OTTAWA PUBLIC HEARINGS

AFTERNOON SESSION
May 27, 1986

Tapes 19 to 21

Afternoon Session
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Mrs Brundtland

on environmental education and communication and the views of youth. As some of you may know the view of youth was a special part of our mandate from the General Assembly and so it is also symbolic of that that we have given a specific place for this in today's meeting. Now the first presentation will be by D. Adam and Fiona Nelson of the Canadian Labour Congress National Survival Institute. "Education towards environmental citizenship".

Fiona Nelson

Madam Chairman, distinguished Commissioners, Ladies and Gentlemen,

This presentation is a joint effort of the National Survival Institute, a non-profit NGO engaged in environmental education and the Canadian Labour Congress. I am Fiona Nelson, Chairman of the Board of the National Survival Institute and my partner is D. Adam du Congres du Travail du Canada. Bonjour Madame La Présidente, Messieurs les Commissaires. (speaking in French)

(Interpreter)
Since Canada is a bilingual country we have decided to use both languages. I would like to express here on behalf of our new president, Madame S. Carr, her welcome to the group. But it is unfortunate that she cannot be here this afternoon. She regrets that.

F. Nelson

..towards this partnership between education and workers seems entirely natural and appropriate. Child learners grow up to be adult learners, since learning is a life long activity. Attitudes and analytical skills learned in school and applied in the workplace are important to us all. Most children grow up to be workers although all workers, especially women at home, do not belong to organized unions and associations, organized labour has an important voice in the formation of public policy, and it is in the formation and implementation of public policy that environmental issues must provide the context for decision making.

This morning, Madam Chairman, the Environmental Law Association proposed that the UN, without the power of force or enforcement, can have an immense impact through moral persuasion alone, if it has the will to promulgate appropriately strong rules for the world to live by. And I mean this. For if we do not change our ways of calculation gain and loss, so that we start with an environmental criterion and proceed toward conventional economic criteria we will not live much longer.

Moral persuasion can be immensely powerful. In the rich nations it must bring forth a sense of obligation to the poor nations which will manifest itself in appropriate legislation. As Martin Luther King reminded us, legislation cannot train the heart but it can restrain the heartless. At the time time, education can be working away on hearts and the heads of the next generation. We have been vigorous in removing ourselves from the natural environment. Now our depredations and assaults on nature are, with equal vigour, insisting on bringing our arrogance to our attention with an insistence which cannot be ignored.

The problems are clear, the solution is equally so. Our alienation from and exploitation of the natural environment

arise from our fundamental error in thinking that we can function outside the biosphere. We must immediately replace the concept of the biosphere as an inexhaustible store house with the concept of the ecosphere as our home and being inseparable from ourselves, our matrix for all life. Getting in the way of this conceptual shift are forces such as rapid urbanization, where the links between natural forces and man are consciously obscured; as well assumptions such as environmental quality as a trade-off for progress, technology, jobs or economic growth must be exposed as the false dictums and special arguments that are species arguments that they are. And even more pervasive and dangerous block than those just mentioned, however, is the feeling, especially among the young, that there is no use. We have no future, it's too late, why bother, no one can really change anything, anyway. At the most fundamental level, such scepticism arises from a fear of nuclear war. It gives them a sense of lack of meaning and control.

Another thing that is of concern to us is what is called the "nimby" syndrome: "not in my backyard". It tends to produce disjointed incremental approaches to decision making. Also the over-emphasis on individual gain without due regard for community integrity is a stumbling block for environmental assessment. Sacrificing the needs of the future to the greed of the present - something that we must work hard in education and elsewhere to overcome.

Next. It seems to us that there is a very strong consensus in the public supporting a change to environmental criteria first. Over 90 per cent of respondents agreed that every major economic project should be proven environmentally sound before it goes ahead, in a CROP poll last June. Almost half of those surveyed stated that they were prepared to pay more taxes or higher prices to improve water pollution control. Over 90 per cent agreed that business should assume more responsibility for the environmental consequences of their activities. Most Canadians believe pollution to be a serious problem in their

area. There are many statistical bases from polls that show that Canadian, and I believe other people, want to get on with it.

Now I would like to think about the remainder of this presentation which focuses on education for environmental citizenship as a process of improving effectiveness.

D. Adam (speaking in French)

(Interpreter)

To better have a participating citizen it is important that citizens have political and economic education. For him to be aware of the environment, he must be able to recognize and understand relationships between his actions and the effect on the environment. He has the right to a healthy and clean environment in his workplace and in his leisure activities. The quality and the conservation of the environment he must reject any action taken in his workplace that threatens the environment. He must participate actively in the development of policies, programmes and projects that have an effect on the environment. Governments, institutions and corporations have environmental responsibilities.

How to achieve this? Environmental education as the purpose of this type of education is to communicate to people and the collectivities the complexity of the character of the natural or artificial environment and to acquire the attitudes and the practical possibilities to participating in conservation of the environment - that is a quotation from UNESCO. Education in its widest sense. Anything that helps to understand the environment in whatever group or society, the multidisciplinary approach to encourage the development of knowledge, to encourage analysis that enables one to have a comprehension of interdisciplinary activities, acquiring the necessary skills to evaluate and be able to reach decisions in an effective

manner. And adaptable situations to enable sectoral and regional decisions to protect and improve the environment.

Why trade union activity? Our concerns are complementary to the training to citizens aware of the environment, involvement in community activities in health and safety at work. That is the very basis of our collective action. The training in trade unions is guided to bringing up the techniques of organized ... These objectives are to say...

END OF TAPE 19 - SIDE 2

TAPE 20 - SIDE 1

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Cont. of Adam's statement

The purposes of these objectives are, to say, that the citizen participates in protecting the environment. This is the convergence of education and trade union activities - to maintain collectivities, to participate in a working class movement is a form of social discipline. We must know in the work place and in the community what the issues are and this is one of our major themes. This main link between health and environment and health and safety at work. The danger substance to which workers are exposed to everyday. They usually leave the factory and go to the rest of the community and contaminate this surrounding community. An improvement of the control of danger substance at the work place where the danger frequently first surfaces. Assessing and protecting the environment beyond the work place frontiers. Recognition of a situation like this always brought the co-operation of the different partners in society, a concrete example is the working class' participation in seeing that ...pass to prevent contaminating the environment.

The CLC has a predominant role in playing in the education of people. Our labour councils and our affiliates provide courses to hundred thousand people every year in these matters. The scope is very broad in these courses on the economy, health and safety at work, the operation in municipalities on alcoholism, drugs and all the rest, this is all available. We also study health insurance. We also have different leaflets and bulletins of informational character. Our courses in health

and safety enable us to build up the process of a concrete, collective action. It will enable us to set in place a programme of broader character to protect the environment. In a second congress resolution we brought up ideas such an ombudsman for the environment in work place, and this is to be issued through collective bargaining agreement. Workers who have lost their jobs due to environmental reasons are also another issue that we have studied.

Fiona Nelson

I will let you refer to our brief for the specific ways in which we would do things on the school system and simply sum up by saying that the National Survival Institute which has worked very hard in co-operation with many groups in the society continues to want to do these and will co-operate with all groups and agencies toward the goal of an environmentally literate society. Thank you very much.

Mrs Brundtland

Thank you very much. The second presentation this afternoon is by David Brooks and Raymond Vles, Friends of the Earth, New Directions for Environment and Development, Canadian and International Perspectives.

Dr David Brooks

Mrs Brundtland, members of the Commission, ladies and gentlemen. I'm Dr David Brooks, President of Friends of the Earth. I will give the first half this presentation and then turn the speaker over to my colleague, Raymond Vles.

Friends of the Earth is an international environmental organization and one that, in recent years, has recognized that environment treated without reference to development and

without reference to peace is meaningless. It is an international organization in a sense of coalition of national groups. Hence, in preparing the written brief, which is available outside on a table and has been distributed to the Commission, we have sought the views of groups around the world - First World and Third World groups.

Our brief reflects different views, reflects positions that have been taken with a broad area of common interest. From that, from the perhaps 10 or 12 subjects that we discussed in that brief, we selected one or two to emphasize orally. And in keeping with our varied interests, one is a topic of products, so to speak, I will talking about energy, and the others are issues of process dealing with communication, consultation and education.

So, first on energy. Energy, is put most simply, the fundamental unit of the physical world. As such, we cannot conceive of development without changes in the extent or the nature of energy flows. And because it is so fundamental, everyone of those changes of flows has environmental implications. The implications of this are profound. It means that there is no such thing as a simple energy choice. They are all complex. And they all involve trade offs.

However, some of the choices and some of the trade-offs appear to be unequivocally better than others, in the sense that they offer more development and less environmental damage. And this group, and to pat ourselves on the back a little bit, it has been Friends of the Earth around the world, Friends of the Earth groups that have developed these concepts - sometimes called soft energy pads, sometimes called least-cost energy, but that it developed an alternative approach to energy issues that have been found to be extremely promising to have tremendous benefits and to save a lot lof money compared with the typical approach of relaying on heavy investments in non-renewables and nuclear power.

Now I know that previous briefs before the Commission have discussed in fair detail the concepts behind soft energy. So rather than reiterate them here, and they are summarized very briefly in our written submission, I think it is important to look at one or two or several of the characteristics most critical for development issues.

First, soft pads or least cost energy is heavily grounded in oceans of cost effectiveness. It is not an attempt to dispense with economics but rather to use economics. Second, it is, compared with today's energy policies, much less susceptible to accidents, much less susceptible to disaster and, again in contrast with typical energy policies today, almost useless for military purposes. Governments are just not interested in the kinds of techniques there are of interest to soft pads and least cost energy. Specifically, with reference to the environment, no energy policy, no energy choice is without adverse environmental effects.

However, again, by comparison with the alternatives, these suggestions that are put forward for relaying on renewables, for emphasis on efficiency in providing end-use services, the soft pads or least-cost energy is much less damaging to the environment than others. And of course, it is inherently sustainable by moving towards a system that emphasizes the efficient delivery of energy surfaces not simply more energy.

Finally, turning to that macro-economic dimension, those things that are usually measured in development, again there is much to recommend them in terms of jobs produce, in terms of adaptability to local conditions, in terms of minimum draws on capital and foreign resources, all of these areas turn out to come on a plus side with alternative energy policies with the one caveat that I would say they often don't show up in gross national product.

And as an economist I would warn you in writing your report against any confusion of development with increases in nominal

economic growth. They may be the same thing but in many cases they may not be, and in particular with greater efficiency of energy use, greater self supply, you may not see the same gains in economic growth that one would see by being ironically inefficient and developing lots of un-needed energy capacity.

So, what is the message to you from this brief rundown of the development-environmental aspects of soft energy pads? It is this: soft pads reflect the alternative paradigm that you were developing in Mandate for Change, but there are enormous barriers to that. The barriers turn out on inspection not to be technological, not even primarily economic, but institutional and political. And much as some of the speakers this morning were talking about the need to create a new view in governments, this is the prime criteria to get governments, to get senior people to look at energy differently from the ways they have at the past. And that is, I think, exactly what your report can do. Now, for processed questions, let me turn over to Ray Vles, my colleague.

Raymond Vles

Thank you, David. Mme Brundtland, Commissioners, Ladies and Gentlemen. I guess in looking through our brief, we addressed a real grab-bag of issues and I wanted to talk a bit about a couple of Canadian examples which we think might be of interest to other people around the world, of what I think some are success stories specially in terms of environment but also development, there's a relationship there as well. One is in the public education area, and ways to get the public to participate in environmentally-sound actions. In our view, there are three stages that have to be gone through.

The first is to raise awareness or to inform people of environmental problems and I think as we can see from the polling date on the last presentation, I think Canadians are fairly well aware. The second one is to enable them to

participate, to bring changes in their own daily lives which will result in less pollution, the how-to, and I think we're weak at that in Canada. And finally, to motivate them, to do so to undertake those actions, to show that they can make the difference even though they are just an individual.

But I think one area, one particular project where all these three have been brought together successfully is a recycling scheme in the city of... in Ontario. It's a scheme which they call "curb-site pick-up" or whereby when the garbage is collected, the newspapers, the bottles and the glass are also collected from the front of each house and recycled. Now, what they did there was quite innovative for an environmental project. They did two things: one of them is that they spend time and effort in what in business terms would be called marketing.

In other words, they went from door to door, they told people what they were doing, they distributed information, they got in the newspapers and the radio and they did a thorough job in informing people of what they were planning to do. The second thing and I think the brilliance of this scheme is that they came up with the idea of giving every household a blue plastic box for people to put their newspapers, their bottles, and their glasses in each garbage day.

This now I think is important for three reasons and has really contributed to the success of this scheme which has I think an 80% participation rate. 80% of the household and kitcheners recycle their newspapers, bottles and glass through this scheme. Firstly, its practical. It's easy to just put your newspapers, bottles and glass in this box and put them out, you don't have to wrap them up. It's quite simple. Secondly, that individuals can see that there are part of a larger effort. When they go out in the morning in garbage day all they have to do is look down their street and see the other blue boxes. So often when people say well, you should do this, it's good for the environment, somebody will think well, it's just me, i'm not going to make any difference.

With the blue box scheme, they can see that they are part of a larger movement, part of the community doing something. And finally, I think the brilliance of this scheme is that it speaks to something in human nature which we often would rather ignore but that we all like to have status and to keep up with the Joneses, as we say. And I think in (same city in Ontario he mentioned before) as I understand having that blue box in front of your house in garbage days is as important as having a nice lawn or a car of everything else - it's part of the standard that's expected of everybody in the community. And so recycling has become part of the life-style, an environmentally-sound aspect of living has become a painless part of the community. So I think there's a lot of lessons we can draw from that in terms of furthering public education and participation of ordinary citizens in keeping our environment clean.

The second example from the Canadian experience that I would like to talk about is a little bit different and has been alluded to in the few of the presentations beforehand. And it's a question of how to involve different groups of society in environmental decisions. And I am specifically looking at organised groups, not ignoring citizens but saying that that's a slightly different way of going about it, and specifically in the formation of public policy.

And in Friends of the Earth in Canada, we have been involved in a number of committees and meetings with representatives from governments, from labour and from industry. Looking for some common grounds on issues of concern, interestingly enough when there was a first meeting back in January 1985 between these four sectors, despite a lot of suspicion, the one area where we found there was common ground between industry, environmental groups and labour organizations is we all dislike the way government operated. We all found that they made decisions in a manner that is too secretive and not open enough. And out of those series of meetings came a process and ideas on how to get different groups together to discuss issues. It's been successfully todate.

There's been a report which should be coming out I hope shortly where a group of representatives from those different sectors got together and flashed out what we mean by cradle-to-grave management of chemicals. There is committee on-going now which was again alluded to in the last presentation dealing with piece of legislation on environment contaminants or toxis chemicals. And this is showing us that there is a new way of working with people who we formerly perceived as adversaries.

This is also going on in other parts of the world, Friends of the Earth in England, one of its major international issues is tropical rain forests and in fact is doing a lot of work on behalf of Friends of the Earth International. And they are right now pushing for the formation of an international organization called the Tropical Timber Trade Organization to push conservation and sustainable use of tropical rain forests.

Interestingly enough, before starting their campaign they went and talked to the industry group in Britain and found that there was some common ground, there was something they could agree on. And they, at one point, even ended up lobbying MPs together - the industry group and Friends of the Earth lobbying English MPs together to push the formation of this organization.

So, I think that there are two messages here - one of them is that we certainly know that there is a great deal of mistrust between different organizations, environmental groups on one hand, labour on another hand and industry on another hand in society, and some of that is real and some of that are real substantive differences of opinion, different world views, etc.

But others are more just a question of people not talking to each other and not realizing that they do share some things and there are some areas where they can co-operate. So I think, to sort of end on an optimistic note, I think that there are ways that we, as environmentalists, can make progress on issues by sitting down and talking with our adversaries. Sometimes it

won't work, sometimes it will, but I think trying it is breaking new grounds and I think we're showing in Canada that it can have some success. Thank you very much.

Mrs Brundtland

Thank you. Can I pass on the floor now to Arthur Hanson, Association of Universities and Colleges in Canada.

Arthur Hanson

Thank you. Mme Chairman, Commissioners, Ladies and Gentlemen. This brief was prepared by a staff and student group of the Institute for Resource and Environmental Studies and the Lester Pearson's Institute for International Development at Dalhousie University on behalf of AUCC. I'd like to introduce 3 people in the audience who have helped to develop this brief and who I would think you could address any questions to at the end of my paper as well. First of all, Dr. Rolf Campbell, who is the head of the International Development Office of the AUCC; Madeleine Smalt who is a development economics graduate student of Dalhousie University; and Janet Boyer who is a communication officer of AUCC.

Our brief provides an overview on how universities can influence society's understanding and action on resource and environmental concerns. It explores the strengths and weaknesses of past research, service efforts and considers means to strengthen future contributions. Until very recently, environmental study programmes and development study programmes were regarded as separate entities at Canadian universities. Indeed it's only been in the past 6 to 8 years that most Canadian universities have recognized the need for any special arrangements to optimize their efforts on international development. Since then much progress has been made and there's much to be positive about.

Environmental study programmes emerged in the early to mid-1970s. They have made, in our estimation, significant contributions in scientific knowledge, theories in the application of concepts such as environmental impact and risks assessment. However, we are only now beginning to see attempts to interlock the initiatives in environment and development. A review of the 13 Canadian environmental study programmes identifies only a small student enrolment nationally with only limited effect on main stream discipline oriented university programmes. Such interdisciplinary programmes must still struggle for recognition as they face the challenge of expanding their influence to be a fully effective voice in the environment-development debate in Canada.

It's clear that universities must direct more of their research and teaching to issues such as those of the World Commission's alternative agenda. Ways must also be found to increase their contribution to training and education of students from countries other than their own. Somewhat to our surprise, we found that the larger environment programmes in the country at some of the major universities, large universities, have less than 5% foreign student enrolment.

Universities in Canada have contributed in major ways to research community service and environmental education. These contributions on environmental research have ranged from toxicology and risks assessment to ocean development issues and approaches for selecting protected areas, just to mention a few. There are concerns however, that traditional scientific agencies have failed to adequately fund interdisciplinary research in natural resource and environmental management.

In the service and education areas, university staff and students are active in community-based environmental organizations and in various other ways. University staff also figures prominently in both government and non-governmental councils at the provincial, national and international levels. More could be done to align these types of councils and

organizations with similar organizations abroad and to create linkages between Canadian universities or other organizations abroad. Universities in Canada are most likely to be effective partners in development if linkages can be long term, sometimes involving a formal kind of training arrangement. A number of linkage arrangements exist at the present time and Canadian universities undertake environmentally-related projects in all regions of the world. And you'll see a list of this in our brief.

Two examples - one is with York University and universities in Kenya, another is with their own university, Dalhousie, and with various organizations, universities, government and non-government in Indonesia. However, many of these projects are put forward on an ad hoc basis due to a lack of directed effort in the area of environment and development by funding agencies. A number of criteria might be applied when creating more effective approaches. Association with universities and other organizations in developing countries should allow Canadians to learn as well as to built institutional capabilities in both Canada and partner countries. Capabilities must be put in place to serve over a very long term as problems facing the developing countries in the global environment will not be solved in a few decades. Efforts must also be devoted to multipliers effects from the primary linkages to strengthen other institutions and organizations. And I would say this is true both in Canada and abroad.

What we find in Canada is that our expertise is often very scattered. If we look for specialists in tropical studies, tropical soils, tropical rain forests, we don't find them all concentrated in one university, they're in universities large and small across the country. Therefore, if we're working with institutions in another country we must to somehow have a system of management that allows us to bring together these different resources.

We also feel that it is very important to emphasize youth to youth contact in linkages. Therefore, it's not necessarily be the silver-haired or whatever expert person near at the end of the university career perhaps, that should be going and working with individuals, may be they will be part of a linkage but also we should be talking about student exchanges and ways for people that are in the early stages of their career to work with people in other countries.

There are various impediments to increasing environment and development initiatives in universities in Canada. In theory, the universities have the broadest human resource base for interdisciplinary problem-solving, those of who have worked in interdisciplinary projects in universities may sometimes dispute that, that's one of the ways that one gets gray hairs certainly, but in general we need stronger administrative support at senior levels of the university and understanding if we were to play a larger role. The benign neglect by research-funding agencies of interdisciplinary environment and development studies has raised the question of the need for an environmental funding council of some sort, perhaps both domestically and for work abroad.

We wish to put forward recommendations that would permit universities in Canada and elsewhere to provide better leadership and initiatives in the fields of environment and development. One of these would be that a systematic examination of teaching curricula should be undertaken to identify the components and to devise models to provide the most effective perspectives on environment and development. Undergraduates programmes in universities in Canada are still questioning environmental issues, bridging the natural and social sciences, nor do they require any analysis of development as it is taken place in the wrong society or another parts of the world. Still possible for a student in business or a student in engineering to graduate without a real sense of changes in environment that are occurring in the world and to understand very much about the paradigms of development.

So as a start, the correct curricula should require at least one suitably designed course to ensure a genuine sensitivity to environmental issues. Secondly, universities provide an important memory and analytical capability. The creation of new paradigms to guide environmental actions will require further cross fertilization and involvement of virtually all disciplines represented in universities. Means must be found to strengthen our intellectual trust of knowledge and perception in order to improve our conceptualization of environment and development relationships.

Third, universities must be protected from forces that would stifle independent views. Environmental views and the various kinds of experiments in environment and development that have emerged often in universities have come about sometimes without being embraced either by government or by the public. Universities can, and should, take such initiatives even when there may be a lack of outside interest. Not much attention has been devoted internationally to the role of academics in fields like ecology or environment, in struggling to achieve environment and development objectives under unstable circumstances. Perhaps in some Canadian universities we should be providing a greater degree of solidarity and understanding with colleagues in some other countries abroad. In some countries the university is may be one of the few institutions able to provide the pool of expertise available to cope with the massive task of rehabilitation you see ahead.

Fourth, improvements must be made in the networking of environmental faculties and institutes within Canada and internationally. At the global level, the United Nations University could initiate such a network with the goals of enhancing the recognition of interdisciplinary research and education, establishing better information flow, providing better standards for environmental education, developing research and following new directions emerging from the work of this Commission.

In closing, I think I'd like to make a few remarks that follow through from the session this working, and really bridge development assistance and environment. I think these are important remarks and these are remarks of me as an individual rather than me representing IUCC that emerged out of observations of the morning. That is, that the development assistance agencies, which should be very important in relation to the universities both in the developing countries and the developed world, industrialized world, may not be in a position to exert real leadership in environment and development least in next half decade. It is a critical conclusion, because project planning today is really for 1988-1990 implementation. Significant changes in country programmes of these agencies may not be reflected in any action until well into the last of this century.

My conclusion is that the initiative and leadership for new environment and development paradigms must very firmly shift to the recipient countries of development assistance. They're better place to create indigenous concepts appropriate for their needs and very likely will have all sorts of agendas that may emerge from different regions of the world. Now, in this I believe that universities should play a key role in the conceptualization process and I think that we should see an investment on the part of many of the development assistance agencies in the universities of countries throughout the world and in that context I see a very important role for Canadian universities to be able to assist as well. Thank you very much.

END OF TAPE 20 - SIDE 1

TAPE 20 - SIDE 2

Mrs Brundtland

I think we will take also the fourth presentation this afternoon before we open for questions and remarks. We have Tim Whirly, Randall Van Hoeler and Rick Lawford, students of Carleton University, Physics of the Environment Class -" Canadian Environmental Issues: Two Realities."

Tim Whirly

Thank you very much. Mme Chairperson, members of the Commission, Ladies and Gentlemen. We're speaking on behalf of the Physics and Environment Class at Carleton University here in Ottawa. Rick Lawford is the instructor, Randall van Hoeler and myself, Tim Whirly were students in this year's class. Incidentally, Physics and Environment is an undergraduate course. Students contributing to our submission were from a diverse group. The course attracted physicists, geographers, biologists, mathematicians, engineers and chemists.

The main theme of our submission is the existence in Canada of two realities with respect to environmental issues namely, the objective and the perceived realities. The objective reality refers to the actual state of the environment ascertained by accurate collection, analysis and interpretation of environmental data. The perceived reality arises from Canadian perception of the environment based on information distributed by industry, government, environmental groups and the media.

Ideally, there should exist one reality where the true state of the environment is known and understood by all although

practically this is impossible. The goal? Bring the two realities as close together as possible thus enhancing the quality and priority of decision making on environmental issues and as a result, enhancement of the quality of our environment.

Before examining these ideas more closely, we present the views of Carleton University's students concerning Canada's environment. The intention is to give a sense how one sector of Canada's youth perceives the state of our environment. To measure students perceived reality, our class reached over 300 university students, most of whom will be reaching the middle of their career in the year 2010. What issues do these students feel are important? Somewhat surprisingly the students feel the problem of acid rain, hazardous wastes disposal are the most important issues of today. These problems are perceived more important than unemployment and nuclear disarmament which rank 3rd and 5th. The water pollution issue ranks 4th. What is surprising about these results is the 3rd place ranking of unemployment when youth unemployment is so high. This shows that students consider some environment issues to be of prime importance. The 5th place ranking of nuclear disarmament may be indications of frustration of recent attempts to resolve that problem.

What do students think we should do about these problems? Students preferred options resolving environmental issues are the development control technologies and enforcement of tough laws on the polluters; their cynicism concerning both the government and the private sectors ability to get such jobs done. The respondents were asked how they will reorganize the national budget in such a way that more money could be allocated to environmental projects.

In decreasing order of preference, students selected budgetary reductions in defence, social support and government services. How do students derive the perceptions to environment? Survey results show that students try to stay informed of the issues; most of them read articles on environmental degradation within

the last month, however, students rate the media's performance reporting environmental issues as only mediocre.

Opinions of students on government's performance reflect the desire for more information. They feel that the government is only doing a fair job in resolving environmental issues and an even poor job in informing the public of about such issues. In comparison to other countries the students rate Canada second to Sweden and just above the United States' performance in resolving environmental issues. Overall, it is evident that the students' opinions fall in perceived reality trap. Students show concern for environment yet they are not fully aware of the second reality.

More complete gathering and distribution of environmental information which substantially close the gap between objective and perceived realities. I ask the Commissioners to refer to the last page of the document we provided them and the audience to consider the diagram on the screen. This is a very general diagram comprising the major players in environment and development issues. We see the government as the decision maker and the regulator. It is a tool of the people. A well-informed public can provide a strong mandate to the government. A well-informed and publicly-supported government can put environmental issues in proper perspective and make the necessary short and long term decisions.

How does the public gain this information? The objective data base of information must be made known to both public and government. At present this data base is in many ways incomplete and un-coordinated. If no action is taken to improve the state of knowledge of our environment and the understanding of linkages between issues, and if this knowledge is not distributed to the people through public education and the media, then the information flows is in a sense closed. We have the status quo and as a result further environmental degradation. If the information gets through to the public and accurately, real change can occur. Information closes the gap between perceived and objective realities.

There are many more important aspects to this simple diagram and many of the speakers have alluded to them in their presentations. Perhaps this diagram can be a point of discussion after the presentation. On a personal note, while I was handing out the survey questionnaires at our University, many of my fellow students expressed scepticism about the UN Commission's ability to bring about real change. I struggled to answer them. Eventually I would blurt out a very rough version of what Paul Muldoon clearly pointed out this morning and I think that's worth repeating at this late hour in the Public Hearing.

We are at this moment involved in a long process. Our part of the process is a gathering and exchange of information and the formulation of direction for change. For ideas to become soft law and soft law to become hard law the work of the Commission is imperative. Borrowing Commissioner Singhs' metaphor I hope this Commission is the straw around which forms a sea worthy craft.

Rick Lawford

We would like to conclude our presentation by submitting four recomendations, the first two would assist in bringing the perceived reality into line with the objective reality, the last two involve specific initiatives for the United Nations. Members of a society with a good knowledge of environmental issues are essential if governments are to gain the necessary mandates and have the expertise to deal effectively with those issues, good educational programmes on environmental issues depend on the availability of comprehensive authoritative resource material.

Accordingly, we recommend that the United Nations develop an information bank on major environmental problems around the world and the strategies and technologies used by countries in addressing them this information should be made available

through co-operative research and education programmes to all member States. Member States should disseminate this information to universities, other educational institutions and the public through publications, courses, educational kits and where available electronic bulletin boards.

Our next recommendation deals with the generation of knowledge through scientific activities. As a Chernobyl incident indicates governments, industries and the public need better information on the current state of the environment, the potential impact of failures of the industrial infrastructure and a better understanding of the environmental processes involved. We therefore recommend that the United Nations actively support co-operative international scientific programmes such as the world climate programme, the international geosphere, biosphere programme and other programmes which deal with environmental monitoring and prediction on a global basis.

Further more, we recommend that the United Nations agency co-ordinate the development of data base which could provide current information on the state of the world environment. It is our view that the success of national environmental programmes depends on the degree to which governments and industries follow an environmental ethic. For example, developing countries should be encouraged to be more vigilant in ensuring that they do not compromise the health of their people and the biological vigour of their environment because of their thirst for industrial development.

Likewise, multinational companies must give consideration to the social needs of underdeveloped countries in their business decisions. To aid in developing a global environmental ethic and ensuring fairness in the resolution of environmental differences, we recommend that the UN explore first of all the possibility of establishing a treaty for all member states whereby they will develop a legislative base requiring companies headquartered in their countries not to export

chemicals, other materials, industrial processes, or technologies not acceptable for use in their own country.

And secondly, to explore the feasibility of establishing an environmental omnibus which would assist government in resolving environmental disputes.

Our final recommendation deals with the issue of waste recycling. In Canada, the availability of raw materials, the lack of an industry focus for and background information on waste recycling has limited the demand for it. Accordingly, we recommend that the UN establish a task force to assemble the necessary background information and carry out the required studies on waste recycling technologies and opportunities on a worldwide basis. And to develop an action plan for informing and encouraging member states to recycle more of their unwanted materials. Given the regional nature of these opportunities, industrialized countries should assist underdeveloped countries in developing and applying technologies which would allow them to match their local recycling efforts with their requirements for energy and materials.

In conclusion, one brief observation on today's discussion - you've heard some excellent proposals for strengthening the influence of the UN in establishing legislation and policy. We support these proposals but we would like to underline that these initiatives could be dangerous unless the UN strengthens its ability to collect, assimilate, disseminate, interpret, and most importantly, utilize scientific information.

Finally, Madame Prime Minister and Commissioners, thank you for coming to Canada. The students and the instructor of the 1986 version of the Physics of the Environment class at Carlton University have learned a great deal about environmental and economic development issues in preparing this submission. I believe we represent everyone who has prepared for and participated in this hearing. Your mission has already realized one of its objectives. May you be equally successful in realizing your other objectives. Thank you.

Mrs Brundtland

Thank you very much. I would now like to open the floor to questions and comments. I have a list of other people who will be identified later on but I would just now give the floor to anyone to reply to any of the --- yes?..

Mary Ann Kramer

My name is Mary Ann Kramer and I study at University of Warlill(?) and I'm on environment studies. I just want to make a recommendation to the Commission to try to seek ways to expand the role of youth in society today because I feel that there are some criteria that you have to effect change, and those are credibility, networking and information.

And I feel that youth only have two ways to go - they can become part of a youth organization, like youth development course or universities where they do get their opinions heard and they do effect change.

But then the other sectors, it seems that it's much harder to integrate or interact with NGOs or government or industry, and established leaders, groups and professionals in order to effect change. Because it seems that youth are confined to breaking into these existing institutions and kind of becoming a part of these established institutions in order to gain credibility and therefore access to effective change.

So, I think that something that the Commission should do is seek ways to integrate youth with NGOs on a equal, you know in way that is considered an equal status not just a partial link. Thank you.

Bill Bridgio

Mme President, my name is Bill Bridgio. I'm a chemist, I'm just starting on a third career trying to become an entrepreneur and to establish a chemical business but I intend to be mindful of all the good things I should do with respect to the environment. However, the comments that I want to make here today are little bit ethereal than hard practice in chemical manufacturing.

In an earlier career, I was a dean of science and for three years I tried to get Sir Burner Lovell(?), Nobel laureate, famous scientist to come to my university and speak on the topic of science and religion, because I knew that he was interested in this topic. And he gave a lecture entitled "The History of the Universe", and in that lecture he referred (gap)..1925 a famous Lovell lectures by Harvard scholar and he pointed out, effectively stated, that "religion and science were the two strongest general forces influencing man."

And then Lovell went to point out in 1977 that "there can be little doubt that the forces of science have achieved a tactical victory." But he then carried on, this was near the end of his talk, he had reviewed the whole development of science, to indicate that "yes, I know that this is a dangerous ground for professional scientists." But he pointed out the weaknesses and the limitations of science and then concluded with a remark "now our hope today resides in the evidence that science is neither materially nor intellectually supreme. And that the urgent search for a new synthesis of knowledge and understanding, last achieved by Thomas Aquinas 800 years ago, will succeed."And I say that with tongue-in-cheek because if Judge Cohen (?) is still here he's sure to say aha, I told you so, but I don't know if he's gone.

In any event, one further comment - about 45-50 miles from here, Buckingham, Quebec, there was born several years ago another scholar, Bernard Larigan(?), lived most of his life in

Europe, ended his days in Harvard and he started out in the 30s to study what he considered the most important problem in the world - which is the world economic problem.

He then went on to develop after 30 thirty years a thesis, if you want, on human understanding which involved physics, philosophy, theology - he was a very deep person and I tried to get him to come to Saint Mary's University to discuss these things. I couldn't get him. He was on his way to Ireland at that time to a conference on his thought and his days were coming to an end and he said "I'm finished with science, I must get back to the problem that I started out with - the world economic problem." Now I didn't have a television on the phone but he said "you shouldn't be disappointed, the topic that you're interested in will be around for 50 years. We are currently in one of the major swings of history and it will take that long."

And to reinforce that quickly, in discussion with Buckland's(?) report in 1972, Israel, I talked to him about troubles I was having as a dean with young faculty members, he said "oh, they've got axes to grind, go for the younger still young people. You know now what the answers to 90% or more of your problems are, tell the young people what those answers are and they'll solve the problems for you." So, the time frame to me is another 40-50 years, we must be patient.

Tilvan Sigare

My name is Tilvan Sigare Thank you for letting me speak. I'd just like to sort of attempt to do a wrap-up over the last few speakers that just mentioned about the problems of youth and environment. I think it is made clear that there is a complexity of issues that make environment and development very difficult for people to address as individuals.

It is clear that training and education is a key element in reaching some kind of compromise in all these problems. Addressing and making sure that the public is well-informed in order that they can put the proper issues forward to the politicians so that change is effected. I also think it's important that youth is properly trained to address those issues in an interdisciplinary fashion. And I think our Canadian universities are starting to give the proper training and I am the result, I guess, of this recent train to make sure that people addressing problems in an multidisciplinary fashion.

But I must sort of, out of a personal experience and I sort of speak for other graduates that I know, I don't think that our current institutions are prepared to accept people who are trained in multidisciplinary fashion to deal with problems.

The jobs are not there. And this is extremely strange because people like you and all the distinguished members of the Assembly here are all advocating that we should address problems in an multidisciplinary fashion. Yet, it's a closed shop. I don't understand. Environment means jobs, if you address these environment problems you can create more employment. Yet there doesn't seem to be a room for us to find employment, and if I may say so, infiltrate the system to make sure that when the public is properly aware of all the different issues they can apply pressure on people who are on decision making positions, who are sympathetic to those environmental issues.

So, as it was mentioned, it was all a matter of timing and if people in my position have a hard time finding any meaningful experience and on-the-job training, we won't be there to take over the work the Commission is trying to do. And that I think is crucial and in some ways employers across the board, be it governments, NGOs, consulting firms or the unions must find ways to give youth a chance to get involved in those issues. Otherwise, there won't be any continuity.

So if I may suggest, one conclusion for the Commission to take into account is to find some ways to incorporate a new recommendations, ways to take young graduates as junior consultants on major international bodies or on small firms. Whenever we have to deal with environment, there must be some kind of apprenticeship, you just can't solve the problems otherwise and ensure that 20 years down the line we will know what you guys were talking about. Thank you very much.

Mrs Brundtland

I have this gentleman up here and then you, then I have to turn to some names on my list.

Mark Stephanson

Mme Prime Minister, Ladies and Gentlemen of the Commission, I thank you for this opportunity to speak to you briefly today. My name is Mark Stephanson, I'm Director of Communications for the Manitoba Environment Department from Winnepeg. As you know, our Minister of the Environment spoke to you at the presentation the Ministries gave on Saturday in Edmonton, and I just wanted to use this opportunity very briefly just to expand upon a few of the points that he made about public awareness and the importance of communication in your task specifically.

I left a paper with your Secretariat entitled "Promoting the Need for Global Change: An Unprecedented Communication Challenge." I just wanted to touch upon some of these summaries of that paper as well as six specific recommendations I want to leave with you for considerations.

As a society, we are now entering a new and critical period in evolution. Over the next few decades it'll become apparent as whether or not we as a world will be able to reverse the negative trend of environmental degradation. As Maurice

Strong, Canada's representative on the World Commission, stated in March of this year in Toronto, the next 30 years is the most dangerous period in human history. Over that period the cummulative effects of pollution and the destruction of plant and animal life are as serious a threat as nuclear war.

Although the words of Mr Strong are echoed by numerous individuals and environmental protection agencies around the world, one has to ask a rhetorical question whether or not anyone is really listening. As a global society we seem to be too preoccupied with our own individual self-interest. Whether it be self-interest of government, whether it be self-interest of individual. We have not seemed to grasp the reality of the perilous road that we are currently travelling down.

If the Commission is going to be successful in charting a new course for society a massive increase in public awareness and education is necessary. It will be important for the Commission to effectively utilize the news media to initiate a worldwide dialogue on the need for fundamental change. It is important the television and newspaper networks of the world begin to participate in an active instead of just a passive way in advancing the cause of environmental protection and world development. The world media have an enormous amount of influence and this power needs to be directed in a positive fashion towards effecting fundamental change.

The Commission should make sure it takes advantage of its opportunity to remind the world media of their moral obligations. The news media cannot consider themselves as mere spectators viewing our global demise. They must become active participants working to systematically increase awareness about the dead-end road we currently find ourselves on. The societal change the Commission is seeking will only occur if there is widespread support among the world populace. While governments around the world can effect a certain degree of social change, the only proven way to effect a massive shift of human behaviour is through public awareness. Given the fact of the

success or failure of the Brundtland Commission, in my estimation, a large measure will be determined by its public awareness activity. It points to the need for a comprehensive international communications and marketing strategy.

If I might I would just to read six recommendations to the Commission. Recommendation No. 1 - the establishment of a permanent international body to implement the recommendations of the Brundtland Commission. It's hoped and anticipated that one of the major recommendations the Brundtland Commission will be making to UN General Assembly next year will be to establish a permanent international institution to carry out your specific recommendations. As part of this international body, it is recommended that there be a strong and effective communications unit.

Recommendation No.2 - the establishment of an international communications advisory group. The communications challenge that confronts the Brundtland Commission is mammoth in size and therefore the Commission will need the support of as many communications specialists as possible. It is therefore recommended that the Commission look at establishing an international advisory group composed of the best communications specialists in the world. These communicators could come from private and public organizations around the world and I'm sure that if proper approaches were made that services can be provided to the Commission gratis.

No. 3 - the utilization of leading international advertising agencies. Much like McDonalds sells hamburgers or Labatzier(?)in Canada sells beer, the Brundtland Commission needs to employ the best advertising minds of the world to assist in the overall communication strategy. Here again because of the very nature of the Commission's mandate, your proper overtures were made, international advertising agencies could be obtained gratis.

Recommendation No. 4 - the establishment of a network of international celebrities. Many international celebrities have individually pointed to the need for more emphasis on environmental protection. However, there has been no concentrated attempt to ever link up these individuals in a powerfully public awareness effort.

The Commission should give serious consideration to approaching know environmentalists such as Lorne Greene, Jacques Costeau, Walter Kronkite, Ted Turner and here in Canada, Mr David Suzuki, to take advantage of the international status to further advance the cause of the Commission. International celebrities could represent a powerful force in the world in terms of increasing the level of public awareness about the need for greater attention to environmental protection and world development.

Recommendation No. 5 - a specialized speakers tour aimed at broadcast executives from around the world. It's recommended that the Commission not just confined its media relations purely to news reporters. A significant effort should be spent on talking directly to broadcast executives around the world and calling upon them to live up to their moral obligations, to utilize their media to advance mankind in a positive direction.

Members of the Commission as well as featured international celebrities could be utilized to speak to such organizations as the BBC, here in Canada of course the CBC, as well as American and other networks around the world. And also in addition, the numerous broadcast umbrella organizations that control much of the influence of the broadcast sphere of the world.

The last recommendation No. 6 - the production of a first class motion picture. The peace movement in the western world took a giant step forward with the motion picture The Day After. That movie generated a great deal of public debate and significantly helped to propel the peace movement into a major

END OF TAPE 20 - SIDE 2

TAPE 21 - SIDE 1

Afternoon Session
May 27, 1986

Vanessa Allison

are listed as key issues. They are noted as such because of their importance to humans. This approach may be necessary in some countries but the Commission's Final Report should acknowledge the importance of wildlife for its own sake. Your Commission must not be afraid to make recommendations involving the affairs of individual nations when it comes to protecting the environment. Given that many organisms are killed and used by humans the Commission should recommend that..., that none are wasted and that the natural populations do not decline.

It must ask UN to send out repeated reminders to nations to take lessons on calculated sustainable yields because there are always unforecasted, uncontrollable factors which were not always incorporated into the sustainable yield equation no matter how carefully calculated.

It should recommend that all nations of the world contribute to a fund administered by the UN to pay for the policing of legal and illegal killing of renewable resources. It should recommend that developing nations stop destroying natural habitat to create agricultural land and that developed countries prevent the destruction of good agricultural land to have urban expansion. Developed nations should also reduce their dependency on cash crops from developing nations. It is too easy for individuals to demand rights and shrug off the related responsibilities and demand that the government do something.

Education and communication are vitally important in order to impress each individual of his or her responsibility regarding the healthy future of the earth. The best place to start is in the schools. Environment and development issues can be discussed as a course on its own and/or incorporate it into many traditional subject areas such as geography, history or science. Studying and discussing these issues is only a start.

The best way for students to recognize that their action can make a difference is to have projects organized by the school and/or community on which the students can work. Year after year environmental students at our school have been involved in many ungoing projects involving both treatment and prevention of environmental problems. Similar projects can be carried out in every city and town in every country of the world. Once convinced that they can help people tend to change both their attitude and their behaviour. New attitudes towards the environment will be reflected in decisions at home and in corporate boardrooms around the world. Thank you.

Doug Ferguson

My name is Doug Ferguson, I'm 18 years old. My fellow students and I have some specific recommendations regarding the future course of action for this Commission. Your strategy described in Mandate for Change puts commitment before knowledge and appreciation. You have the order backwards. Knowledge and appreciation of global problems lead to commitment to action. Only if knowledge and appreciation occur will, first, there be any hope for international co-operation on complex environmental issues. During your deliberation in the next few days, please consider the order of these strategies.

Your Final Report with its background information and its recommendations must be written in such clear language that ideas are not open to misinterpretation either by accident or intention. General analysis are useful as well as specific

examples from various parts of the world to illustrate each separate point. The recommendations must be very specific and suggest methods for implementing them. Publish your Final Report more than one format. All presentations should be also used to ensure that reports, ideas reach the maximum number of people throughout the world.

Be sure that your report is distributed through the school system of the world. To make sure it reaches the students include a pack of ideas for teachers to help them make the report more significant for the students. Your report must give specific recommendations especially on how communities and individuals can take action. Platitudes and generalities are not enough. Most importantly, recommend to the UN that your Commission be continued and be given the mandate to do all it can to maintain a global discussion starting during your current hearings.

The UN should be requested to revise, update report every 5 to 10 years which would reflect the problems and successes made by various nations. The ongoing Commission should also reinforce the need for all nations to work on the environment and development problems continuously. Your Final Report in 1987 must not merely become another library or government reference document, it must reach the people.

We were challenged to bring our ideas to you. Thank you for letting us do so. Your challenge is to write a report which addresses clearly the real issues and which makes specific recommendations which would lead nations to make our world a better place. A report which avoids controversial issues will only have wasted our time and yours. Write a report which will stimulate thought, discussion and action in all nations of the world. Thank you

Mrs Brundtland

Thank you indeed. I think we all now deserve coffee break until half-past four.

Afternoon Coffee Break
May 27, 1986

Continuation

Mrs Brundtland

People are walking around here in the back. I would like to give the floor now to Ted Tricker and students of Trent University, Department of Environment and Resource Studies.

Ted Tricker

Thank you very much, Mme Prime Minister. I teach in a small interdisciplinary undergraduate environmental studies programme at Trent. Believe everything Arthur Hansen told you about the difficulties facing interdisciplinary research. I could go on about that at length but I won't. This past year I set up a special tropics course called environment and development, ecology-economy linkages. The idea for which grew out of a conversation that I had, which now seems ages ago, with Janine Ferreti of Pollution Probe about the mandate and workplan of the Commission. So, in a sense the course arose as a direct response to the work of the Commission.

The course is going to be offered on a more formalized basis next year at least. I think it's one of the few attempts around to look at economy-ecology linkages at the undergraduate level emphasizing the political economy of those linkages, the relationship between ecological degradation and the structure of the economic and political order. Without further ado, I would like to turn this over briefly to Ray Dark who is one of the students involved in the programme, who has what he calls a one-minute run.

W. Ruckelshaus

I wonder if I might ask you a question, the previous speaker. You said it was as a result of exposure to the Commission's materials that caused you to start this course. Could you have any suggestions for the Commission as to how we might, other than just a normal publication of our Reports, stimulate this kind of curriculum response to these problems in universities throughout the world. Because that would be very helpful it seems to me for us to be able to stimulate more academic address to each province, more educational efforts in this area.

Ted Tricker

The more material you publish the better. It seems to me that that in itself is a very important contribution. There is a desperate shortage of materials that go beyond on one hand diagnosis of the problem from a scientific or biological or mechanical point of view, and on the other hand analysis of development policy, development institution and so on. What isn't there is a body of literature in the academic vein, in the popular vein that starts making connection between those two sets of problematique. Anything you can publish, any material you can make available will be tremendously valuable.

I suggest trying to network, trying to make contact with academic associations throughout the world including not just those that have the world environment in the title but groups like associations of political scientists, associations of obviously biologists, ecologists, associations of people involved in what is called development study, we have for example quite a well-established comparative development studies programme as well. Keep the paper coming, it's very useful.

Speaker on the floor

It seems that there are several things that could be done through the Commission that would be very useful. One would be simply to develop curriculum based on advice from various people that would be a course on environment and development. A fairly detailed kind of curriculum and one that would perhaps reduce the number of topics that could be considered to the essentials so that they could be offered in various parts of the world. And along with that perhaps a selection of key articles would be very useful.

A second thing and one that I sense is very important is training at the graduate level, say something like a Masters or it might be a one-year diploma programme, something that is in environmental studies programme curriculum. That could be, I think, developed usefully by a number of people from northern countries and southern countries that have experienced on this already and make this widely available. I sense that there's a real urgency in this in that a number of countries are trying to implement these programmes yet it seems to be developing the will as it goes along. Thank you.

Ray Dark

I was one of the people who went through the environment and development course. I found it quite a positive experience. Rather than presenting a summary of, I guess, a year's work which much of it is case study of land-use and deforestation and land tenure patterns in the Amazon basin of Brazil, I would like to bring out a general aspect which seems to come out of that that I thought is a important thing to address when you're talking about environment and development.

The one aspect I think that we haven't focused on very much and I thought it could be a little higher on the agenda and that is the way the patterns of consumption in the north, in the

industrialized nations, and how does this consumption patterns affect and even determine the ecological and social economic patterns and directions in the south and underdeveloped nations.

On the example that I read about and researched on, I guess would be very well known to you after your hearings in Rio de Janeiro and Brasilia, and especially having a Brazilian biologist in the Commission, the example of course is deforestation in the Amazon basin. Now this is one example of many of them - I don't want to point of shots of that or anything. But from this issue we see that the ecological and the social economic cause to Brazil that come from deforestation and the use of land for cattle ranching mostly is not only an ecological problem but it is also an economic problem in that it excludes thousands if not millions of rural poor from land ownership which then increases their dependence further on cash economy that is not going in their favour. Now our tendency, the tendency in environmental literature in industrial nations, is to get down on these nations, like Brazil, like Indonesia where deforestation problems are occurring. I think that's a very narrow-minded kind of view because the problems are coming from our consumption patterns.

Norman Myers, whom I think, had probably spoken to the Commission before, mentioned of the deforestation issue that since developed nations like Japan, North America and Europe are buying the beef that's being produced from deforestation, are buying timber that's being produced from deforestation, he said then might ask whose finger's on the trigger of the chain saw. I think that it's really important, and maybe a recommendation of this Commission, that we acknowledge that it's the consumption pattern in the north that is largely responsible for both ecological problems and socio-economic problems in the south.

And further I'd like to recommend something to think about - that innocence is like this and there's a case to question - our whole idea of world interdependence and world trade,

whether so few that benefit. In the Brazilian case and in the Indonesian case it's a very narrow sector of society in these countries that is benefitting. It is also hurting farmers, I mean in Canada, when we import that kind of beef. So, I think we should question the idea about interdependence.

We should also seriously consider in some specific cases like this de-linking economies rather than deepening the links between economies and in specific circumstances where the benefits or what's such as this where ecology and economy are proportionate intermedia. In this case, an ecological problem is an economic problem, it's not an inverse relationship, you don't have to support an economy because of ecological problem, you don't have to solve an ecological problem and cause a recession. In this case, the economic problem and the ecological problem have the same cause, which is the international trade and which is the consumption pattern in the north. I think that in instance like this we should consider reducing trade in this kind of commodities rather than trying to increase them. Thank you.

Mrs Brundtland

I now call upon Donald Aubrey, Research Co-ordinator, Society to Overcome Pollution.

Donald Aubrey

Thank you Mme Chairman, Commissioners, Ladies and Gentlemen. In our submission to the Commission, we made a specific request for greater priority being given to environmental education - subject we've heard a lot about this afternoon. We believe this requires at least two levels: first, in schools and, as we already have heard in the universities, and secondly in industry. In schools where so much of our knowledge is gained, it is essential for every nation to produce an environmentally

conscientious population who value the surroundings and have a greater understanding of pollution.

Secondly, in industry, we feel it must now be made mandatory for any firm which is potentially polluting nature through liquid gas or particle emissions to enrol their staff in short but instructive courses of environmental education. Too often firms pollute not just through accident or design but through gross ignorance by the labour involved of the destructive effect on the environment. Very often they may say it is harmless, it would dissolve or no one lives nearby as if the environment was a ... and dead which in a sense it becomes after they've done that. We all know it isn't dead, that it's alive and living and it needs to go on living and we need to give it back care and attention. But until everyone is sensitized to the problems of pollution, such horror stories will continue. Thank you.

Mrs Brundtland

Howard Townsend, President of the Society for the Understanding of Nutrition. Yes? Is he here? No? Yes?

Sally Whishigilt

I think the programme would change so I'm sorry but I'm here instead of Mr Townsend, the president. My name is Sally Whishigilt and I'm family physician interested in prevention.

And I wish to turn the attention to two problems which may come more evidently only to the attention of the public as well as professionals in future years although they start to be visible already now and they have been very well documented in a such newly emerged disciplines as behaviour toxicology, para-natal toxicology and para-natal immuno-toxicology.

The concern which is here with the pollution is the concern how the chemicals in our environment affect the unborn child and how they affect the brain of the unborn child and how they increase the incident of the cancer in children who are exposed during their intra-uterine life to cancer. Because we have the tendency to believe that this pollution affects mainly people who are working in the industry, we have not paid sufficient attention to that which is happening to our future generation. Actually, in the industry the control of the environment and exposure has been now markedly improved. However, the placenta, as we believed previously, is not protecting the developing child against the chemicals which do have the tendency to accumulate in the brain of the unborn child and then impair the learning abilities and behaviour of such individuals. The same is concerned in the animals that's the reason for the emergence of this new category, behaviour toxicology.

Another disturbing fact is that once an individual is exposed to chemical carcinogen or chemical which can act as carcinogen in pre-natal or peri-natal(?) time, that there is an evidence that such a tendency can be transmitted to the future generations and generations of such an individual.

Both these facts are reasons for big concern especially if we look on what's happening - the increasing amount of hyperactivity, our behaviour problem in children and adolescent; the increasing problem with learning abilities which has been reflected in recent study done by government in the USA where it was found that, from people who have been actually affected are the ones who went through high school system in the USA, about 1/8, one in eight, can be considered illiterate as opposed to about half person as it was on the previous study which was in 1978.

The various impact of the chemicals and the amount of chemicals in our environment and I will just quote quickly: three quarters kg which in lb will be about approximately 1 1/2 lbs

of blood per each person in the world is produced annually. One lb of pesticide produce annually per each person in the world. 1,000 kgs, 1 ton or in other words 2,200 lbs of chemicals produce annually for each citizen in the USA. The chemicals don't know any borders.

The lessons from Chernobyl and the studies of polar bears were just the latest results of the studies which have been done already several years before have shown that in the living tissue of polar bears in the Arctic you can find pesticide, insecticide and other chemicals which definitely have been transferred by thousands of kilometres to that area and which are deposited in the living tissues. So, therefore as it was mentioned here several times, there is an absolute need for the global policy because to hope that we can control the pollution in our country and by this way we can get this problem improved is an absolute illusion because then the next day you can have the pollution which can come directly from the other side of the world or opposite. As I said the lessons from Chernobyl and the polar bears are the indicators of that, it's not only for radioactive base, it's for any chemical, any substance which can be spread through the air.

What to do apart from increasing the co-operation among the nation? One of the things which may be done in the honor of the committee here may be a regular week, preferably month, with a regular follow-up of the increase awareness on international level which will be devoted that period to the issue how to improve our environment. If people know better they will act better.

Apart from that, because we have two emerging problems, one is the impact of the environment on the brain and one is the impact on the incident of cancer. The suggestion is how to improve the environment and reduce the impact on brain would be to stop immediately lead in gasoline. There is no need why we should have any lead in gasoline apart from minor inconvenience that we will not be able probably to drive so quickly which we cannot do anyway without ticket. But...

Mr Lindner

Excuse me, I don't mean to be rude. Believe me, I don't. But we would really appreciate it if you could sum up your comments. We still have a large number of participants who do wish to express their views and it would be most helpful if you could conclude.

Mrs Whishigilt

Yes, I will summarize the recommendations. Another recommendation will be instead of looking for the threshold levels and safety levels, to look for safe materials. Because there's no way that 7 1/2 million chemicals registered we can get the levels for safety. Additional things are listed in our submission which we have now, only this afternoon, as a handout. And one more thing which will be very important for reducing the carcinogenity of our environment is the control of pesticides which are contaminated by dioxin, one of the most potent carcinogens known to man.

If we change our attitude to other living creatures like lady bugs or to so-called weeds called dandelions, there will be no need to overuse the pesticides as we do. Also, there are other alternative things which can be done to control the pesticide, so I believe that the dose issued reducing the lot by stopping lead in gasoline, reducing the exposure of carcinogen by reducing the use of pesticide and increasing the safety of environment by producing safe material chemically and increasing the awareness of public may help to improve the situation. Thank you for the attention.

Mr. Brundtland

Now the next one on my list is Stewart Hill Associate professor MacGill University ecological, agricultural projects.

Stewart Hill

Thank you Mrs. Chairman and commissioners and allies in the audience. The ecological agriculture projects has a one point programme and that is to be an ally to anybody or everybody in the establishment of a sustainable food system and life style and that is a food system that is not only nourishing and just but also fulfilling and evolving. Most people in the world are living below their potential in sub-optimal environmental conditions and not having their basic needs met.

In the last two days we have heard many people say the causes of this, ranging from poverty to lack of awareness to lack of research information, inappropriate strategies and all these sort of things. I want to look at why there is poverty, why there is lack of awareness and what may be the root cause of some of these things because as it often happens when we get to discuse important things the real issue is not discused until the last minute, sometime it takes courage to discuse what the real issues are.

Before I do that I'll just quote three people who have made influential statements, that have influenced me. First one, Nicol who said suddenly I realize that nobody knew anything and from that moment I began to think for myself. Stephanson who said that the task is not to see what no one has yet seen but to think what no one has yet thought about what everybody sees. And Jackens who said I settle for nothing less than absolutely everything and Stewart Hill who said everyone is my ally.

In my presentation which I understand you may not have received yet what I've tried to do is go through and look what are the driving forces that are taking us towards considering putting environment and development together and ways to strengthen those and what are the restraining forces, the barriers that get in our way and what are the ways we can seek in those or

remove them and I suggest that to you as a strategy for moving forwards and formalizing much of the diverse information that you've received.

Just to start with, I would like you to glance at your neighbour and just appreciate what an amazing organism we are because this is one of the primary driving forces that brings us here. Think of the beautiful landscapes you see, in the people you've loved in your life, the people who've helped you, the people you've helped, organisms you've been able to watch in their natural environment. These are the driving forces that come from inside that often not acknowledged are the reasons why we're here talking about the things we're talking about.

It's the love we have for one another and for the planet we're on. And I think it's important to keep those in mind to help us to become bolder than we imagine we could be in acting on the things we've heard. These are internal driving forces. There are external driving forces which have been talked about - the value of demonstrations and research and funding and laws and regulations and driving forces such as Chernobyl and catastrophes, these are all things that drive us towards looking at these things. There are also restraining forces or limiting factors. Amongst those the ones that I think are the most important are the following five:

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(cont. of Hill's statement)

is information and often the presence of misinformation. Lack of appropriate skill to do things in appropriate ways and the personal responsibility to carry out those things. Lack of shared consistent, sustainable visions and often the domination of fragmented, unsustainable visions in society are promoted through advertising. Lack of personal awareness and the opportunities to develop real awareness, that is awareness that carries us forth to action not awareness that just carries us forth to say ain't it awful. And lack of institutional support and even the presence of ridicule by institutions of people, many of the people here who stand up and speak out for issues such as these.

My written submission deals with these in more detail. I just like to finish by mentioning awareness. The fact that awareness hasn't really been mentioned till today indicates that it probably is an important issue. My experience is that all people including everybody here and those elsewhere are potentially fully aware, responsible, loving, powerful, wise and full of zest. Whenever we compromise this potential, it is because of pressures that have their origin in our past experiences and in present environments. And so to these factors that we need to pay some attention if we're really serious about bringing about change.

Regarding past experiences, most children from the moment of conception onwards are confronted by chemical, physical and

emotional insults including oppression, isolation, ridicule and punishment. And these children must adapt to these insults to survive. And the price of adaptation is loss of awareness, loss of power, loss of vision and hope and the substitution of compensatory and addictive behaviours. And it's the production of young people in our society through these insults that makes it very difficult to bring about the changes we're talking about. If you don't have an immediate appreciation of what I'm talking about, just pick up any child's photograph album and look at the eyes of th children in that photograph album. And until about the age 7 to 11, you'll find that the children have bright eyes and from 7 and 11 onwards, you will see that dull, glazed look in the child's face looking at the camera saying what the hell is going on. It takes courage to confront this small personal issue than to deal with the distant environmental issues that most of us have focused on.

Let me illustrate this this just by finally correcting a misconception with respect to children. The misconception is a simple one - that when a child cries it's commonly thought that the hurt goes away by stopping the child from crying. The paradox is that the crying is the way the child is healing itself from the hurt. By stopping the child's crying, the child internalizes the hurt and saves the parent from being reminded of their own internalized hurt. By that simple practice we pass on from generation to generation the internalize hurt. We think there's an inheritance of genetic material, there's an inheritance of unhealed hurt from generation to generation, just a simple thing like that.

There are other things that could be said but I'd like to just finish by quoting a statement and a poem that's at the end of my written presentation. The statement is from Chief Sitting Bull who said quite simply - "the earth and I are of one mind." And I think that's what we're aiming at here and perhaps more poetically, Elizabeth Audell(?) said - "flat, outstretch upon a mound of earth I lie, I press my ear against its surface and I hear far often deep the measured sound of

heart that beats within the ground, and with it pounds in harmony the swift, familiar heart in me, they pulse as one, together swirl, together fall, I cannot tell my sound from earth from I am part of rhythmic universal heart." Thank you.

Mrs Brundtland

Gordon Davis, are you here?

Gordon Davis

First, a personal observation, I'd like to congratulate all the students that are here on the participation and presentation and I feel move to say that particularly goes to the students from North Toronto Collegiate and for those who know me for this I could perhaps be accused of some perverse nepotism because I am a graduate of North Toronto Collegiate.

But I'd hasten to add that to put that in perspective, in the 1950s when I was a student our notion of the world problem was who could get the family car for Saturday night and who could afford to buy the beer. And so therefore I think we've come a long way. I look forward to the reunion at North Toronto Collegiate next year. I'll bring the beer and you bring the ideas.

Mme Chairman and members of the Commission, ladies and gentlemen, I'm here today on behalf of the Association of Consulting Engineers of Canada and we'd like to thank you for the opportunity to briefly address you. Like the first laws say that this association is fully supportive of the mandate of the Commission and we wish you continuing luck in your ongoing efforts. We originally asked to be represented in this morning's session on development assistance because I think it is probably fair to say that members of our association are practitioners of development.

We're also practitioners of environmental management and I suppose we and others have come to see our contribution as that of middle man. In some ways, we are the purveyors of development, we're part of the bad things about development, we're also part of good things about development. One could carried on of course about horror stories but I don't like to think that's the intent, I think what we would like to do is share from our perspective just four recommendations which we think could help improve the delivery of aid.

Now these 4 recommendations which I am directing towards the Commission could equally be directed towards multinational corporations. They could and should be directed towards the central planning authorities of developing countries and also the implementing agencies of developing countries of development projects. We feel that these four recommendations have no hidden political agenda, they have no hidden economic agenda, conceptually, they are extremely simple and require only a modest infusion of cash to realize, only a modest reallocation of human resources to realize.

Yet I think I can categorically say that I know of no lending institution and I know of no bilateral aid institution which include these four practices in their modus operandi. And one has to wonder why. Well, let's address each one very briefly.

First of all, one should ensure that environmental planning and management activities are integrated throughout the project cycle. From the moment a project is identified to the moment a project is delivered, in the course of its delivery there's a planning stage, there's an implementation stage, there's an operational stage. At each one of these stages of the project cycle, environmental planning, management activities should be included yet they're simply not.

Yet, this is I think a simple thing to do. We're accused to causing delays by including environmental planning in our work. Yet I think that quite categorically as hog-wash if

delay is due to environmental planning it's usually because environmental planning has been introduced too late into the project cycle. We're accused of doing environmental studies which are inadequate and have no fact on design. Well, that's because most often environmental studies are not encouraged during the design stage. So, I mean this thing once again seems to us inherently simple to crack.

Second recommendation is that not only should projects include environmental planning but also policies and programmes. It's always been a mystery to me that projects seem to dictate programmes and programmes dictate policy rather than the other way around. Most engineering companies are organized on the basis of delivering projects not may be understandable but I think governments are organized on the basis of dictating policy from which programmes flow and then projects.

A third recommendation, we'd like to ensure that environmental training is incorporated into the technology transfer component of all development projects. It's just now becoming, I think, accepted that technology transfer is an advisable thing, and we do it rather routinely in our development projects. But along with this, hand in hand, there should be a transfer of environmental technology, if you will. And this could be achieved by any number of methods, counterpart training, formalized training and so on.

Lastly, and once again a simple notion, we think this Commission should promote the establishment of minimal environmental standards in all countries. We think this is absolutely prerequisite to proceeding in any well-informed and well-intention way.

Along with the notion of minimal environmental standards, and this is extremely important, you must also inculcate the idea that schedules should be developed for the progress of increased rigidity of the standards, if you will.

There's one message we'd like to leave with you today, it's that two decades of rhetoric are not enough. As the highwayman said, "I guess it's now time to stand and deliver"; and we'd like to see that kind of action take place. There's a tremendous gap between policy and practice and I think we would like to see the improvements made in those areas. Thank you very much.

Tom De Fayer

Thank you Mme Chairman, members of the Commission. You asked that we introduce ourselves and I take half a minute of saying that I am a highly independent person. I am a non-profit individual, I speak for no one, hopefully, the silent minority. I am not going to burden you with another set of recommendations, I'm sure that you've got enough to reflect upon.

The reason I stand before you is because I have at least learned this morning, if I correctly misinterpret a statement that I am environmentally hypersensitized because of some lead or rather substance in my blood. I am delighted that there are some good results which come out of pollution as well. But as I said this is a highly directed misrepresentation. What I am looking at is that I, for a moment as many of you have done, I have closed my eyes and as I was listening with my eyes closed I could well recognized the World Commission on Environment. Development, I found, is somewhat lacking.

If I may again, perhaps paraphrase something which Commissioner Stanovnik has said earlier today, my words were that you turn to the world and you say come on, be reasonable, do it my way. There is a very large audience out there which does not see it our way. And I am merely wishing to draw attention to the fact that if assume that we can just employ the media, the education, and incidentally, who educates the educators, if we

simply go our on a propaganda campaign we shall still encounter those who will view us as environmental advocates, as those who have been polluted by the lead in our blood.

And if I may suggest, I'm not recommending it because I undertook not to recommend anything, but if may suggest that you reflect upon the question of as to how do you deal with people whose great spokesman has never been mentioned and would nobody would dare to mention his name, for example, Hermann Kahn(?) who said there are at least 200 years of wonderful life before us. And he was no charlatan, he believed in it, and what I am hoping for is that the Commission will be able to bridge the gap which I perceive exists between the two solitudes. There are people who simply say, yes, he's an environmentalist and if, by any chance, we are unable to bridge this gap then the Commission is going to be another well-meaning, very respectable body but just says the same thing which is known to the converted, but it's the other side we have to talk.

Now, the omnibus task before the Commission is what everybody has been saying - change the world, Mandate for Change. And that we are doing on the basis of the environment and I'm suggesting that the change is in fact much wider than the environment. It's an awesome task to look at our whole disposition, our whole attitude, our whole background and I provided a brief paper which you may just like to look at, which in fact suggests that we have been brought up in the idea that, and this certainly applies to Canada, it applies to the many western countries, we want jobs, jobs and more jobs.

In a world where we can produce goods and services that is wealth without people and we are not reflecting on the way in which we perhaps not need any jobs, and need not have any employment but where we have to work, where we have to be occupied, where we have to be productive. And in that environment, we can perhaps look at the resources that we have and respect the system within which we have to work.

Now, my perception in this is that we should not try to deal with economics, I usually say using a screwdriver to hammer in a nail. I'm sure we've all done it if we have a nice, heavy screwdriver, we've hammered it, that's not the tool. Economics is not the tool for resolving our problems. There have been suggestions made that perhaps we should have an environmental economics and that reminds me of a little story which has been banded around some years ago where we stood up and we said yes, environmental economics, yes environmental economics was an oxymoron and everybody looked at you and said oxymoron? Then it is not a retarded cow. An oxymoron is a contradiction in terms like a giant shrimp, like a legal brief, some people say military intelligence but I don't know, I wouldn't.

Your are talking about economics which is looking at the marketplace and the visible transaction none of our environmental intangibles, quantifiables. We are using economics from a wrong basis. We are talking about a new ethics and I'm suggesting to you that we do have some very good old ethics in all the teachings, whatever race or base we started off from. And therefore I would suggest that we look at the total system to which we can make ourselves relevant, let us not preach at the other side. And I hear so often we must do this, we must do that, nobody must do anything. We must communicate. Thank you.

Mrs Brundtland

Well, we certainly have been communicating during these two days in this audience and I want to think Tom de Fayer for giving us a kind of summing up statement here. Although, I didn't take your note as a pessimistic one, we should be reflecting upon how in fact for this group of Commissioners to being doing the most effective job that we can do in the 3 years that we have been given for us to use concentrating on these issues together with a wide world out there communicating with us and through us. And this two days have been part of this process.

So I want to thank the audience, all those who have been behind you in preparing submissions and everyone that has been contributing to this part of our total process. I want to thank Environment Canada for all their help in administering and planning for these Public Hearings and, in particular, Mrs Julie Vanderschot who is down here to my left and who has arranged the hearings and been carrying a lot of the burdens and she's been smiling all along, I can tell you. So again, thank you to all of you and we hope to be seeing some of you in the days to come and certainly in the months and years ahead of us where we need to communicate further about the issues that we've been concentrating on. Thank you.

END OF OTTAWA PUBLIC HEARINGS
May 27, 1986

END OF TAPE 21 - SIDE 2

Minister Environment Canada | Ministre Environnement Canada

Speech
Discours

Notes for an Address by

The Honourable Tom McMillan, P.C., M.P.

Minister of the Environment

to the World Commission on Environment and Development

Ottawa, Ontario

26 May, 1986

Canada

Madam Prime Minister, Commissioners, Distinguished Visitors, Ladies and Gentlemen, Friends:

It is my great pleasure, on behalf of the Government of Canada and of all Canadians, to welcome the World Commission on Environment and Development to Canada. We are delighted to have you here. Madam Prime Minister, we are honoured that you would re-arrange a very pressing schedule in your own country to join us today.

In preparing for today's hearing, we at Environment Canada began, some time ago, to reflect on our environmental role. By providing people in Canada and around the world with that opportunity, the Commission has performed a most useful function, even before it reports in early 1987.

By the same token, I hope we Canadians can help the Commission by sharing our experiences and insights, including those provided in the formal brief presented to you last week. I, myself, derived a great deal from the session with the Commission over the weekend in Edmonton at the meeting of the Canadian Council of Resource and Environment Ministers. I sense the Commissioners found the meeting worthwhile, too.

It would not be useful for me now to tell you what you already know from our brief, from your meetings to date, or from your own experiences, about the country and about Canadian

environmental questions. I am sure that the presence of Dr. Maurice Strong as one of your members and of Jim MacNeill as Secretary-General ensures that you are already keenly aware of Canada. Indeed, the fact that Jim MacNeill's father was born and raised in my own province of Prince Edward Island reassures me that, through the Commission, the world is in good hands.

For my part, I can use this time most profitably by discussing those factors in Canada's experience that relate to your concerns and mandate. I will then make some proposals which, I hope, will be helpful to you in formulating your own recommendations for change.

In choosing Canada as one of only four countries in which you have held public hearings, you have chosen wisely. I say that, not out of some kind of mindless national pride, but because Canada is a unique resource for any environment-related study. There are several reasons why.

First, this is a <u>big</u> country -- the world's second-largest landmass, embracing, as it does, three oceans: the Atlantic, the Pacific and the Arctic. Since we are landlords of such a large chunk of the globe's real estate, how we manage what we have has to be important to the rest of the world.

Paradoxically, because of our sheer size, we have inspired a thousand well-meant, but totally wrong-headed, assumptions.

We are an object lesson in the dangers of environmental mythology -- especially when those myths gain national and international currency.

For example: Although Canada is an aggressive world exporter of grain, an inhospitable climate and rocky, dry soil render more than three-quarters of our land area totally unsuited for agricultural production. In fact, we have less Class I agricultural land than India. Less than nine per cent of our total land area is capable of being cultivated and, of that, only about one-half is actually cropped. Moreover, the most productive agricultural land is located in the South, where it is vulnerable to development by expanding municipalities. Farmland, no matter how fertile, will never grow another hectare of food once it has been paved over with shopping plazas. In the decade and-a-half between 1961 and 1976, Canada lost more than 1.4 million hectares of farmland to urban sprawl -- equivalent in size to my home province of Prince Edward Island.

Despite our size, geography and climate hem us in: much of Canada rests on the Precambrian Shield, which sustains vast forests and pockets of mineral wealth but a relatively small population. In the West, farmers are plagued by drought, falling water tables and unstable soils. The mountains of the Cordilleras in the West, magnificent in their majesty, restrict two-thirds of the population of that area to the lower Fraser River Valley. The North is dominated by cold dry tundra; in

fact, the North, because of the limitations of its ecosystems, can properly be described as over-populated, despite its immensity and a population of fewer than 70,000 people.

Look more closely at the reality behind the popular image of Canada as a hewer of wood and drawer of water and you find that both our forests and our waterways are in trouble. Parts of this country -- the province of Ontario in which we are sitting today, the province of Quebec, which you can see from the windows of this building, the Eastern provinces, including my own Prince Edward Island -- were once a sea of white pine -- wave after wave of trees that grew so tall that they seemed the very pillars holding up our skies. It was not uncommon to fell trees that were 15 metres high and three metres in diameter. But little was done to re-plant what had been harvested. As a result, lumbermen have been reduced to cutting black pine 1,500 kilometres northeast of Ottawa, in our less fertile boreal forests.

Similarly, we have used water in this country as if it were unlimited. And now there is growing pressure on government to support colossal inter-basin diversion schemes that would enable us to export our fresh water for foreign currency. Yet, in truth, Canada, which occupies 9 per cent of the world's surface, has 7 per cent of its renewable water. So, despite appearances, we have no more than our share. And most of what we have is far from the major population centres, where it is most needed.

Moreover, the water that is located near heavily populated areas is fast becoming polluted. So, Commissioners, we would be foolhardy to export our birthright -- to the Americans or to anyone else -- especially given the high environmental risks of such schemes.

Despite the myths generated about Canada's environment, it does have some genuinely unique elements to offer you. Within our mammoth land there is a diversity that parallels much of the rest of the world -- geographically, climatically, economically and culturally. Indeed, there are, within Canada itself, greater differences than there are between entire countries elsewhere in the world. Looking at Canada is like viewing conditions around the globe -- as if we offered the Commission a world visit for the cost of a single air fare -- from virgin forests in the Queen Charlotte Islands to the fragile High Arctic to the towering but delicate sand dunes of the Cavendish beaches of my own province; from Quebec City, a UNESCO Heritage Site, to the old Port of Montreal; from Toronto -- now praised as North America's most liveable large city -- to Vancouver.

Beyond what Canada is, lies what Canada does. And what Canada does best, Commissioners, goes to the very heart of your enquiry: we were pioneers, and have now become seasoned experts, in the realities of environmental interdependence.

If there was ever doubt that the nations of the world share the effects of environmental trauma, the recent Chernobyl accident is sad confirmation -- and proof of the urgency of your mission. The Soviet people and their neighbours have been hard hit by the disaster at Chernobyl. To some degree, we are all affected, even if those effects are not yet known totally. The lesson of Chernobyl is that history's end result -- a planet composed of individual nation-states -- is absolutely the opposite of what is required to deal with modern environmental traumas, which respect no geographic or political boundaries, spreading havoc indiscriminately. Whether acid or toxic rain, nuclear radiation or in any other form, pollution moves around our planet, irrespective of the maps we have made and the national flags in which we wrap our pride. And pollution moves upward and outward as well, piercing the layers of the stratosphere nature gave us as a protective blanket and threatening the purity of space beyond our space.

Nowhere is that truer than in the shared Canadian-American environment where, on a less global scale, two countries are linked by waterways, mountain ranges and even by wind patterns.

We in Canada have, with our American friends, pioneered international co-operation. Not because it is personally pleasing or even always politically advantageous -- as I have recent scars to prove -- but out of sheer necessity. And we have resorted to every form of co-operative measure to keep each

other's garbage off our own front lawns: reciprocal laws, bilateral mechanisms, agreements, treaties, regular summits between heads of government.

It would be instructive for the Commission, in its deliberations, to look more fully at the depth and richness of our experience and how it might serve other countries, and even the world as a whole, as we approach ever more-serious environmental dangers. The record of the International Joint Commission, however mixed, would be especially instructive, as would the recently signed North American Waterfowl Management Plan. That Plan is a $1.5 billion cost-shared effort by the two governments to engage the private sector in a massive resurrection of wildlife habitat and to reverse the loss of millions of ducks and other species.

I recognize, of course, that Canadian-U.S. problems are the result of interaction between two wealthy countries, one the mightiest industrial power on the face of the earth. By contrast, you Commissioners are faced with environmental questions in countries where poverty, not productivity, is the economic goad. One of the oldest truisms is that poverty is the root of all evil. If so, nowhere is that truer than in hunger-wracked countries forced to sacrifice their precious natural resources for urgent short-term purposes, at the expense of their immediate environment, of that of other countries and of future generations.

You know very well from your investigations to date that cutting of fuelwood is turning entire forests into deserts. It is a measure of the harsh realities of nature that people seeking to keep themselves warm today are, at the same time, ensuring their agricultural poverty for generations to come. This is akin to the widow who, instead of safeguarding her meagre inheritance by living only off the interest, spends her depleting capital until there is nothing left.

The consequences of encroaching on our environmental capital have been identified by the Commission: the greenhouse effect, which threatens to overheat the world by wrapping it in a layer of carbon dioxide; the dangers of a nuclear winter imposed on us by war or accident; Arctic haze, which reminds us that air-borne pollution travels thousands of miles, even countries, away from its industrial origins; lessened genetic diversity, which may eliminate potential sources of medications that alleviate human suffering; and the destruction of the natural heritage so essential to human survival. Mankind's life support systems -- the air we breathe, the water we drink, the soil that provides our food -- is under siege. A steadily burgeoning population means that more and more people will be trying to live on less and less environmental capital, much of which is being squandered by sheer recklessness.

The question is: How can we stop this spiral? Despite the best intentions, foreign aid and favourable trade arrangements, the industrialized world has done an appalling job of assisting developing countries and nations to solve their root problems.

It's not good enough for us to lecture or moralize. It is easy for Canada's Minister of the Environment to do so in the comfort of his own country, where the average income is more than $14,000 annually, an amount greater than that of entire villages elsewhere. It is another thing to deal, as we must, with structural economic problems of countries where dire need dictates environmentally disastrous decisions.

Even if the more fortunate nations like Canada wished to lecture those less blessed, we could not do so with anything approaching a clean conscience. After all, it is only now -- which is very late, indeed -- that we ourselves, out of sheer necessity, have begun to exercise good stewardship over our own resources. A more integrated approach to environment and economics has helped us, just as it must increasingly be employed to assist others.

Certainly, economists who offer analyses that ignore environmental benefits and costs earn economics its reputation as the dismal science. For their part, environmental scientists

must formulate techniques that challenge the validity of economic analyses that do not integrate human and environmental costs of development -- not just present costs, but those in the future as well.

As we meet today, one of Canada's most troubling environmental problems is that of toxic wastes. My Department is now preparing legislation to help manage toxic chemicals through their entire life cycle -- from formulation, manufacture, distribution, sale and use to eventual disposal. Even as we work on that legislation, there is growing concern, because of toxic rain, about the presence of lethal chemicals -- PCBs and dioxins -- in the very food we eat.

If we are to take action, and we must, we have to acknowledge the problem and then find solid ground on which to tackle it in concrete terms. You, yourselves, have already identified anticipation and prevention of economic and environmental mismanagement as essential. I certainly agree.

Clearly, we cannot depend on nature for solutions to the problems we have created. Nor is it possible, or even useful, to assume that money alone will solve those problems. During the 1970s, well-intentioned Canadian governments spent millions in response to public concern about the environment. The techniques -- remedial, reactive and clean-up approaches -- failed because they were used exclusively, instead of in harmony with preventive measures.

Remediation is, by definition, crisis management -- inherently incomplete. Each crisis is followed by another, as Bhopal followed Three Mile Island and Chernobyl followed Bhopal. In Canada, we had great success restoring the agricultural capacity of the Great Plains that were stricken by drought in the 1920s and 1930s. But those prairies are again threatened, this time by a combination of drought and resource mismanagement, including improper use of chemicals.

In this, as in so many areas, problems have come back to haunt us because we failed to embrace the principle of prevention. In Canada, studies show that, of all the policy questions that have dominated the public agenda since the end of World War II, attitudes have shifted on only one major issue: The environment. But even here there is a need to increase an understanding of the true state of our environment and of the importance of preventive measures. For us politicians, the need to make poeple aware means being willing to take the political risks of mounting creative communications programs that reach people of all ages and interests even if critics accuse you of propagandizing. It isn't enough to rely on traditional campaigns that preach to the converted. We have to ensure that today's consumers of the environment -- and tomorrow's -- understand the consequences of the chemical society, the overfished lake, the carelessly set forest fire. Moreover, we have to make them aware, not just of the problem, but of how they can help prevent it as individuals.

Better understanding by youth is especially important, for half the present and all of the future belong to them. My Department is beginning to use every modern means of communication at our disposal -- including rock videos and recordings and rock stars and professional athletes as role models -- to drive the point home.

A week ago, in this very city, a blue ribbon team of experts, drawing on the resources of government and industry, gave Canadians their very first State of the Environment report card. We got barely a passing grade and in some important areas -- toxic chemicals, for example -- we failed, and failed miserably.

The State of the Environment Report is a massive analysis of the Canadian environment, over time and on the total system, on a stress/response basis -- not on the basis of individual problems or individual parts of the country. Although there have been surveys in other countries before, the State of the Environment Report in Canada is the first of its kind anywhere in the world, both in its thoroughness and in its holistic approach.

We've made a preliminary start by taking stock of our environment, not as an exercise in one-shot navel gazing, but as a prototype study that will be updated regularly, so that we have a benchmark by which to judge future progress -- or lack of it.

Given our failures despite our level of education, our scientific expertise, the presence of so small a population in a vast land and a very young country, how much more critical is the situation on a planet where 90 per cent of the people are less advantaged environmentally than we. The implications are alarming.

Although the State of the Environment Report can be seen as a report card, it is also modelled on the way shareholders take stock of their company -- since ultimately, every citizen is a shareholder in his or her own country, with a direct, vested interest in the success of its management of the resources they hold in common.

My first recommendation is that **such self-assessments should be carried out by all other countries so that the world community can better know the stresses on its total environment and the responses to those stresses. Either an existing body or one created for the purpose should co-ordinate the effort and ensure that gaps are filled, particularly in countries unable to carry out studies for themselves.**

Madam Chairman, I note that in Journal '86, the current annual report of the World Resources Institute, you make the point that your Commission "is looking especially hard at institutions, the vehicles of international co-operation needed to make headway with the items of the alternative agenda."

That brings me to another recommendation. There already exist bodies that independently monitor the performance of countries and nations in various fields. The OECD's reports on economics and on some environmental activity and Amnesty International's monitoring of human rights are cases in point. In the same way, **the world needs an independent international body, distanced from the self-interest of nations and countries, able to score their individual records in the environment. I recommend that such a body be established.** Among other advantages, score-keeping would help make individual countries accountable for their actions in the court of public opinion, if nowhere else. It is to be hoped that public opinion will, in turn, serve as an impetus to reform.

Certainly, public opinion in Canada is forcing politicians to act against polluters -- at last. There is a deepening sense of revulsion among Canadians at those who deliberately damage the environment. Just last week -- and for the first time ever in Canada -- the president of a corporation repeatedly fined for pollution was himself sentenced to a jail term. In addition, a very severe fine was levelled against the company. Whether that sentence survives the appeal process, it signals a hardening of social attitudes against polluters. I suspect that such an attitude, as it becomes more widely shared, will cause jurisdictions that do not make environmental progress to be harshly judged by world opinion.

In Canada, much of the regulatory muscle is in the arms of the provinces. More and more, I, myself, am going to be leaning on my provincial colleagues to co-operate in getting tough with polluters at all levels of government. And, for our part, we at Environment Canada intend to accelerate the practice I began a few weeks ago in my home city of Charlottetown and in Montreal of identifying corporate offenders by name and by locality. More positively, the Department is planning a seal-of-approval program to identify, for Canadian consumers, products in the marketplace that are "environmentally friendly". I believe the public will back such approaches. In a similar vein, "the immovable, concrete, and realistic action plan" the Commission has set out to devise for the world environment will require politicians everywhere to stiffen their spines and put commitment into practice. Otherwise, your plan, however well conceived, will fail.

But we cannot rely on laws alone to save ecological systems. Conserver society principles must become a more important factor in designing aid packages. I **urge the Commission to recommend that industrialized countries change their emphasis from large, impressive infrastructure projects to small, culturally and environmentally appropriate programs.** Later this morning, my colleague Monique Vezina, Minister for External Relations, will discuss the principle of aid in an environmental context more fully as it relates to the Canadian International Development Agency, for which she is responsible.

Because your task is so important, it should not have to depend on a once-in-a-century opportunity in order to be continued. I **recommend, therefore, that the World Commission on Environment and Development suggest a process by which countries may continuously share global knowledge, policies and methods of working towards solutions.**

Because Canada agrees with your emphasis on anticipation and prevention, I **recommend that the Commission name an existing international agency to take responsibility for developing a multi-disciplinary approach to forecasting and so-called scenario development.** As an initial contribution to this important process, Canada would be pleased to host an international conference to identify the current world capacity for forecasting and to consider ways of improving it. We suggest that the first two topics should be climate change and the environmental effects of the chemical society.

Canada has considerable experience in international agreements based on the inter-dependence of different countries' environments. We know both their value and their short-comings. In addition to those already mentioned, we were instrumental in bringing about the Law of the Sea and we are signatories to the Convention on Long-Range Transboundary Air Pollution, to its protocol on the 30 per cent reduction of SO_2, and to the Convention on Ozone. We are also in the vanguard of work on measures dealing with chemicals and chemical wastes.

But those disparate elements of international law are no substitute for a rationalized approach. On the basis of Canada's experience in international co-operation, I **recommend that the Commission examine and identify more comprehensive forms of conservation and protection to bind nations morally and legally to those precepts. A first step should be to consider a "Law of the Air," which would build on current conventions. Nuclear atmospheric pollution should receive particular attention.**

Here, as in so many other areas, each country is highly vulnerable to the recklessness of others. At a time when transboundary pollution threatens the very survival of humankind, our common fate remains largely in the hands of individual nation-states unwilling to sacrifice any part of their sovereignty in the interests of the global community. All the while, the few international mechanisms we do have to help us cope are fast losing support. The current state of the United Nations itself proves my point. More and more decisions among nation-states are, in fact, being made within clusters of countries, not by world bodies.

The world's environmental problems are greater than the sum of those in each country. Certainly, they can no longer be dealt with purely on a nation-state basis. The World Commission on Environment and Development must strike at this fundamental problem by recommending specific ways for countries to co-operate to surmount sovereignty, to embrace international

instruments in order to deal with global threats. The growing trend towards isolationism -- which, in the area of trade, manifests itself as protectionism -- demonstrates that the current rhythm of history is out of harmony with human aspirations, even with its chances for survival.

Technique is not an obstacle to our survival, for we possess the knowledge to deal with all the major threats facing us. Lack of political will is what is holding us back -- the will to co-operate.

The challenge ahead is for us to transcend the self-interests of our respective nation-states so as to embrace a broader self-interest -- the survival of the human species in a threatened world. The World Commission on Environment and Development must be a catalyst for the radical change in thinking required for us all to survive in such a world.

To recognize intellectual excellence and exemplary leadership in this area, I **recommend that the World Commission use its good offices to have established a prestigious world-class prize, perhaps through the Nobel Committee, to be awarded to individuals, groups or governments making substantial progress in environmental protection, conservation or damage-prevention.** In the past, great ingenuity has been applied to economic activities that have led to our current environmental problems. It is time now to apply the same resourcefulness to coping with the unintended consequences.

Thank you Madam Prime Minister and Commission members for your attention this morning. My Department and I are at your disposal while you are in Canada and at any other stage of your work. Yours is a formidable task and I wish you well as you complete it in the interests of all citizens of the world community.

Commissioners, thank you for being here. Good luck with the rest of your meetings. Please come back and visit us again soon.

CIDA

Notes for a speech by the:

Honorable Monique Vézina,
Minister for External Relations

To the World Commission on
Environment and Development

Ottawa, May 26, 1986

Canada

(108-82)

Madam Chairman,
Mr. Vice-Chairman,
Distinguished Commissioners,
Ladies and Gentlemen,
Dear Friends:

Like my colleague the Minister of Environment, I am very pleased to welcome you to Canada. Your visit comes on the heels of that of another major international group, the Consultative Group on International Agricultural Research, whom I had the honour of meeting last Monday; and several days before the World Conservation Strategy Conference which will meet here next week.

I am particularly happy that these international meetings are taking place in Canada. They come at a time when a series of events have caused us to ask some basic questions about the future of our planet.

Last week, a study of the food chain in southern Ontario, a region not very far from here, revealed the presence of dioxin in almost all the food produced there.

Less than a month ago, a colloquium in Quebec publicized the fact that our forests are slowly dying. Western Canada has been coping for several years now with a drought rivalling the infamous dust bowl of the 1930s. And we are equally concerned with what is taking place beyond our own borders. I am thinking of Chernobyl, of Bhopal, and of the food crisis in Africa, some of the environmental causes of which we know already.

In coming to Canada to hear our concerns and suggestions based on our own experiences, you do us a great honour. More importantly, your visit has caused us to look even more closely at the fundamental questions of environment and development.

As Minister responsible for Canada's development aid program, I very much wanted to meet with you this morning. The Canadian International Development Agency, for which I am responsible, will submit to you tomorrow a document summarizing our own experience in these questions. Our general conclusion is relatively straightforward: social and economic development can only be accomplished in conjunction with sound environmental management. Any project that does not take this into account is doomed to failure from the outset.

I am particularly concerned about the environmental crisis in the Third World. This crisis is due in large part to overexploitation of resources leading to their depletion and to ecological imbalance.

The forests are shrinking, the deserts are expanding, soil erosion is attaining chronic proportions, the oceans are becoming increasingly polluted, and water resources are being threatened. Slum areas in the cities are growing constantly and nearly half of their inhabitants have no access to any health facilities whatsoever. In spite of the progress being made in food production, 500 million people are suffering from hunger or malnutrition.

What is particularly upsetting in this is that it is the poorest of the poor who are suffering the most. Their basic everyday needs are affected; food, heating, cooking, and housing. In trying to meet their needs, in trying to survive, they unfortunately compound the problem. Their struggle against famine and poverty causes them to destroy the remaining available resources. Poverty is an ongoing process that tends to increase the destructive practices threatening our environment.

Compounding the problems of poverty, one often finds rapid demographic growth, which takes the form of increased human needs and greater pressure exerted on the existing resources. These pressures force the poor to cultivate marginal lands where the crop yield is lower, the rate of erosion higher, and precipitation less regular.

It is imperative that we find the way to end this vicious circle. And I believe that it is possible to do so.

The work of commissions such as yours is crucial in this effort. The international community must identify priority regions for urgent immediate action.

In a few hours, I will leave Ottawa for New York where I will be heading the Canadian delegation to the Special Session of the United Nations on the Economic Crisis

in Africa. I may say quite frankly that Canada feels that Africa, particularly the Sahel region, should be designated as one of these priority regions.

Canadians were deeply moved by the famine which afflicted Africa in 1984. Their response in aid of the people affected by the famine was quite remarkable. Individual Canadians contributed more than $60 million dollars to voluntary organizations active in relief efforts.

The Canadian government responded with equal vigour. At the beginning of the month, I announced a new development programme called Africa 2000. It is a long term commitment by Canada to the development of the African continent. This plan of action identifies agriculture, reforestation and food security as the priority of priorities for our cooperation program. It reaffirms the need for international cooperation. Finally, it is based on the continued participation and goodwill so present within Canadian society. I am referring particularly to the remarkable work accomplished by our non-governmental organizations.

One of the lessons that we have learned from the African famine is that Africa's greatest potential to meet the challenge of its own development is in fact at the grass roots level, and that Canadian, African and international voluntary organizations can play a crucial role in mobilizing these forces.

Small is beautiful... I announced on May 6 that Canada would implement by the end of 1987 some 2000 small development projects in Africa.

After extensive consultations with our African and international partners, I will be making a proposal tomorrow in New York which could make this approach operational at the multilateral level.

In thanking you, allow me to wish you a productive series of meetings. The seriousness of the problem which you are addressing merits your complete attention.

Best Wishes.

Address by

Mrs Gro Harlem Brundtland

Chairman

World Commission on Environment and Development

at the Opening Session of the

Fifth Meeting of the Commission

Ottawa, Canada

26 May, 1986

Mr Minister, Your Excellencies, Ladies and Gentlemen,

I want to thank the Government of Canada for its generous invitation to the World Commission on Environment and Development to hold its fifth meeting in Ottawa. During the past few days, the Commission has seen a great deal of your enormous and magnificent country. Before we leave, we will have been exposed to many of your environment and development problems, some of which are very familiar in many other parts of the world. Indeed, if I may be allowed a personal note, during my five years as Minister of the Environment, I found that Canada and Norway were almost invariably allies in the battle for a better global environment. In Vancouver, Edmonton and Toronto, we met and talked with leaders from all the Provinces, the Yukon and Northwest Territories. Next week, the Vice Chairman and other Commissioners will be meeting with leaders in Eastern Canada.

Canada's invitation to host our meetings is further evidence of your leadership on environment and development issues, leadership which began in the mid-1960s, some would say much earlier. You were a leader in the Stockholm Conference in 1972. You hosted the Habitat Conference in 1976. You have provided many citizens who have achieved distinction as international leaders in environment and development. Maurice Strong, now a member of the Commission; Jim MacNeill, now our Secretary General; David Munro, an active leader on the World Conservation Strategy; and others. You played a prominent role in the establishment of the Commission, and you have been a major source of support for our work, for which I wish to express our full appreciation.

The Commission feels very strongly that it is meeting here among kindred spirits and friends.

This atmosphere is important to us because our meetings this week are the most crucial in the work of the Commission to date.

During the past eighteen months, we have been engaged in a major effort of fact-finding on the critical issues of environment and development. Our meetings this week, including these two days of Public Hearings, will mark the peak of this phase of our work. We have been very impressed with the submissions that have been prepared for us, and we are looking forward to meeting with those who are on the leading edge of North American thought and leadership on environment and development questions.

THE GREAT TRANSITION

Ladies and Gentlemen,

I doubt that there has ever been a time, including the period prior to the 1972 Stockholm Conference, when the world was in such great need of leadership on the interrelated issues of environment and development.

We are living through a very profound change in relationships between the human world and its development on the one hand, and the planet earth and its biosphere on the other.

For the past two centuries our numbers have increased and our economies have expanded largely on the presumption that the world and its development was comfortably separate form its environment. Develop we must. On that we had no choice. But the environment was something else. On that we had a choice, or so we argued and so we acted. Should we add on measures to protect the environment and sustain and renew our resources, or should we not? The truth is, we really never did have that choice. Now we have entered a new phase in the relationship between economic development and the environment, locally, regionally and globally, but to persist in the myth that we still have a choice will place both environment and development in peril.

The dominant characteristic of this new phase is interdependence, an accelerating and irreversible interdependence between economic development on the one hand and the ecosystems on which it depends on the other. The two are now completely intermeshed, united by the dynamics of technological, ecological, economic, demographic and other forces.

The momentum of population growth is one measure of this new phase. It is hard to grasp that more people will be added to the planet in the five thousand days remaining between now and the end of this century than existed at the beginning of this century.

Do we need to worry about the environmental consequences of population growth? The issue is not primarily that it could pose ultimately unmanageable pressures on global resources. Frankly, the small number of affluent people on the earth consume by far the greater part of the world's resources. The real issue is that population growth is increasingly concentrated in resource-poor households and in regions facing ecological stress. The greater gains from an active development-based population control policy will be the improvement in living standards in such poor households and disadvantaged regions.

But the demographic momentum is only one measure of the great transition through which we are living. The projected growth in the world's economy is another. We are now approaching a $15 trillion world economy, perhaps twenty times greater in real terms than at the beginning of the century.

Over the next half century, the world economy could grow another 5 to 10 times, with a corresponding increase in the stock of planetary investment in houses, transport, agriculture, industry. Fortunately, the resource and environment content of growth has gone down, thanks to technological advances and certain economic and other circumstances. And it is vital that the resource and environment content of growth continues to be reduced in the future.

A NEW CLASS OF ISSUES

The transition is evident in many other areas: technological, social, cultural, political, and it has given rise to a new class of issues that are not only quantitatively, but also qualitatively different from anything in our historical experience.

These issues are marked by the same characteristics as the transition itself; a fast, rising pace of change along with an enormous increase in the geographical reach of the impacts of that change. And a growing interdependence between economic development and the ecosystems on which it depends.

The transition has changed the conditions for successful management and created new imperatives for international co-operation. The environmental effects of agriculture, industry, energy and transportation were once largely local in character, and could be managed on that basis. Today, they are inescapably regional and global, and must be managed accordingly. The seventy per cent of the planet that make up the global commons will not escape the impact of the transition. The oceans, outer space, Antartic can only be managed on an international basis, and we must urgently derive effective means for that purpose.

The transition has changed completely the way in which we must think about environment and development. In the past, our main concern centred on the effects of development on the environment. Today, we need to be just as concerned about the links from the environment to the economy. In area after area, it is these reverse effects that condition the potential for development.

The new issues are much more difficult to deal with than those of an earlier generation. Recent events demonstrate, for example, that these issues are plagued by questions of uncertainty and raise fundamental questions about the limits of sovereignty. Does one nation have the right to employ technologies, and processes and designs that impose on its neighbours high levels of risk from accidents, even if the probability of that accident is very low? Does our generation have the right to impose such risks on the next generation, or even to impose the high costs of managing such risks over several generations, long after any possible economic and social benefits have been captured by our generation?

NEW ISSUES ARE INHERENTLY INTERNATIONAL

The new issues cannot be separated from the policies that underpin them. Even though these policies may be considered matters of strictly national concern, their capacity to undermine the essential ecological basis for development in other countries makes them matters of international concern.

Agriculture is one of the best examples of a sector for which national policies have been designed year after year to secure short-term gains in production and profitability, without regard to their longer term international environmental consequences.

These policies have been on the agenda of many international economic organizations over the years and the recent Summit in Tokyo considered them. In its communiqué, the Summit recognized that the nations of Europe, Japan and North America face a common and highly intractable problem in agriculture, which also harms the economies of certain developing countries. What the Summit did not recognize was that the world can no longer deal with the international economic and trade consequences of national agricultural policies without at the same time, and on the same agenda, dealing with their environmental consequences.

There are clear links between the incentive-driven farm surpluses of North America and Europe and the growing threats to sustainable agriculture in these regions and in many developing countries.

These policies were originally intended to sustain the income of farmers in various ways, an objective that most nations feel is essential for social, economic and, even, environmental reasons. But these policies have lost their way. In order to increase agricultural production and profitability in the short-term, they have caused the occupation of marginal lands in many areas and the clearance of forests and woodlands essential for water and soil conservation. They have induced farmers to over-use pesticides and fertilizers, to mine underground and to waste surface

waters for irrigation. In a growing number of areas, they have led to erosion and other forms of permanent degradation of the soil and water base. The result has been lower productivity and great economic losses to the agricultural community.

Your own Canadian Senate Committee on Agriculture, Forests and Fisheries recently reported that "soil degradation is costing Canadian farmers $1.0 billion per year in lost farm income", and the "current agricultural system is obviously not a sustainable one." Reports from the United States and Europe tell a similar story, only worse.

Virtually the entire food cycle in North America and Western Europe now attracts direct or indirect subsidies. The system has become extremely expensive, has created vast surpluses and has also created a context in which it is politically attractive, and often cheaper, to ship those surpluses at subsidized prices or as food aid on a permanent basis rather than store them.

Let us be clear - there is no doubt that food aid is essential to meet temporary deficits and in emergency situations - and Canada and other countries have a proud record in this regard. But outside of emergency situations, food aid must be provided with great care and under conditions which reduce continuing dependency and support efforts to increase local production. Otherwise, continuing food aid will only compound the real problems of receiving countries.

In fact, the most serious consequence of this cluster of policies is the depressive effect they have on the difficult measures needed to reorient agricultural policies in the receiving nations. Rising numbers of rural poor thus find themselves remaining on the fringes of the development process longer than they otherwise would. Their marginal status drives them to seek their livelihoods in marginal environments. They over-harvest fuelwood stocks, and their livestock over-graze grasslands. They may engage in slash-and-burn farming of forest lands, inducing erosion and stimulating the spread of deserts.

And so this cluster of policies, fragmented in their origin, ends up accelerating the degradation of the resource base for agriculture and food security not only in the industrialized market economies but also in developing economies. Everyone loses.

Looking to the year 2,000 and beyond, it is clear that these policies cannot be sustained. They must be changed. Is there any reason why we cannot support farm income in industrialized countries through an incentive structure that both eliminates costly surpluses and encourages farm practices and sustain, and even enhance, the essential soil and water base for agriculture? Is there any reason why we cannot

provide essential assistance to governments in Africa and other developing countries in ways that will enable them to create incentive structures for their farmers - incentive structures that encourage them to reverse ecologically-destructive farm practices that remove the forests, erode the land and advance the deserts; incentive structures that would encourage them to grow more of their own food, knowing they have an assured market? Is there any reason why we cannot remove protectionist measures against food products such as sugar on which many countries of the Third World depend, and in which they have a clear comparative advantage?

There are no good reasons. Too many agricultural and related trade and aid policies today, in all countries, are ecologically blind. They need to be rethought and reoriented. They need to be given new foundations in both environment and economics. The two are inseparable. Environment needs to be built firmly into the agricultural, economic and trade agendas of national and international bodies.

Policies in many other areas tell a similar story. The processes of tropical deforestation and loss of genetic resources are similarly rooted in a complex mix of settlement, economic, aid and trade policies. So are certain processes of industrialization based on old resource and energy consuming, unsafe, environmentally inefficient and, hence, economically uncompetitive technologies.

These processes can all be reversed. We have the means. In every industry, including agriculture and forestry, or chemicals and steel, we have many leading examples of success in achieving economically and ecologically sustainable forms of development.

Let me turn to another complex of policies centred on energy. Until now, as we all know, air pollution and acidification of the environment have been generally treated as two separate and distinct issues. Measures taken by industrialized countries to control air pollution (high stacks, for example) very often simply transferred the problem to the interland of their own country or to another country.

This is quite clear from the rapid rise in transboundary air pollution in Europe and North America and in the widespread acidification of the environment that has followed - sterile lakes, dead forests and, scientist now fear, sour, acid soils. But both air pollution and acid rain are in fact linked through their common sources in the combustion of fossil fuels, whether in stationary power plants, industry and homes, or in mobile transportation.

If we could use less fuel for the same level of economic activity, we would do something significant to lessen both air pollution and acid rain. And on this front, there is good news. During the past decade, a unit of growth in the gross national product started to take less than a unit of growth in energy consumption. Economic growth no longer implies a parallel growth in smoke stacks. In fact, the energy content of growth fell in some countries from 1.2 to 0.5 units. The result is substantial gains in overall economic efficiency and competitiveness, and substantial reductions in environmental damage and the economic costs of that damage.

But the momentum that produced energy efficiency gains of, latterly, 2 per cent per year is now threatened by the third oil shock. With the falling price of oil, the past gains could quickly be lost. That would be tragic because both air pollution and acidification have reached dramatic levels that now threaten the basis for future development in main areas.

The experience of Tokyo, London, New York, Montreal and many other cities - those in the Ruhr, for example - demonstrate that gross air pollution can be rolled back. But most of the world's cities have not shared in this experience. In fact, in many cities today, air pollution has reached levels that exceed by far the worst case of the 60's in the western industrialized countries, and they are intensifying daily.

The evidence underlying the urgent need for action on the sources of acid rain is mounting faster than scientists and governments can assess it. Up to now, the greatest damage has been reported over Eastern and Western Europe, but evidence of acid rain damage is now beginning to emerge in the newly industrialized countries of Asia and Latin America. This is part of a general trend in which the locus at the world's environmental problems is moving South. China and some other countries basing their industrialization on high sulphur coal, are particularly vulnerable to acidification and so, of course, are countries downwind from them, such as Japan. All of these countries have time to prevent what is happening in North America and Europe.

There is today absolutely no excuse for inaction on the interrelated issues of air pollution and acid rain.

We know the sources. We know the effects. We have the technologies. The costs of inaction are too high to be sustained. Action is easily within our reach. It would generate jobs in the short run and greatly increase the potential for future growth of our economies.

In the industrialized countries, we are paying the costs of inaction; we must now begin to pay the costs both of restoring reversible damage and of preventing future damage. Developing countries can't afford to pay the environmental costs of energy development three times. Once is enough. But that means building in prevention from the start.

The experience of the past decade demonstrates that the most effective measures to prevent future damage is to establish energy prices high enough to encourage both a steady increase in energy productivity and a shift away from fossil fuels. If the present low price of oil lasts for too long, we could rapidly lose the gains that we have made in these areas over the past decade. Worse still, planning the future on the basis of cheap energy will rebound with a vengeance against both development and environment when prices rise, as they will.

If we could sustain increases in energy productivity over the next 50 years or so, and there is good evidence that we could, without any reduction in the tempo of growth, we could halve the output of carbon dioxide globally. This would buy time desperately needed to remove some of the real uncertainties concerning perhaps the greatest pending threat to the global environment - climatic change from rising levels of "green house" gases.

Many governments, many people see nuclear energy as one answer to reducing the environmental costs that arise from fossil fuel consumption. These same nations, however, have found it difficult to come to grips with many of the issues raised by nuclear energy; the issues of risk and safety, I mentioned in the beginning; the technology and siting of the facilities for the permanent disposal of long-lived, high-level nuclear wastes; the separation of peaceful and military uses of the nuclear plants.

The tragedy of Chernobyl could have happened anywhere, and it ensures that the debate on these issues will continue in all countries. But the perspective will be different. Chernobyl has dramatized once again that, as Marshall McLuhan said, we are living in a Global Village and that our Only One Earth compels us to share a common destiny.

On behalf of the Commission, I asked the Director General of the International Atomic Energy Agency to provide us with their report on the accident and its implications, and we will be considering it carefully, before drawing our conclusions.

Ladies and Gentlemen,

The United Nations General Assembly asked the Commission to take a fresh look at the critical issues of environment and development and to work out some concrete recommendations for action now.

During the meetings this week, the Commission will receive the final reports from the Advisory Panels we established to advise on three of the complex issues on the Commission's agenda, namely: energy, food security and industry. These reports prepared by a group of world scale

experts from around the globe have taken eighteen months to compile, and we are most anxious to discuss the recommendations they contain. We will also be considering international economic relations as they relate to these and other areas on our agenda, including science and technology.

The United Nations General Assembly also asked us to consider and make recommendations on strengthening international co-operation on these issues. Our work on this aspect of our mandate will move into high gear after our meeting here in Ottawa, but it is clear that it is in this area that we face the greatest challenge.

The Commission is not a doomsday body - it is a body marked by optimism and realism, based on the remarkable achievements of the past few decades, based on the capacity of science and technology, based on the growing awareness of the mutual interdependence of the environment and the economy, and based on the demonstrated capacity of man to adapt and adjust to changing circumstances.

Man will certainly get through the great transition now underway, but if we are to seize more of the opportunities and avoid many of the crises on the road, we will need to consider significant changes in many areas and most particularly, in the area of international co-operation.

There is a large gap between our capacity to change the biosphere through development, which is leaping ahead at unprecedented rates, and our capacity to manage those changes in the interests of both the biosphere and development. This is true at all levels, local, regional and global.

And the gap is growing. One of the paradoxes of the past decade has been the decline in commitment to international co-operation and multilateralism in face of the growing need for it. This is perhaps most evident in the fields of environment and development, where the transition carries entirely new imperatives for both multilateralism and international co-operation.

Some of our present difficulties probably arise from the feeling that many of our institutions were designed to deal with an earlier generation of issues. Today's issues require comprehensive approaches, but these are impeded by institutional independence, fragmentation and narrow mandates. And, as we have learned from our Public Hearings, there is today a need for open involvement of citizen, groups, nongovernmental organizations and industry with a much more open access to information critical to health, safety and the environment. This too often is impeded by closed processes and secrecy.

We have a twentieth century need and a twenty first century imperative to manage issues that reach across frontiers and that involve the global commons. But this clashes with concepts of sovereignty and security inherited largely from former centuries. We need new concepts of management that both preserve the essential sovereignty of the individual, his culture, community and nation, and permit the degree of management at the regional and global level needed to guide our common destiny on our One Earth.

The conditions for successfully governing ourselves and our affairs have changed - locally, nationally and internationally. The forces which condition the new reality belong less and less to simple local or national systems and more and more to complex and interdependent regional and world systems. We must reform and adapt our institutions in time so that we can manage the new issues, confront the challenges and seize the opportunities they present.

While the Commission is concerned about the critical trends, it is equally impressed by the opportunities that exist for a new era of positive and sustainable growth. We have the means and we can provide measures and incentives to encourage forms of growth that continually enhance the potential for development, human and social. Only in this way can we build a future that is more just, more secure and more prosperous for us all.