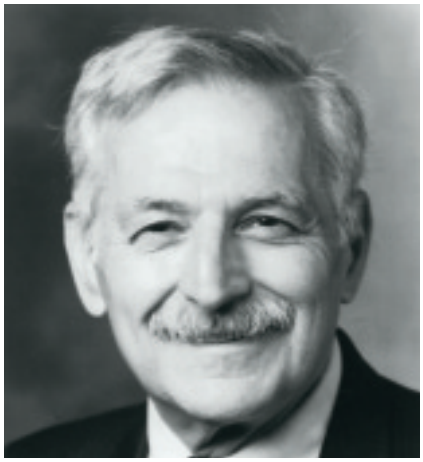
2002

Blue Planet Prize

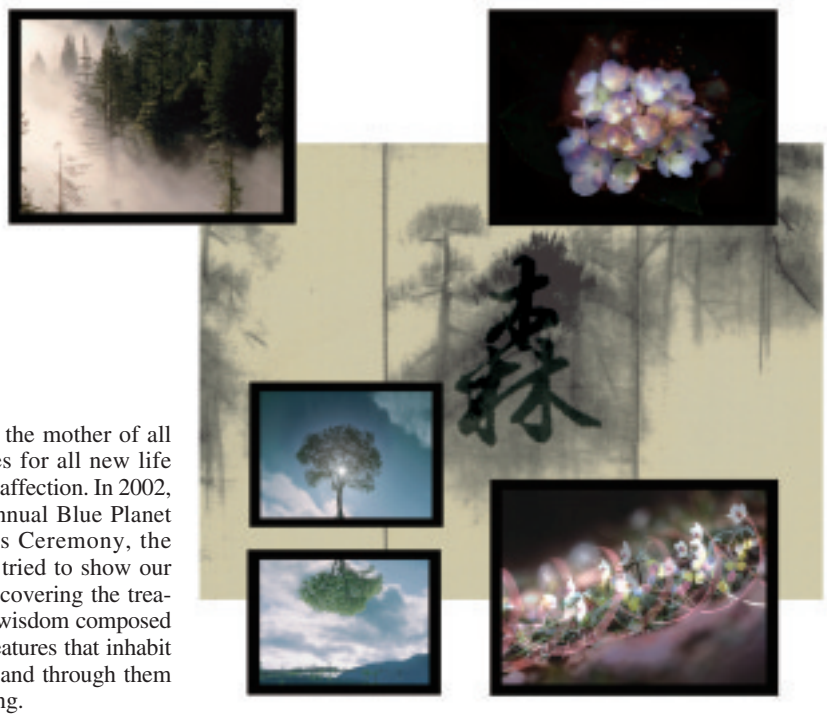
Professor Harold A. Mooney (U.S.A.)

Professor, Department of Biological Sciences, Stanford University



Professor James Gustave Speth (U.S.A.)

Dean and Professor, School of Forestry and Environmental Studies, Yale University



The Forest:
Our planet is the mother of all life. She cares for all new life with love and affection. In 2002, at the 11th annual Blue Planet Prize Awards Ceremony, the opening film tried to show our effort at rediscovering the treasure trove of wisdom composed by myriad creatures that inhabit it; the forest, and through them the joy of living.

His Imperial Highness Prince Akishino congratulates the laureates

Their Imperial Highnesses Prince and Princess Akishino at the Congratulatory Party

Hiromichi Seya, chairman of the Foundation delivers the opening address

Blue Planet Prize Commemorative Lectures

Dr. Jiro Kondo, chairman of the Selection Committee explains the rationale for the determination of the year's winners

Howard H. Baker Jr., Ambassador of the United States of America to Japan, congratulates the laureates

The prizewinners receive their trophies from Chairman Seya

Prof. Harold A. Mooney

Prof. James Gustave Speth

Profile

Professor James Gustave Speth

Dean and Professor, School of Forestry and Environmental Studies, Yale University

Prof. James Gustave Speth
Education and Academic and Professional Activities

1942	Born in South Carolina, U.S.A.
1964	Graduates from Yale University
1966	Graduates from Oxford University (Economics)
1969	Graduates from Yale University Law School
1970-1977	Senior Attorney for Natural Resources Defense Council
1976	National Wildlife Federation's Resources Defense Award
1977-1981	Member of U.S. President's Council on Environmental Quality (1979-1981 Served as Chairman of the Council)
1982	Establishes World Resources Institute (WRI)
1982-1993	President, WRI
1992	Natural Resources Council of America's Barbara Swain Award of Honor
1993-1999	Administrator, United Nations Development Programme (UNDP)
1997	Special Recognition Award (Society for International Development)
1998	Decorated by the Governments of Senegal and Morocco
1999	Environmental Law Institute Lifetime Achievement Award
1999-present	Dean, School of Forestry and Environmental Studies, Yale University

Professor Speth was raised as the son of a farm machinery dealer in the cotton-growing area of South Carolina and after public schools there went on to graduate from Yale University with top marks in political science. Later, after studying economics as a Rhodes Scholar at Oxford University, he graduated from Yale University's law school in 1969. During the late 1960s, when student movements around the world were seeking to promote public welfare, he decided to focus his energies on public interest law and to create a new non-profit legal group to defend the environment.

He enlisted a group of students and faculty at Yale Law School and helped to establish the Natural Resources Defense Council (NRDC) in 1970. Drawing on the latest science and economic understanding, he initiated the lawsuits that led to the regulation of toxic water pollutants, the protection of freshwater wetlands, and termination of the plutonium breeder nuclear reactor program in the United States. For three decades, NRDC has had a major impact on protecting environmental quality.

After his role in NRDC was recognized, he was appointed to President Carter's Council

on Environmental Quality and became the chair in 1979. At CEQ, he brought the threat of global climate change to public attention and called repeatedly for action to forestall global warming. In 1980, the Council released the landmark *Global 2000 Report*, a government survey that linked available data and computer models to analyze population, environment, and development conditions likely at the start of the 21st century. The report pointed out that in the year 2000, the global environment could face difficult prospects including population pressures, heightened pollution, and resource degradation. *Global 2000 Report* was widely hailed and became a fundamental reference.

In 1982, he founded the non-profit research organization, the World Resources Institute (WRI), and served as its president for over a decade. The Washington-based WRI is a think tank that addresses the fundamental question of how societies can achieve development that satisfies human needs while sustaining the natural environment. WRI also provides technical guidance and assistance to governments and NGOs in developing nations interested in sustainable natural resource management. It is particularly active in policy research related to the prevention of global warming and the maintenance of biodiversity. At the Rio Earth Summit, it contributed to the adoption of important treaty articles related to both these topics.

In 1993, he was appointed to head the United Nations Development Programme (UNDP), which has offices in more than 130 developing countries and an annual budget of over $2 billion. In the *Human Development Report* released in 1994, he advocated a new concept of "human security" that included environmental security. This concept of global human security addresses common problems that threaten human safety, such as narcotics, terrorism, communicable diseases, environmental destruction, natural resource depletion, natural disasters, ethnic conflict, and refugee outflows.

In 1999, Professor Speth was appointed Dean of the Yale University School of Forestry and Environmental Studies where he is seeking to build the first truly global school of the environment and to train a new generation of environmental leaders from around the world, goals to which he brings a wealth of experience.

Essay

The Heart of the Matter

Professor James Gustave Speth

Central to the mission of America's environmental schools is the development of professional environmental managers. The majority of our graduate students at Yale are in our Master of Environmental Management program. But what exactly is environmental management?

When I am asked this question, I reply that environmental management is the new business of bringing our human enterprise into harmony with the natural world of which we are a part. And I add: It's the most important thing in the world.

I know this may sound exaggerated, but I think the truth of this statement will become clear in the years ahead. The enormous expansion of the human enterprise in recent decades has brought us to the threshold of a fundamentally new era in which environmental management must quickly emerge as the number one priority of governments and peoples everywhere.

Consider first that environmental losses are already great. Half the world's tropical and temperate forests are gone. Half the wetlands and a third of the mangroves are gone. Ninety percent of the large predator fish are gone, and 75 percent of marine fisheries are now overfished or fished to capacity. Twenty percent of the corals are gone, and another 20 percent severely threatened. Species are disappearing at rates 100 to 1000 times normal. Most agricultural land in drier regions suffers from serious deterioration. Persistent toxic chemicals can now be found by the dozens in essentially each and every one of us.

Consider also that human activities are now large relative to natural systems. We severely depleted the earth's stratospheric ozone layer without knowing it. We have pushed atmospheric carbon dioxide up by one-third and started the dangerous process of warming the planet and disrupting climate. Everywhere earth's ice fields are melting. We are fixing nitrogen at a rate equal to nature's; one result is the development of at least 150 dead zones in the oceans due to overfertilization. We already consume or destroy each year about 40 percent of nature's photosynthetic output, leaving too little for other species. Freshwater withdrawals doubled globally between 1960 and 2000 and are now approaching a quarter of all river flow. The following rivers no longer reach the oceans in the dry season: Colorado, Yellow, Ganges and the Nile, among others. We live in a full world, dramatically unlike the world of 1900, or even that of 1950.

Consider also that all we have to do to destroy the planet's climate and its biota is to keep doing exactly what we are doing today, even with no growth in the human population or the world economy. But human activities are growing – dramatically. It took all of history to build the $7 trillion world economy of 1950, and today we add that amount of economic activity every 5 to 10 years. The world economy is poised to double and then double again by mid-cen-

tury. This economic growth cannot resemble the growth of the past; it requires new designs and new technologies. Everything must be different – construction, manufacturing, energy production, transportation, forestry and agriculture, all very different.

Finally, consider that political, technological and social changes take time. We are now in the most important race in human history – the race to change our politics, our technology and our personal consumption choices much faster than the world economy grows. Only unprecedented action taken with a profound sense of urgency can forestall an appalling deterioration of our natural assets. This is the challenge of environmental management.

To prepare for this race, we are building a new academic field, an inter-discipline called "environment." It is the rigorous scientific study of the interactions between human societies and the natural world of the biosphere. Knowledge generated in this new field becomes the basis for environmental management. We need a new generation of professionals trained in environmental management, and we also need the knowledge of environment to infuse the traditional professions – business, law, science and engineering, medicine, and so on – and to motivate a revolution in personal choice as each of us carries out daily life as consumer, family member, investor, joiner, worshipper, worker, and voter. Environmental management thus becomes a civic responsibility of the first order.

It is good that we are now in the midst of a necessary and timely paradigm shift in our thinking about environmental management. In 1970, when the modern era of environmental concern was born, the environmental style was confrontational; business was the enemy. Today, we must try to put collaboration ahead of confrontation. Business must be on board, not overboard. We must all be environmentalists now.

In 1970, we created a separate environmental sector; today, we must make every economic sector an environmental sector. Every government agency must be an environmental protection agency.

In 1970, it was "put the polluters in a straightjacket." Today, it is let them out of the regulatory tangle if they can show they have a solution that is better. Then, our approach was command and control; today, it must also be goals and incentives.

In 1970, we were *against*; today, we must be *for*. Then, we defined problems; today, we must design solutions. Then, we responded; today we must anticipate.

In 1970, technology was the devil that got us into this mess. Today, we know that technology– soft and hard – must get us out of this mess. In 1970 it was end of pipe; today we must end the pipe.

In 1970 we saw an unguided market taking us over the cliff. Now, we know that the market can be guided for environmental as well as economic goals. But that guidance requires government action to get the prices right – environmentally honest prices. Anti-government ideologues would rob us of the power of collective action for our common future.

In 1970, it was environmental protection; today, it is sustainable development – sustainable development in the poorer countries, for we will never sustain the biosphere unless the poorer countries are realizing their development and anti-poverty objectives, and sustainable development for the rich, for success at the triple bottom line of environment-economy-society is a more worthy goal than achieving another 3 percent growth in GDP.

In 1970, it was national; today, it is "glocal." Pollution has gone global; species have gone global; and so must environmental management. Global governance must come to the environment. We need a WEO as strong as the WTO. Environmental diplomacy is not a sideshow; it's the main event. But, in the end, we know that all action is local. Our lives are local lives. The struggle begins locally.

In 1970, we took a top-down approach; now, we must encourage innovative bottom-up, grassroots approaches – green jazz that is unscripted, improvisational and creative.

In 1970, we were too elitist. Now we must stress justice and equity: equity among nations, equity within nations, equity between the sexes, all in addition to equity to future generations. We have created wonderful protected areas but sometimes neglected the poor, the minorities, the victims, the indigenous peoples. Let their environmental rights now be asserted.

In 1970, it was species; today it is ecosystems. We should have always known this: Human societies are utterly dependent on provisioning by nature's ecosystems. But we forgot it.

We must at long last take Aldo Leopold and his land ethic seriously. "A thing is right," he said, "when it tends to preserve the integrity, beauty and stability of the biotic community." Just as we have rights, the land community does also.

In 1970, we looked for government leadership. Today, we must often do it ourselves, with or without government. Business is often ahead of government; scientists are often ahead of government; consumers and environmentalists are often ahead of government. We should not wait for government. We must push it forward with us. Politicians ride the waves, as everyone knows. Citizens make waves.

In 1970, we were from Mars; today, we must be from Venus. Then, we broke things down to the component parts and laid out rational plans of attack. Now we know the most important resource is human motivation – hope, caring, our feelings about nature and our fellow humans. Today we need the preachers, the philosophers, the psychologists, and the poets! In one poem, W.S. Merwin said: "On the last day of the world I would want to plant a tree." And in another: "I want to tell you what the forests were like/I will have to speak a forgotten language."

"After the final no," Wallace Stevens wrote, "there comes a yes. And on that yes the future of the world depends." Despite the daunting projections of environmental decline, we affirm that we will win this struggle for the future. Yes.

And here we come full circle, for there is something vital from 1970 that we need to rekindle and rebuild, rather than move beyond, and that is the extraordinary spirit of that moment and the widespread popular demand for far-reaching change. One can hear that demand plainly in the words citizens of Santa Barbara sent to the U.S. Congress in 1970 shortly after the devastating oil spill there: "We, therefore, resolve to act. We propose a revolution in conduct toward the environment…Today is the first day of the rest of our life on this planet. We will begin anew."

It can seem that we are now a long way from the prosaic subject of environmental management, but we are actually at the heart of the matter.

Lecture

Coming to Terms with Global Environmental Deterioration

Professor James Gustave Speth

I should begin by expressing my great appreciation in receiving the Blue Planet Prize. It is an honor indeed to receive this Prize from such a distinguished organization and to join Harold Mooney and the other extraordinary individuals and groups that have been previously recognized by you. I am deeply grateful.

A great tragedy is fast unfolding. Over 20 years ago the alarm was sounded regarding a set of linked threats to the global environment. Today, the rates of environmental deterioration that stirred the international community 20 years ago continue essentially unabated. The steps that governments have taken over these two decades represent the first attempt at global environmental governance. It is an experiment that has failed.

It would be comforting to think that all the international negotiations, summit and conference agreements, conventions and protocols have at least got us to the point where we are prepared to act decisively – comforting but wrong. The problems have gone from bad to worse; we are not yet prepared to deal with them; and, at present, some major countries lack the leadership to get prepared.

The Global 2000 Report

Global-scale environmental challenges first moved into politics in the US when President Carter asked a group of us in his administration to prepare what became the 1980 *Global 2000 Report to the President.* Our task was to sketch what trends might unfold between 1980 and 2000 in population and environment if societies stayed with a business-as-usual approach. Now, from the perspective of 2002, we can look back and see what actually happened.

First, *Global 2000* projected that population would grow from 4 billion to 6.3 billion by 2000. The actual number was 6 billion, so we were more or less on target. The report projected that deforestation in the tropics would occur at rates in excess of an acre a second, and for twenty years, an acre a second, that is what has happened. It projected that 15 to 20 percent of all species could be extinct by 2000, mostly due to tropical deforestation. Stuart Pimm and Peter Raven have recently estimated conservatively that there are about seven million species of plants and animals. Two-thirds of these species are in the tropics, largely in the tropical humid forests. They estimated that half the tropical forests have been lost and, with them, that about 15 percent of tropical forest species have already been doomed. So there is evidence that our species loss estimate was not far off the mark.

The report projected that about 6 million hectares a year of drylands, an area about the size of Maine, would be rendered barren by the various processes we describe as desertifica-

tion. And that continues to be a decent estimate today.

We predicted that:

"Rising CO_2 concentrations are of concern because of their potential for causing a warming of the earth… the doubling of the CO_2 content of the atmosphere could be expected after the middle of the next century…The result could be significant alterations of precipitation patterns around the world, and a 2 degree to 3 degree Celsius rise in temperatures in the middle latitudes of the earth."

Twenty-two years later, this description still falls neatly within the range of current estimates.

In other words, the basics about emerging global-scale environmental concerns were known more than 20 years ago. Some projections, like those on the prices of food and minerals, *Global 2000* got wrong, but on most of the big issues of population, environment and development, the report pointed squarely to the trend and the stakes. Other reports – from the United Nations Environment Programme, the Worldwatch Institute, and elsewhere – were saying much the same around this time. So, political leaders and others were on notice twenty years ago that there was a new environmental agenda, more global, more threatening and more difficult than the agenda that spurred the environmental awakening of the late 1960's and early 1970's.

Major Global-Scale Environmental Challenges

Today, our information on global environmental trends is far more complete and sophisticated, but it is not more reassuring.

- Half the tropical forests are gone, and non-OECD countries are projected to lose another 10 percent of their forests by 2020. But this data gives an unduly rosy picture. Cryptic deforestation – the cumulative impacts of fire, El Nino-driven drought, and fragmentation in major forest areas, such as those in Brazil and Borneo – greatly exacerbate the effects of forest clearing. And much of what's left is under contract for logging. Eighty percent of Borneo's forest cover is said to be allocated to commercial logging and plantations.
- A fourth of bird species are extinct, and another 12 percent are listed as threatened. Also threatened are 24 percent of mammals, 25 percent of reptiles and amphibians, and 30 percent of fish species. The rate of extinction of birds and mammals today is estimated at 100-1000 times the natural background rate.
- We are now appropriating, wasting, or destroying about 40 percent of nature's net photosynthetic product annually. This does not leave much for other species. We are consuming about half the available fresh water. Most people will soon live in water stressed areas. We are fixing nitrogen at rates that exceed nature's, and among the many consequences of the resulting overfertilization are fifty dead zones in the oceans, one in the Gulf of Mexico the size of New Jersey.
- Globally, we have lost a third of agricultural land due to soil deterioration over the last forty years.

- In 1960 five percent of marine fisheries were either fished to capacity or overfished. Today 70 percent of marine fisheries are in this condition.
- Half of the world's mangroves and wetlands have been destroyed.
- Hardest hit of all are freshwater ecosystems around the globe.

On top of these processes of biotic impoverishment comes the biggest threat of all, global climate change. Few Americans appreciate how close we are in the United States to the widespread changes in the American landscape. The best current estimate is that, absent major corrective action, global warming over the lifetime of an American born today will likely make it impossible for about half the American land to sustain the types of plants and animals now on that land. A huge portion of our protected areas – everything from wooded lands held by community conservancies to our national parks, forests, and wilderness – is now threatened. In one projection, the much-loved maple-beech-birch forests of New England simply disappear. In another, much of the Southeast becomes a huge grassland savannah unable to support forests because it is too hot and dry.

Underlying Forces Driving Deterioration

We know what is driving these global trends. The much used "IPAT equation" sees environmental Impact as a product of the size of human Populations, our Affluence and consumption patterns, and the Technology we deploy to meet our perceived needs. What this useful IPAT formulation can obscure, in addition to the impacts of poverty, is the vast and rapidly growing scale of the human enterprise. It took all of history for the world economy to grow to $6 trillion in 1950. Today, it grows by more than that every five to ten years. Since 1960, gross world product has doubled, and then doubled again.

Today the world economy is poised to double and then double again in the lifetimes of today's students. We could not stop this growth if we wanted to, and most of us would not stop it if we could. Half the world's people live on less than $2 per day. They both need and deserve something better. Economic expansion at least offers the potential for better lives, though its benefits in recent decades have been skewed.

There are good reasons to believe that the next doubling of world economic activity will differ in some respects from the growth of the past. But there are equally good reasons to believe that the next doubling of the world economy will, from an environmental perspective, look a lot like the last. The U.S. Energy Information Agency predicts a 65 percent increase in global CO_2 emissions between 2000 and 2020. The OECD estimates that its members' CO_2 emissions will go up by about a third percent during this period. Motor vehicle use in OECD countries is expected to rise by 40 percent by 2020.

The Challenge Today

The implications of all this are very profound. We have entered the endgame in our traditional, historical relationship with the natural world. The current Nature Conservancy campaign has an appropriate name: they are seeking to protect The Last Great Places. One senses that we are in a rush to the finish. Soon, metaphorically speaking, whatever is not protected will be paved.

The work of Pimm and Raven suggests that the loss of half the tropical forests costs us

15 percent of the species there. But further forest destruction will be disproportionately costly. More generally, attacks on the environment will be increasingly consequential. Whatever slack nature cut us is gone.

Humans dominate the planet today, as never before. We live in a full world. We impact hugely on the great life support systems of the planet. Nature as something independent of us is dead. We are in a radically new ethical position because we are at the planetary controls.

Limits of Environmental Governance to Date

Looking back, it cannot be said my generation did nothing in response to Global 2000 and similar alerts. Progress has been made on some fronts. There are outstanding success stories, but rarely have initiatives been commensurate with the problem. For the most part, we have analyzed, debated, discussed, negotiated these issues endlessly. My generation is a generation, I fear, of great talkers, overly fond of conferences. But on action, we have fallen far short. As a result, the threatening global trends highlighted 20 years ago are still very much with us, depletion of the stratospheric ozone layer being the notable exception.

But if we have not actually done much, perhaps we have in these 20 years laid a good foundation for rapid and effective action today. Perhaps all the international conferences, treaties and action plans have given us the policies and programs we now need, and we can at last get on with it. Here we arrive at a second set of distressing trends, those in the area of policy and institutional development.

The results of twenty years of international environmental negotiations are, if truth be told, rather limited. It is not that what has been agreed, for example, in the framework conventions on climate, desertification and biodiversity, is wrong or useless. Those conventions have raised awareness and stimulated some useful national planning exercises. But these treaties are mostly frameworks for action: they do not drive the changes that are needed. And the same can be said for the extensive international discussions on world forests, which have never reached the point of a treaty. In general, international environmental law and its 250 treaties is plagued by vague agreements, minimal requirements, lax enforcement and underfunded support.

The weakness of those international treaties should not be a surprise, given that they were forged in negotiating processes that give maximum leverage to any country with an interest in protecting the *status quo*. Similarly, the international institutions created in the United Nations to address these issues – the United Nations Environment Programme and ECOSOC's Commission on Sustainable Development – are among the weakest multilateral organizations and are presumably kept that way intentionally.

A deeper question is whether we are on the right track with the current emphasis on negotiating global agreements. My own view is that we have badly over-invested in international environmental law to the neglect of other approaches, including measures that would enhance the prospects for effective agreements.

The Kyoto Protocol is an effort to step beyond the framework and reach a binding, action-forcing agreement on climate change. There are three things one can say in favor of the Kyoto Protocol:

- A bird in hand is worth two in the bush;
- sooner the world gets a clear signal that the industrial nations have capped CO_2 emissions, the better;
- The developing countries are correct in wanting to see the industrial countries act first and most, and the Kyoto Protocol takes this approach.

These are powerful considerations, and the Bush Administration should join with the rest of the world in supporting this agreement. It is deplorable that it has not, and, unfortunately, the Administration's recently announced climate initiative would allow U.S. emissions to rise at the same rate they did for the past decade.

That said, we must guard against letting debates about the Kyoto Protocol deflect attention from addressing the long-term challenge of holding cumulative global emissions of carbon dioxide and other greenhouse gases below certain levels. Also, we still have a long way to go to make the protocol's flexibility mechanisms, land use provisions and other difficult and complex provisions actually work effectively in the real world.

The bottom line, in any case, is that however one looks at the matter, we are in poor shape when it comes to climate policy. The twenty years have not been put to very good use.

Promoting the Transition to Sustainability

How then should we move forward? I believe there are seven dimensions where progress, indeed transformation, is necessary to achieve sustainability. There are hopeful developments in each of these seven areas, and we should build on them. We should be promoting these transitions – investing much more heavily in them – because they address directly the underlying drivers of large-scale environmental deterioration.

The first of these transitions to sustainability is the need for an early demographic transition to a stable world population. Here there is definite progress. The mid-range projection for 2050 was recently 10 billion people; now it is 9 billion. One projection of developing country population in 2100 was 10.2 billion. Analyses suggest that an escalation of proven approaches could reduce this number to 7.3 billion, with global population leveling off at 8.5 billion. The main need here is adequate funding for the United Nations' Cairo Plan of Action, which is being underfunded by half.

The second transition is the human development transition to a world without mass poverty, where the prospects for widely shared prosperity are good. Environmentally, we need this transition, first, because over much of the world poverty is an important destroyer of environment; the poor have no choices other than to lean too heavily on a declining resource base. But we also need this transition because the only world that works is one in which the aspirations of poor people and poor nations for fairness and justice are being realized. Developing country views in international negotiations on environment are powerfully shaped by fear of the costs of environmental measures, preoccupation with their own compelling economic and social challenges, and distrust of industrial country intentions and policies. Sustained and sustainable human development provides the only context in which there is enough confidence, trust, and hope to ground the difficult measures needed to realize environmental objectives.

There is some good news to report on the development front. An impressive consensus

has emerged around objectives. The international community has come together with a concerted commitment to the goal of halving the incidence of absolute poverty by 2015. This goal and others dealing with health and education were endorsed by all governments in the Millennium Assembly of the United Nations. Eliminating large-scale poverty is no longer an impossible dream. It could be accomplished in the lifetimes of today's young people. But, as with population, a serious threat to achieving these goals is limited development assistance, in this case compounded by protectionist trade regimes, and heavy debt burdens.

The third transition is a transition in technology to a new generation of environmentally benign technologies. We need a worldwide environmental revolution in technology. The only way to reduce pollution and resource consumption while achieving expected economic growth is to bring about a wholesale transformation in the technologies that today dominate manufacturing, energy, transportation, and agriculture.

The good news here is that across a wide front, technologies that would bring about a vast improvement are either available or soon can be. From 1990 to 1998, when oil and natural gas use grew globally at a rate of 2 percent annually, and coal consumption grew not at all, wind energy grew at an annual rate of 22 percent and photovoltaics at 16 percent. Denmark now gets eight percent of its energy from wind; Japan last year installed 100 megawatts of photovoltaic power. Transformation of the energy sector must rank as the highest priority.

The fourth transition is a market transition to a world in which prices reflect the full environmental costs. The needed revolution in technology and the equally needed changes in consumption patterns will not happen unless there is a parallel revolution in pricing. The corrective most needed now is environmentally honest prices. Full cost pricing is everywhere thwarted today by the failure of governments to eliminate environmentally perverse subsidies (estimated globally at $1.5 trillion) and to ensure that external environmental costs are captured in market prices.

One of the most hopeful developments today is the tax shift idea adopted in Germany and many other European countries. Moving in four stages starting in 1999, the German policy is to shift the tax burden from something one wants to encourage – work and the wages that result – to something one wants to discourage – energy consumption and the pollution that results.

The fifth transition is a transition in consumption from unsustainable patterns to sustainable ones. Here, one very hopeful sign is the emergence of product certification and green labeling and public support for it. This trend started with the certification of wood products as having been produced in sustainably managed forests and has now spread to fisheries and to building design. Increasingly, consumers are voting green in the marketplace, and that is driving change. Another hopeful sign is the new legislation in Europe and Japan requiring that consumer durables be recycled; some require that manufacturers take back their products when use is finished.

New Initiatives in Global Environmental Governance

The sixth transition is a transition in governance. The World Business Council for Sustainable

Development has sketched several broad paths in environmental governance. One they call "FROG" First Raise Our Growth. Let's solve our economic challenges first, it says. FROG is a business-as-usual scenario, leading to huge environmental costs, social inequity, and often social instability. It is a failure scenario, even in the eyes of business leaders.

The two other scenarios are success scenarios in which sustainability is vigorously pursued. But they are very different. In one, "GEOPolity," people turn to government to focus the market on environmental and social ends and rely heavily on intergovernmental institutions and treaties.

The final scenario is a "JAZZ" world of unscripted initiatives, decentralized and improvisational. There is abundant information about business behavior; good conduct is enforced by public opinion and consumer behavior. Governments facilitate; NGOs are very active; business sees strategic advantage in doing right thing.

The initial international response to the global change agenda has been to try to move the world from FROG to GEOPolity. It isn't working. Getting serious about governance requires new action on two mutually supportive fronts:

- Pursuing a radically revised approach to GEOPolity
- Taking JAZZ to scale

The current world of GEOPolity is a world that is designed to fail. It can be redesigned for success by insisting on new norm-setting procedures and new institutions, including a World Environment Organization. The case for an effective WEO is as strong as for an effective WTO. The international community knows how to create plausible multilateral arrangements and has often done so in other, mostly economic, areas.

A second path to the future is to implement measures that can take JAZZ to scale. JAZZ is the most exciting arena for action today, with an outpouring of bottom-up, unscripted initiatives from business, NGOs, governments, and others.

- Seven large companies – DuPont, Shell, BP Amoco, Alcan among them – have agreed to reduce their CO_2 emissions 15 percent below their 1990 levels by 2010. Indeed, Alcoa is reported to be on track to reduce its emissions 25 percent below 1990 levels by 2010, and DuPont is on schedule to reduce emissions by 65 percent.
- Eleven major companies – DuPont, GM, IBM among them – have formed the Green Power Market Development Group and committed to develop markets for 1000 megawatts of renewable energy over the next decade.
- Home Depot, Lowes, Andersen and others have agreed to sell wood (to the degree it's available) only from sustainably managed forests certified by an independent group against rigorous criteria. Unilever, the largest processor of fish in the world, has agreed to the same regarding fish products.

NGOs had important roles in forging these corporate initiatives. They are the real maestros of JAZZ. Local governments, universities and other entities have also contributed. Over 500 local governments have now joined a campaign to reduce greenhouse gas emissions.

Finally, there is the most fundamental transition of all – a transition in culture and consciousness. Clearly we need new habits of thought – a new world view. Paul Ehrlich recently wrote that, "Our global civilization had better move rapidly to modify its cultural evolution and

deal with its deteriorating environmental circumstances before it runs out of time." He notes that the potential for conscious evolution is evident in great social movements that societies have already experienced, such as the abolition of slavery and the civil rights movement. It is possible that we are seeing the birth of something new – a change of consciousness – in the anti-globalization protests, in the far-reaching and unprecedented initiatives being taken by some private corporations, in the growth of NGO's and their innovations, in scientists speaking up and speaking out, and in the outpouring of environmental initiatives by the religious community. We must certainly hope that something new and vital is afoot. And, ironically, what may drive this consciousness as much as anything else is the reality of anthropogenic climate change.

These are all hopeful signs, but to be honest we must conclude that we are at the early stages of the journey to sustainability. Meanwhile, the forward momentum of the drivers of environmental deterioration is great. We are moving rapidly towards a swift and appalling deterioration of our natural world. Time is the most important variable in the equation of the future. What we will do tomorrow we should have done yesterday. Only a response that in historical terms would come to be seen as revolutionary is likely to avert these changes.

A phenomenal expansion of economic activity is projected for the decades immediately ahead. An already full world will soon be very full indeed. Down one path, this growth can protect, regenerate and restore the environment. It can provide sustainable livelihoods for the world's poor, and lead to large improvement in the quality of life for all. There is still world enough and time for this century to see the coming of a future more wondrous, intimate, and bountiful than our scenarios can imagine. But this world will not be won without a profound commitment to urgent action. President Kennedy often told the story of the aged Marshal Lyautey of France debating with his gardener about planting a certain tree.

"It will not bloom," the gardener argued, "for decades."

"Then," said the marshal, "plant it this afternoon."

Thank you.

Major Publications

Professor James Gustave Speth

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