Political Science in a New Era

By Paul R. Ehrlich and Dennis C. Pirages

The first decade of the new millennium was filled with a number of environmental, economic, and political crises that may indicate an irreversible change in the course of history. A major increase in consumption of natural resources, driven largely by the accelerating globalization and the rapid spread of industrialization, particularly in China and India, has tightened world markets, caused dramatic mineral price fluctuations, and even led to periodic shortages of food, fuel, and other essential resources. An ongoing rapid depletion of humanity's critical natural capital, especially of deep, rich agricultural soils, "fossil" groundwater, and the biodiversity, which together comprise vital working parts of our life-support systems, leads scientists to fear for the future of civilization.

The overextended economies of many industrial countries have experienced financial turmoil triggered by lax government oversight of banks in the United States and the European Union, and an associated real-estate mortgage scandal and price collapse that has now spread to the world economy. Authoritarian regimes in the Middle East and northern Africa have been destabilized by a "youth bulge" of angry, often educated young people unable to obtain employment and disenchanted by the corruption and the policies of dictatorial governments. Far from being the once envisioned prosperous century of increased stability, democratization, and affluence, the twenty-first century has been characterized thus far by greater economic insecurity, political instability, and—of even greater importance—the growth of seemingly overwhelming global environmental problems.

This growing list of interconnected problems and a precarious future shaped by deepening globalization, population growth, and increasing consumption present significant challenges for politicians and political scientists. Politics can be seen as an authoritative coordination of problem-solving. Political scientists study how well (or how poorly) collectivities can develop and implement policies to manage critical problems.

At present, a democratic politics of affluence, compromise, and civility that emerged during the heyday of economic growth is being transformed into a politics of scarcity, insecurity, and confrontation as economic growth in the United States and several other industrial countries is slowing being replaced by increasing production (and consumption) in China, India, Brazil, and other rapidly growing economies. Politicians, as well as political scientists, now are dealing with very difficult and contentious distributional problems spawned by

Paul R. Ehrlich is Bing Professor of Population Studies and president of the Center for Conservation Biology at Stanford University. He may be reached at pre@stanford.edu.

Dennis C. Pirages is a professor of political science at the University of Nevada, Las Vegas. He previously taught for more than 30 years at the University of Maryland, has served as co-chair of the board of the World Future Society, and is author or editor of 14 books and dozens of articles and book chapters dealing with global sustainability. He may be reached at dennis.pirages@unlv.edu.

the dynamics of rapid population change, increasing per-capita consumption among the wealthy, globalization, resource scarcity, and early symptoms of environmental collapse.

Political systems have been evolving over time to manage increasingly difficult problems in ever more complex societies. The close-knit clans and tribes of the hunter-gatherer world, societies where politics meant dealing face-to-face with only a limited number of people, were transformed during the agricultural revolution into agrarian states, kingdoms, and even empires. The industrial revolution, in turn, created much larger nation-states and now is shaping a "global society" supported by new transportation and telecommunications technologies. As societies have grown more populous, interconnected, and increasingly heterogeneous over time, much more complex and efficient political systems have become necessary. But our contemporary, interdependent world of more than seven billion people is still governed by a patchwork of political systems of greatly differing capabilities, and lacking any system of government capable of developing and enforcing policies to resolve mounting global problems.

The evolution of societies and political systems has been far from smooth over time and has been punctuated by periods of rapid revolutionary change. Two previous technology-driven revolutions have radically transformed human values, societies, and political systems in much of the world. The first of these revolutionary "social paradigm" shifts, the agricultural revolution, began about 10,000 years ago and subsequently spread across the face of Earth. The second revolutionary transformation, the industrial revolution, began to gather momentum several centuries ago in western Europe and is still spreading to previously remote areas of the world. There is now considerable evidence that a third such revolution or social paradigm shift, feeding on innovations in telecommunications and biotechnology, is now under way.

The agricultural revolution laid the groundwork for the current human predicament by allowing families to produce more food than they needed thus sparking trade and a division of labor that allowed individuals to escape from farming and become full-time toolmakers, soldiers, merchants, priests, bureaucrats, and the like. The industrial revolution not only sparked a large population explosion, but also created unprecedented affluence and consumption for those who embraced it.

Between 1650 and 2012, the world's population jumped from 500 million to more than seven billion people. Per capita consumption grew at a similar pace. The half-billion people alive in 1650 made only modest demands on the physical environment. But the seven billion people now occupying our industrializing planet are responsible for unprecedented global environmental problems, ranging from the release of greenhouse gases and toxic substances into the environment to wiping out populations of other organisms, many of which are essential components of the life-support systems upon which humanity depends for food.

The agricultural and industrial upheavals (social paradigm shifts) dramatically changed the complexity of human societies, and also transformed (and continue to transform) their relationships with nature. Pre-agricultural hunting and gathering societies, tribes, and clans made relatively few and only localized demands on the environment. But the agricultural revolution created larger societies, and began gradually to increase pressures on the physical environment.

It is the industrial revolution, however, that has created much more complex societies and dramatically transformed our collective impact on nature. With its heavy dependence on fossil fuels and other mineral resources, the industrial revolution fundamentally changed relationships between humanity and the physical environment. For example, once seemingly abundant supplies

of petroleum and many other mineral resources are now in relatively limited supply. And the build-up of carbon dioxide and other greenhouse gases in the atmosphere, resulting from transportation, industrial and agricultural activities, and deforestation, is beginning to alter significantly the world's climate. While the nature of the nascent third revolution is not yet entirely clear, there is some hope that it will aid in shaping informed policies to "rescale" human society and undo some of the environmental damage resulting from intense industrialization.

In addition to changing significantly the human relationship with nature, each of these previous revolutionary upheavals also has transformed the nature of political systems. Our pre-agricultural ancestors were not "governed" in today's sense, but were acephalous—having leaders of the moment depending on the tasks to be confronted. The agricultural revolution, however, gave rise to more complex political systems starting with leadership by hereditary headmen or chiefs, and even spawned some fledgling elitist democracies.

While the industrial revolution has given rise to some domestic mass democracies, the contemporary emergence of a global society has not yet been accompanied by the development of any global government, but merely by the creation of a patchwork of agreements and agencies focusing on specific problems. Thus, the agenda of issues affecting the global commons is steadily growing but is being addressed by institutions that evolved during the industrial era of rampant nationalism.

This array of environmental problems and global issues is a product of a growth-manic worldview and way of life that began gathering momentum during the era of industrialization. While global challenges have steadily intensified, however, political science and contemporary political systems have played only a very limited role in helping to adjust to this new agenda of policy challenges.

The massive changes that now confront us mean that the social sciences in general need to shift to a new research agenda. Political science, in particular, needs to transform itself into a discipline capable of dealing with a wide variety of new questions and interdisciplinary issues raised by deepening globalization and growing environmental limitations. The following are a few suggestions for building a post-industrial political science that can help to create more effective political systems and hopefully to restore political science to its ancient Greek position as the master science for solving human problems.

Rebuilding the Master Science

Aristotle conceived of politics as the master science because he saw it as being both capable of, and necessary for, dealing with the myriad issues then facing human societies. Contemporary politics, however, does not live up to these lofty expectations. Human societies now face an unprecedented series of interconnected global environmental and economic problems. Among these critical issues of the global commons are climate disruption, water shortages, shrinking energy and mineral supplies, the loss of biodiversity and essential ecosystem services, toxification of the planet, and the growing threat of pandemics.

The enlightenment and the onset of the industrial revolution gave rise to the formal study of political economy, a broad discipline linking political and economic concerns that was somewhat akin to a master science. Eventually it split into political science and economics. Unfortunately, the intellectual excitement of researching and debating policy issues and building "good societies" has been eclipsed over time in political science by a fascination with much narrower research very much focused on public opinion and voting behavior.

This turn away from policy issues has been reflected, for example, in the content of the *American Political Science Review* (APSR), considered

to be the flagship North American journal in the discipline. The APSR published articles focusing on policy issues one-fifth of the time during the first half of the twentieth century. But over the last four decades almost no such articles have been published by the journal.

Anticipating Change

The current period of rapid change, sometimes referred to as an acceleration of history, makes existing political research and theorizing as well as current policy-making processes increasingly incapable of dealing effectively with emerging problems. Because of this increasing pace of change and related globalization, anticipatory thinking in policy making is now essential to humanity's future well-being.

Political scientists (as well as other academics) must be constantly scanning the horizon to identify developing problems, and to recommend actions to solve them before they become overwhelming. For example, the looming social security problems should have been identified and openly addressed in political theory and practice more than two decades ago when changing demographics in the United States (and other industrialized countries) first made a cluster of demographic, economic, and medical problems associated with the aging of societies obvious.

Similarly, the world's dwindling supply of readily accessible petroleum and the security risks of increasing U.S. dependence on oil imports is another area where foresight should have led to intelligent and anticipatory energy policies as a means to lessen the harshest impacts of subsequent oil crises. And, of course, the likely political, economic, and health impacts of climate change should be addressed now in order to prepare for future crises. But political scientists, as well as politicians, have done their best to ignore the critical issues involved.

The acceleration of technological innovation is also giving rise to numerous policy challenges in areas ranging from telecommunications to biotechnology. Novel regulatory issues are continually emerging within and among countries ill-prepared to deal with them. These increasingly difficult issues challenge governments to anticipate potentially hazardous developments in the private sector. But without anticipatory policy making, horizon scanning, and adequate resources, the public sector is doomed to continually lag behind the challenges raised by the much better funded private sector. Witness how technological innovations in banking and mortgage lending recently combined with lack of government regulations and ethics to create the frauds that shook, and continue to shake, world financial markets.

There are, unfortunately, few academic or governmental research institutions in the United States that are engaged in futures research. The Reagan administration ignored the best futures thinking of which the government was capable when it shredded the Global 2000 Report to the President upon taking office. The once highly respected Congressional Office of Technology Assessment (OTA) was tasked by Congress to assess future social impacts of emerging technologies. But OTA, unfortunately, became a sacrificial lamb and was terminated in 1995 during a partisan budget squabble. While the intelligence community periodically publishes futures assessments, they quite naturally concentrate mainly on military security issues. Regrettably, there are few futures research programs in U.S. colleges and universities, and political scientists are rarely involved in such exercises.

Streamlining Decision Making

Another area which requires immediate attention is to create more efficient legislative processes. An infrequently addressed assumption is that existing legislative bodies and procedures, established centuries ago, will enable us to muddle through the enormous challenges that are emerg-

ing during this period of revolutionary changes.

The U.S. Constitution is now more than two centuries old. It was drawn up to deal with then-current issues in a much more bucolic and stable world. However, the constitution actually was negotiated by affluent males whose primary interest was to maintain existing privileges. Many of the procedural rules adopted over time in the Senate and House have been designed to prevent exactly the kind of rapid and comprehensive responses now required to grapple with emerging contemporary issues. Complex procedural rules made sense when news took days or even weeks to reach the new states. But today resolute and rapid action is often required.

For example, the rule that permits a dedicated minority of legislators to stall legislation by talking it to death (the filibuster), while originally well-intentioned, permits minorities to sabotage the legislative process. And ratification of treaties, increasingly important in an era of deepening globalization, still requires a two-thirds positive vote in the U.S. Senate, a possibility when times were simpler and more civil, but increasingly impossible to obtain in this era of contentious politics. Thus, former President Clinton knew that it was useless to submit the Kyoto Protocol on climate change to the Senate because he had been informed by Senate isolationists that they would stymie any attempt to get the necessary two-thirds vote for ratification of the document.

Democracy in an Era of Technology Change

Increasing the effectiveness of government also requires that intelligent and dedicated people occupy positions of power and the need for a well-informed electorate. But a poorly educated public and a mass media often dominated by corporate interests and special interests combine to lessen our collective ability to understand the causes and consequences of this new generation of complex issues, or to select leaders capable of or willing to deal with them. Thus few people are familiar with the causes and consequences of climate change, or why rapid population growth degrades the environment and increases the potential for pandemics, or why a Supreme Court declaring corporations to be people, and thus facilitating large corporate campaign contributions, undermines democracy in the United States.

As difficult and controversial as it might be, it is imperative that political scientists focus their research skills on the long-term impact of huge influxes of corporate cash into elections that increasingly may be settled by Madison Avenue. Is the electoral process as it now exists in the United States really democratic? Recent efforts to remove almost all restrictions on political donations focus attention on the need for new rules for selecting political leaders. Are the rules that currently shape elections an effective way to select the best and brightest for political office?

The common wisdom holds that "the people" should all vote because people are intelligent and informed. Voters ideally would take care to select the most qualified candidates for office, and send them to Washington to make informed decisions. Unfortunately, the election of 2012 has revealed once again that many Americans have little knowledge of either domestic issues or global affairs. And the recent emergence of the "Tea Party" and a host of poorly informed presidential candidates give frightening testimony to the need for a more effective way to select leaders. In an era in which there is little margin for error and a mistake could destroy civilization, it is becoming ever more urgent to assure that individuals with a solid understanding of emerging post-industrial issues are selected for office.

The growing impact of technological innovation on established political practices is also ripe for more intense study. Technological innovations have dramatically changed the mechanics of the electoral process. The good old days of "whistle stop" presidential campaigns are over and have

been replaced by constant campaigning through television and the social media. Much more research is certainly needed on the social media's growing impact on elections, and electoral rules may need to be changed accordingly. Some futurists even have speculated about the possibility of developing a television and Internet-based "direct democracy"—laws passed by the public voting on issues directly from their homes. While this type of legislating might increase the political participation of "couch potatoes," the long-term consequences of "week night voting," including possible fraud, are unknown and could be very damaging.

There are other areas where the impact of new telecommunication technologies on existing political practices is ripe for research. What does the Constitutional guarantee of "free speech," which originally simply assured citizens the right to speak in public, mean in a media-dominated society in which billions of dollars are spent each year on televised political propaganda? "Speech" today is clearly anything but free.

Redefining Security

Finally, despite all of the questions and issues mentioned above, there still is no more important research challenge facing political scientists and policy makers in the twenty-first century than rethinking the nature of security. Two world wars and other conflicts of the industrial period have shaped a security paradigm that focuses heavily on warfare while ignoring other threats to human security.

Until very recently, security studies focused on the effective use of military means to protect societies from predatory neighbors. Given the massive destruction that has been associated with the wars of the industrial period, it is understandable that this deeply ingrained security paradigm has led scholars to focus mainly on military security issues. But it is increasingly obvious that human insecurity is, and will be, caused by many different kinds of non-military threats to human well-being.

As the biophysical environment continues to deteriorate, a new "ecological security" paradigm is being suggested as an alternative way of studying security and making security commitments. This new security paradigm recognizes that deaths and destruction are often caused by changing human relations with nature. While it has been assumed for centuries that warfare is by far the primary cause of human suffering and premature deaths, in reality disease, hunger, and environmental disasters by far exceed warfare as a cause of human misery.

It is estimated, for example, that all of the wars of the twentieth century resulted in an average of 1.1 million deaths per year. But infectious diseases alone are now killing about 14 million people per year. During the twentieth century, hunger and hunger-related disease killed several million people annually; and with climate disruption and related droughts that rate could escalate dramatically. Also, as international travel increases, the odds of rapidly moving new pandemics are growing apace. Thus, future security studies (and policies) can most profitably deal with the changing relationships between human societies and the biophysical environment in which they are embedded.

Preparing for Global Climate Disruption

It is appropriate to conclude by addressing briefly the most rapidly growing source of insecurity in the twenty-first century: global climate disruption, and the host of related political and economic issues that will be exacerbated by it. Humanity now faces a series of interrelated global environmental problems resulting from demographic pressures and the spread of the fossil-fuel based industrial revolution to more densely populated countries of the world. But the biophysical problems we have discussed can no longer to be studied in isolation by physical and biological sci-

entists. They are issues that increasingly fall into an emerging interdisciplinary research domain.

The policies required to minimize the social impact of impending global climate disruption are daunting. They demonstrate the need for closer cooperation between biophysical and social scientists. The maps used by earth scientists to study the effects of future climate changes are drawn by the forces of nature; their shape is determined by jet streams, coastlines, mountain ranges, river systems, and forests. But dealing with the social impacts of climate change requires a set of sociopolitical maps, which are shaped by national boundaries, patterns of economic activity, and the location of human settlements.

Rising sea level, for example, will disrupt human settlements and masses of environmental refugees could be forced to migrate, likely creating conflict with people who already occupy the new territory. This is not just an issue for poor, low-lying nations like Bangladesh. In the United States, several million people live in areas likely to be ravaged by storm surges. Climate change already seems to be generating more serious storms, floods, and droughts. Preparing for the consequences of future disasters will require anticipatory research and international cooperation—for example acquiring and positioning emergency food supplies.

Constantly changing rainfall patterns will have a mixed impact on world food production, likely mostly negative, and will lead to market dislocations, and possibly serious conflict. And forging agreements to reduce greenhouse gas emissions will require close cooperation between politicians, social, and environmental scientists. A few political scientists have ventured into studying the political dimensions of climate questions, but much more work remains to be done. Even though the shortcomings of the state system and the need for some form of global governance have long been recognized, it has now become critical that political scientists take a leading role in creatively seeking solutions to these problems that will create the most critical problems of the new millennium.