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GLOBAL CHANGE AND OUR COMMON FUTURE - THE BENJAMIN FRANKLIN  
LECTURE, WASHINGTON D.C., 2 MAY 1989

We are living in an historic transitional period in which awareness of the conflict between human activities and environmental constraints is literally exploding. This finite world will have to provide food and energy, and meet the needs of a doubled world population sometime in the next century. It may have to sustain a world economy which is five to ten times larger than the present one. It is quite clear that this cannot be done by perpetuating present patterns.

In the never-ending human search for an improved habitat, for new materials, new energy forms and new processes, the constraints imposed by depletion of natural resources and the pollution caused by the conversion of resources have brought mankind to a crossroads.

In spite of all the technological and scientific triumphs of the present century, there have never been so many poor, illiterate or unemployed people in the world, and their numbers are growing. Close to one billion people are living in poverty and squalor, a situation that leaves little choice, in a struggle for life which often undermines the conditions for life itself, the environment and the natural resource base.

We continue to live in a world where abundance exists side by side with extreme need, where waste overshadows want, and where our very existence is in danger due to mismanagement and overexploitation of the environment.

The undermining of respect for international obligations was one of the many negative trends in international politics during the 1970s and the early 1980s.

I believe that the threats to the global environment have the potential to open our eyes, and to make us accept that North and South will have to forge an equal partnership. The threats to the global climate prove beyond doubt that, if everyone does as they

please in the short run, we will all be losers in the long run. We need to develop a more global mentality in charting the course towards the future, and we need sound scientific advice and firm political and institutional leadership.

We face a grim catalogue of environmental deterioration. We know that forests are vanishing. Every year 150,000 km<sup>2</sup> disappear. We are becoming increasingly aware of the spread of desert land. The yearly rate is 60,000 km<sup>2</sup>. Good soil is being washed away or eroding at alarming rates. It is estimated that about 150 plant and animal species are becoming extinct every day, most of them unknown to laymen and specialists alike. The stratospheric ozone shield is in danger. And above and beyond all these signs of environmental crisis, the climate itself is threatened.

As the challenging dynamics of global change gradually become clearer, the role of the men and women of science in shaping our common future becomes more central. The interplay between the scientific process and the making of public policy is not a new phenomenon. Indeed, it has been a characteristic of most of the great turning points in human history. One need look back no further than the dawning of the nuclear age to conclude that names such as Fermi, Bohr, Oppenheimer and Sakharov have influenced today's world just as much as Roosevelt, Stalin, Churchill, Gandhi and Hammarskjöld.

It may be more important now than ever before in history for scientists to keep the doors of their laboratories open to political, economic social and ideological currents. The role of the scientist as an isolated explorer of the uncharted world of tomorrow must be reconciled with his role as a committed, responsible citizen of the unsettled world of the present.

The interaction between politics and science has been decisive in the pursuance of international consensus on the problem of stratospheric ozone depletion. The protocol which was hammered out in Montreal in September 1987, which provides for reducing CFC emissions by 50 per cent over the next decade, could never have been achieved without a delicate balance between the most up-to-date scientific information, reliable industrial expertise and committed political leadership against a background of strong, and informed public interest .

The fact that new scientific data on the threat to the ozone layer has already prompted us to move beyond the 1987 accords only underlines my point: The scientist's chair is now firmly drawn up to the negotiating table, right next to that of the politician, the corporate manager, the lawyer, the economist and the civic leader. Indeed, moving beyond compartmentalization and outmoded patterns to draw upon the very best of our intellectual and moral resources from every field of endeavor lies at the very heart of the concept of sustainable development.

It is a rare privilege to be here in Washington today and to speak about the challenges before us as we approach the end of a century that has brought more changes than the entire previous history of mankind. I do so emphasizing that US leadership will be decisive if we are to succeed, on a global scale, in making the necessary changes. I do so with the greatest respect and admiration for the human and material resources of this country, resources which can and must be mobilized for sustainable development if we are to overcome the interlocked environment and development crisis.

This nation has perpetually fostered human genius. Benjamin Franklin himself was a paragon of intellectual curiosity and versatility. His inquisitive, insatiable mind was constantly on the look-out for knowledge and would have found it in a desert. His own words about learning are illustrative, and I quote: "In persons of a contemplative disposition, the most different things provoke the exercise of the imagination, and the satisfaction which often arise to them thereby are a certain relief to the labor of the mind as well as to that of the body".

Had Franklin been alive today, he might have found a solution to the energy problem. He was actually very involved with the problem of energy efficiency. Franklin was the first scientist to study the Gulf Stream. He found that a vessel sailing from Europe to America could shorten the voyage by avoiding the Stream, and that a thermometer could be used to determine the edge of it.

Today, the international agenda has grown more varied and complex, but also more promising. Advances are being made in a number of fields, including the easing of tensions between East and West with the ensuing gains for peace and security and the settlement of regional conflicts.

Should we not take advantage of this favourable climate and direct our efforts towards the critical environment and development issues facing us? Many of these problems cannot be solved within the confines of the nation state, nor by maintaining the dichotomy between friend and foe. We must increase communication and exchange, and cultivate greater pluralism and openness.

In 1987, the World Commission on Environment and Development presented its report "Our Common Future". The Commission sounded an urgent warning: The present trends cannot continue. They must be reversed.

The World Commission did not, however, add its voice to that of those who are predicting continuous negative trends and decline. The Commission's message is a positive vision of the future. Never before in our history have we had so much knowledge, technology and resources. Never before have we had such great capacities. The time and the opportunity has come to break out of the negative trends

of the past.

What we need are new concepts and new values based on a new global ethic. We must mobilize political will and human ingenuity. We need closer multilateral cooperation based on the recognition of the growing interdependence of nations.

The World Commission offered the concept of sustainable development. It is a concept that can mobilize broader political consensus, one on which the international community can and should build. It is a broad concept of social and economic progress. The Commission defined sustainable development as meeting the needs and aspirations of present and future generations without compromising the ability of future generations to meet their needs. It requires political reform, access to knowledge and resources, and a more just and equitable distribution of wealth within and between nations.

Over the past couple of years some progress has been made in the environmental field, both in term of raising consciousness and in terms of taking on particular challenges, such as in the Montreal Protocol on the ozone layer and the Basle Convention on hazardous wastes. However, the picture is very uneven, and the achievements far from justify complacency.

As far as development is concerned, however, the 1980s have been a lost decade. Though some countries have done well, there has been wide-spread economic retrogression in the Third World. Living standards have declined by one fifth in Sub-Saharan Africa since 1970.

Unsustainable, crushing burdens of debt and reverse financial flows, depressed commodity prices, protectionism and abnormally high interest rates have all created an extremely unfavourable international climate for development in the Third World.

Politically, economically and morally, it is unacceptable that there should be a net transfer of resources from the poor countries to the rich. Paradoxically, the fact of the matter is that while close to a billion people are already living in poverty and squalor, the per capita income of some 50 developing countries has continued to decline over the past few years.

These trends will have to be reversed. As pointed out by the World Commission on Environment and Development, only growth can eliminate poverty. Only growth can create the capacity to solve environmental problems. But growth cannot be based on overexploitation of the resources of developing countries. Growth must be managed to enhance the resource base on which these countries all depend. We must create external conditions that will help rather than hinder developing countries in realizing their full potential.

What we now need is a Global Consensus for Economic Growth in the 1990s. It must comprise:

- Economic policy coordination that will promote vigorous non-inflationary economic growth ; Major challenges include reducing payments imbalances between the USA, Japan and the Federal Republic of Germany, and making the surpluses of Japan, the Federal Republic of Germany and other countries increasingly available to developing countries.

From a world development point of view, the financial surpluses of the OECD countries should increasingly be used for investments in developing countries rather than for financing private consumption in the major industrialized countries.

- We need policies that will secure more stable exchange rates and increased access to markets on a global basis; Protectionism is a confrontational issue and a no benefit game. Every year, protectionism costs the developing countries twice the total amount of development assistance they receive. The benefits of free trade both for the North and for the South are obvious.

- We need policies that will sustain and improve commodity prices;

- Policies must encourage and support diversification of the economies of the developing countries; We need adjustment programmes that are realistic. Their pace and sequence must be carefully tailored to the characteristics and development priorities of the individual countries through a policy of dialogue. More must be done to incorporate poverty concerns and environmental considerations into adjustment programs.

- We need major new efforts that will reduce debt based on the recent Brady initiative. For debt owed to multilateral institutions, the scheme based on a Nordic proposal to soften interest payments on such loans has been taken up by the World Bank. We believe this and similar schemes should be extended in the future.

A very civilized, ancient legal provision on debt reads as follows: "If a man owes a debt, and the storm inundates his field and carries away the produce, or if the grain has not grown in the field, in that year he shall not make any return to the creditor, he shall alter his contract and he shall not pay interest for that year".

This quote is taken from the Code of Hammurabi, King of Babylon, which dates from the year 2250 BC.

4,000 years later the debt burdens, the environmental crisis and

the decline in the flows of resource transfers are trends that call for equally civilized considerations.

- In addition to our debt efforts, what is called for is increased development assistance, nothing short of a "Marshall Plan" for the poorer nations of the developing world, notably for Africa. I see no reason to conceal, that while Norway has given around 1.1 per cent of its GNP in official development assistance to developing countries in recent years, we are disappointed that the OECD average has declined to a meager 0.34 per cent. Those donor countries which have been lagging behind in their ODA transfers should now make renewed efforts in line with their abilities.

The Soviet Union and Eastern Europe must also contribute to a far greater extent than they have done so far. The developing countries have been declaring their readiness to do their part in terms of policy reforms and constructive negotiations.

A Global Consensus for Economic Growth in the 1990s must be consistent with sustainable development. It must observe ecological constraints. There are no sanctuaries on this planet. If the next decade is to be truly a decade of response to the serious problems which confront the world, the issue of sustainable global development must receive special, and urgent, attention.

It is time for a global economic summit to launch a new era of international cooperation. Issues like the debt crisis, trade matters, resources for the international financial institutions, harnessing technology for global benefit, strengthening the United Nations system, and specific major threats to the environment such as global warming, are becoming increasingly interrelated. Would it not be appropriate to consider both our economic and our environmental concerns together at such a summit, given the critical links between the two?

The Third World seems convinced that international poverty is not a mere aberration of international economic relations which can be corrected by minor adjustments, but rather the unspoken premise of the present economic order. Developing countries have had to produce more and sell more in order to earn more to service debt and finance imports. And the amount of coffee, cotton or copper they have had to produce to buy a water pump, antibiotics or a lorry has kept increasing.

This has led to overtaxation of the environment. It has fueled soil erosion and accelerated the cancerous process of desertification and deforestation. This in turn has begun to threaten the genetic diversity which is the basis for tomorrow's biotechnology, agriculture and food supply.

Biotechnology is a case in point. The effects of modern biotechnology on agriculture and food security in the Third World

must be given special care and attention. Clearly, the production of enough food to feed a doubled world population is inconceivable without biotechnology. But there are inherent dangers that could, unless they are avoided, further widen the gap between poor and rich.

The benefits of plant breeding and plant varieties with greater resistance and more rapid growth potential have been, and will continue to be immense. But these benefits may become available only to the rich, while the genes employed in the process often originate in developing countries which derive very little benefit from their use.

Strong international corporations may dominate this field. Legal protection and very firm rules regarding rights of ownership may reduce the availability of products which are important for nutrition and the prevention of famine.

Small-scale farmers in the Third World risk being victims in this process. Biotechnology may produce substitutes for their crops. They may lose income and the ability to provide for their families.

The industrialized countries have a responsibility for controlling market forces in this field and for promoting a more equitable sharing between developed and developing countries. The protection of intellectual property rights and royalties must be in a form which promotes research, which provides for an equitable sharing of financial benefits between inventors and the country of genetic origin and, not least, which makes the products of biotechnology available to those who need them.

We need to foster a stronger sense of collective responsibility and to make the international bodies we have created more effective. The time has come to seek more innovative structures for cooperation than those we have available at present. Stronger mandates for making binding decisions should be worked out.

The threats of global heating and climatic change may be the most severe threat to future development. Life on earth depends on the climate. Human settlement, food production and industrial patterns are at stake.

The effects of climate change may be enormous. The impact may be greater and more drastic than any other challenge previously facing mankind, with the possible exception of the threat of nuclear war.

There is one big, decisive difference here. Whereas nuclear war can be avoided - and at present it seems more remote than at any time since World War II - we will be caught in the heat trap of global warming unless we reduce our consumption of fossile fuels.

We may be about to alter the entire ecological balance of the

Earth. The time span needed for plants and animals to adjust to a new climate is normally hundreds of years. However, unless drastic changes are made, the ecosystems will not be able to adjust. Deserts will spread. Crops will be lost. Last year's drought may not have been the result of climatic change, but what will happen if we experience two such dry summers, or ten such dry summers in succession? What will happen to food production?. Can we conceive of a doubling of food prices, or even a scarcity of food in the industrialized countries? The developed countries may be able to cope in the short run as long as they can pay for necessary imports. But that option will soon be lost to the developing countries.

Can we conceive of the effects on low-lying countries if the sea-level should rise according to predictions. Can we see any solutions to the political instability that will accompany increased migration as the number environmental refugees continue to multiply.

All this may not happen, or it may not be that drastic. But the potential risks are so high that we cannot sit back hoping that the problem will solve themselves.

The present generation has a great responsibility. It is this generation that will have to set limitations on our own use of limited resources, in particular on the burning of fossile fuel. We must recognize that the earth's atmosphere is a closed system. We are not getting rid of our emissions. In fact it is like a car which pours out its gases into the driver's compartment.

We must tackle the myth that energy consumption must be allowed to grow unchecked. The industrialized countries have the greatest resources, both financially and technologically, to change production and consumption patterns. The developing countries will need much more energy in the future. Many of them have contributed only marginally to the greenhouse effect, and many of them will be most severely victimized by global heating. They must be allowed more time for adaption and a chance to increase their consumption.

We need concerted international action. There are certain imperatives which must be pursued with vigour as matters of the utmost urgency:

We need to agree on regional strategies for stabilizing and reducing emissions of greenhouse gases. Reforestation efforts must be included as a vital part of the carbon equation.

We must strongly intensify our efforts to develop renewable forms of energy. Renewable energy should become the foundation of the global energy structure during the 21st century.

It is quite clear that developing countries will need assistance

to avoid making the same mistakes we have made over again. It is essential that energy-efficient technology be made available to developing countries when they cannot always pay market prices without assistance.

We should speed up our efforts on international agreements to protect the atmosphere. There are different views on how to proceed on this issue. I urge that negotiations to limit emissions be started immediately

On 11 March, 22 Heads of State and Government signed a Declaration which set a standard for future achievements to protect the atmosphere. In the Declaration of The Hague we called for more effective decision-making and enforcement mechanisms in international cooperation as well as greater solidarity among nations and between generations. The principles we endorsed were radical, but any approach which is less ambitious would not serve us.

The Declaration calls for new international authority with real powers. On occasion the power must be exercised even if unanimity cannot be reached.

We must have defined standards and ensure compliance. We must have effective regulatory and supportive measures and uphold the rule of law.

Sharing the burden is essential. That is why we called for fair and equitable assistance to compensate those developing countries which will be most severely affected by a changing climate, but which have contributed only marginally to global heating.

The Norwegian Government last Friday adopted a White Paper on the follow-up of the World Commission's report. It has involved all ministries, and not only that of environment; It has implied change in attitudes and policies, and tough challenges for the heavy sectoral ministries such as energy, industry, transportation finance, foreign affairs and trade, and the Prime Minister's Office has been directly engaged charting a cross sectoral course for the future.

The issue of atmospheric pollution and climate change proved to be a very difficult one. It is difficult because Norway has been fortunate to have vast hydropower resources. We do not burn coal or oil to produce electricity. Any reductions of CO<sub>2</sub> emissions in Norway would involve transportation.

Many also ask why Norway could make a difference when we cause only 0,2% of global CO<sub>2</sub> emissions. Should we impose limitations upon ourselves even if other countries have not yet done so?

The Norwegian Government has chosen to set out clear goals. I

believe we are the first country to make a political commitment for reductions of CO2 emissions.

Norway sets a policy for stabilizing its emissions of CO2 in the course of the 1990s and at the latest by the year 2000.

The Government presupposes that thereafter, a reduction will be possible.

Together with our reductions of CFCs and NOx, Norway will be able to reduce its total emissions of greenhouse gases by the turn of the century.

Clearly, the larger ecological issues, the ozone layer, global warming and the sustainable utilization of the tropical forests - are tasks facing mankind as a whole. To finance these tasks we will need additional resources.

In the White Paper, our major policy document on sustainable development, the Norwegian Government is proposing, as a starting point, that industrialized countries allocate 0.1 per cent of GDP to an International Fund for the Atmosphere. Such a Fund should be created to help finance transitory measures in developing countries, and reforestation projects. Ideally, all countries should take part in this. Everyone would then make their contribution.

Much work is needed to make this proposal operational, and it will be met with considerable reluctance. But unless we establish a set of international support mechanisms, chances are less that we will be able to make the transition in time.

I have presented to you the essence of "Our Common Future". To transform it into reality will require broad participation. Every single individual can make a difference. Changes are the sum of individual action based on common goals.

A particular challenge goes to youth. More than ever before, we need a new generation - today's young people who - with new energy and dedication - can turn ideas into reality.

Many of today's decision-makers have yet to realize the peril in which this earth has been placed. I believe that "Our Common Future" can be an effective lever in the hands of youth, and that it can transcend nationality, culture, ideology and race. Youth will hold their governments responsible and accountable and youth will be stalwarts for the foundation of their own future

Many of you will continue the dialogue on global change and our common future, I want to draw your attention to another major forum to take place in November here in the United States. Organized by the Global Tomorrow Coalition with a wide spectrum of cosponsors,

the Globescope Pacific Assembly in Los Angeles will feature, on the 1 and 2 of November, the first comprehensive public hearing in the United States on the action and policy implications of the report of the World Commission on Environment and Development. The Assembly is designed to encourage discussions on the policy implications of the concept of sustainable development both in the public and in the private sector.

Leaders from government, science and technology, business, education, citizen's organizations, trade unions, churches, foundations, youth groups and media are invited to take part. I hope that many of you will choose to share in this unique initiative to which I give my full support.

In closing, let me stress the need for all of us to view environmental problems in interdisciplinary terms, not in narrow terms of specialization. The world is replete with projects that made excellent engineering sense, but were economically distasteful, or which were economically sound, but environmentally catastrophic. The global environment cannot be separated from political, economic and moral issues. Environmental concerns must permeate all decisions, from consumer choices through national budgets to international agreements. We must learn to accept the fact that environmental considerations are part of a unified management of our planet. This is our ethical challenge. This is our practical challenge. A challenge we all must take.