usually the sole measure of economic success. The production of food is a good example; in the pursuit of quantity and bushels-per-acre we use fertilizers, pesticides, and herbicides whose negative impact on the environment have been proven scientifically. Genetically engineered foods may provide an abundance of much needed food in this century, however its long term environmental and health impacts are yet to be determined.

In the developing world, the cultivation of single cash crops like coffee is often promoted over the application of small scale mixed agriculture. Overuse of marginal pastureland as well as global climate change has also led to rapid desertification in 70 percent of the dry lands of the world. Statistics on the depletion of fish stocks in all the oceans of the world offer further evidence of the permanent damage done to one of humans' most important sources of nutrition.

A good indicator of balance in the environment is our fresh water. With the exception of the occasional drought, citizens of the industrialized world take clean drinking water for granted. In fact, more than 70 percent of the world lives without it, and 25,000 people die each day as the result of poor water management. Because almost 90 percent of drinkable water is from groundwater close to the surface, it is especially vulnerable to environmental pollution from industrial waste, excessive irrigation and overuse of fertilizers.

A secondary impact of poisoned water and waterways is the depletion of flora and fauna, which contribute to the balance in the natural world. In our need to develop land we often destroy valuable wetlands, which play a crucial role in maintaining healthy water quality. As with so many other resources, the wasteful use and inequitable distribution of water must be addressed if we're serious about protecting the environment and our health.

Our personal health is directly linked to the health of our physical surroundings. Ranging from rising skin cancer to respiratory ailments, our sick environment is making us sick as well. Uncontrolled harvesting of the rainforests of the world not only has a direct affect on the greenhouse gases but also directly depletes the diverse stock of trees and plants, which are a source of both traditional and non-traditional medicines.

Problems arising from improper diet are another indirect result of policies that are environmentally unsustainable. As traditional agriculture is replaced by cash crops, the usual dependable sources of nutrition decline. In addition to the obvious impacts of air and water pollution on our health, careless disposal of both nontoxic and toxic waste poses a major threat.

An unexpected result of an environment out of balance is the increase in natural disasters. Many of the extreme weather events of the past 50 years can be traced to environmental and climate change. Floods, resulting in nearly 50 percent of all deaths caused by natural disasters, are more devastating because of clear cutting and other destructive land use practices. Overcrowding in cities has also meant that urban dwellers are more vulnerable to earthquakes and mudslides.

Most countries of the world have extraction-based economies. Many supply the raw materials to distant industrialized nations while their local environment suffers the most damage. Leading economic thinkers have suggested that this rate of supply, also known as "throughput," must be reduced by a factor of 10 in order to establish a sustainable use of natural resources. Their governments are often influenced primarily by considerations of profitability and short-term political gain and follow policies that are harmful to the natural order.

Given poor countries' economic vulnerability and dependence on wealthier nations they are often unable to overhaul their system, which condemns them to a dependent relationship with the rest of the world. More disappointing is the fact that, even when national or international laws do exist to prevent pollution or dumping of toxic wastes, corrupt officials will turn a blind eye to such behavior. Without consistent and fair enforcement by representative governments, all such codes and laws are clearly ineffective.

Concrete Steps Toward Protecting the Environment

Many people have grown accustomed to dire predictions about the environment. There is certainly ample reason for pessimism, but there is equally good reason to celebrate the accomplishments of a strong environmental protection movement. Non-governmental organizations (NGOs) have made tremendous progress in educating the public and leading governments to more sustainable policies. But global change will require a fundamental restructuring of our current economic system that favors an unequal distribution of resources and exploitation rather than protection of the natural world.

Despite all the projections of increasing population, there are some heartening trends. First, the fertility rate in many of the developed countries continues to decline. Reproductive health programs in some of the most populous developing countries are beginning to make a difference. Experiments concerning transportation and housing in densely populated cities like Curitiba in Brazil have shown that urban population centers don't have to be centers of pollution.

There are many ways to change our economic relationship with the environment: one is to explore innovative forms of capitalism that are non-extractive; another is to insist on new ways of accounting, which include environmental impact as part of a calculation of the bottom line. A third way is to include anti-pollution and resource protection clauses in all contracts with substantial consequences for violations.

Since the pioneering Rio Conference in 1992, a number of agreements and protocols have been adopted by the United Nations with the sole purpose of setting environmental standards for industries. Each of these agreements, ranging from the Convention on the International Trade in Endangered Species (CITES) to the Montreal Protocol on Substances that Deplete the Ozone Layer has a secretariat charged with enforcing it.

Almost every practice that is harmful to the environment is covered, including dumping of hazardous materials, destruction of wetlands, and over fishing of endangered marine species. The most recent addition is the Kyoto Protocol on climate change that sets clear standards for carbon emissions.

Each of the above organizations is beginning to exercise the authority necessary to identify and penalize offenders, and to gain the cooperation of national governments. Once both developing and developed countries respect these international environmental regulations we can begin to reverse the decades of damage already done by uncontrolled production and consumption.

Probably the most important actors in this process are specialized national and international NGOs that do the research and lobbying necessary to protect specialized resources like coral reefs, tropical rainforests, and mangrove swamps. Without the dedicated and determined service of NGOs, international institutions wouldn't be able to accomplish nearly as much as they do.

After the proliferation of environmental NGOs, the next most encouraging development is the growing respect for the natural world. Tree planting programs, recycling, promotion of car-pooling and bicycling and auto-free zones are but a few examples of a changing consciousness. This change in attitude is the essential first step in achieving the political will necessary for transformational change.

Without the clear accountability of governments of all nations, no real progress can be made towards long-term environmental sustainability. Recently there have been some encouraging examples of national-international cooperation, often with NGOs being the catalyst. Control of the sale and production of chlorofluorocarbons (CFC) in developing and developed countries shows us that, with political will at the national level, standards can be enforced.

Pioneers in the agricultural world are showing that we can produce food in environmentally beneficial ways. Organic farmers are proving that they can compete in the global marketplace while not relying on chemicals; consumers in Europe and elsewhere are refusing to purchase genetically modified foods until they're convinced that they won't be harmful to their environment and health.

As the world economy gradually switches to sustainable practices, healthy food production should follow. It is essential that the nations of the world be able to feed themselves, balancing the production of cash and food crops. Appropriate technology in agriculture, which balances mechanized with non-mechanized processes, will also help to safeguard the environment. Ratification and enforcement of the United Nations Convention on the Law of the Sea and its successor protocols is crucial to the protection of endangered food fish stocks.

The strengthening of international law and its enforcement would bolster the environmental movement tremendously as well as protect the rights of all citizens of the globe. For example, indigenous groups whose very existence has been threatened by oil exploration, mining and logging will benefit from the Convention on Biodiversity, the Convention on World Cultural and Natural Heritage as well as other human rights documents designed to protect their culture and unique way of life. The Basel Convention on the Transboundary Movements of Hazardous Wastes and Their Disposal offers important protection to developing countries that have been dumping grounds for toxic substances.

In the industrialized countries, poor and minority groups have mobilized themselves against polluting factories in their neighborhoods and insisted on equal protection by existing environmental standards. Local NGOs from Nigeria to California have detailed knowledge about specific problems and a passionate commitment to advocacy.

Competition for the control of natural resources is often at the root of many conflicts in the world. With the gradual acceptance of international standards regarding the environment, there's a greater chance that one major source of conflict would be removed. National service organizations dedicated to tree planting, shoreline restoration, and endangered species protection provide a powerful example of how resources might be redirected to peaceful ends.

Conclusion

As citizens and consumers we can play a transformative role through local action to complement the work of international environmental organizations and NGOs. The way we lead our lives is a powerful statement in itself: are we conscious of how much we consume and how our eating habits determine land use and availability of food for others? Buying consciously contributes directly to rebuilding the environment; this includes selecting products that are recycled, patronizing companies with proven environmental records, and simply consuming less.

As actors in the world economic arena we can also have an impact. There are many investment opportunities that are environmentally screened and promote positive land and resource use all over the world. Even the largest corporations are vulnerable to shareholder activism and many have changed environmental policies as the result of demands made in their annual meetings.

As voters we can make a huge difference in local, national, and international environmental practices. From the preservation of wetlands and development of pocket parks to lobbying for higher emission standards we have a powerful voice in how the commons-resources which belong to all of us-are being used.

At the beginning of the 21st century, we are at a turning point in our relationship with the natural world. There is ample evidence of a strong determination on the part of ordinary citizens to forge a new way that respects nature and controls our tendency to overproduce and over-consume. But old habits don't disappear easily, especially when the economic benefits to be gained from exploitation are so alluring. But the benefits from such a changed relationship to the environment could be tremendous. We do have the ability to play a substantial role in protecting the environment.

U.N. Climate Panel Endorses Ceiling on Global Emissions

By [JUSTIN GILLIS](#)

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STOCKHOLM — The world's top climate scientists on Friday formally embraced an upper limit on greenhouse gases for the first time, establishing a target level at which humanity must stop spewing them into the atmosphere or face irreversible climatic changes. They warned that the target is likely to be exceeded in a matter of decades unless steps are taken soon to reduce emissions.

Unveiling the latest United Nations assessment of climate science, the experts cited a litany of changes that were already under way, warned that they were likely to accelerate and expressed virtual certainty that human activity is the main cause. "Climate change is the greatest challenge of our time," said Thomas F. Stocker, co-chairman of the Intergovernmental Panel on Climate Change, the United Nations-sponsored group of scientists that produced the [report](#). "In short, it threatens our planet, our only home."

The panel, in issuing its most definitive assessment yet of the risks of human-caused warming, hoped to give impetus to international negotiations toward a new climate treaty, which have languished in recent years in a swamp of technical and political disputes. The group made clear that time was not on the planet's side if emissions continued unchecked.

"Human influence has been detected in warming of the atmosphere and the ocean, in changes in the global water cycle, in reductions in snow and ice, in global mean sea level rise, and in changes in some climate extremes," the report said. "It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century."

The new report is a 36-page summary for world leaders of a 900-page report that is to be released next week on the physical science of climate change. That will be followed by additional reports in 2014 on the most likely impacts and on possible steps to limit the damage. A draft of the summary [leaked](#) last month, and the final version did not change greatly, though it was edited for clarity.

Going well beyond its four previous analyses of the emissions problem, the panel endorsed a "carbon budget" for humanity — a limit on the amount of the primary greenhouse gas, carbon dioxide, that can be produced by industrial activities and the clearing of forests. No more than one trillion metric tons of carbon could be burned and the resulting gases released into the atmosphere, the panel found, if planetary warming is to be kept below 3.6 degrees Fahrenheit (2 degrees Celsius) above the level of preindustrial times. That temperature is a target above which scientists believe the most dangerous effects of climate change would begin to occur.

Just over a half-trillion tons have already been burned since the beginning of the Industrial Revolution, and at the rate energy consumption is growing, the trillionth ton will be burned sometime around 2040, according to calculations by Myles R. Allen, a scientist at the University of Oxford and one of the authors of the new report. More than three trillion tons of carbon are still left in the ground as fossil fuels.

Once the trillion-ton budget is exhausted, companies that wanted to keep burning fossil fuels would have to come up with ways to capture carbon dioxide and store it underground. In the United States, the Obama administration is [moving forward](#) with rules that would essentially require such technology, which is likely to be costly, for any future coal-burning power plants; the president's Republican opponents have [accused him](#) of waging a "war on coal."

The Intergovernmental Panel on Climate Change is a worldwide committee of hundreds of scientists that issues major reports every five or six years, advising governments on the latest knowledge on climate change.

The group has now issued five major reports since 1990, each of them finding greater certainty that the world is warming and greater likelihood that human activity is the chief cause. The new report finds a 95 to 100 percent chance that most of the warming of recent decades is human-caused, up from the 90 to 100 percent chance cited in the last report, in 2007.

But the new document also acknowledges that climate science still contains uncertainties, including the likely magnitude of the warming for a given level of emissions, the rate at which the ocean will rise, and the likelihood that plants and animals will be driven to extinction. The scientists emphasized, however, that those uncertainties cut in both directions and the only way to limit the risk is to limit emissions.

Climate-skeptic organizations assailed the new report as alarmist even before it was published.

The Heartland Institute, a Chicago organization, issued a document last week saying that any additional global warming would likely be limited to a few tenths of a degree and that this “would not represent a climate crisis.”

One issue much cited by the climate doubters is the slowdown in global warming that has occurred over the past 15 years. The report acknowledged that it was not fully understood, but said such pauses had occurred in the past and the natural variability of climate was a likely explanation.

“People think that global warming means every year is going to be warmer than the year before,” said Gerald A. Meehl, an American scientist who helped write the report. “It’s more like a stair-step kind of thing.”

Climate scientists not involved in writing the new report said the authors had made a series of cautious choices in their assessment of the scientific evidence. Regarding sea level rise, for instance, they gave the first firm estimates ever contained in an intergovernmental panel report, declaring that if emissions continued at a rapid pace, the rise by the end of the 21st century could be as much as three feet. They threw out a string of published papers suggesting a worst-case rise closer to five feet.

Similarly, the authors went out of their way to include recent papers suggesting that the earth might be less sensitive to carbon dioxide emissions than previously thought, even though serious questions have been raised about the validity of those estimates.

The new report lowered the bottom end of the range of potential warming that could be expected to occur over the long term if the carbon dioxide level in the atmosphere were to double, reversing a decision that the panel made in the last report and restoring a scientific consensus that had prevailed from 1979 to 2007. Six years ago, that range was reported as 3.6 to 8.1 degrees Fahrenheit; the new range is 2.7 to 8.1 degrees.

In Washington, President Obama’s science adviser, John P. Holdren, cited increased scientific confidence “that the kinds of harm already being experienced from climate change will continue to worsen unless and until comprehensive and vigorous action to reduce emissions is undertaken worldwide.”

Ban Ki-moon, the United Nations secretary general, spoke to delegates at the meeting on Friday by video link, declaring his intention to call a meeting of heads of state in 2014 to push such a treaty forward. The last such meeting, in Copenhagen in 2009, ended in disarray.

Energy

Introduction

After food and water, energy to cook or heat or move from place to place is the most basic human need. Whether we microwave a pizza or cook the evening meal on dried cow dung, energy impacts every aspect of our life. In fact, modern economies and cultures are often defined by the cycle of energy production and consumption.

In the past we've worried about how long supplies of energy will last; our consumption patterns have been driven by a fear that some day we'll simply run out. Recently, we have become aware of the importance of sustainable use of a variety of energy sources from traditional fossil fuels to photovoltaic (solar) cells. And we know that our energy models are not sustainable because of environmental, economic, and geopolitical issues.

At the beginning of the 21st century, despite a slowly changing attitude concerning wise use, we are still reliant on traditional sources of energy and on unsustainable patterns of consumption. Hydrocarbon fuels (oil, natural gas, and coal) still provide nearly 80 percent of the world's energy even though their carbon content leads directly to the development of greenhouse gases and global warming. More than two billion people in the developing world continue to use traditional biomass fuels like wood whose overuse has led to land degradation, deforestation, desertification, and air pollution.

At one point in our recent history, beginning in the 1960s, we turned to nuclear generation as the answer to all of our energy needs. Many countries in both developed and developing countries have built nuclear power plants, and must address the safe disposal of waste products of nuclear energy as well as potential threats to the humans and the natural environment from operational accidents.

Renewable sources of energy like solar, wind, hydro, and hydrogen power constitute a miniscule percentage of the total energy package, but they are receiving greater attention and emphasis as sustainability gains credence.

As with all the other major issues facing the world today, we have the means to reverse the non-sustainable trends outlined above and to provide non-polluting energy to the world's people. Such a change however, would require an international effort, redesigning the world energy system with the following key goals:

1. Efficient use of existing energy, two thirds of which is currently wasted. At the same time, a global program of efficient use would also stress more equitable distribution;
2. A shift from hydrocarbons to renewable energy sources including wind, solar, geothermal, and hydrogen;
3. Redesigning communities, businesses, homes, and modes of transportation so that they use less—as well as different forms of—energy;
4. Transferring sustainable energy technologies directly to developing nations, enabling them to “leapfrog” beyond the unsustainable models currently used by the developed world;
5. Adoption of international treaties and binding agreements concerning wise energy use.

There are many encouraging examples of steps being taken in the direction suggested above. In many countries of the world, the urgency of climate change and the impact of environmental degradation are spurring individuals and governments to action.

Impacts of Unsustainable Energy Policies on the World

At either end of the economic spectrum, the way people use energy not only impacts their lives but also affects the world as a whole. However, within each one of the impacts mentioned below is the seed of a solution; sustainability is the test of its long-term effectiveness.

As might be expected, energy consumption patterns and economic status are directly linked. The United States and Canada, with only 6 percent of the world's population consume nearly 30 percent of the world's energy while all of Africa consumes only 5 percent. At the village level in Africa, such a statistic means that women spend a significant part of time during the day simply gathering the energy required to process and cook their food. Consequently, they have less time to spend on income generation or efforts to relieve their poverty. They would pay a significantly larger amount for the same energy as a more affluent individual and have less capital available for health care and education.

In the rich nations of the world, energy for cooking, heating, hot water, and light are readily available at a relatively low cost. They have invested in both the centralized sources and extensive distribution systems to make that energy available to citizens and businesses. At the same time, it is estimated that almost two billion people still lack electricity in their homes. Providing similar, inexpensive energy to the village woman of the developing world would transform the economic status of her family. One of the foundations of a civil society is the provision of a reliable and cheap source of energy.

Provision of clean water and adequate food rely heavily on the availability of an inexpensive and reliable source of energy. According to the United Nations there are nearly one billion people of the world who are undernourished and must increase their daily caloric input to 2,160. To do that requires more efficient production by even peasant farmers who rely on energy for irrigation, mechanization, and other forms of basic agricultural technology. Transfer of harvested crops to market requires not only a developed infrastructure but also a trustworthy system of transportation, which again relies on cheap energy. At various points during this cycle of production and consumption, the processing of food also requires energy, whether it be sun for drying or electricity for elaborate preserving operations.

Most experts claim that potable water is an essential key to development. In villages as well as large urban areas, energy is crucially important both in the drilling of wells and the development of water sources and in treatment and supply. Food and water security, in turn, impact the general health and the quality of health care of world citizens.

But world health is also impacted negatively by careless production and use of energy. At the producer level, the health of coal miner, refinery worker, and wood collector can be adversely affected by their activities. In the processing and cooking of foods, many rural dwellers in the developing world are exposed to harmful smoke and other by-products of burning organic material. In developing countries where large refineries are located like in the Niger Delta region of Nigeria, the health of those living in the vicinity is directly affected. As the scale of production and fossil fuel use increases (in manufacturing and transportation sectors, for example), so do the harmful emissions that are breathed in by large populations of the world. Finally, and most significantly, increased carbon in the atmosphere is accelerating global warming with resultant skin cancer and respiratory problems.

Local and global environments both suffer in the face of unsustainable energy policies. Acid rain, a direct result of the burning of fossil fuels, renders large bodies of water lifeless. Globally, the greenhouse effect already threatens low-lying areas with flooding as ocean water levels rise. Arid regions of the world like the Sahel in Africa are threatened by increased desertification. Pipelines, which stretch over long distances from oil source to convenient port as in Chad and Cameroon, have a devastating effect on the local populations and the environment. Oil spills resulting from transportation in supertankers and the pipelines themselves affect local flora and fauna in a variety of ways. On the local level, when rural populations must rely on wood both for processing and cooking food as well as for heat, the ultimate result is deforestation and land degradation.

Sustainable Solutions to the World Energy Crisis

As individuals we can make decisions about our personal energy use “policy” which, combined with similar actions of other citizens, can profoundly affect the local and global environment. As world citizens we can work for national and international policies, which favor equitable and wise use of resources and non-polluting forms of energy. In both cases, the guiding principle must be sustainability. For each of the solutions mentioned below we must first ask these questions: 1) does it take into account long-term impacts on all related issues and 2) will it preserve the resources for future generations?

On the international level, rich nations can transfer sustainable energy technologies to developing nations, thus allowing them to “leapfrog” beyond the destructive energy models used by the industrialized regions. In order to reduce global warming, industrialized nations might agree to limit their carbon emissions while offering “credits” to developing nations with a much lower rate of resource consumption. Any attempt by the rich nations to reduce their dependency on fossil fuels will ultimately benefit the poorer countries as well as reduce their own rising energy bills. In a sustainable approach to energy use, reduction of wasteful practices must be linked with redistribution of what is already available.

Nationally, extending the power grid to rural areas will have the effect of slowing flight to the cities, reducing inefficient use of biomass energy and freeing women to engage in income-generation and productive activities. Development and extension of renewable energy sources in areas of poverty would have the added impact of creating jobs at the local level. Solar, wind, and waterpower technology can transform remote parts of countries into valuable assets and provide cheap reliable power to rural dwellers.

Significant steps are being taken in developing international energy policies that will protect the environment. The latest version of the Kyoto Protocol, approved by all of the developed nations except the United States, includes an elaborate formula for reducing greenhouse gases by agreeing to limit carbon emissions to prescribed levels. Many industrial nations have reduced waste and actively promoted the development of renewable energy resources.

The use of hydrogen and other non-polluting fuels would have a dramatic effect on the environment. If hydrogen can be efficiently isolated (either through solar power or other means) and distributed cheaply it could provide a clean fuel for internal combustion engines and revolutionize transportation as well as power generation. Other attempts at decarbonization of fossil fuels and creation of synthetic fuels could have similarly positive effects on the environment. Tree planting on land already degraded by heavy firewood cutting would not only increase oxygen production but also provide cheap energy to peasant farmers.

Energy policies that are environmentally friendly will have a direct effect on many world health problems as well. The shift from fossil fuels to renewable energy sources means that individuals directly exposed to greater risk, such as coal miners or those living in vicinity of nuclear power plants, would automatically live healthier lives. At the village level, women engaged in arduous daily wood gathering and families exposed to harmful smoke from cook fires would benefit greatly from alternative, clean energy sources.

As pollutants generated in power and industrial production and transportation are reduced so are the many health problems associated with them. Skin cancers associated with the greenhouse effect and many pulmonary problems arising from air pollution would be dramatically reduced as conservation measures take effect and solar/air/water power replaces fossil fuels.

Small steps have already been made in promoting appropriate technology in agriculture, especially in irrigation. With the advent of fuel cells and other alternative forms of energy, mechanization on a small scale will be more affordable and friendly to the environment. As photovoltaic cells become more affordable, small farmers will be able to raise and move water to arid lands and increase their productivity without harming the environment.

Cheap energy allows for food processing and preservation at the local level and/or efficient transportation to markets. Ground water pollution from the extraction of fossil fuels will be reduced significantly with sustainable energy policies.

The sooner we reduce our dependence on fossil fuels the sooner we'll reduce potential regional and international conflicts. Some observers of the international scene argue convincingly that over-reliance by developed countries on Middle Eastern oil has heightened the potential for conflict in that area. The construction of pipelines across parts of Central Asia and the need to protect them threatens peace. Similarly, development of the petroleum industry in countries like Colombia and Ecuador has brought conflict as well as disruption and loss of native cultures.

As we move towards renewable energy and away from fossil fuels we increase the possibility of building truly responsive governments. Many of the states on the Persian Gulf, especially Saudi Arabia, continue to operate as oligarchies where an economic elite, which controls the source of oil, also has absolute political power. Industrialized nations dependent on fossil fuels apply a different standard of good governance to their suppliers, accepting human rights abuses and anti-democratic practices. Once energy is distributed more equitably the political power that resides with a small economic elite becomes diluted. Again, local, small-scale renewable energy programs bring with them undeniable political power.

Where Do We Go From Here?

The kinds of energy we use and the way we obtain them have a pervasive effect on our quality of life, whether we're affluent city dwellers or rural peasants. The saying "you are what you eat" could equally be applied to the kinds of energy on which we rely. As long as the developed nations of the world are dependent on fossil fuels, all of our actions will be driven by unhealthy relationship with their suppliers.

In these first years of the 21st century there is some cause for optimism. First, there is a growing awareness of the fragility of our environment and an apparent willingness to make changes in the way we live to protect it. More citizens are aware of the impacts of his or her actions on the world as a whole. Gradually, citizens of the richer nations are realizing that they must change the way they live and change their consumption of scarce resources.

Second, many nations of the world are translating citizens' growing personal awareness into political action. The general agreement reached by most of the industrialized nations of the world to drastically cut their greenhouse emissions by 2012 under the Kyoto Protocol, is a good example of a progressive energy policy. There are a number of other

international agreements governing energy production and consumption which signal important changes in the way the world looks at how we power our vehicles and run our industries.

Third, the innovative technologies of the past few decades are beginning to offer us some very attractive alternative forms of energy. As individual consumers begin to truly understand the importance of sustainability and renewability as well as the eventual affordability of solar and wind power, fossil fuels will begin to lose their edge. This is already happening in places like San Francisco, California where voters recently supported a measure to install as many solar panels in that city as the entire nation does each year.

The remarkable thing about energy is how it affects every aspect of our lives. As a result, we can make personal decisions about our energy use that have the potential to affect the world as a whole.

Population

Introduction

It might be argued that without the multiplier of population none of the problems we confront would be of sufficient magnitude to qualify as global. Certainly if population were stable, many global issues would be far more manageable.

World population exceeded six billion in 1999 – doubling from three billion in 1960 – and is currently increasing by 80 to 85 million people each year. The current US Census Bureau world population 2012 estimate is that there were 6,984,895,594 people on the earth at the start of 2012. Depending upon the choices we make over the next few decades, demographers at the United Nations project world population in 2050 could be anywhere 7.3 billion to 10.7 billion. It is important to note that these scenarios assume fertility will decline significantly in the future.

A number of factors drive this growth. At the most basic level, it is because far more people are born each year than die. Advances in nutrition and health care have increased survival rates and longevity for much of the world, and shifted the balance between births and deaths.

Another is population "momentum". Even though fertility rates have come down worldwide – from an average of six children per woman in 1950 to 2.9 children per woman in 2000 – there are many more people of childbearing age today than ever before. Roughly half the world's population is under age 25, so as those three billion people start families over the next few decades, world population will likely increase by several billion.

Another reason for continued high levels of population growth is that fertility rates remain relatively high in some populous regions like Africa and South Central Asia. Broadly speaking, population growth is higher in those regions because levels of income and education are lower there.

Decisions about family size are often based on economic factors, and in poorer societies, having numerous children may be an important asset. They provide support and security in parents' old age, help raise food, haul water, care for younger siblings, and gather fuel wood. Children may also work for wages outside the home, be indentured, or even sold to help support the family.

Birth rates are also closely linked to education. The more education people have, the more economic options they generally have, and the fewer children they are likely to want or need. In the areas of the world where education levels are highest – Europe, Japan, China, the former Soviet Bloc, and North America – fertility is correspondingly lowest.

Population and Ecological Footprint

Population is about far more than numbers, however. It's also about ages, abilities, lifestyles, and consumption. One approach scientists are increasingly using to study population is through the concept of "ecological footprint" pioneered by Mathis Wackernagel and William Reese. The footprint model calculates the area of the Earth's productive surface (land and sea) necessary to support a particular lifestyle or level of consumption

Viewed that way, every person has a "footprint" that falls on the environment. At the most basic level, it includes enough land to produce food and fiber – to raise crops and graze animals and grow trees – and enough clean water to drink, wash and irrigate. We also need enough land to supply some sort of energy for heating and cooking, and to safely dispose of the wastes we generate.

As individuals' lifestyles and consumption expand, so do their footprints. As nations become more industrialized and their standards of living increase, they consume more resources, and occupy a larger footprint. They need more farmland to support higher protein diets, and may clear forests, plow prairies, or fill wetlands to provide it. They need more water, and have to tap more lakes and aquifers, and dam and divert more rivers. They need more energy, and have to build more power plants, burn more fuels, and release more pollutants.

Growing populations and higher levels of development also require additional infrastructure and increased levels of social and community services. More people need more housing, hospitals, roads, schools, parks and playgrounds. More highly developed societies, because their consumption is greater, use more land and resources per person. To support their economies and produce consumer goods, they require more factories, offices, businesses, and shopping centers. To dispose of their wastes, they need more landfills, sewage systems, and toxic containment sites.

Each of these needs is met by extracting resources from the environment, often without replenishing them. The more people on the planet – and the greater the average level of consumption by any individual or group – the more resources are required to meet those needs and the larger the human footprint on the planet. The larger the human footprint, the less area remains for other species and natural systems.

Carrying Capacity and Population

The total human footprint the Earth can withstand is expressed as the "carrying capacity" of the planet. Carrying capacity is the maximum number of people the Earth can support without endangering its ability to support that population in the future. A population that does not erode the resource base or otherwise degrade the planet's ability to support that population in the future is considered "sustainable".

Carrying capacity is difficult to accurately assess, however. In recent years, the Earth's carrying capacity has been suggested to be as low as one billion people, or as high as 40 billion people. Environmentalists and biologists typically put forth lower numbers, while economists and businesspeople often put forth higher figures.

This divergence appears to be rooted in philosophy. Many growth advocates argue that increasing population is necessary to provide more workers and consumers to expand the global economy. And they suggest that the natural ingenuity of people will overcome the problems this growth creates.

Some industrialized nations, such as Germany, with stable populations already face shortages of younger workers, and growth advocates argue that their economies will suffer as populations age. Not only may there not be enough workers to keep up production, they suggest, but there may not be enough workers to pay into retirement and medical plans to support older citizens.

Advocates of "sustainability" argue that increasing population and consumption are already causing damage to the planet, and that deforestation, soil erosion, extinction of species, and pollution of air and water are all indicators of exceeding carrying capacity.

Population Connections

One way to view the issues and impacts of population growth is through the "Global Issues Mobile". Essentially it shows that as our population increases, human needs – food, water, energy, livelihood, etc. – increase as well. We attempt to meet those needs by consuming more resources.

When population levels reach a critical threshold, we then see both a decline in the resource base, and damage to the environment, which supplies all those resources. These trends reinforce each other – the damaged environment provides fewer resources, and the shortage of resources causes us to further damage the environment. At some point, when there are not enough resources to go around, we see significant scarcity, and poverty, which is the human face of severe scarcity.

Scarcity and poverty underlie a number of problems. One is discrimination. When resources are scarce, those in power often decide who won't get a fair share, and may discriminate against women and girls, or other races, religions, or economic classes.

When resources are scarce, people may also move in search of more resources. There are hundreds of millions of migrants in the world today, seeking food, water, land, and work. Scarcity drives legal and illegal immigration into the US and other industrialized nations as people struggle to survive and support their families.

And when scarcity is acute, people may engage in conflict over resources. As world population and consumption grow, environmental impacts multiply, and resource scarcity worsens. As environmental destruction and scarcity spread, and as more people compete for limited resources, social, ethnic, and political tensions increase. This combination drives political instability, declining social health, and greater migration.

The combination of population, consumption, and scarcity has fueled more than 150 armed conflicts since the end of World War II, and driven tens of millions of people from their homes as economic migrants or refugees. As shortages of essential resources such as water, farmland, and fisheries reach critical levels, many security analysts expect conflict over those resources to intensify.

Ultimately, our own numbers, and the lifestyles many of us choose to live, drive all the critical issues we confront. Left unchecked, the combination of population growth and consumption – along with increasing inequity between rich and poor individuals and nations – will ultimately threaten not only the well-being, but also the lives of a majority of people on this planet.

Personal and Structural Solutions - What Can We Do?

Fortunately, a future of scarcity and conflict is not inevitable. Experts point to stabilizing the population as the key step. Solving the problem of population growth will then help solve the environmental, economic and social problems we confront.

Interestingly, solving current environmental, economic, and social problems will help solve the problem of population growth. As the United Nations Conference on Population and Development reported, "Efforts to slow population growth, to reduce poverty, to achieve economic progress, to improve environmental protection, and to reduce unsustainable consumption and production patterns are mutually reinforcing."

On a personal level, there are a number of things each of us can do. Most importantly, we can consider our own fertility. This is especially important for citizens of industrialized countries, because people in those countries have larger ecological footprints, due to lifestyles and consumption levels.

We can lower our own consumption and environmental impacts by making informed choices about how we live, and what we own and use. Consumer preference is tremendously powerful in shaping product manufacturing and marketing, and is already beginning to transform many corporations.

There are also a number of structural solutions to lower population growth rates. An important structural solution to population growth is universal access to reproductive health care. If every couple in the world could reliably and affordably choose the number and spacing of their children, world population growth would slow by nearly 20 percent almost immediately.

Investment in community health care is also necessary. Adequate health care would significantly reduce infant, child and maternal mortality, and allow community members to be more socially and economically productive. In some parts of the world, parents expect one or more of their children to die of hunger or disease. If they have a reasonable expectation that their children will survive and be healthy, they won't need "extra" children to offset those deaths.

Educating and empowering women is extremely important. Women with higher levels of education tend to marry later, bear children later, and have fewer, and healthier, children. More educated women generally have higher incomes, more economic options, and more power in their families and communities.

We can support structural solutions that stabilize population through voting and active participation in the political process. While individuals can't implement political and structural solutions on their own, they can help raise awareness, promote discussion, and influence local, regional and national policies. Many of these solutions can be implemented at state, county, city, or even neighborhood levels, through land use actions and budget priorities and allocations. Many are already being implemented at some level around the world. Individuals can support and contribute to groups involved in that work, lobby their representatives to support and fund that work, and join in that work as volunteers.

We know that these solutions work. Since 1950, total fertility has fallen 50 percent worldwide. Infant mortality has declined by more than half in the last 35 years, and average longevity has increased from 45 to 65 years. More people are literate, more live under democratic governments, and more environmentally sensitive areas and threatened species are under some sort of protection.

The choices we make in the next few decades about our own numbers and lifestyles will determine whether the world of the 21st century will be one of hope and opportunity, or of scarcity and destruction.

More or less

Why, as people get richer, do they have fewer children? Sep 1st 2012 | Economist

ONE of the most significant phenomena of modern history is the demographic transition: as people get richer, they have smaller families. This slowing of reproduction with economic development is the reason why Thomas Malthus's prediction of disaster, caused by the human population outstripping its supply of food, is unlikely ever to come true. In the short term, Malthusian doom has been evaded by innovations that increased the food supply. But in the long term it is likely to be a ceiling on demand that helps to save humanity. The world's population, now some 7 billion, is expected to level out at a little over 10 billion towards the end of the century.

Why the demographic transition happens, though, is obscure—for this reaction by *Homo sapiens* to abundance looks biologically bonkers. Other species, when their circumstances improve, react by raising their reproductive rate, not curtailing it. And work just published by Anna Goodman of the London School of Hygiene and Tropical Medicine and her colleagues, in the *Proceedings of the Royal Society*, suggests what humans do is indeed bananas. Dr Goodman has shown that the leading explanation advanced by biologists for the transition does not, in the context of the modern world, actually deliver the goods.

This explanation is that, according to circumstances, people switch between two reproductive strategies. One, known to ecologists as “r-selection”, is to produce lots of offspring but invest little in each of them. This works in environments with high infant mortality. The other, known as “K-selection”, is to have only a few offspring but to nurture them so that they are superb specimens and will thus do well in the competition for resources and mates, and produce more grandchildren for their parents than their less well-nurtured contemporaries. The demographic transition, according to this analysis, is a shift from r-type to K-type behaviour.

To test this idea, Dr Goodman turned to Sweden—specifically, to a group known as the Uppsala Birth Cohort. These people (there are about 14,000 of them) were born between 1915 and 1929 in Uppsala University Hospital. They and their descendants have subsequently been tracked by Sweden's efficient system of official records. Among other things these records show their income and socioeconomic status (which, crucially, are also known for the parents of members of the original cohort), how many children have been born to cohort members and their descendants, and when. These data were Dr Goodman's raw material.

If the r/K interpretation is correct (the letters stand for the rate of reproduction and the “carrying capacity”, or resource richness, of the environment), then an advantage of some sort for the socioeconomically privileged should show up as the generations succeed one another. Dr Goodman's analysis shows that it does, but in a way that is not translated into any obvious evolutionary advantage.

Reducing family size certainly creates what look, on the face of things, like more competitive descendants. Children, grandchildren and great-grandchildren alike get better marks at school, are more likely to go to university and have higher incomes as adults. What these competitive individuals do not do, though, is go on to compete in the one arena which matters in a Darwinian sense: reproduction. If anything, the tendency towards smaller, more socially successful families tends to feed back on itself over the generations, and the contribution of the K-selected to the gene pool therefore shrinks.

To biologists, this is all very puzzling. If K-type behaviour is not delivering the goods then it should never have come about in the first place. But there may be an explanation: that the psychological make-up which encourages K-type behaviour worked in the past but is not appropriate to modern circumstances.

This does seem plausible. In large parts of the world, better hygiene, nutrition and medicine have almost abolished child mortality, meaning the advantage of K over r is diminished. Education is available free to all. And harem-formation, which would have been an option in the past for many K-selected males, is frowned on these days. In other words, the disadvantages of being r-selected have disappeared.

The upshot is that the demographic transition may be the result of a mismatch between ancient psychology and the modern world. In that, it would be like the epidemic of obesity which results from stone-age appetites meeting capitalist abundance. Unlike obesity, though, small families do no harm to the individuals involved. In fact this particular mismatch may actually be all that stands between humanity and ecological disaster.

Rich / Poor Gap

Introduction

As we enter the 21st century, the gap between the world's rich and poor is widening, both within and among countries. The vast majority of the world's population is receiving an ever-decreasing share of its collective wealth, while the share claimed by a few rich nations and individuals is steadily growing.

The impacts of this widening rich-poor gap are varied. They include environmental destruction – richer nations and individuals can afford to over-consume resources, while poorer nations and individuals are forced to over-exploit the environment just to survive. They include migration – people are forced to move in search of adequate resources. And they include conflict – wealthier nations and individuals fight to keep what they have, while those suffering a lack of resources fight to obtain them. Because poorer groups typically lack the assets and technology to conduct large-scale conventional war to obtain their goals, they often resort to low-intensity conflict and terrorism.

The causes of this global disparity are diverse and complex. They include unequal distribution of natural resources, the globalization of economies and economic structures; inadequate governance and protection of law; and lack of access to education, healthcare, and social safety nets, especially for women and girls.

History has shown that individuals and nations need not remain in poverty indefinitely, however. With an awareness of the interdependence of our modern world, it is possible to eliminate the root causes of poverty. By increasing economic opportunities, access improves to nutrition, education, and healthcare. With those come higher income, greater autonomy – especially for women – and the opportunity to pursue environmentally sound technologies and products. With higher levels of social health come greater stability, higher economic output, and fewer flashpoints for conflict. Population tends to stabilize, governments tend to be more democratic, and environmental protection becomes both more desired and attainable.

Crunching the Numbers

The facts of the rich-poor gap are staggering. According to the United Nations, about 2.8 billion people – some 45 percent of the world's total population – live on the equivalent of two US dollars a day or less. Some 1.2 billion of those people live on one dollar a day or less. Roughly two-thirds of those living on one dollar a day or less are female. Worldwide, the poorest 20% have access to only 1% of the total Gross World Product (GWP).

On the other side of the equation, the richest 20% of the world's people have access to 86% of the collective GWP. In 2001 Forbes magazine counted 538 billionaires with a total net worth of 1.7 trillion dollars. Although, while it is easy to concentrate on the few very wealthy individuals in the world, the largest impact on the world and its people come from the relatively rich middle-class that comprise the majority of this group. These are the populations of the world's industrialized nations. They employ their wealth to consume a disproportionate share of the earth's resources on a per-person basis.

One doesn't have to look internationally for examples of the effect of wealth inequality: It has grown steadily in the United States over the past three decades, as well. According to the US Census Bureau, the poorest 20 percent of all US households received only 3.6 percent of all household income in 2000, while the richest 20 percent received 49.7 percent of all household income. All other household groups suffered a continuing decline in their share of total household income, despite the longest and strongest economic expansion in history. Surprisingly, 22.4 percent of US children live in relative poverty, according to a 2001 study by the United Nations Children's Fund (UNICEF).

Nor is this disparity and its consequences limited to the United States among the more industrialized nations. The same UNICEF study indicated that one out of every six children in member nations of the Organization for Economic Cooperation and Development (OECD) lives below the national poverty line, defined as half the average national income. The rate of child poverty is 26.2 percent in Mexico, 20.5 in Italy, 19.8 percent in the United Kingdom, and 19.7 percent in Turkey.

Income and GDP are not the only indicators of well-being. To better understand development issues, United Nations agencies often use the Human Development Index (HDI) as an indicator of a country's well being. The HDI looks at three very distinct indicators when measuring a country's overall achievements: life expectancy at birth, GDP/capita, and literacy and school enrollment.

As might be expected, the richer countries tend to fare better on the HDI. For example, Sweden, ranked 4th, has a life expectancy of 79.6 years, GDP per capita of \$22,636.00 and a literacy rate of 99%. By way of comparison, Eritrea, in eastern Africa, has a 2001 HDI rank of 148 out of 162, with a life expectancy at birth of 51.8 years, a per capita GDP of \$880.00 and an adult literacy rate of 52%.

Of course, the numbers and ranks by themselves don't tell the whole story. Nations with relatively lower incomes, such as Poland, Chile, Croatia, and Costa Rica, are all ranked as having a high level of human development, while Saudi Arabia and Oman, with far higher per capita incomes are ranked as having a medium level of human development.

All these indicators share one thing in common, however. Whether they are economic, social, or educational, they reflect a person's "wealth of opportunity" to have a fulfilling life. Indeed, Amartya Sen, the winner of the Nobel Prize in Economics portrays poverty as the denial of opportunity. The global impacts of being on either end of these opportunity scales are significant.

National & International Impacts

We all have an image in our minds of a poor person. Perhaps we think of a homeless man panhandling on a street corner, a starving Ethiopian child, or a ragged family fleeing the ravages of a civil war. But we rarely think beyond the immediacy of that image to all the other ways being poor affects a person's life, or how that poverty affects the larger world.

Wealth and poverty are closely coupled to population. As population increases, more and more people must share resources. When there are too few resources to adequately support the population, scarcity and poverty result. That scarcity and poverty may then drive or exacerbate discrimination, migration, environmental destruction, and conflict.

Poverty often drives families to treat their children as an economic asset. They may raise food, haul water, gather fuel, hire out to sweatshops, or be sold into slavery or prostitution to help support their families. Coupled with a lack of education, and reproductive and community health care, this helps explain why poor families are generally larger, and why poverty tends to be "intergenerational." Children raised in poverty without adequate access to education, healthcare, and economic opportunity tend to be poor themselves, and to repeat the cycle with their own children.

On the other hand, higher levels of education and income are closely coupled – to each other and to family size. More educated and affluent families tend to be smaller, and those families with fewer children can focus their resources on those children, generating better health, educational, and economic outcomes. With higher levels of social health and education, affluent countries like Germany and Japan continue to see declines in their birth rates.

Wealth and poverty are tightly linked to environmental concerns as well. Ecosystem decline is a major cause of poverty, as well as a major result of it. Overexploitation and degradation of the resource base can tilt people into poverty, just as people living in poverty are often forced to overexploit and degrade their environment. Poverty also leads to environmental problems as toxic products are freely sold in poorer regions, and polluting factories or waste dumps are often located in areas where economic necessity dictates lower standards.

On the other end of the economic spectrum, excessive consumption patterns of wealthy nations and individuals have led to major impacts on the environment. Rich nations and individuals consume the vast majority of world resources, generate the majority of toxic wastes, and produce the largest share of greenhouse gases that drive global warming.

Cycles of violence are often sustained by conditions of poverty, and there are many examples of civil conflicts in the developing world in which citizens most directly affected by the war are the nation's poorest. Further, poor countries wracked by civil conflict only get poorer. Statistics suggest that many poor countries in Africa and Asia have put a higher priority on building a strong national defense than budgeting funds for education, health and other nation-building efforts.

Being poor often means that one's human rights are more likely to be abused. For example, child labor and forced prostitution offer many families, especially in South Asia, a partial solution to their economic problems, but not without denying these young men and women their basic human rights.

Another critical link in the chain is the connection between poverty and health. Poverty is the main reason that children are not vaccinated, clean water and sanitation are not available, life saving drugs and treatments are inaccessible, and mothers die in childbirth. Even if one avoids the scourge of malaria, tuberculosis, HIV-AIDS or other debilitating disease, poor diet may limit people's ability to escape poverty. Many of the world's poor fall below the minimum caloric intake

recommended by the World Health Organization. Because the poor often can't afford adequate nutrition, they may lack the physical and mental development necessary to fully participate even in a local, much less global, economy.

Finally, the disparity between rich and poor nations impacts the world as a whole. Terrorist attacks, illegal immigration, and "economic refugees" are just a few examples of the reactions of the poor to their plight. And the rich nations often react strongly to these actions.

Rich Vs Poor: The Reasons Behind the Disparity

Although the facts of history are always subject to interpretation, there are some obvious reasons for the superior-inferior economic relationship between industrialized and developing regions.

First, the world's raw resources, from which most wealth is derived, have never been uniformly distributed. Raw materials and goods made from them are redistributed through trade (or are taken by force). These historic economic arrangements create dependencies between peoples and nations, and they are not always equitable themselves.

Globalization of the world economy reinforces these patterns of dependency. Poor countries are more vulnerable to market forces and investment practices that increase their dependency on industrialized nations. Large transnational companies in the free market competition of the 21st century have tremendous economic power, especially over agricultural economies in Africa, Asia, and Latin America. This power is often directed at returning maximum profits to the shareholders of these companies, even if that impoverishes their host nations.

Poor countries often lack the internal capacity for healthy economic development. Many citizens don't have access to credit or clear title to their land, or are excluded by virtue of gender or caste from full participation in the economy, educational system, or government. Government itself is often ineffective or even corrupt, and cannot or will not invest in the social and economic reforms necessary to develop sustainable and stable development practices.

Developing nations often lack the infrastructure and resources necessary to deliver the specific services necessary to alleviate poverty, including education, health care, and old age pensions. Additionally, many developing nations are experiencing rapid population growth, which strains existing services and requires more of already scarce resources to meet increasing demands.

What Can We Do? - Breaking the Cycle

Throughout recent history, industrialized nations have waged wars on poverty, but have often looked for simple answers to a complex problem. In fact, the problems of the world are so intertwined that we can't separate out one without looking at how it is interconnected with all the others. Poverty is a symptom of a much larger problem that can be effectively treated only by looking at it holistically. The cycle must be broken in a variety of places in order for the solution to be durable.

Access to community and reproductive health care is an essential element in combating poverty on a national and international scale. Recent evidence from countries where family planning efforts have been successfully implemented shows that smaller families play a major role in raising the standard of living of the entire population. When the population is stable, it's easier to provide services to all. Studies also show that raising income decreases the fertility rate. Clearly the vicious cycle of poverty and population can be broken at both ends. Additionally, when poor people have access to healthcare in their own communities they are more able to fully participate in economic systems. If a family can be better assured that their children will survive they are more likely to have a smaller family and increase their economic standing.

Good governance is another critical component to ensuring equal opportunity for all members of society. When a responsive government is in place, more members of society can be assured of economic stability and opportunity. For the downward spiral of poverty to be reversed, international assistance and national policies could give top priority to building representative governments and the conditions supportive of democracy. This would be a focus on legal and human rights, as well as healthcare, nutrition, sanitation, and education.

The creation and support of non-governmental and other economic organizations also strengthens civil society and offers creative, local solutions to local problems. Micro-credit organizations, which provide small loans to those otherwise disqualified from bank assistance, are a powerful example of institutions that can have a transformative effect on societies.

We can also work on mitigating the damage from wealthier nations by their over consumption and pollution. This would entail an economy that recycles, consumes renewable resources, and produces wastes that can be safely absorbed or neutralized. Shifting the global economy to such models – and transferring those technologies to developing regions so they can develop in a sustainable way – can be a critical development in poverty alleviation.

We could experiment with development models that are sustainable. This would mean empowering communities, marginalized groups – especially women – and non-governmental organizations. It would mean improving health services – including reproductive health services – and improving access to those services. It would mean investment in education, conflict resolution, and the essential institutions of democracy – a fair and efficient legal system, strong personal and property rights, a well-run civil service, and a functional, accountable financial system. It would mean protecting and restoring ecosystems, restructuring our energy system, and equitably distributing the energy it produces. It means pursuing an economy in which public goods and public interests are protected and fostered, and “externalities” – such as pollution, poverty, or resource depletion – are accounted for and addressed.

Conclusion

The evidence couldn't be clearer that the gap between the rich and poor is growing larger and larger. But it is not the gap per se that is the problem, but the behaviors and problems it fosters with both the rich and poor that matter. Poverty on a national and international scale is intimately linked to many of the challenges we face; and change in any one – whether positive or negative – impacts all the others. For that reason, efforts to reduce poverty, reduce consumption, stabilize population, protect the environment, support human rights, and foster democracy are mutually reinforcing. The caveat, however, is that we should work on all these areas to assure success in the others. We must put as much energy into building a global civil society as providing education and clean water if the root causes of the rich-poor gap are to be addressed. There are many avenues and options that we could take to close the gap between rich and poor and alleviate poverty worldwide. The choice is ours and the results could be extraordinary.

Peace and Conflict

Introduction

Peace is the essential condition for achieving a truly sustainable world. Only in conditions of stability and security can human rights be fully protected, sustainable economic development be fully implemented, and the environment be protected and restored.

At the beginning of the 21st century, however, more than 60 low and medium-intensity wars are raging around the planet – roughly double the average number during the Cold War. Concurrently, the proliferation of weapons of mass destruction, multiplying acts of terrorism, and increasing numbers of “rogue” states have redefined both the nature of war and the concept of security.

These trends pose very real threats to the futures of both developing and industrialized societies. Conventional armed conflicts – which are primarily intrastate in scope and geographically limited to developing regions – damage the environment, disrupt economies, and shatter societies. Civilians suffer most drastically from current forms of warfare, which may include ethnic expulsions and even genocide as deliberate strategies.

Terrorism or “asymmetric” conflict – multiplied by the likely use of weapons of mass destruction – threatens not only massive civilian casualties in developing and industrialized regions, but also destruction of the financial, information, and technological infrastructures that underpin modern societies.

Theoreticians of war point to many different causes of conflict, but resource scarcity – exacerbated by population growth, inequity, and environmental destruction – is the most common flashpoint. Most wars today are over access to or control of water supplies, farmland, forests, fisheries, or valuable commodities like coffee, diamonds or narcotics.

Poverty, ineffective governments, natural disasters, disease, and access to arms are additional conditions that increase the probability of overt conflict. Societies divided into particular classes and religious or ethnic groups are more likely to succumb to civil strife, and those clashes may well spill over into other areas, targeting for revenge groups or nations perceived to be helping the opponents of any given faction.

These realities help explain why military spending constitutes a significant percentage of most national budgets. Developing nations prepare to battle neighbors for resources or internal opponents for political power, while industrialized nations gear up to maintain control of economically important resources, or support friendly governments that provide access to those resources. Of course, this direction of resources toward military preparedness means they are not available to mitigate the very economic and social conditions that underlie conflict.

Despite this grim news, there are many causes for hope. Both personal and policy solutions can reverse many of the above-mentioned trends. At the local level, emphasis on education and multicultural awareness has made subtle inroads into social divisions. Regional, international, and non-governmental organizations whose primary purpose is the curtailment of war have mediated many potential conflicts.

“Globalization with a human face” – reoriented to alleviate poverty and support social health, good governance, human rights, and environmental protection – holds the potential to mitigate many social, economic, and political causes of conflict. Increased interdependence – fostered by balanced, pro-environment and pro-labor trade – will make overt, interstate conflict more damaging than beneficial, and thus make it a less viable means for states to achieve policy ends.

Historic Trends

Written human history, it has been argued, is largely the history of warfare. “War,” wrote historian Gwynne Dyer, “is a central institution in human civilization, and it has a history precisely as long as civilization.”

Armies and states were fully formed institutions by the time writing was invented to record their deeds. The great empires and civilizations of the past were created, maintained, and often terminated, by the wars they fought. Some of the most memorable figures in history – including Alexander the Great, Julius Caesar, William the Conqueror, George Washington, and Mao Zedong – are those who led or launched armies into battle.

In 1968, historians Will and Ariel Durant calculated that there had been only 268 years free of war in the previous 3,421 years. Certainly there have been no years without war since.

The end of the past century marked 55 years of peace between the great powers of the world, the longest such period in recorded history. But, since the end of World War II in 1945, the number of regional or civil armed conflicts has continued to grow, reaching a peak of 68 in the year 2000. The majority of those wars were low-intensity and intrastate of which nearly 50% of them were being fought in Sub-Saharan Africa and the Middle East with conventional weapons.

During the last decade of the 20th century, civil wars, ethnic cleansing, and acts of genocide claimed some 5 million lives, the majority of whom were civilians. In World War II civilian casualties accounted for only 50% of the total; since then they have increased to 90%. Millions more died from hunger and disease resulting from dislocation and disruption of food supplies and medical treatment.

With the recent spread of terrorism as a means for targeting particular enemies, no nation is immune from attack. The potential use of weapons of mass destruction in such attacks – and the economic and social disruption such attacks could inflict – are a stark warning that traditional models of conflict do not apply to 21st century modes of warfare.

Defining Conflict

As the nature of conflict shifts, it is important to distinguish between types of conflict – that which is a natural occurrence between individuals and communities, and deadly conflict that results in the loss of lives. The former can be positive, providing a level of creative tension that fosters collaborative actions and innovative solutions, while the latter is destructive to lives, property, the natural environment, and social order. Peace and conflict sit on a continuum, ranging from a state of security, order, and mutual concord on the one hand, to all-out nuclear war across international boundaries on the other.

Conflicts are generally classified as “low,” “medium,” or “high-intensity,” depending on the types of weapons used, involvement of outsiders, and number of casualties. Wars occur between states and their armies. Terrorism, or asymmetric warfare – so called because it allows a weaker opponent to level the playing field by unorthodox means – is considered a separate category, even though terrorist actions can and have inflicted casualty numbers high enough to qualify them as low-intensity wars. Terrorist acts are, by definition, non-state actions, even though they may be supported by states for their own purposes. States may, and often do, commit acts of terror in their pursuit of policy, but such acts are not, ironically, defined as terrorism. States may also sponsor and equip proxy groups that commit terrorist acts.

Most conflicts have a life cycle of distinct phases, which very often are defined by the level of violence involved. The first is a period of rising tensions, devoid of violence, perhaps marked by strikes, protests, or civil disturbances. This is followed by confrontation, the outbreak of overt violence, and growth of military hostilities. The post-conflict phase begins with a truce or cease-fire agreement, and concludes with reconciliation in a variety of forms. Each of these phases has its particular impact on the societies involved as well as unique challenges to the peacemaker.

Conflict Connections

Conflict affects every facet of society. While there is a popular belief that war leads to prosperity, the economy is actually the first to suffer. The Viet Nam War cost the United States the ability to make social programs in the “Great Society” envisioned by President Lyndon Johnson, while the economic drain of the Afghan War and the Cold War led to the collapse of the Soviet Union. Even relatively small-scale events can have a substantial impact, such as the terrorist attacks against the United States on September 11, 2001, which tipped an already shaky global economy into recession.

Warfare is also destructive to the social fabric and culture of combatant nations. People may be forced into military service, driven from their homes and businesses by fighting, or unable to cultivate land because of land mines and other unexploded ordnance. As is the case in many countries in Africa, where low-intensity wars have simmered for decades, the basic foundations of a civil society have never been built. Governments seem to exist primarily for the waging of war – and the enrichment of warlords.

The provision of basic health care and food and water security is affected by the war effort. In poorer countries, local revenue and foreign assistance that should be earmarked for education, health care, and economic development are diverted to military uses. Basic infrastructure is destroyed or pressed into the service of the combatants. Local or imported sources of energy serve the war effort, and are denied to ordinary citizens.

Deadly conflict is automatically destructive to the environment by reducing the productivity of the land and forcing nature into the service of war. “Scorched earth” tactics, “defoliation,” and other direct attacks on natural resources and ecosystems are increasingly common in modern war. Animal species, while not directly targeted, are often “collateral damage,” or killed by combatants for food, or valuable hides, ivory, or other trophies, which can be sold to support the fighting.

Civil conflicts invariably lead to a limitation of the human rights of the citizens involved. With claims of a need for heightened national security, governments may deny basic freedoms of speech and assembly as well as other economic, civil, and political freedoms guaranteed in the United Nations Covenants. Even in liberal democracies in Western Europe and North America, civil liberties and personal freedoms have been curtailed to combat terrorist groups such as Italy’s Red Brigades, Germany’s Bader-Meinhoff, the Irish Republican Army, or the Afghanistan-based Al Qaeda network.

Though there have been no high-intensity (world) wars for decades, low-intensity conflicts have had a devastating effect on developing countries and on the planet as a whole. In addition to military and civilian casualties, regional economies have been disrupted, and local ecosystems destroyed. Tens of millions of refugees have been driven from their homes, often suffering from hunger and disease. Non-combatant nations have been drawn in to provide humanitarian services or peacekeeping forces. Defense budgets in industrialized nations have grown – at the expense of social services and environmental protection – to counter terrorism or try to stabilize warring regions that supply valuable resources.

Underlying Causes

Properly managed, diplomatic conflict often helps produce growth and promote sustainability. But, given the wrong conditions, benign conflict can turn deadly and protracted.

“Ethnic”, “tribal”, and “factional” are often words associated with the sources of violence, but they can distract us from a deeper understanding of root causes. In fact, the underlying conditions are often the same: rapid growth in both overall population and density; competition for resources or other economic opportunities; social divisions based on class, race, ethnicity or religion; and political instability often associated with weak systems of governance.

Demographic information is often a valuable diagnostic tool when looking for root causes of conflict. High fertility rates, resulting in rapid population growth and high population densities, contribute to resource depletion, scarcity, and environmental degradation. Governments may also be unable to provide adequate social services, infrastructure, or employment opportunities for rapidly growing populations, which stimulates discontent among the populace.

High fertility rates create young populations (half the world’s people are under age 25), which means there is a large pool of 15-29 year olds. Young men of this group – without sufficient education, employment, or hope for a better future – may be easily recruited into groups engaged in violence. Other demographic indicators of reduced social capacity that may presage violent conflict are high levels of maternal and infant mortality, and low levels of education and women’s empowerment.

Economic trends are also important gauges of potential conflict. Low levels of per capita income slow or negative economic growth, high levels of external debt, and a widening rich-poor gap may foretell the social and environmental declines that often lead to conflict. Economic inequality, in particular, carries with it the seeds of lethal conflict. In many developing countries an economic elite – sometimes ethnically or religiously different, but often not – has gained control over land and other natural resources like fishing grounds, forests, minerals, or irrigation rights. Denied access to those resources, the vast majority of the population may both be unemployed or marginalized in other ways and ready to take some sort of action for a larger share of the wealth.

In other cases, class differences may be less pronounced. Instead, environmental degradation and destruction through natural disasters or climate change may have left an entire population in an impoverished and vulnerable state. The subsequent struggle to gain control of valuable resources – whether diamonds, oil, copper, or other strategically important raw materials – has fueled intrastate and interstate wars in many parts of the developing world.

Social divisions – whether based on class, caste, ethnicity or religion – often provide the “fault lines” that delineate opposing groups in deadly conflicts. The history of the last century is filled with examples of religiously motivated low-intensity wars, like Muslim vs. Christian, Buddhist vs. Hindu, Protestant vs. Catholic, Muslim vs. Hindu, to name only a few. But beneath philosophical antipathy are generally economic or political drivers, which are equally powerful.

Of course, no lethal conflict can be carried on without weapons themselves, and their easy access is a major factor in many of the low-intensity wars currently being fought in the world. The proliferation of small arms in poor countries makes it more likely that benign conflicts conceivably solved by mediation will turn into deadly ones. By the same token, larger conflicts have the potential to become medium and high-intensity wars by virtue of the weapons available to the combatants.

Despite the end of the Cold War, superpower rivalries and the accompanying arms race continue. The arsenals of the US, Russia, and China hold more than 30,000 nuclear weapons. The US, in particular, is continuing to upgrade its nuclear program, and pursuing space-based weapons, which may force China and Russia to expand and upgrade their own defense budgets and arsenals.

Several regional powers also possess nuclear weapons and delivery systems. In the early 21st century, the US Department of Defense identified about 25 states that are pursuing weapons of mass destruction and / or delivery systems for those weapons. The likelihood of “rogue states” or non-state actors securing – either through diversion or construction – nuclear or other weapons of mass destruction is also significant.

The combination of all these factors provides a dangerous “multiplier” effect. Rapid population growth in developing regions combined with over-consumption by industrialized nations is degrading the global environment. The resource scarcity caused by this environmental degradation and the uneven distribution of these resources has created large numbers of marginalized groups. Expanding globalization has accelerated the “clash of civilizations” between rich, secular, industrialized nations and poorer, often theocratic, developing nations.” And access to highly lethal tactical and strategic weapons has increased the casualty potential of any resulting clashes.

Turning the Tide – What Can We Do?

As the world population continues to grow, it’s tempting to focus on what divides us. But the truth is that we’re witnessing a gradual unification of humanity into a single interdependent community. This community holds within it the nucleus of peace as well as the seeds of war, and provides not only the possibility of factional strife, but also the opportunity for mutually shared security.

For each step on the continuum from peace to war there is an appropriate intervention, ranging from economic incentives to diplomatic efforts to economic sanctions and armed restraint. The United Nations employs a variety of preventive tools, including diplomacy (using Special Envoys); deployment (of military observers); disarmament (reducing small arms); and peace building and peacekeeping (national reconciliation). Once the UN has exhausted all of its preventive efforts it can still resort to economic sanctions to enforce its decisions.

The period following violent conflict offers an opportunity to the international community to become peacekeepers by helping to rebuild war-torn societies and remove the causes of future wars. Steps in this process include armistice and treaty negotiation and monitoring, truth and reconciliation commissions, and prosecution through international tribunals of war criminals. The last is particularly important to provide a potential deterrent to those who use violence as a political tool.

Addressing the root causes of violence must occur in parallel with intervention and resolution efforts, but is much more difficult. As with all other major world problems, treating isolated symptoms won’t cure the disease – a holistic approach is essential. Each of the “solutions” supports the others in a mutually reinforcing program of change.

Addressing economic inequality within nations and among nations could reduce conflict at all levels. One international conference after another has called on nations to reprioritize their budgets, reduce military spending, and increase funding for education and anti-poverty programs. For this to occur, however, the industrialized nations, with their powerful economies and technical expertise, must help finance and facilitate such a transition.

Internationally, the Least Developed Countries and other major debtor nations of the developing world could be given concrete debt relief. International financial institutions like the International Monetary Fund can also create and strengthen social safety nets in their determination to make national economies more fiscally responsible.

Health care, education and the provision of adequate food and potable water are key steps in the search for a stable, peaceful world. The World Health Organization, in cooperation with numerous international NGOs, is making great strides in immunization and the prevention of deadly diseases. A similar campaign mentality is called for in the fight

against HIV-AIDS, malaria, and other highly communicable diseases that especially plague the developing world, and are highly destabilizing to societies and their economies.

Education is crucially important in reducing violence. Education – especially for girls and women – is a vital component of economic development, population stabilization, and civic participation. From basic human rights lessons in primary grades, to law school, the educational process should also lead to increased social capacity, tolerance, and a willingness to seek peaceful rather than violent solutions to conflicts.

There are many ways to encourage the development of responsive governance. Recognition and removal of corrupt practices is an important first step in building the kind of civil society in which non-violent solutions are chosen over violent ones. Numerous organizations, both private and public, can play an even more active role in monitoring elections, nurturing the democratic process, and training effective leaders and administrators, especially at the local level.

The UN Commission of Human Rights and all of its Declarations and Covenants and the International Criminal Court are essential elements in conflict prevention. Local human rights organizations linked to a national constitution and trustworthy court system complete the picture. All of these links in the human rights protection network assure that citizens have the freedom to organize and voice their opinions without fearing violent retribution or intimidation from unscrupulous leaders.

Because environmental destruction and scarcity are drivers of conflict, protection and restoration efforts are essential. These may include fostering reforestation, sustainable agriculture, renewable energy, eco-tourism, and technology transfers of environmentally sound products and processes.

Arms control is also essential to lasting peace. Since World War II, numerous treaties limiting the production and use of weapons have been drafted and signed, including the Nuclear Test Ban Treaty, the Nuclear Non-Proliferation Treaty, and the Chemical and Biological Weapons Agreement. These international agreements, as well as the United Nations Charter itself, have set a high standard for the nations of the world. But they are only as effective as the will of signatories to adhere to and enforce their provisions. Citizens in signatory nations must demand that their own governments conform to treaty provisions.

Conclusion

Creating a culture of peace is possible. It requires the commitment of individuals and governments to understand the nature of conflict and to build societies that promote peace rather than war. The fact that we have avoided nuclear war and an international conflagration for the past 55 years must inspire confidence in us to make a concerted effort to erase the causes of the small-scale conflicts which threaten to plague the world in the 21st century.

Just as equity, justice, and good governance are necessary to foster peace, it is possible to fully develop those conditions only in the absence of violent conflict. Because this is akin to the “chicken or the egg” syndrome, a holistic, “multi-tasking” approach is necessary. This means simultaneously easing tensions through “honest brokers” before violence erupts, intervening at “flashpoints” to deescalate or contain open conflict, and phasing in structural reforms to mitigate the underlying causes of war. Undertaking such a course of action will require awareness and political will, diplomatic and military efforts, and a large increase in funding for sustainable development. As those efforts bear fruit, a reallocation of spending will become possible, promoting further sustainable economic development, environmental protection and restoration, population stabilization, and poverty alleviation.

Health

Introduction

Good health is absolutely essential for social and economic development. However, despite progress made towards the material well-being of many in the industrialized world, the majority of the world's citizens continue to suffer from poor health.

There are many reasons for this disparity, but population growth, globalization, and inappropriate development have had a tremendous impact on the developing world directly. In the richer nations, over consumption has caused serious environmental health impacts. As an indirect result a much higher priority has been placed on curative rather than preventative health programs.

As with all of the major issues facing the world at the beginning of the 21st century, health cannot be considered in isolation. We can see its impact on everything from population, to the economy, to peace and conflict. By the same token, health is profoundly influenced by economic trends, environmental degradation, or the budgetary priorities established by any national government.

Although the news is filled with shocking stories about epidemics like HIV-AIDS or the lack of health care coverage for poorer citizens in industrialized countries, recent reports indicate a number of changes for the better. Immunization programs are expanding in the developing world. There are certainly many opportunities to break the cycle of poor health care, including the extension of reproductive health facilities to women, as well as access for all people to a nutritious diet and clean water.

The benefits of a comprehensive global “wellness” program are clear. Healthy citizens are more capable of economic productivity as well as social and political engagement. But such a program would require a reordering of priorities by all nations, so that preventive public health receives as much support as the more expensive curative programs currently given top priority in the affluent countries. Health care, of necessity, would take a much larger bite out of national and international budgets; a reordering of spending priorities would need to take place.

Global Health Connections

Epidemics have shaped world history. One has only to look at Black Death in Europe and the devastating effects of smallpox, measles, or syphilis on the indigenous populations of the New World to realize how the spread of disease affects human development. The Industrial Revolution of the 19th Century also offers important lessons about the impact of industrial pollution and adverse working conditions on overall health, especially of urban populations.

But the situation has changed dramatically as we begin the 21st century. The increasing population densities and globalization of the economy during this century have magnified the impacts of disease and environmental degradation by speeding communication and virtually erasing boundaries, which previously might have slowed the spread of pathogens. HIV-AIDS, West Nile Disease, and Ebola are a few examples of the many potentially lethal diseases that are truly international in scope.

By the same token, acid rain and other environmental conditions pose a similar threat to public health worldwide. Just as the outbreak of an epidemic in one corner of the world ultimately affects us all, so is it linked directly or indirectly to all the other major world issues such as population growth, governance, the rich poor gap, or the environment.

Population growth and movement have had a profound effect on the spread and genesis of disease worldwide. For example, those who move from rural to urban areas are susceptible to new diseases; increased population density in urban areas also guarantees that disease will spread more quickly. One of the most far-ranging developments of the 21st century is the aging of the world's population. It is a well-established fact that population grows primarily because of a decline in mortality rather than an increase in fertility. As the population ages, priorities in health care change accordingly and different kinds of services are required. In wealthy nations result has been a marked decline in public health programs and increased emphasis on chronic diseases and diseases that affect the aging population.

In poorer nations the needs of pregnant women and newborn children are quite different and just as pressing. The major goals of the World Summit on Children for the year 2000, which focus on the reduction of the five year old and under mortality rate and the maternal mortality ratio, have not been met, especially in the poorest countries of the world. The

resulting impacts on population trends in the developing world are profound. If women in the poorest countries had access to reproductive health services and could be assured that all of their children would survive beyond five years of age, the number of children born into those families would decrease dramatically.

Limited access to adequate health care only widens the gap between rich and poor in the world and intensifies the vicious cycle, which leads to further impoverishment. One only needs to compare the impact of the HIV-AIDS epidemic on the poor nations of Africa and South Asia to the United States to see how money talks when it comes to medical treatment. Even so, there are millions of U.S. citizens who have no health insurance and many more in the aging population who contend with substandard care and inadequate provision of drug treatment.

As the medical establishment responds to the needs of the rich countries and the affluent members of society, more emphasis is placed on treatment of chronic illnesses like cancer and heart disease, and less on preventive public health. In medical education, specialization is the watchword, with precedence given to more expensive diagnostic processes and end-of-life care. It's been estimated that currently the per capita health spending in rich countries is \$2,000. Experts contend that if we set aside only \$38.00 for every person in the world we could reverse many of the negative trends in health care provision.

Poor governance often plays a critically important role in the failure to deliver adequate health care to all citizens. As we've seen in our exploration of other issues, globalization has increased the indebtedness of poor countries and given multinational corporations extensive power over the decisions of governments, which are dependent on their investments. When governments must decide between taxing cigarettes to limit smoking and the profits to be gained from their deregulated sales, they frequently opt for the latter. Corrupt government practices influence everything from the funding of public hospitals to medical education programs, especially in the poorer countries. When you combine lack of accountability at all levels with pressure from international lending institutions like the International Monetary Fund (IMF) to privatize health services and remove the safety net, it's not surprising that only the privileged few in most countries have access to adequate health care.

To a growing number of people, the failure of governments to acknowledge their AIDS epidemics and to provide low cost drugs is a gross violation of their human rights. Following the lead of Amnesty International, most international human rights organizations are insisting that the governments of the world must adhere to the major provisions of the International Covenant of Economic, Social and Cultural Rights. This means that pharmaceutical companies, for example, need to provide affordable retroviral drug treatment rather than guarding their patents and pricing drugs out of reach in those countries. Accepting the universality of human rights also means that governments and the international medical establishment must work against practices that have negative consequences on the health of young women such as female genital mutilation.

Food and water security are key links in the chain that leads to good health at all levels of a society and in the family of nations. There are probably no more essential elements in the preventive approach to disease than good diet and a clean, adequate water supply. Both ends of the economic spectrum are affected by diet: affluent countries suffer from the maladies of affluence like cardiopulmonary disease and other diseases associated with obesity and unhealthy diet and those who live on rice and beans are simply malnourished. Goal 3 of the 2000 World Summit for Children was to cut in half malnutrition rates among children under the age of five. We've fallen far short of this goal, and, in fact, the absolute number of malnourished children has increased in Africa. Many predict that, unless priorities are seriously reordered, water shortages will plague most of the world, especially if water sources are privatized as part of the process of globalization.

A changed environment challenges good global health. There are countless examples of the connection between environmental change and increased disease. For example, the anopheles mosquito has moved into larger and larger areas in response to global warming, and the increased rainfall in many parts of the world has led to a higher incidence of cholera, dysentery, typhoid, and other water-borne disease. Everyone is familiar with increased skin cancer due to our depleted ozone layer, the harmful impacts of herbicides and pesticides on both agricultural workers and consumers, and the impact of air pollution on young and old alike. In the industrialized world, workplace-related mental illnesses often associated with stress are becoming commonplace. Although some scientists are convinced that genetically modified organisms are the only answer to world hunger, others argue equally forcefully that they pose a profound threat to the flora and fauna of the world, as well as pose potential adverse impacts to human health. At the beginning of the 21st century it appears that an ailing environment is having a profoundly destructive impact on the health of world citizens.

Finally, ill health is a security threat to the world. Health problems have the potential to reduce economic output to the point that entire regions might be destabilized. The HIV-AIDS pandemic has had this effect on Africa where, in some

countries like Uganda, Botswana, and Malawi, nearly an entire generation of farmers has died, crippling the ability of those countries to support themselves. As we have seen in our analysis of food and water security, unhealthy people are more vulnerable to military control and more likely to become involved in intercommunity conflicts out of desperation. A healthy population is more productive and less likely to become involved in the civil conflicts which plague many parts of the world today, as in Sri Lanka, the Middle East, and Afghanistan. In a destabilized world, it is also possible to weaponize pathogens as the ultimate chemical biological weapon available to terrorists or rogue states. There is no more lethal threat to global security than fast-spreading epidemics against which we have no real defense.

Health Care: Priorities for the 21st Century

Not only medical professionals but also many development experts argue that, like education, health care for all is a goal worth working towards. There are a number of concrete measures, each of which moves the world's population to better health. The Millennium Development Goals, adopted at the Millennium Summit in Sept 2000, call for major improvement in the health of the poor. The delegates recognized the importance of improving the health and longevity of the poor as an end in itself, but also as a means to achieving the other development goals relating to poverty reduction. For example, immunization programs dramatically reduce infant mortality as do provision of oral re-hydration therapy (ORT) to the under five year olds who suffer from chronic diarrhea. While there is no "quick fix" for the health problems of the world, it is possible to reverse many of the trends mentioned above that pose such a significant threat to world health. In this section we will explore both what is already being done to address threats to global health and also focus on some of the ambitious proposals designed to bring adequate health care to all.

Worldwide access to reproductive health care would be a giant step towards population stabilization. Not only would it reduce the ratio of population to health care infrastructure but it would also significantly reduce migration. The capacity to control family size permits women to safeguard their chosen children's' health by focusing on their improved hygiene and diet rather than their survival. Stabilizing population movement, especially from rural to urban areas will also slow the spread of diseases like HIV-AIDS associated with transient groups such as sex workers and truck drivers. Most importantly, reproductive health services are by their very nature preventive and reassert the importance of public health and primary health care as opposed to private, curative approaches.

Does the narrowing of the rich-poor gap lead to improved health or is it the other way around? In fact, both are probably true. It certainly makes sense that affordable treatment and access to tools of prevention like immunization and family planning contribute to a more economically productive population. Strong healthy industrial and agricultural workers and students certainly work with greater attention and efficiency. People with a stable income will be able to afford adequate health care. Experts in international anti-poverty strategies often link improved health care for the poor with education at all age and ability levels as a key ingredient in reducing or even eliminating poverty. The Global Campaign Against HIV-AIDS gives equal emphasis to community education and drug treatment.

On a more global level, reduction of the crushing national debts of the poorest nations of the world is essential; these countries can then budget for basic health services. Jeffrey Sachs, Chair of The Commission on Macroeconomics & Health recommends the creation of a Close to Client (CTC) system in which the local health post is given higher budgetary priority than hospitals and expensive medical facilities. The effectiveness of such programs hinges on the efficiency and accountability of both local and national governments in which civil society plays the key role. Good governance guarantees that local primary health care as well as massive immunization programs like those currently supported by the Bill & Melinda Gates Foundation are effectively and equitably administered.

Rapid communication and the widespread use of the Internet have led to the growth of consciousness that good health is indeed a human right. In the World Health Organization's 50th anniversary statement they reaffirmed the right of all people to have adequate health care. Human Rights Watch and Amnesty International have also pledged to expand their advocacy programs to economic, cultural, and social rights, recognizing that, without good health, freedom of speech is almost a luxury. At the beginning of the 21st century, the Global Fund to Fight AIDS, TB, and Malaria has underscored this commitment by targeting these three diseases, which affect the most under-served populations of the world.

Indeed, recent court decisions in South Africa allowing the manufacture of a generic antiretroviral AIDS drug suggest a shift in legal attitude towards the rights of the poor to affordable drugs.

Given the urgency of the worldwide environmental crisis, it's tempting to give precedence to programs that address pollution and global warming. But the interrelatedness of all global problems reminds us that we can't focus on CO2 emissions without also looking at the habits of the truck drivers who are prime carriers of the HIV virus. Prevention is as important in the environmental arena as in the transmission of disease. Most nations of the world have signed the Kyoto

Protocol, agreeing to reduce carbon emissions significantly before the end of the first decade of this century. By reducing global warming we will also narrow the range of the malaria-carrying anopheles mosquito, just as more predictable weather patterns will eventually moderate the impact of cholera.

Food and water security are obviously key links in the chain of health care for all. We continue to make impressive strides in the production of food but not always in its equitable distribution. We must encourage sustainable organic agriculture at the local level, while resisting the pressures to grow cash crops and overuse technology. There are impressive examples in both the developing and developed world of the application of appropriate technology to food production. Emphasis on a more balanced diet and better use of available land for the production of food grains instead of cattle feed will make a tremendous difference in international food security. A reliable water source at the village level transforms the lives of all its inhabitants; organizations like OXFAM and United Nations Development Program are promoting relatively inexpensive small-scale projects. They lead directly to not only a changed attitude about what's possible, but to the mobilization of civil society. The village health post is the next step.

Health For All: We Can Make a Difference

All of the above measures are components of what we can call a global wellness program. Many of these steps are preventive in nature and are not that expensive, even on a global scale. Immunization against smallpox and other campaigns in the past against diseases have been tremendously effective. We can continue to achieve the same successes but it will require a basic shift in attitude as we recognize the increased interconnectedness of humanity and realize that ill health and the resulting instability anywhere in the world can affect us all. Only by reaffirming the importance of public health will we be able to achieve these goals. Preventive and holistic healthcare clearly the foundation stones for global wellness.

Food and Water

Introduction

“Well-fed people have many problems, hungry people only have one.” This traditional Chinese proverb reminds us that, even though all global issues are linked, nothing is quite as basic to human survival as food and water. An estimated 2 billion citizens of the world lack access to adequate nutrition, and nearly 800 million are chronically hungry. Our supply of fresh water is also severely limited: 31 countries are currently suffering from scarcity or stress and for more than 1 billion people clean drinking water is simply unavailable. (UNDP)

The human costs of food and water insecurity are high. Drastic shortages of food and water heighten the gap between rich and poor and often lead to conflicts on both sides of the borders of a particular country. Water wars are almost inevitable, as more people compete for that scarce resource.

The push for increased agricultural production to meet growing needs leads to environmental degradation from habitat destruction, chemical pollution from fertilizers, and over-fishing. River systems and aquifers have been seriously depleted by water withdrawals. The introduction of genetically modified organisms (GMOs) in an effort to increase food production has potentially negative environmental and health implications.

As the environment suffers, so does the health of the millions who lack adequate sanitation, potable water, and daily nutrition. Children who go to bed hungry are vulnerable to disease as well as delayed physical and mental development. Dirty water is a major culprit in the spread of diseases like cholera, which are especially deadly for children.

Population growth has a double impact on food and water security. On the one hand, increasing per capita food consumption by wealthier nations of a protein-rich diet further skews distribution of resources. On the other hand, a rapidly growing and more prosperous developing world will lead to their demand for a greater share of the world’s food. Greater numbers of people also lead to expanded agricultural, industrial, and municipal water use that eventually compromise both water quality and its availability.

The structure of the world economy at the beginning of the 21st Century contributes significantly to the current problem. Developing countries, already deeply in debt to industrialized countries, are forced to make difficult decisions that often favor cash crops over food crops and export earnings over self-sufficiency.

It is possible to provide adequate food and water for everyone. Farmers can convert to proven sustainable agriculture by improving harvesting, transportation, and storage technologies that currently waste as much as one quarter of all food produced. It’s also possible to use water much more efficiently in agriculture, industry, and residential applications. Through education, fundamental changes in consumption patterns and diet in industrialized countries and a move towards balancing resource use worldwide are possible.

Food and water security for all of the world’s citizens directly addresses the root causes of poverty and conflict. Hungry people who begin to eat healthy diets become active and productive members of society, contributing to a robust international economy.

Food Security: The Current Situation & Predictions for the Future

The UN predicts that the world population will increase to 8 billion by 2025. Accompanying that growth will be a dramatic rise in per capita consumption of food and a growing demand for more calories. Increased consumption will make more obvious the huge inequities in the distribution of food to the people of the world.

This is not a new problem. In the 1950s, population experts shocked the world with their projections; many were convinced that, unless we made fundamental changes in agricultural production, widespread famine would result. Agricultural advances of the 1950s, called the “Green Revolution I” raised the amount of food per capita through the development and introduction of high yield, pest resistant seeds, and increased irrigation techniques. Green Revolution I was an impressive attempt to increase food production in rich and poor countries alike. But the environmental and social impacts of this agricultural revolution were significant: large tracts of land were deforested, chemical fertilizers poisoned soil and groundwater, and peasant farmers lost control of seed stocks.

Most importantly, at the beginning of the 21st century, it is clear that Green Revolution I didn't actually bridge the gap between food producers and food consumers; it kept up with population growth for only a moment in time. Poor people don't eat well; the result is that about 20 percent of the world's population consumes too few calories to support an active working life. As a result, the productivity of both agricultural and industrial workers suffers greatly in undernourished developing countries.

Recent advances in the area of genetic engineering, often coined "Green Revolution II" is the latest attempt to address the problem of insufficient food for a growing population. Genetically modified organisms (GMOs) represent to some the ultimate answer to food shortages and to others a serious threat to the natural world. GMOs include seeds, which are resistant to certain pests and have built-in genetic characteristics that promise higher yields and resistance to natural pests. But, tinkering with the genetic make-up of traditional crops can threaten organic seed stocks and produces crops, like the Terminator, that have the potential of monopolizing international agriculture.

Conversion of forests and other arable land to pasture for cattle reduces rainforests essential to the environmental health of the globe. The cycle of environmental degradation has also led to unnatural disasters, especially droughts and floods. In the first few years of the 21st century, floods in Honduras and India and droughts in Afghanistan have made those countries heavily dependent on international food aid.

There are many trouble spots in the world where food and water security are compromised rather than protected. Civil wars often threaten existing food and water supplies for a variety of reasons: land mines and unexploded ordnance interfere with potentially produce agricultural lands, military service of youth and farmers means a smaller work force, and internal displacement (refugees) of rural populations results in more mouths to feed. In fact, it is estimated that 10 percent of the world's hungry people are in that condition because of the disruptions of war and other civil strife.

In the process, the health of many of the world's citizens suffers. Proper nutrition is the foundation of good health, but it is estimated that about 40 million people die annually from hunger and hunger-related diseases. Lack of a balanced diet and an insufficient daily caloric intake leave many more vulnerable to other diseases and unable to resist the secondary afflictions associated with a disease like HIV-AIDS. At the other end of the economic spectrum, 30 percent of adults in the United States over the age of 40 are obese and suffer from a variety of serious health problems associated with that condition.

Water Security: The Current Situation & Predictions for the Future

Water is one of the most precious commodities on the earth; its "ownership" and use—like food—are not equitably distributed. The least dire predictions for the future are that by 2025, two-thirds of the world's population will be living with water shortages or absolute water scarcity. These shortages will affect the poorest first, both in terms of domestic consumption and irrigation.

World history is filled with hundreds of examples of how water supply determines the success or failure of civilizations. Every great river system like the Indus Valley, the Tigris & Euphrates, Nile Valleys, and the Mekong -- to name just a few -- has a long history of conflict and cooperation over its control. Water use has determined the very nature of the civilization itself.

Already in this century, neighboring countries have come to the brink of war over the use of river water shared by them. For the most part, potential conflicts have been resolved cooperatively: 157 water treaties have been signed over the past 50 years. But as the renewable supply declines and world population grows, some predict a different scenario. Even though only one-quarter of water-related interactions were hostile in the last 50 years, there were 37 instances where shots were fired or some sort of military action occurred.

Water can be viewed, like food, as a commodity, which can be traded on the world market and produced efficiently with the application of the very latest technology. Some multinational corporations are interested in making water an item to be bought and sold on the world market. Poor people already often pay more for their water than those in affluent countries.

In a glimpse of what could easily happen as privatization of resources increases in the next decade, Bechtel Corporation, backed by the World Bank, doubled the price of water in the city of Cochabamba, Bolivia in 1999. They were unprepared for the violent reaction of the mostly poor citizens of that city who still saw access to fresh water as a right and not a privilege.

International law is even more explicit concerning how water should be used: “In determining ‘vital human needs’, special attention is to be paid to providing sufficient water to sustain human life, including both drinking water and water required for production of food in order to prevent starvation.” (Article 10 UN Convention on the Law of the Non-navigational Uses)

Many of the most debilitating diseases—like cholera, typhoid and less severe forms of diarrhea—are water-borne; lack of adequate sanitation and an unpredictable water supply are major culprits in high infant mortality. Many experts claim that provision of clean water both for drinking and other household uses would be a major leverage point in assuring adequate and equitable healthcare.

Planning for Food & Water Security: There is a Way

Despite the many worst-case scenarios, we will be able to provide adequate food and water to the estimated 9 to 13 billion citizens of the world fifty years from now. But such a goal can only be reached through a transformation of our systems of production and distribution. We will have to choose to use the resources of the earth in a more equitable and sustainable way.

A good starting point in achieving this goal is to stabilize world population growth at a workable level. Reproductive health education efforts in rural communities can have dramatic results, especially in convincing girls and women of the wisdom of reducing family size. This will slow the process of land fragmentation that is having such a destructive impact especially in Asia. Since the poor often count on large families as a form of insurance, it stands to reason that as food and water security increase, one of the incentives for more children disappears.

This vicious cycle of poverty can be broken in a variety of ways, but one of the most effective is to provide the food and water required for productive work. The World Food Summit Plan of Action, adopted in 1996 by nearly every nation of the world, states that “poverty eradication is essential to improve access to food.” Many studies show that increased caloric intake increases per capita income dramatically.

In almost every country of the world there are grassroots NGOs devoted to reducing the gap between rich and poor. Many of these organizations are targeting rural farmers and making self-sufficiency in food their number one priority. The Bangladesh Rural Advancement Committee (BRAC) concentrates on poor rural women and promotes home-based income generating activities, like food processing and poultry-rearing. Heifer International, a non-profit organization empowers local communities by offering healthy animals to the rural poor and initiating an ethic of mutual assistance.

Cooperatives and other local organizations offer an important antidote to the impoverishing effects of globalization. Anti-WTO activists claim that free trade and open markets must be balanced with programs that protect and support indigenous agriculture and resist the trend towards privatization of commonly held resources like water, for example.

Competition for scarce resources like food and water can either be a source of future conflict or of peaceful cooperation. Recently there have been concerted efforts internationally to establish processes of cooperation which have led to the Nile Basin Initiative, the Indus Waters Treaty, and a Global Alliance for Water Security, to name just a few programs. The World Food Program is often the most important agency in areas of conflict, providing food to refugees and the internally displaced. They are eager to turn relief into redevelopment and, through their Food for Work program, attempt to address some of the root causes of conflict.

International organizations are also working hard to promote cooperation between developing countries in food production. For example, the UN’s Food and Agriculture Organization (FAO) has a Special Program for Food Security that targets the 86 lowest income food deficit countries, and pairs them with another poor country that has made significant agricultural advances under similar conditions. NGOs like OXFAM foster small-scale local assistance programs, which bring together rival tribal groups for seed sharing or development of appropriate technology.

Governments, which are responsive to the needs of all their citizens, will certainly make food and water security their top priority. The number of democratic governments in the world continues to grow; this trend is encouraging. But even a democracy as large as India, in its efforts to foster economic growth, can fail to listen to the grassroots. Anti-hunger activists make a strong case for politicians to balance global and local economics needs.

Consciousness of the fragility of the natural world is growing and citizens and governments are beginning to adopt measures to protect our natural environment. Sustainable agricultural practices are an essential first step in this process, since mechanized production farming can take a toll on soil and water resources. In the industrialized world, consumers

are paying greater attention to what they eat and insisting on healthier diets. In response, many farmers are converting from heavy chemical dependent practices to more sustainable method of production and are remaining competitive in the process. Alternative approaches to growing food and models of appropriate technology are being disseminated in the developing world with some success.

As the enormity of the water crisis sinks in, alternatives to wasteful irrigation are being explored. For example, Israel has pioneered a water-saving method of drip irrigation that is being used in other arid climates. OXFAM has also supported the wider use of a locally developed plow in the Horn of Africa, which cultivates the land in a way that uses rainwater more efficiently. At the high tech end of the scale, desalination and complex water transport systems are being explored. In industrialized countries domestic water conservation is emphasized in schools and efforts are being made to curb waste.

All of these solutions have merit, but efforts to reverse the climate change brought about by carbon emissions are among the most important. Rising water levels caused by the melting of ice caps and general overheating of the climate are already having a devastating effect on agriculture. Reduction of carbon emissions is critical if we want to reverse the negative impacts of global warming.

The health of the entire population of the world rests on the availability of clean water and nutritious food. The epidemic of HIV-AIDS in Africa is a good example: in many countries, the farmers who produce the food and could pass on the agricultural skills have died. Uganda has taken extraordinary steps to slow the infection rate and restore health to the rural areas. The World Food Program, in its many food assistance programs to refugees and victims of natural disasters, links food and health care in an effort to break the cycle.

The World Health Organization along with NGOs charged with reforming health care in the world has focused on clean water as the best way to prevent debilitating disease in developing countries. Village wells and a guaranteed supply of water to the millions who live in the barrios of the world will go a long way in reducing disease and promoting health.

Conclusion

As we enter 21st century, we are beginning to realize that we do have the ability to feed the world and to provide each global citizen with sufficient clean water. Even though we fluctuate between hopelessness and optimism, we are aware that we must make some dramatic changes in the way we eat and how we use water. Until resources are more equitably distributed and we continue to develop and implement sustainable processes into the way we grow food, the basic problem of hunger will likely persist.

When poor people have enough to eat and water to drink and wash with, they enter the global economy as partners and consumers and business thrives. When communities take charge of their own food production and protect their water sources the environment thrives and the land begins to recover. And when everyone is receiving their fair share of the food and water of the world, one of the most serious sources of conflict is removed.

Economy

Introduction

“Economy” is generally thought of as the range of formal monetary transactions in a local, national, or international financial system. But as a global issue, economy can be considered in a much larger sense.

The word itself comes from the Greek “oikonomia,” meaning management of a household. In that context, economy would include not only financial exchanges, but also a range of social and environmental transactions people undertake to make a living. These “external” transactions may include industrial output and energy consumption, as well as the unpaid work of women and children hauling water or fuel-wood, the burning of rainforest to clear land on which to grow food for one’s family, drug-trafficking and other crime, traditional barter, and cooperative labor exchange.

There are many ways we could restructure our current economic models that might better serve people and the environment. For example, we can restructure our current tax system and we can use new models to indicate a community’s health and well-being that take into account external factors in addition to the GNP. These measures would provide a better indication of the true costs and progress of our actions and would help to influence them.

Where We Are Today

The formal world economy has grown exponentially over the past half century. Gross World Product (GWP) has increased more than seven fold, from some \$6 trillion US in 1950 to \$47 trillion US in 2001 (CIA World Fact Book).

This expansion has occurred in parallel with a series of shifts in types of economic activity – first away from agriculture toward hard goods manufacturing, then toward soft goods production, and most recently, toward services. These changes reflect the increasing value of educated people.

At the same time, the economy has increasingly “globalized” as materials, labor, and capital have freely moved across borders in search of markets and investment opportunities – a trend that greatly accelerated after the end of the Cold War and the development of market capitalism.

This combination of growth and increasing globalization has raised the material standard of living in most industrialized nations, and in a few developing nations, but has also generated or exacerbated a number of problems.

The benefits of economic expansion have been very unevenly distributed, both within and among nations. Roughly half the world’s people live on less than \$2 a day and neither benefit from nor participate in the global economy to any significant degree. The gap between the rich and poor has also widened significantly in many industrialized nations, including the United States.

Economic activity is still largely based on “throughput” – the constant extraction and processing of natural resources, which itself has been increasing exponentially, causing damage to the environment, driving deforestation, extinction of species, global climate change, and even disrupting the earth’s basic carbon, nitrogen, and freshwater cycles.

Economies have always been subject to disruptions. However, the economy is increasingly interconnected and complex, and therefore susceptible to serious disruptions that effect many more people around the world such as “Black Monday” in the US stock market, the Asian “implosion” and resulting capital flight of the late 1990’s, or the global slump exacerbated by September 11, 2001 terrorist attacks on the United States.

Many negative impacts of economic activity, including pollution and resource depletion, are ignored (“externalized”) by accounting practices. This has created an impression of unlimited economic growth, while

not accounting for ecological and social deficits such as the loss of natural capital due to environmental degradation and the loss of traditional cultures due to increasing globalization.

Solutions

Restructuring our economy holds tremendous potential for dealing with poverty, environmental decline, and security concerns, and moving us toward a just, sustainable future. It can begin accounting for the true costs to the environment, phasing out subsidies that mask those costs, damage the environment, distort markets, and hurt small producers.

Taxes are often used to adjust for some of these hidden costs. Explicitly shifting taxes away from things we want (like income and investment) and on to things we don't want (like resource depletion and pollution) can be an important part of helping move business toward sustainability, and stimulating employment, which will in turn help alleviate poverty and protect the environment.

Overhauling economic indicators to reflect human and ecological well-being is essential, since current indicators such as GWP measure only the quantity of economic activity – not the quality of that activity. New indicators can tell us how we're doing by reflecting human and ecosystem health through such benchmarks as infant mortality, education, gender equality, social cohesion, water and air quality, volunteer time, and biological diversity. For example, the non-profit research institution, Redefining Progress (www.rprogress.org) has developed the Genuine Progress Indicator, which considers these externalities in addition to a nation's GDP.

It is possible – using current technologies – to create a “factor 10” reduction in throughput, meaning we can support the same level of economic activity and lifestyle while reducing resource consumption and pollution by 90 percent. Components of a factor 10 economic transformation include a “closed loop” materials economy, in which virtually everything is designed to be reused and recycled; conversion to a clean, renewable energy system centered around solar and hydrogen power; and sustainable agriculture, forestry, and fishing.

An economy whose goal is unlimited growth, that views nature only as a source of free materials, and that values capital over labor, may continue to generate the outcomes we see today – massive environmental destruction, unemployment and underemployment, inequity and poverty, and social disruption and conflict.

An economy whose goal is development in support of human and ecological well-being, that views “public goods” and “commons” – such as clean air and water – as shareholders whose interests must be protected, and that values meaningful work for all the world's people, could generate far different and far more positive outcomes.

Governance

Introduction

Appropriate, fair, and effective governance was clearly one of the cornerstones of the founding fathers. Today good governance is also one key to sustainable development. Honest and competent governance affects every aspect of one's life from the protection of our basic human rights to food and water security. Governance is more than just "government," it includes everything from an impartial and efficient judicial system, to schools and healthcare, to an economic system that offers job security and a living wage. Its foundation is a strong and vital civil society.

The impacts of poor governance are severe. Ineffective or corrupt governments can allow, or even promote, resource depletion and environmental destruction. They can distort and disrupt local and national economies, impoverishing citizens as well as frightening away investors. In extreme cases, poor governance leads to civil or international conflict. This conflict perpetuates a cycle in which all the components of a healthy civil society are destroyed, and government itself loses connection with its people. In industrialized nations, unresponsive, careless governance produces equally devastating results: the apathy and disengagement of its citizens. People adopt a "why bother?" attitude about politics and government.

Stronger institutions of governance can manage more effectively the interdependence between economies and ecosystems. In such a way, capable governance can develop lasting solutions to key environmental issues such as global climate change, ozone depletion, and associated health risks.

There are many ways to strengthen governance. One of them is to create conditions supportive of democracy such as literacy, a free press and flow of information, and gender and class equality. Nations can recognize and train effective leaders at all levels. Pioneering organizations have also created ways of identifying and publicizing corrupt behavior and then insisting on accountability. Effective economic development that benefits all segments of society is also an essential ingredient in strengthening governance.

The benefits of good governance range from an enhanced quality of life for all citizens of each nation to a more responsible, accountable relationship with the environment. A strong and healthy civil society carries with it an almost automatic assurance of reduction in poverty. And, most importantly, the spread of good governance within nations will ultimately lead to diminished conflict and greater possibility of peace between nations.

What is Good Governance?

Governance is much more than just "government". The UNDP defines governance as "the exercise of political, economic and administrative authority to manage a nation's affairs. It [includes the] processes...and institutions through which citizens and groups articulate their interests, exercise their rights and obligations and mediate their differences". The three interconnected parts that constitute governance are the state (including both political and governmental institutions), civil society organizations, and the private sector. The media also plays an essential role in effective governance by enhancing communication among all sectors.

Key words in determining the quality of governance are "responsiveness" and "involvement." Good governance means that stakeholders or beneficiaries feel like they have a voice in what affects them and that their particular interests are recognized. In both the developing and industrialized world, civil society is the most important building block in this process. It is made up of everything from community centers to credit unions to cultural organizations. Governance is the glue that holds a society together.

In prehistoric times, isolated bands of hunters and gatherers had little need for complicated governance. But as people settled in one place and agricultural societies grew in size, legal and political systems grew in response. The more complicated and diverse the society, the greater the need for effective governance: this could range from an all-powerful monarch to a very inclusive, participatory democracy. Of the nearly 200 sovereign nations of the world at the beginning of the 21st century each has some kind of political system.

All the nations of the world have within them components of good and bad governance. Developing countries -- many of them former colonies -- often have inherited a top-down system of government in which politicians and civil servants see no need to be accountable to their constituents. The result is often system-wide corruption from the lowest village headman to head of state. All citizens suffer as a result, but none more than the poor peasant who has the greatest need for services like health care and education.

Ineffective, corrupt governments do little to prevent resource depletion and environmental degradation. Without accountability to their citizens, they often reach economic agreements that offer short-term profits but have a devastating effect on the local environment. There is also little provision for governmental oversight of the activities of corporations and, even if there are laws and rules to protect the environment they are often not enforced. Unfortunately foreign investors sometimes will benefit from such a situation and take advantage of the poor governance of developing countries.

Effective governance rests on a dependable revenue base. Without adequate funds to pay civil servants and maintain basic services, a nation risks collapse. Many countries of the world have never been able to rely on tax revenues to meet their budgetary needs. Citizens simply don't pay their income taxes or the government may impose taxes and duties that are inequitable and punitive.

Outside the economic sphere, bad governance impacts the quality of life of everyone in a country, from the poorest peasant to the most privileged. Not only are human rights disregarded or enforced inconsistently, but also essential services as well as adequate food and clean water simply don't reach those at the bottom of the socio-economic ladder. In matters of food and water security, the interests of the political elite are served and the rights of majority often disregarded.

The most devastating consequence of ineffective governmental practices is the likelihood that relatively simple conflicts will turn into major civil wars. Many of the low-intensity wars currently being waged in the world are the result of poor governance. Sometimes disgruntled minorities (or majorities) have no choice but to take up arms; other times weak governments simply lack the capacity to resolve conflicts. A vicious cycle develops in which leaders exploit traditional differences such as tribalism or ethnicity. This may lead to violent conflicts strengthening tyranny and weakening the institution of good government. In situations of weak or ineffective governance, the military is often relied upon to maintain order. Historically, generals exercised undue influence over ineffective rulers and upset the delicate balance between civilian and military power. However, the trend in the last two decades has been towards greater balance between the two.

How to Achieve Good Governance

The United Nations Development Program (UNDP) is convinced that good governance is the real key to narrowing the rich poor gap and alleviating poverty in the world. For the past decade or more, the UNDP has been encouraging the "capacity building" of local governments and decentralization of power in many developing countries. Their reasoning is quite simple: if all citizens in a country are actively involved in their governance and have an influential voice in the running of their country, resource use will be more equitable; and the gap between rich and poor will grow smaller.

Decentralization of control implies an increased governance responsibility for local officials. This may be the hardest thing to do for people at higher levels who are accustomed to exerting control over their "subordinates" while maintaining control over the treasury.

Allowing local governments a crucial role in the governance of a nation implies giving them control over the purse strings of the country. The first step in this process is holding officials accountable for the funds they receive. Also critical is the involvement of local people in the planning and implementation of projects that will benefit them directly. The UNDP has also shown that countries that budget a larger percentage for social spending are more likely to encourage effective decentralization of governance.

Most people would agree that good governance often, but not always, thrives in the context of democracy. Worldwide, the trend appears to be in the direction of more democratic governments. By the turn of the century 61 percent of the countries of the world had some form of democratic government as opposed to 28 percent in 1974. Local governments would likely be more effective if they were founded on democratic principles such as universal suffrage, free and fair elections, free speech and press, and if they included other safeguards against the abuse of power by a small group or an individual leader. Even in countries like the United States there is much that could be done to revitalize that process, including campaign finance reform and stricter controls on lobbying.

The late 20th and early 21st centuries have witnessed the total failure of a number of states, because of protracted civil war; still others are unprepared for self-government after years of dependency on another country. Often it is tempting to offer a one-size-fits-all solution for these countries, beginning with the imposition of a full-blown democracy. Frequently the results of this "instant democracy" solution are disastrous. Instead of focusing on providing basic services, valuable energy is squandered on building political parties or other aspects of the electoral process, which are simply inappropriate for a country in such dire straits.

Nations recovering from years of internal conflict are simply not prepared for intense citizen mobilization required by the democratic process. With those totally failed states, experts have suggested an international/United Nations takeover of many government functions until the ailing nation is healed adequately. This amounts to “nation building” aided by the presence of international peacekeeping troops. Democratization is certainly an essential part of building good governance but it requires extensive education, institution building and time.

The same lessons apply to the many so-called transitional governments of the world like Yemen, Somalia, or Cambodia. These countries are still drafting effective regulations, improving the basic functions of government, and encouraging the development of a free press. One of the most valuable forms of international assistance for these fledgling democracies is training programs for administrators from village to provincial to national levels. At the same time, we can assist in the creation and expansion of local Non-Governmental Organizations (NGOs) — the heart of a healthy civil society.

In building good governance one can start at any point in the process —“top” or “bottom” — and produce positive results. Honest, dedicated leaders are essential, and much can be done to identify and cultivate the qualities of leadership in schools and training institutions.

It makes sense to educate people politically at the local level and it’s also important to hold national politicians and civil servants accountable. Transparency International (TI), an international NGO has developed a “Corruption Fighter Toolkit”, which enables developing and industrialized nations to improve their ranking on an international Corruption Index.

Other methods already exist that are designed to combat corruption and promote good governance. There is a growing body of international law designed to establish standards of environmental practice and treatment of workers, to name just a few. For example, the ILO has set up fair standards concerning child labor and working conditions that would assist governments in establishing their own codes. The recently established International Criminal Court, by trying those accused of crimes against humanity, will accomplish the same thing in the field of human rights law. Regional organizations like the Organization of African Unity, Organization of American States, and the European Union are in a position to influence good governance by offering training as well as devising ways of maintaining existing international standards.

Many western countries like the United States have reached a critical impasse in the development of their own democratic institutions. With voter participation declining in even important presidential elections, some of the key elements of good governance are clearly lacking. Many reasons are given for the cynicism and disengagement of voters, but what one most often hears is that “the system is too complicated” or “nobody listens to me” or “politicians are corrupt and uninterested.”

The antidote to such negative attitudes clearly involves education, but other systemic reforms are also required. For example, until enforceable law limits the financial contributions of special interest groups, the voice of the common citizen will not count as much as it could. Similarly, governments can hold true to their role of protector and regulator of the interests of the common citizen rather than subsidizing large corporations simply because of their economic power.

Reforming Governance: An Important Foundation

It is tempting to give governance top priority on the list of solutions to major global problems. Because it encompasses so many of the activities that make up a country it seems like a logical starting place. And indeed it may be, but if we fail to give equal emphasis to restructuring the international economic system and to changing our management of the environment, reform of governance by itself will have little long-term impact. Yet building good governance in both developing and industrialized countries has the potential to benefit the globe in a number of ways.

Introducing representative, fully decentralized and well-funded programs locally can invigorate governance at every level in the administration of a country. Research points to a significant and durable reduction of poverty in countries where this kind of grassroots change takes place. With their newfound political power, citizens begin to insist on services that their government is obliged to deliver to them. Gradually, government agencies take responsibility for health care, education and other essential social programs previously denied, especially to citizens at the lower end of the socio-economic scale.

Good governance requires persistence and determination on the part of all citizens. Where individuals take their civic responsibilities seriously and their civil and political rights are protected, chances of small conflicts turning into wars are significantly reduced. Good governance has the capacity to break the cycle that often consumes societies, enabling them to rebuild from the bottom up. It proves the point that all the component parts of any society are interconnected: improve even one essential function of governance and all the others will change as well.