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With the end of the millennium approaching, the world is besieged by potential crises that require collective action, motivated for the good of the world community. These challenges involve global warming, a thinning ozone shield, contamination of water supplies, nuclear weapon proliferation, terrorism, antibiotic-resistant diseases, and increased income inequalities within and among nations. Are nations that cherish their autonomy prepared to cooperate in an unselfish fashion to confront collectively these challenges? An even more provocative question asks whether most of these challenges really require a “new world order,” for which nations eschew nationalism to form supranational bodies to deal with crises. Classical economics rests on the principle that, when markets function properly, the uncoordinated actions of self-interested agents result in an efficient outcome, from which no one can be made better off without making someone else worse off. Roughly speaking, the selfish pursuit of one’s well-being promotes an optimum outcome. Can this analogy be applied to the international level, so that the self-interested pursuits of a nation’s well-being will lead to a global optimum? As shown below, market failures can spell difficulties for these principles at both the national and international levels, and it is these market failures that are behind many of the crises confronting the world today. But the existence of market failures does not necessarily mean that nations must form governments beyond the national level – that is, supranational governments – to confront these challenges successfully. At times, the proper incentives exist
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to act to avert disaster; at other times, these incentives can be fostered without the need for tight federations of nations.

To illustrate the kinds of paradoxes that self-interested pursuits can pose for the welfare of the whole, I borrow an example from Richard Dawkins, the famed sociobiologist, who inquires why trees are so tall in rain forests. As trees seek sunlight to preserve their species, they grow ever higher to vie with neighboring trees. The end result is the expenditure of energies that could be preserved if this natural competition could be restrained. An apt analogy is opposing alliances, locked in an arms race in an attempt to promote security through weapon acquisition. As arsenal upgrades are matched, the alliances grow weaker economically, but with no true gain in security. The resulting economic toll can be great, as the end of the Cold War has revealed. Another case involves nations’ efforts to become more developed so as to raise their standard of living and that of their children. When the environmental consequences of this development are considered along with the economic gains, the net result may be a reduced living standard. Yet another example concerns a trade war in which nations impose ever more restrictive trade practices on one another in an attempt to gain a trade advantage. In the end, both nations not only fail to gain an advantage, but also hurt themselves in the process.

SOME CHALLENGES

In today’s world, potential crises of both a regional and a global nature abound and stem from diverse sources. Nevertheless, these exigencies share a common factor: self-interested pursuits that have unintended negative consequences for others. For global warming, the actions of individuals to keep warm, to feed themselves, and to produce goods and services add to the atmospheric accumulation of greenhouse gases, most especially carbon dioxide. Keeping this problem from worsening in the decades to come, in light of population projections and growth scenarios for the developing world, may require coordinated actions on an unprecedented global scale. The burning of fossil fuels by power plants also releases sulfur di-

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oxide, which combines with water vapor to form acid rain and fog. As a consequence, acid precipitation poses transnational regional threats to lakes, rivers, forests, and manmade structures. Another potential crisis involves tropical deforestation, which has negative impacts on biodiversity and global warming. Tropical deforestation has been brought about, in part, by forest cultivators who have cleared vast tracts in order to scrape together a living. Yet another crisis concerns the release of chlorofluorocarbons (CFCs) that have depleted the stratospheric ozone shield, which absorbs much of the ultraviolet radiation of the sun. This absorptive shield protects humans and other organisms from skin cancers and other harmful consequences.

The growth of population and the drive toward development in the less developed countries (LDCs) will surely exacerbate some of these problems. In mid-1994, the world population stood at 5.6 billion with 1.2 billion in the developed countries and 4.4 billion in the LDCs. During 1990–5, average annual growth of population was 0.5% in the former and 2.0% in the latter. Annual increases in world population are projected to be 94 million people until 1997; thereafter, over 90 million people are anticipated to be added yearly until well into the twenty-first century. Since much of this growth will be in the LDCs, even greater demands on the tropical forests, the atmosphere, the soils, and the watersheds are expected as these people attempt to survive. Pressures will be placed on already overcrowded cities as people leave rural areas for the promise of a better life. Africa and Asia will experience the greatest population and urban increases. The possible impact on global warming and acid rain can, perhaps, be appreciated by contemplating projected annual energy demand increases of 5–7% for the LDCs, as compared to 2–3% elsewhere. Thus, the greatest pressures on the environment will come from those countries where growth is essential to support an expanding population. In these countries, options are more limited for improving environmental quality unless living standards are increased sufficiently.

Not all global contingencies are tied to the environment or pressures brought by population growth on the environment. Despite

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the end to the Cold War, the world remains a hostile place with many challenges to peace. An obvious threat derives from ethnic crises that could spill over borders and entangle nations within and beyond a region of conflict. Another challenge is posed by the proliferation of nuclear weapons. Nations may not want to rely on the current nuclear powers for security when these powers can easily choose to ignore other nations’ pleas when a security crisis arises. Popular opinion may dissuade a nation’s leadership from honoring a pledge to protect another nation.

Possession of nuclear weapons may provide a nation with a sense of security and autonomy to pursue its own interests even if these interests are unpopular with the world community. The spread of nuclear weapons to nations harboring bitter animosities may mean that local disputes could escalate to a nuclear conflict. Imagine what the Bosnian conflict or the Iran–Iraq war would have been like if the warring factions had had nuclear bombs. Nuclear proliferation also raises the risk that weapons could land in the hands of terrorists or a rogue state. The possibility of accidental nuclear conflict, in which nations fire nuclear weapons because of a falsely perceived attack, also increases with proliferation. As rival nuclear powers are in closer proximity, the window shortens during which time a perceived attack must be characterized as real or imagined, and, in the former case, a retaliatory response taken.

Future wars increasingly may be fought over resources. In 1991, the Gulf War was due, in large part, to a dispute between Iraq and Kuwait over the ownership of an oil pool lying beneath the territories of both nations. Matters were made worse when Iraq perceived Kuwait as pumping and selling this oil at rates that exceeded agreed-upon Organization of Petroleum Exporting Countries (OPEC) quotas. As countries of OPEC surpassed quotas, their actions lowered the world price of oil, thus hurting all OPEC members. Thus, Iraq held Kuwait responsible for two grievances – depleting the disputed oil pool and reducing world oil prices. The rights to water may be the flashpoint to the next conflict in the Middle East and other trouble spots.

Borders made secure by armies may still be breached by pollutants that can cause environmental and human damages. A sufficiently lethal release of pollutants may cause enough devastation in a neighboring nation that the latter resorts to armed conflict to end
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the pollution threat. Pollution poses a real threat to lives and property. Simply asking another nation to stop its polluting activities may not be effective if the polluter anticipates significant costs from doing so. As the pollution example demonstrates, modern threats to security are complex and assume myriad forms; thus, the notion of security needs to be rethought.

Transnational terrorism poses another security concern. Terrorism is the premeditated use, or threat of use, of violence to achieve a political goal through intimidation or fear. The presence of a political objective is essential; threats of violence used to extort money with no underlying political motive do not constitute acts of terrorism. To create an atmosphere of fear and vulnerability, terrorists make their attacks appear to be random so that risks are perceived widely. Terrorism is not a new phenomenon. Consider the following incident: A time bomb explodes on Wall Street killing thirty-four, injuring over two hundred people, and causing millions of dollars in damages. Is this tomorrow’s headlines? In fact, a TNT bomb planted in an unattended horse-drawn wagon did have these consequences on 16 September 1920 and represented the worst terrorist attack on US soil until the Oklahoma City bombing of the Alfred P. Murrah building on 19 April 1995. Since the late 1960s, terrorism differs from that of the past in one major way: the greater prevalence of transnational terrorism. When a terrorist attack in one country involves victims, targets, institutions, governments, or citizens of another country, terrorism assumes a transnational character.

Why does terrorism present a significant threat to the world today? Consider the Unabomber’s threat to blow up a commercial airplane leaving Los Angeles International Airport during the July Fourth weekend in 1995. Given the Unabomber’s track record—seventeen years of successful bombings—the authorities had to take the claim seriously. The consequences were flight delays, disruption of the mail, and heightened anxiety, caused by a single individual who wanted to publicize his alleged grievances with a technology-based society. Modern society’s dependence on technologically sophisticated infrastructure means that individuals or nations willing to resort to terrorism can create havoc. The sarin attack and sub-

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Sequent incidents on Tokyo subways underscore this vulnerability. Other high-profile terrorist events include the downing of Pan Am Flight 103 on 21 December 1988, the bombing of the World Trade Center on 26 February 1993, and the bombing of the US Marine barracks in Beirut on 23 October 1983.

Transnational terrorism is particularly attractive to its perpetrators, because few resources are needed to capture the world’s attention. The cloak of secrecy can allow nations to employ or sponsor terrorism at relatively small costs in an attempt to destabilize an enemy without necessarily being tied to the act. The state sponsor’s anonymity means that it can escape the consequences of retaliation. Terrorism is also attractive because it is so difficult to protect against – potential targets are ubiquitous. Even when effective means are developed to protect against one type of attack, terrorists have merely substituted their operations to an alternative less-protected target. Unfortunately, terrorism often provides an advantage to the weak in their confrontation with the state. This advantage derives from the terrorists’ use of secrecy and the minimal resources needed to attack so as to impose large political, economic, and human costs on a better-equipped adversary, who must guard all possible targets.

Nature also presents crises to the global community. Arguably, the most challenging of these crises is the appearance of new diseases, resistant to standard treatments. Even here, self-interested actions may have exacerbated the problem. The overuse of antibiotics may be behind the rapid appearance of antibiotic-resistant disease strains. Greater penetration of human activities by cultivators into the rain forests may be exposing humans to long-hidden viruses, such as Ebola and AIDS.

Economics also presents its own potential crisis from an ever-increasing income disparity among the world’s nations. This disparity means that the poor nations will have to turn more often to the rich for assistance in coping with all forms of crises. Without this assistance, diseases that gain a foothold in the poor nations, where populations are more susceptible, can spread worldwide. The same may be true of revolutions. Environmental degradation in the

4. This transference or substitution is shown statistically for a host of protective measures by Enders and Sandler (1993). For example, the securing of US embassies coincided with more assassinations and attacks against US officials when these people were in less-secured places.
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poorer countries, which may not have the means to invest in newer, cleaner technologies, will spill over to the developed world.

THE ROLE OF TECHNOLOGY

Technology has become a two-edged sword in which beneficial aspects are often associated with potentially negative consequences that are tied to some of the global contingencies. A case in point corresponds to the information revolution in which vast amounts of data can be stored, organized, and retrieved readily. Computer networking allows individuals to interact and share this stored information. These same networks and information systems are vulnerable to computer viruses and other intruders that can destroy information or gain access to sensitive documents. Scanners can, for example, identify passwords sent over the Internet. Once a password is discovered, a spy program can be used to enter computer files to retrieve confidential files. Air travel promotes commercial, social, and other ties worldwide but is vulnerable to terrorists’ skyjackings and bombings. A plane passenger can carry a deadly virus to cities near and far. During the Cold War era, nuclear technology was used to create weapons of mass destruction that kept peace between the superpowers. Now these same weapons are in danger of falling into the hands of terrorists or into the arsenal of a dictator bent on obtaining political concessions through blackmail. Technology applied to agriculture has created the Green Revolution, which has greatly increased crop yields but at the cost of insidious pollutants that fouled the air, the atmosphere, rivers, lakes, and groundwater. In industry, new chemical compounds – CFCs, halons, PCBs – have been applied in novel ways, but with dire consequences to the environment.

Advancements in communications mean that scientific and medical breakthroughs can be disseminated worldwide in record time. Such dissemination means that nations can save on research and development (R & D) expenditures by relying on the discoveries of others. This reliance weakens the incentives for engaging in basic research. If, in fact, every nation were to depend or “free ride” on the R & D findings of others, there would be no one engaging in this activity. Modern communication networks transmit news events
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worldwide. This media exposure may entice terrorists to engage in acts of transnational significance in the hope of making their grievances known to the world. Once broadcast by the media, novel forms of attack are often copied by others, thus leading to a contagion of similar attacks.

Despite its negative influences, technology has brought us the means to monitor the earth and its atmosphere in ways never dreamt possible. Thus, remote-sensing satellites and other scientific-measurement devices have identified holes in the stratospheric ozone layer at the higher latitudes, north and south. Atmospheric observatories atop Mauna Loa on the island of Hawaii assess the dispersion and accumulation of carbon dioxide, sulfur dioxide, and other atmospheric pollutants. On a regional basis, the Cooperative Programme for Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe keeps track of transboundary air pollutants (sulfur and nitrogen oxides) based on data collected at various sites. The possible spread of deserts (i.e., desertification) and the loss of forests can be monitored with satellite-generated surveys. As humankind employs these monitoring technologies to ascertain the health of the planet, stresses on the biosphere that could lead to irreversible ecological disasters can be identified so that action can be taken.

Because nations are more willing to cooperate with one another when they are convinced that disaster is imminent, these monitoring devices can play a crucial role in averting disaster by indicating the consequences of inaction. Recall the alien attack scenario of the Preface. If nations can be convinced that their collective response is needed to avert catastrophe, then action can be expected. With these monitoring devices deployed, even subtle changes can be detected and made public. A common scenario for addressing a potential transnational crisis is to come to an agreement or convention that expresses a collective concern and that mandates further study. Monitoring technologies can then provide the data needed to determine the appropriate response. When, for example, nations were provided in 1985 with indisputable evidence that the ozone layer was thinning, they became willing to take actions to curb CFC emissions (see Chapter 4). As monitoring devices made clear that the thinning was worsening at a rate faster than originally predicted, nations augmented their actions. Gaining knowledge of the problem
Markets and market failures is one of the most effective motivators to cooperation; but, as in the alien scenario, it is essential that this information becomes available and is believed when action can still avert disaster.

MARKETS AND MARKET FAILURES

In a well-functioning market economy in which every activity has a price, property rights are defined and protected, competition is rigorous, and market information is complete, the unfettered pursuit of self-interest by individuals leads by an “invisible hand” to an efficient outcome. In such an ideal economy, Adam Smith and other classical economists recognized the need for government intervention in just four areas: defense, a justice system, education, and infrastructure. Infrastructure includes the social capital that provides for the functioning of markets for private exchange. Roads, communication networks, sewage treatment, and police are examples of this infrastructure.

Challenges at a national, regional, or global level can often be traced to a market failure in which participants’ self-promoting actions do not achieve an efficient outcome, so that it is possible to increase the welfare of one or more individuals without harming someone else’s welfare. The presence of market failures means that some form of intervention on a collective basis among the economic agents may be needed. Intervention may not be required when the concerned parties are prepared to negotiate an agreement without the presence of an outside authority. In the case of transnational crises, three kinds of market failures are germane.

Market failures can first result from an externality, which is an interdependency among two or more individuals or nations that is not taken into account by a market transaction. Although the term sounds esoteric, its concept is not. An apt example is the burning of leaves during the fall. This practice is an inexpensive means of disposing of yard waste but imposes costs on neighbors as their air quality is degraded. Asthma sufferers may experience severe costs; yet, the burners are typically not made to consider these neighborhood costs in their decision. If they were made to consider them, they may pay to have their yard waste disposed of by alternative means. On a transnational level, pollution that is exported to a neighboring state rep-
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represents an externality. When, for example, electric power generation in one nation releases emissions that result in the deposition of acid rain in a downwind nation, a transnational externality or external effect exists. If the emitting nation is not required to compensate its downwind neighbor, then the emitter would naturally have no incentive to curb its polluting activity unless the recipient can retaliate with its own pollutant. From a social welfare viewpoint, too much production is taking place unless the externally imposed costs are included in the producer’s operating expense.

Not all external effects are necessarily detrimental to third parties. In the case of scientific breakthroughs or technological innovations, the discovery can benefit the finders and others alike. Without the support of grants or subsidies by private foundations or governments, too little R & D may be undertaken. This anticipated underinvestment may explain why R & D has such high rates of return. In the United States, drug companies have relied on the externality argument to obtain government support to underwrite their R & D for new drugs and to convince the government that high profit rates are warranted to finance a large R & D budget. Many global crises – for example, the transmission of revolutions, the spillover of transnational pollutants, the spread of plagues – are examples of externalities.

Market failures may also be associated with public goods. The term public good does not necessarily imply that some government needs to provide the good, although that may be the case. Instead, it means that the good’s benefits possess two properties that distinguish these goods from those that can be traded in markets. A public good’s benefits can be received by payers and nonpayers alike once the good is provided. The provider cannot, therefore, keep a non-payer from consuming the good’s benefit, and this inability limits incentives on the part of users to finance the good’s provision. If, for example, a nation were to clean up a polluted river shared with other nations and then were to request contributions to reimburse cleanup costs, it is likely that these voluntary contributions would be meager. Individuals are anticipated to take a free ride on the efforts of the providers. Next consider defense. If defense were not supported by taxes but by citizens’ generosity, defense budgets would be very small indeed.

A second property of a public good is that its benefits are nonrival;