

PEACE, DEVELOPMENT AND THE ENVIRONMENT:
CHALLENGES TO THE COSTA RICAN MODEL

Barnard Environmental Lecture by Dr. Oscar Arias
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Friends:

Thank you for inviting me to speak with you today. I consider it a great privilege to address the distinguished scientists and engineers of the American Association for the Advancement of Science.

I have very much enjoyed preparing for the Barnard Lecture; it has given me the opportunity to review some of Costa Rica's most successful environmental policies, while reminding me of the many areas where we have not yet lived up to our reputation as an ecological paradigm. I have also reflected on the close relationship between science and those issues that have been the guiding lights of my career: peace and demilitarization. Albert Einstein commented in a 1922 lecture that "Because of the universal character of their subject matter and their need for internationally organized cooperation, scientists are inclined toward international understanding and therefore favor pacifist goals."¹ This vision of peace as an eminently rational and desirable human condition is an important contribution scientists make to the world of politics.

I strongly share the Association's commitment to promoting the use of good science in government policy making. I have always believed that governments have an obligation to respect scientific opinions and to base their policies on sound research. During my administration, the fields of Science and Technology, as well as the Environment, were given ministerial level rank for the first time. I also appointed scientists and engineers to top government posts, including several positions in my Cabinet.

Governments faced with ever-more complex decisions need to actively seek the collaboration of scientists in fields such as biology, environmental management, earth sciences, health, energy, education and computer science. The crux of the political challenge, of course, lies in mustering the will to act on scientific advice. Faced with environmental challenges, leaders must develop meaningful objectives and be willing to propose and implement policies to achieve them. This is as true for the mayor of a small village who discovers that farm chemicals are killing local rivers, as for the president of a world superpower seeking to reduce his country's greenhouse gas emissions.

This afternoon I will argue that environmental protection is necessary for long-term economic growth and vice versa; but that without peace, neither goal is achievable. Costa Rica has for decades experimented with and improved upon its policies in these three vital and interrelated issues. Our ongoing experiences in eco-agriculture, debt-for-nature swaps, environmental tourism and national park systems have important implications for larger global efforts to link poverty reduction with sustainable environmental practices.

Certainly, the triple challenges of peace, development and the environment are universal concerns and as such demand immediate, coordinated global action. International accords should focus on providing the cooperative framework for initiatives at the national and local levels, and

from the private sector. This has been the basis for Costa Rica's ecological successes: creative, grassroots solutions achieved with the support of foreign governments and concerned citizens, both Costa Rican and international.

Before entering more deeply into the Costa Rican experience, I would like to step back and take a look at our environmental future from a global perspective. Two years ago, the United Nations released its most recent projected population figures for the year 2050. Currently, 1.2 billion people live in the developed world, and 4.9 billion in the developing world—primarily Africa, Asia and Latin America. By the year 2050, the number of people living in developed countries is expected to hold steady, while a moderate estimate for developing countries puts population levels at around 7.7 billion.ⁱⁱ

Such projections are of course notoriously fickle, and I do not pretend to ply this audience with proverbial “lies, damn lies and statistics.” Nonetheless, the UN projections do indicate that the dynamics of world privilege and poverty will most probably undergo a startling shift over the next generation. My friends, poverty needs no passport to travel; the problems of the developing world affect all of us, and they will continue to do so with increasing intensity in the future. Now is the time to rethink the priorities of our governments, especially concerning the sustainability of the environmental practices underpinning the world economy.

Climate change is one of the great issues facing humanity in which science and public policy constantly overlap and push the limits of international cooperation. Rising temperatures and increasing sea levels are consequences of industrial pollution that affect all of us, but are especially damaging to populations in the tropical latitudes. Already hundreds of thousands of people have been displaced by periodic flooding in Bangladesh, and subsistence farmers—who are far less adaptive than their rich counterparts—are struggling with shifting patterns of rainfall and drought.

Leadership on this issue must come from the industrialized world. According to the principle of “common but differentiated responsibilities,” those nations which produce the bulk of greenhouse gas emissions must take the first steps to address the spiraling effects of rising carbon dioxide levels. As the world's greatest polluter, the United States has a special responsibility in this regard. Something is not economically right when a liter of water in this country costs as much as a liter of gasoline.

Nonetheless, the world's climate negotiations continue to experience a serious impasse. By a curious turn of events, the fate of the Kyoto Protocol is in the hands of the old “superpowers:” Russia and the United States. If either of the two decides to ratify, the Protocol will come into force; if neither country ratifies, Kyoto will fall to the dustbin of history along with other failed treaties and protocols. The net result would be that we have imposed an even greater environmental debt on ourselves and on future generations.

Scientists must continue their active role in attempting to break this climate stalemate. Through the Intergovernmental Panel on Climate Change, the international scientific community has spoken in increasingly specific language about the long term nature of the climate problem. Every monthly issue of the major scientific journals brings yet another example of melting glaciers, rising clouds, shrinking polar ice caps, drying croplands and altered species distributions. Growing consensus within the scientific community is putting greater pressure on governments and businesses to reduce their share of pollution, though it has to be admitted that real results require much more than scientific certainty. In one encouraging development, a recent Bush administration report submitted to Congress contains a long-overdue acknowledgment of the human factor in global warming.

Wealthy countries must assume their share of the global burden not only in domestic policy, but by supporting energy efficiency and the development of renewable energy in emerging economies. Developing countries are rapidly catching up to the emissions levels of the wealthiest nations. By 2025, energy-related carbon dioxide emissions from developing countries are likely to exceed those from the member states of the Organization of Economic Cooperation and Development—the proverbial First World.ⁱⁱⁱ It is clear that developing countries must come up with innovative mechanisms to grow more cleanly and efficiently than our predecessors.

We already know of many ingenious and cost-effective ways to lessen the environmental impacts of global economic growth. Making fuller use of lower-carbon fuels as well as carbon-free energy systems would make an enormous difference both in slowing the pace of climate change, and in improving the quality of life of those who suffer the effects of air pollution. In their striving for greater productivity, developing countries need not repeat the mistakes of those countries that industrialized in the 19th and 20th centuries. Environmentally sound economic paradigms can feasibly be adopted as part of the second wave of modernization in the 21st century.

However, we cannot talk of some collective “leapfrogging” of the pitfalls of industrialization without first confronting the fact that this is still a world where nearly a billion and half people have no access to clean water and 600 million go to bed hungry each night.^{iv} In the developing world, damage to the environment goes hand in hand with human misery. In the struggle for survival that grips four fifth's of our planet's population, the poor are often forced to consume whatever resources are at hand, burning down forests for pasture and farm land, and over-cultivating the entire agroscape.

The ecological consequences of these desperate measures for survival and ascent to middle-class status resonate out from the earth's tropical belt. According to *The Economist*, deforestation in the tropics may have accounted for ten to twenty percent of the carbon released into the atmosphere by human activity in the 1990's.^v The world needs developing countries to conserve their remaining tropical forests, and even to regrow them; developing countries, at the same time, need the world to support and cooperate with us in this endeavor.

One very effective strategy that directly links international economic assistance with environmental protection has been the so-called “debt for nature swaps.” In Costa Rica we implemented such a policy in 1987. Its successful continuation has had a tremendous effect on my country's development. As a result of the “debt for nature” policy, Costa Rica has been able to reduce its external debt by about \$100 million, aid environmental organizations, reforest more than 60,000 hectares, increase sustainable forestry, fund environmental education, and purchase land for preservation and restoration. The concept of debt for nature swaps is just one example of the many solutions that link social and economic development with protection of the environment, providing, of course, there is willingness from nations to act together. Ironically, Costa Rica has now achieved an economic status in which a debt-for-nature swap is no longer economically attractive because Costa Rican debt can no longer be purchased cheaply.

Promoting economic growth and shared prosperity must be a central component of any vision for environmental conservation. In order for their people to have more sustainable economic options, developing countries must offer better education systems and access to more varied employment. To do this, their economies need to grow. My friends, I am convinced that the poor can and will benefit from free trade—both poor countries, and the poorest in them. Those who live in small economies, which produce what they do not consume and consume what they do not produce, depend on trade for survival. Access to the markets of wealthy countries is

therefore a tremendous stimulus for economic growth, which, in turn, gives us a fair shot at achieving long-term improvements in health care, education and infrastructure.

The North needs to understand the urgency of making trade work for the poor. Although virtually all leaders of industrialized countries profess to believe in free trade, most often what they are looking for is the opening of other countries' markets, not their own. Today, industrialized countries provide approximately 325 billion dollars per year in different kinds of subsidies to their own farmers, while spending about 68 billion dollars per year on foreign aid, that is, a quarter of one percent of their combined GDP. These subsidies have the double effect of depleting environmental resources and depressing the economies of poor agricultural regions. The costs to human development and sustainability are enormous.

Of course, many citizens harbor reservations about the extent to which trade liberalization guarantees development. One pervasive concern is that free trade encourages environmental degradation by promoting throw-away consumerism, and by favoring profit over conservation. I do agree that the policy objectives of governments must take into account not only efficiency and economic competitiveness, but the effects of open markets on local communities and ecosystems. Octavio Paz, the great Mexican poet, wrote not long before his death:

The market is an efficient mechanism, but, like all mechanisms, it is blind: it creates abundance and misery with the same indifference. Left to its own course, the market threatens the ecological balance of the planet, pollutes the air, poisons the water, makes deserts of forests, and in the end, harms many living species, among them man himself. Last, and most importantly: the market is not-- and cannot be-- a model for life. It is not an ethical code but rather only a method of production and consumption. It ignores fraternity, destroys social ties, imposes uniformity of conscience, and has turned art and literature into commerce. (endquote.)

Rather than cause for pessimism, these remarks should inspire us to explore how the powerful tool of the market can be harnessed for progressive goals.

For instance, Costa Rican farmers have creatively responded to the low-chemical, health-conscious tastes of "green" consumers through the development of "eco-agriculture." "Eco-agriculture" includes both organic production, which uses no agro-chemicals, and environmental production, in which rational use of pesticides is combined with conservation and ecological protection techniques. Costa Rica currently has more than 3000 certified organic producers cultivating 11,000 hectares of land. With government support and accreditation services, Costa Rica provides environmentally responsible coffee to companies such as Starbucks and exports to the US, Canada, the European Union and Japan..

It has always been my belief that economic growth and environmental protection should be reconciled whenever possible. As economies expand and developing nations enter into networks of international trade, scientific research is urgently needed to integrate biodiversity conservation into the country's economic fabric. It is only with comprehensive and reliable information that we will achieve more rational and ethical economic development.

Since 1989, a key player in the research and protection of Costa Rica's biological wealth has been the National Biodiversity Institute, or INBio. As a non-profit research institute, the primary function of INBio is to investigate, catalogue and publish on Costa Rica's astounding biodiversity. The Ministry of Environment constantly refers to information generated by INBio in planning conservation projects. In addition, INBio has pioneered the field of bioprospecting, the research of commercial applications for tropical natural resources. By promoting responsible

social applications of natural resources, INBio has proven an invaluable actor in the pursuit of sustainable growth in Costa Rica.

In 1986, over a year before the Brundtland Commission introduced the concept of “sustainable development,” my administration established the Ministry of Energy and Environment. We took this step because we believed that Costa Rica’s environmental patrimony should be a central priority in the national planning process. A major component of this strategy was to stimulate the budding field of eco-tourism by strengthening the national system of parks and protected areas. As part of the concept of sustainable management, we promoted the integration of parks and surrounding buffer zones, and also decentralized institutional decision-making. The active participation of local communities was and continues to be a vital component of the national strategy for conservation.

Currently, 25 percent of Costa Rican territory is under some category of conservation, split evenly between state lands and private reserves.^{vi} In addition to maintaining the ecological health of our territory, these areas have brought significant economic benefits. Indeed, the tourist crop is worth more than coffee, banana and cattle exports altogether. Over 1,200,000 tourists visited Costa Rica last year; I am happy to see that Costa Rica has become one of the main tourist destinations for U.S. citizens. We know that about 90 percent of these visitors are attracted by the promise of the country’s natural beauty.^{vii} Unfortunately, the high volume of visitors has not translated into sufficient funding for protected areas. Indeed, recent governments have cut funding even as revenue from the parks has increased.

Costa Ricans cannot afford to let our reputation as an “ecological paradise” blind us to the fact that we still face major challenges in securing the integrity of our ecological treasures. Logging and over-use of pesticides continue to be a problem in the immediate vicinity of our national parks. We need to do more to respond to the potentially harmful side effects of tourism, such as higher levels of solid waste and increased pressure on local sources of food and water. We need to regulate more strictly the construction of beach-side resorts, which threaten the integrity of mangrove swamps and river deltas. Finally, we urgently need to reform the tax code so that revenues produced by the national parks can be reinvested in trail maintenance, staff salaries, environmental education and research, and innovative forms of biodiversity development.

The Costa Rican model of environmental protection and development is not a fixed, finished formula. Rather, it is an ongoing civic process that depends on the initiative and the determination of the Costa Rican people in an ever-more complex interaction with global society. It stems from the strength of our values, and in that sense, environmental protection in Costa Rica is inseparable from our status as a country with no army.

Costa Rica’s environment and its people have benefited enormously from the peace dividend consolidated after the elimination of the army in 1948. In accepting the Nobel Peace Prize in 1987, I commented on how disarmament has marked our national identity. I said then, “We are a people without arms, and we are fighting to continue to be a people without hunger. We are a symbol of peace for America; we want also to be a symbol of human development. We intend to demonstrate that peace is both a requirement and a product of development.”

One of the most striking examples of the interweaving values of peace, development and environmental protection is the Area de Conservación Guanacaste in northwestern Costa Rica. This UNESCO World Heritage Site was created from 1986 to 1991 with 24 million dollars culled from some 6500 international donors, including 3.5 million dollars from a debt-for-nature swap with Sweden. Its vast territory of 153,000 hectares contains the greatest expanse of tropical

dry forest in the world, and is also one of the world's largest ecological reserves. Its borders encompass a rich profusion of ecosystems, from the Atlantic rainforests to the cloud-covered peaks of the Cacao, Orosi and Rincón volcanoes, to the vast and sunny plains now covered with regenerating dry forest, to the marine habitats of the Pacific coast. In this 85 kilometer sweep from ocean to mountaintop live as many species as are found in all of North America above the Mexican border.

The vibrant landscapes of the Area de Conservación Guanacaste are a testament to the triumph of nature over war. In the early eighties, Costa Rica's northern areas were informally occupied by *contra* guerillas supported by the US government, as part of the general offensive against the Sandinistas in Nicaragua. This put us Costa Ricans on the brink of being dragged into the civil wars of our neighbors. Reasserting the Costa Rican principle of neutrality was clearly the most crucial mandate of my presidency. In 1987, the signing of the peace accords by five Central American presidents established the importance of disarmament and mutual respect for national sovereignty, and increased pressure on the US to withdraw funding for *contras* within Costa Rican territory. Today, what were once secret landing strips are now being reforested. Where the CIA used to train guerillas, there are now camp sites and research stations that each year host over 2500 grade school students who come to learn basic biology.

In nature as in human societies, overcoming a period of trauma is a process that takes generations. Central America is only just beginning to emerge from the horrific legacy of militarism. We can never know exactly how many Nicaraguan, Guatemalan and Salvadoran children grew up not with toys, books and teachers, but in camps where they learned to wield weapons. We know that many were child soldiers, that many died before having learned to play or to read, and that the rest of them saw peace arrive only after they were already condemned to adulthood without a future.

Today, conventional arms and light weaponry continue to impose a tremendous burden on the security and well-being of humanity, especially in the Third World, where military spending saps precious resources from development. I firmly believe that the global arms trade, and its accompanying glut of military spending, represents the single most significant perversion of worldwide priorities known today.

The effects of the global arms trade on the environment are direct and disastrous. Military forces are the largest polluters on Earth, responsible even in peacetime for more carbon dioxide emissions than any other industry. Needless to say, modern warfare is an environmental catastrophe. Vietnam lost over 80 percent of its original tropical forest to 50 million liters of Agent Orange sprayed by the U.S. military. As a result of more than a decade of war, one-third of Vietnam is now considered wasteland. In the first Persian Gulf War, oil spills and fires resulted in one of the greatest environmental disasters in history.

The arms trade also exaggerates global relationships of inequality and underdevelopment to grotesque levels. Currently, almost eighty percent of all weapons transfers originate in the five permanent members of the UN Security Council. Is there not a terrible irony in linking security to large shipments of weapons, most of which will eventually serve criminals and totalitarian regimes? Of the twenty nine billion dollars in conventional weapons that were sold in 2002, nearly two thirds went to governments in the developing world. Why are leaders of the hungriest people still buying guns? And why do leaders of the wealthiest people continue to supply them?

The fundamental problem, of course, is one of values. I want to quote my good friend, the late Mahbub ul-Haq, who was a pioneer of the human development school of thought. In his book Reflections on Human Development, he notes: "Sometime back, Tanzania's president

Julius Nyerere asked in legitimate despair, 'must we starve our children to pay our debts?' It is at least as pertinent to ask, must we starve our children to increase our defense expenditure? . . . When our children cry for milk in the middle of the night, shall we give them guns instead?"

That, my friends, is the very image of terrorism.

The events of the last three years have made it chillingly clear that a world where millions endure extreme misery will never be fully secure, even for its most privileged inhabitants. And it is also apparent that the circulation of people, world-views and cultures is growing, whether we are ready or not for the resulting encounters. Our values will have to follow suit. We can no longer afford to ignore our common humanity or focus our vision narrowly on our own interests, our own people, our own problems. We cannot ignore the cry of that child in the middle of the night.

Because militarization, poverty, and environment degradation are so closely linked, improvements in any of these areas should have the potential for positive ripple effects. In particular, efforts to reduce unnecessary military and arms spending would help liberate enormous amounts of resources that can, and should, be invested in human development and environmental conservation. In 2002, 800 billion dollars were dedicated to military expenditure worldwide, or 2.5 per cent of the world gross domestic product. According to the United Nations Human Development Program, just five percent of that amount would be sufficient to fund basic education, health care and nutrition, potable water, and sanitation for all the world's people. In other words, it would take only a modest shift in global priorities to alleviate these seemingly intractable development challenges.

During no other time has humanity known as well as now of the nature of the dangers it faces. During no other time has humanity known with so much certainty where to find the resources and knowledge necessary to confront these dangers. Scientific knowledge, command of technology and the maturity of ethical and political ideas have put a better world within our reach. We should not permit the talent, energy and richness of generations to be squandered on priorities that defy reason.

For that reason, I have for many years advocated the adoption of an international code of conduct on arms transfers, an initiative supported by twenty other Nobel Peace Laureates and many international organizations. The Code, now known as the Arms Trade Treaty, calls for a ban on transfers of weapons to governments that repress fundamental democratic and human rights, or that commit acts of armed international aggression. I am proud to say that since last October, a grassroots campaign to ratify this treaty into a binding piece of international law has been advancing in seventy countries around the world.

I know very well that a campaign to regulate the arms trade brings us head to head with the world's most entrenched interest groups, and it could take years, even decades, to move forward. In this struggle, the research, advice and political support of scientists will be essential. Indeed, the Arms Trade Treaty has already benefited from the invaluable collaboration of the Federation of American Scientists. I strongly concur with Einstein in his affirmation that scientists are natural protagonists in the struggle for peace. What a pity that political leaders do not always heed the wise advice of scientists.

My friends, I have presented you with a number of ideas on human development, the environment and peace: I want to stress that, despite their vast scale, these challenges present each of us with a job to do and a role to play. This audience, with its collective expertise in science and public policy, is particularly well positioned to exercise principled leadership on an

international level. Perhaps the most enlightening lessons in how to manage this interconnected world come from Mother Nature herself.

In the dense rain forests of Central America, living beings are in a constant dynamic of competition and interdependence. When a storm topples a tree, its roots pull up the roots of its neighbors, causing them to fall as well. In much the same way, today's world is a compact forest of cultures, states and nations, whose roots every day form a more interlacing and inextricable network. The survival of each tree is intimately connected to the fate of the others.

A nation traumatized by war, by environmental destruction, by poverty, is a tree on the verge of toppling. It is in our best interest to combat those blights which threaten our fellow human beings, for as science has shown us, all life in this world is supremely interconnected. At the same time, our sense of stewardship for this earth stems from something more than the personal survival instinct. It is based on a sense of respect and responsibility before a creation that will extend far beyond our own lifetimes. As an astute observer of nature once observed, "The true meaning of life is to plant trees, under whose shade you do not expect to sit."

Thank you.

ⁱ In Alice Alaprice, ed. The Expanded Quotable Einstein. (Princeton: Princeton University Press, 2000) pg. 243.

ⁱⁱ United Nations Population Division. "World Population Prospects: the 2002 Revision."
<http://www.un.org/esa/population/publications/wpp2002/WPP2002-HIGHLIGHTSrev1.PDF>

ⁱⁱⁱ John Brown, "Beyond Kyoto." July/August 2004 issue of Foreign Affairs.

^{iv} Donald. G. McNeil, Jr. "Subtract Billions: Population Bomb May Only Go 'Pop!'" *The New York Times* 29 August 2004.

^v "Local Resources and Global Assets: Saving the Rainforest." *The Economist* 22 July 2004.

^{vi} "Biodiversidad de Costa Rica." Página web de INBio, 2004.

^{vii} Ana Cristina Rossi, "De Vida o Muerte." *La Nación* lunes 21 de abril 2003.