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WMO/UNEP INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

REPORT OF THE THIRD SESSION OF THE WMO/UNEP INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

(AMENDED)

Washington D.C., 5–7 February 1990

IPCC - 5

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TABLE OF CONTENTS

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1. OPENING OF THE SESSION

The third session of the WMO/UNEP Intergovernmental Panel on Climate Change (IPCC) was opened at 10:10 hours on Monday, 5 February 1990, by its Chairman, Professor B. Bolin, at the Leavey Conference Center, Georgetown University in Washington, D.C.

The list of participants appears in Appendix A.

1.1 **The President of the United States of America, Mr. George Bush,** addressed the Panel. He said:

"Thank you, Dr. Bolin, and thank you for all you are doing in leading this very important effort here. To Professor Obasi and Dr. Tolba, and all the delegates of the World Meteorological Organization, and the UNEP -- the United Nations Environment Program. Let me commend all of you for coming together to examine an issue of such great importance.

I also want to salute Bill Reilly, our able EPA Administrator. He will become the next Cabinet official in the U.S. government. I want to thank Assistant Secretary Bernthal for his leadership from the U.S. side of things. And also salute my able Science Advisor who is with us today, Dr. Bromley, whom many of you know.

The recommendations that this distinguished organization makes can have a profound effect on the world's environmental and economic policy.

By being here today, I hope to underscore concern -- my country's and my own personal concern about your work, about environmental stewardship, and to reaffirm our commitment to finding responsible solutions. It is both an honor and a pleasure to be the first American President to speak to this organization, as its work takes shape.

You are called upon to deliver recommendations which strike a difficult and yet critical international bargain: a convergence between global environmental policy and global economic policy. A bargain where both perspectives benefit and neither is compromised.

As experts, you understand that economic growth and environmental integrity need not be contradictory priorities. One reinforces and complements the other. Each, a partner. Both are crucial.

A sound environment is the basis for the continuity and quality of human life and enterprise. Clearly, strong economies allow nations to fulfill the obligations of environmental stewardship. Where there is economic strength, such protection is possible. But where there is poverty, the competition for resources gets much tougher. Stewardship suffers.

For all of these reasons, I sincerely believe we must do everything in our power to promote global co-operation: for environmental protection and economic growth; for intelligent management of our natural resources and efficient use of our industrial capacity. And for sustainable and environmentally sensitive development -- around the world.

The United States is strongly committed to the IPCC process of international co-operation on global climate change. We consider it vital that the community of nations be drawn together in an orderly, disciplined, rational way to review the history of our global environment, to assess the potential for future climate change and to develop effective programs.

The state of the science, the social and economic impacts, and the appropriate strategies all are crucial components to a global resolution. The stakes here are very high; the consequences, very significant.

The United States remains committed to aggressive and thoughtful action on environmental issues. Last week, in my State of the Union address, I spoke of stewardship, because I believe it is something we owe ourselves, our children and their children. So we are renewing the ethic of stewardship in our domestic programs; in our work to forge international agreements; in our assistance to developing and East bloc nations; and here, by chairing the Response Strategies Working Group.

I have just submitted a budget to our Congress for Fiscal 1991. It includes over $2 billion* in new spending to protect the environment. And underscoring our commitment to your efforts, I am pleased to note that funding for the U.S. Global Change Research Program will increase by nearly 60 percent, to over $1 billion.

That commitment, by far the largest ever made by any nation, reflects our determination to improve our understanding of the science of climate change. We are working with our neighbors around the world to enhance global monitoring and data management, improve analysis, reduce the uncertainty of predictive models, and conduct regular reassessments of the state of science.

Our program allows NASA and her sister agencies and all our international partners to move forward with the "Mission to Planet Earth." That will initiate the U.S. Earth Observing System, in co-operation with Europe and Japan, to advance the state of knowledge about the planet we share.

Furthermore, even as we wait for the benefits of this research, the United States has already taken many steps in our country that bring both economic and environmental benefits. Steps that make sense on their own merits in terms of responsibility and efficiency, which help reduce emissions of CFC's and carbon dioxide and other pollutants now entering the atmosphere. Let me outline them very briefly:

We are pursuing new technology development that will increase the efficiency of our energy use and thus reduce total emissions.

We are crafting a revised Clean Air Act with incentives for our private sector to find creative, market-driven solutions to enhance air quality.

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*Billion = 1000 million

We have launched a major reforestation initiative to plant a billion trees a year on the private land across America.

And we are working out a comprehensive review and revision of our National Energy Strategy, with initiatives to increase energy efficiency and the use of renewable sources. These efforts, already underway, are the heart of a $336 million Department of Energy program and are expected to produce energy savings through the year 2000 of over $30 billion -- while achieving significant pollution reduction. Quite a return on investment.

We are also working, through diplomatic channels with our colleagues in other countries and through innovative measures like debt-for-nature swaps, to do more than simply reduce global deforestation. We hope to reverse it, turn it around -- not unilaterally, but by working with our international neighbors.

The economic considerations of our response strategies to climate change is getting intensive study here in our country, in the United States. We are developing real data on the costs of various strategies, assessing new measures, and encouraging other nations to follow suit. And we look forward to sharing this knowledge and technical support with our international colleagues.

As we work to create policy and agreements on action, we want to encourage the most creative, effective approaches. Wherever possible, we believe that market mechanisms should be applied -- and that our policies must be consistent with economic growth and free market principles in all countries. Our development efforts and our dialogue can help us reach effective and acceptable solutions.

Last December at Malta, in my meeting with President Gorbachev, I proposed that the United States offer a venue for the first negotiating session for a framework convention, once the IPCC completes its work. I reiterate that invitation here and look forward to your co-operation in that agenda.

We all know that human activities are changing the atmosphere in unexpected and in unprecedented ways. Much remains to be done. Many questions remain to be answered. Together, we have a responsibility to ourselves and the generations to come to fulfill our stewardship obligations. But that responsibility demands that we do it right.

We acknowledge a broad spectrum of views on these issues, but our respect for a diversity of perspective does not diminish our recognition of our obligation -- or soften our will to produce policies that work. Some may be tempted to exploit legitimate concerns for political positioning. Our responsibility is to maintain the quality of our approach, our commitment to sound science, and an open mind to policy options.

So the United States will continue its efforts to improve our understanding of climate change -- to seek hard data, accurate models, and new ways to improve the science -- and determine how best to meet these tremendous challenges. Where politics and opinion have outpaced the science, we are accelerating our support of the technology to bridge that gap. And we are committed to coming together periodically, for international assessments of where we stand.

Therefore, this spring, the United States will host a White House conference on science and economic research on the environment -- convening top officials from a representative group of nations, to bring together the three essential disciplines: science, economics, and ecology. They will share their knowledge, assumptions, and state-of-the-art research models to outline our understanding and help focus our efforts. I look forward personally to participating in this seminar and to learning from its deliberations.

Our goal continues to be matching policy commitments to emerging scientific knowledge -- and a reconciling of environmental protection to the continued benefits of economic development. And as Secretary Baker observed a year ago, whatever global solutions to climate change are considered, they should be as specific and as cost-effective as they can possibly be.

If we hope to promote environmental protection and economic growth around the world, it will be important not to work in conflict, but with our industrial sectors. That will mean moving beyond the practice of command, control, and compliance -- toward a new kind of environmental co-operation -- and toward an emphasis on pollution prevention, rather than mere mitigation and litigation. Many of our industries, in fact, are already providing crucial research and solutions.

One corporation, for example -- and there are others, but I will single out one of them -- 3M started an in-house program called Pollution Prevention Pays -- one company. And that has saved the company well over a half a billion dollars since 1975 -- prevented 112,000 tons of air pollutants, 15,000 tons of water pollutants, and almost 400,000 tons of sludge and solid waste from being released into the environment. They have done it by rewarding employees for coming up with ideas. And they have clearly demonstrated the benefits of doing it right.

Where developing nations are concerned, I know some argue that we will have to abandon the free-market principles of prosperous economies. In fact, we think it is all the more crucial in the developing countries to harness incentives of the free enterprise system in the service of the environment.

I believe we should make use of what we know. We know that the future of the Earth must not be compromised. We bear a sacred trust in our tenancy here -- and a covenant with those most precious to us: our children and theirs. We also understand the efficiency of incentives -- and that well-informed free markets yield the most creative solutions. We must now apply the wisdom of that system, the power of those forces, in defense of the environment we cherish.

Working together, with good faith and earnest dialogues, I believe we can reconcile vitality with environmental protection. And so let me commend you on your outstanding work -- and wish you all deliberate speed in your efforts to address a very difficult, but very important, human concern.

Thank you all very much. It is a great pleasure to be the first President to address this distinguished group. Thank you very much".

1.2 Opening Remarks by Professor G.O.P. Obasi, the Secretary-General of the World Meteorological Organization (WMO)

In his remarks, Professor G.O.P. Obasi, the Secretary-General of WMO, thanked the President of the United States for addressing the session and said the gesture is testimony to the continued strong support which the United States government gives to IPCC.

He also thanked the government and people of the United States for hosting the session, and the authorities and particularly the President of Georgetown University for the excellent facilities provided for the session.

Professor Obasi noted the excellent collaboration and co-operation between himself on the one hand and Dr. Tolba and Professor Bolin on the other, which had ensured the satisfactory support for the IPCC Secretariat and the activities of the various working groups during the intersessional period.

He pointed out that much had happened on the issue of greenhouse gases and climate change since IPCC was first formed in 1988. Extensive studies and discussions had been undertaken. World leaders had, on a number of occasions, recognized the central importance of IPCC's work and many major conferences had advanced the discussions further. Beyond this, the natural environment had produced an exceptional crop of severe tropical cyclones, Gilbert, Sarah, Hugo, etc., and drought periods and other extreme events -- perhaps with early signs of a nudge from human activities which remind us how vulnerable even technologically advanced societies are to extremes of climate and atmospheric phenomena.

Professor Obasi recalled a number of the conferences and meetings. In February 1989, the first major event concerned with climate change and its potential impact on the developing world was held in New Delhi. At the same time, in Ottawa, an international group of policy and legal experts developed elements of a convention to protect the atmosphere and to address climate change. In March 1989, a meeting of 17 Heads of governments and seven senior representatives of other governments was convened in The Hague by France, the Netherlands and Norway, and it agreed on the need for strengthening international efforts to protect the global atmosphere. It especially endorsed the work of the IPCC.

Further efforts to strenghten the control of an important set of greenhouse gases, namely the CFCs, were undertaken at a major meeting in London and, in May 1989 in Helsinki, at a meeting of the Parties to the Vienna Convention on the Protection of the Ozone Layer and the associated Montreal Protocol on Substances That Deplete the Ozone Layer.

In June, the second full meeting of the IPCC in Nairobi addressed the question of greater involvement by developing countries in the IPCC process. In July, the leaders of the group of seven major western industrial countries, meeting in Paris at their annual economic summit, further endorsed the work of IPCC as well as the ongoing activities of WMO and UNEP. The Tokyo Conference on sustainable development in September 1989 addressed extensively the greenhouse gas-climate change issue and protection of tropical forests. This was followed by the World Energy Conference's 19th Congress in Montreal, which became an environmental event.

In September 1989, the Non-aligned Countries stressed in Belgrade the need for necessary and timely action to deal with climate change and called for the adoption of an international convention on the protection and conservation of global climate on an urgent basis. October 1989 saw the Heads of Commonwealth governments meeting in Kuala Lumpur and focussing in a major way on climate change and sea level rise and its impact on smaller, poorer members of the Commonwealth.

In November, after major IPCC working group meetings, the Ministerial meeting in the Netherlands came to grips with funding mechanisms to deal with mitigation and adaptation strategies in the developing world. The Cairo Conference in December took these ideas further, with special emphasis on developing world concerns. Also in November, the Maldives hosted important Ministerial discussions of adaptation strategies for sea level rise for smaller island and coastal countries. In Helsinki, 200 specialists participated in an important conference on climate impacts on water resources.

While all these events were taking place, the UN General Assembly's 44th Session considered progress on the climate issue as a follow-up to the resolution 43/53, introduced by Malta, on the protection of global climate for present and future generations of mankind. The session, inter alia, requested the Secretary-General of the United Nations to circulate for the information of delegations the reports of the third and fourth plenary sessions of IPCC, as well as its interim report, as official documents of the 45th (1990) session. It encouraged governments to support fully and participate actively in IPCC work and pointed out the need for assistance to developing countries so as to enable them to make their full contribution to the resolution of the climate change challenge.

The Executive Council of WMO and Governing Council of UNEP also met in 1989. WMO's Executive Council approved a climate change detection project and combined the world-wide Background Air Pollution Monitoring Network (BAPMoN), and the Global Ozone Observing System (GO_3OS) into the Global Atmosphere Watch. Measurement for 1988 and 1989 from these global networks show continuing, even accelerated, increases in greenhouse gases, and further depletion of the stratospheric ozone layer in Northern mid-latitudes and the Antarctic. Both governing bodies requested the two organizations to prepare for negotiations of an international convention on climate change, with negotiations to begin after the receipt of the IPCC report in September 1990; the U.N. General Assembly had supported this measure in its 44th session.

Professor Obasi said that these and other important events had permitted significant opportunity for talk and discussion of the climate change issue, but the time had come when discussions were no longer enough and actions were essential, which was where the IPCC came in. He said that recommendations for a concerted international attack on the greenhouse gas problem were urgently required and that the IPCC first assessment report should provide both a further diagnosis of the problem and a blueprint for wise global actions to address it.

Professor Obasi noted that the Second World Climate Conference, to be held in Geneva from 29 October to 7 November 1990, would be a first opportunity for broad discussion of the findings and recommendations of the IPCC. Immediately after that, the negotiation of an international convention would be initiated by WMO and UNEP. The negotiations would draw heavily upon the IPCC report and its recommendations as well as its compilation of the elements to be included in such a Convention. Professor Obasi expressed his gratitude to the President of the United States for his offer to host the first negotiating session.

Professor Obasi went on to mention the steps taken by himself and Dr. Tolba to strengthen the work of the IPCC Secretariat noting that the position of the IPCC Secretary had been elevated to a director's level as of 1 February 1990, that the level of the programme officer's position would be appropriately elevated and the Secretariat had received increased office accommodation in the WMO Secretariat in Geneva.

He expressed his gratitude for the contributions, especially to support the participation of the developing countries, that many governments had made and pledged to the IPCC Trust Fund. He appealed to the governments concerned to remit their contributions as soon as possible to avoid cash flow problems.

Professor Obasi concluded by saying that humanity can no longer continue to contaminate the atmosphere on a global scale without serious consequences and that 1990 is the year in which agreements should be reached on or at least some of the actions that must be taken; formal international arrangements to start the corrective process should begin to be put in place.

1.3 Opening Remarks by Dr. M.K. Tolba, the Executive Director of the United Nations Environment Programme (UNEP)

Dr. Mostafa Tolba, Executive Director of UNEP, thanked the U.S. Government for hosting the session. He hailed the decision by President Bush to personally open the session as a clear signal that the United States and the President himself were determined to be in the driver's seat in achieving proper stewardship of the environment and its resources, and in the fight to limit and adapt to climate change.

He thanked the President of Georgetown University for providing the venue for the session, Professor Obasi for his tremendous effort in IPCC affairs, and Professor Bolin, the Chairman of IPCC, and the Chairmen and Vice Chairmen of the Working Groups and subgroups, and the hundreds of scientists whose work with the IPCC had led to its current remarkable progress.

Dr. Tolba pointed out, that as with all major environmental problems, good science is the basic prerequisite for good policy and that the IPCC was providing the best possible scientific understanding of potential climate change and its impacts. But questions remained and opinion was divided. Dr. Tolba said that while more research was required, it would be irrational to continue gambling with our atmosphere.

Dr. Tolba further pointed out that when UNEP started estimating future ozone layer depletion levels in the 1970s, many dismissed the forecasts because of their wide variations. Yet, governments saw the risk and agreed to the Vienna Convention and Montreal Protocol. Science became more sharply delineated and governments were negotiating the complete phase-out of ozone-depleting substances.

Turning to the IPCC assessment report expected in September 1990, Dr. Tolba stated it would form a strong basis for required action. IPCC would have to continue to refine understanding of the climate change issue and to help in adjusting policy responses. He would recommend continuation of the IPCC to the special session of UNEP's Governing Council (Nairobi, August 1990).

In reiterating the possible consequences of global warming, associated impacts and the costs of dealing with them, Dr. Tolba noted that work was continuing on clarifying the options and costs of limitation and adaptation strategies, and stressed that the costs would likely inflate if we delay.

He stated that the potential to limit global carbon emissions through energy efficiency is enormous and that leading industrialized nations contribute more than 40% of the total emissions. The average U.S. citizen contributes five tonnes a year compared to two by his Japanese counterpart, and only a fraction of that from most developing countries. Technologies that significantly lower carbon emissions currently exist and Dr. Tolba said he expected the development of such technology to accelerate. However, it must also be used in developing countries.

Increases in population and economic needs suggest that the South would quadruple its energy use in a few decades. It is in the direct self interest of industrialized countries to provide the financial and technological assistance to help developing countries achieve their development goals without undue damage to the environment. Technology transfer must play a pivotal role in the proposed climate convention. Developing countries can only be expected to accept the discipline of legally-binding greenhouse emission reductions, if they have:

* a clear indication of the financial support they will receive;
* specific guarantees regarding technology transfer on a non-profit basis;
* a guarantee in practice that environmental protection does not mean, and cannot mean, conditional aid and loan funding.

Dr. Tolba said that this involved huge sums of money and legal obligations surrounding patents, licences and proprietary rights, and noted that these issues of additional resources, conditionality and technology transfer figured hugely in the resolutions of the 44th session of the General Assembly. Despite heated debates, the strong reference to all these issues was agreed by consensus.

The two issues already being faced are those of financial resources and technology transfer in the negotiations over the strengthening of the Montreal Protocol. Views seemed to be coming closer. Only four months were left before the London meeting of the Contracting Parties. There must be give and take in London to reach a reasonable package of changes to the Protocol. A collapse of the carefully designed Protocol would erode any possibility for agreeing on action to deal with other more serious global environmental issues, at the top of which comes climate change.

Dr. Tolba said that, when it came to resources, innovative thinking was needed about revenue-generation methods and market incentives and about channelling them through an acceptable international financial mechanism. One such method is user's fees which would be collected at the national level and credited in part to a common, international fund -- which would be used to provide subsidies to assist in technology transfer. But the fund should not be a substitute for existing bilateral and multilateral aid and financial institutions, but rather a safety net when such resources are unavailable or inadequate.

Dr. Tolba noted that the IPCC's progress confirmed the willingness of nations to work together on the global warming issue, as did the numerous high-level meetings held recently.

He also said he was heartened by the increased participation and scientific input by developing countries in IPCC activities and urged increased efforts to ensure that they become full partners in the first IPCC report and the negotiations that follow.

Dr. Tolba urged international support for the IPCC leading up to and following the submission of its First Report and expressed his appreciation for the invitation by President Bush to host the first negotiating session for the convention in Washington. He also stressed that governments would be best advised to ensure that their representatives in IPCC work constituted part of the delegations to negotiate the convention, in order to ensure proper technical input and continuity.

Dr. Tolba concluded by saying that everyone concerned with climate change should seek meaningful and open dialogue and not shy away from controversy. He noted that IPCC members had worked hard to ensure that the report was not deflected by a politicization of the climate change issue and that, through intellectual integrity, an unprecedented global partnership could be forged.

1.4 Opening Remarks by Professor B. Bolin, Chairman of IPCC

In his opening remarks, Professor Bolin welcomed the delegates to the meeting. He went on to say:

"We are at present, in the midst of preparing an extensive report on the climatic change issue and several of you at our last meeting therefore even expressed hesitance about having a meeting at this time. I personally think, however, that this meeting has become very important for the following simple reasons:

The large number of meetings that have taken place all around the world during the year of 1989 and particularly the Ministerial conference in Noordwijk in November of that year as well as the President of the U.S. greeting us at this time, show that there is now a general awareness among nations about the threat of a likely climatic change. A first phase of the politics of climatic change is thereby coming to an end and we are entering a second one.

This new phase can be most easily characterized by a few key questions that all of you, I am sure, naturally have in your mind and that most explicitly can be formulated as follows:

How will my country be hit?

What should my contribution to attempt to prevent, if possible, the changes that presumably have begun, but cannot be described accurately at present?

How should I act in the forthcoming negotiations about measures to be taken, simultaneously recognizing my obvious responsibility to co-operate internationally on one hand and safeguarding the interests of my own country on the other?

In view of the complexities of the issue, it is obvious that these questions cannot be easily answered and there is a danger that serious negotiations, that aim at agreements on measures to be taken jointly, will only begin slowly.

It should be recognized that there is the implicit belief in the way the requests to IPCC from the ministers in Noordwijk have been worded, that is that adequate answers can be given soon. I wish to stress my view, however, that we have a lengthy process ahead of us and that no delays in coming to grips with how to deal with this issue therefore are acceptable.

For these reasons, improving further our knowledge base and preparations for co-operative preventive actions must proceed in parallel. The IPCC has indeed organized its work in an attempt to satisfy this need as well as is possible. It is, I think, important to evaluate where we are today.

Although we are in the midst of an elaborate assessment, which is only the first one of many, I venture to summarize some general aspects of what seems to be emerging. What I say should be viewed as glimpses of what is being done, the full report becoming available in about a half a year's time. Even at that time there will be many unresolved questions.

Greenhouse gas emission policy must rely on a careful comparison between the role of the different gases, often expressed in terms of the concept of CO_2 equivalence. The Noordwijk conference requested the IPCC to establish such equivalences.

This is by now reasonably well in hand. The analysis reconfirms the major role of the CFC's and their relative importance and effectiveness and the moderate efforts required for taking preventive measures. I wish the negotiators in London in June 1990 the very best of luck in their discussions of sharpening the Montreal protocol and ensuring its implementation. I am sure you all will agree.

Further, the analysis is of particular interest for understanding the role of methane in the global warming issue.

While our understanding of the CO_2 equivalence concept is reasonably well in hand, progress in the field of climate change predictions is achieved only slowly, in spite of increasing resources and major efforts by a number of (even though still too few in my view) research groups in the field. There will not be any quick answers because the fundamental difficulty is to validate the models. It seems plausible that the present range of uncertainty, i.e., global warming by 1.5°C to 4.5°C for the case of a doubling of CO_2 in the atmosphere, will narrow somewhat during the next five years.

I do not expect, however that we shall have reliable regional projections of change until we understand why climate change during the last 100 years has been so different in different parts of our globe. (The north polar regions north of 66°, for example, cooled by 1 - 1.5°C from 1940 to 1975). Similarly we need to understand if the increase of droughts in Africa during the last two or three decades are indications of an ongoing change or major anomalies around the steady state. We do not even know to what extent such regional anomalies actually are predictable.

The stakes for doing nothing are, however, very high. When we will be able to say with reasonable assurance that a global climate change is on the way, it is certain to be twice as large simply because of the inertia of the climate system. In addition, the higher the emissions are, at the time an ongoing climate change is ascertained, the longer it will take until we might be able to stabilize climate; we know well the inertia of the global society.

Further, I am wondering sometimes why those that consider the projections to be overestimates of future changes are considered more sensible by many politicians than those that worry about the upper part of the scientifically established uncertainty range. Finally, the inadequate consideration of clouds in models can equally well imply an underestimate of the climatic change as an overestimate as often inferred. What we have learned is that model calculations are sensitive to the way we include clouds. The report of IPCC Working Group I will address issues of this kind, but not be able to provide more definite answers as yet.

The most crucial questions about preventing climate change concern how to stabilize and gradually decrease CO_2 emissions. This concerns the use of fossil fuels as a source of energy and the ongoing deforestation of tropical forests. It is then important to recall that the former activity contributes 2-4 times as much to the emissions as does deforestation, and could contribute 5-10 times as much a few decades into the next century, in a case of business as usual with regard to fossil fuel use. There is no question about the fact that next to the further strengthening and implementation of the Montreal Protocol, the future use of fossil fuels is the key issue and it is a most difficult one to resolve. In saying so I do not disregard the importance of reducing the emission of other greenhouse gases, or of NO_x and hydrocarbon emissions, that is fundamental for keeping tropospheric ozone at a desirably low level. The fossil fuel issue, i.e., the energy issue is, however, undoubtedly the critical one and must be addressed <u>now</u> if we wish to arrive at international agreements reasonably soon.

Since energy is fundamental to development and since high efficiency technology can be further developed in industrial countries, but is not available in most developing countries, because of lack of capital and know-how, it is obvious that for a peaceful and globally fair approach to the problem of carbon dioxide emission, we must recognize:

(i) that the industrialized countries carry a key responsibility to start now to stabilize CO_2 emissions and soon to reduce them;

(ii) that the development and provision of other energy sources is urgently needed, particularly in developing countries, and it is going to be a costly undertaking;

(iii) that financial aid and technology transfer therefore will be required (it is useful to recall that the cost of the fossil fuel used by the world presently is $500-1000 billion dollars annually);

(iv) that both increased end use efficiency of energy and the transfer of funds for stabilizing emissions in developing countries may be economically advantageous for the donor countries now and certainly will be so in the long term perspective of the global change issue.

It seems necessary that the global environmental problem of climatic change is brought in as a key component in the future development of a sound and equitable world economy and of world trade. It is important to analyze carefully how this can be achieved most effectively. This is a task for Working Group III.

Of course many will at this stage ask: How bad will a change of climate be for the people of the world? Since we as yet cannot foresee the regional distribution of a climatic change, we are not able to tell more precisely who will be most vulnerable and who will not. The IPCC Working Group II will be able to provide information about sensitivities, but not yet provide anything like global maps of vulnerability and severity of the problem.

This is one crucial dilemma that we shall have to live with for quite some time. The IPCC of course is taking its task seriously and will spend some time to discuss how the IPCC work be best pursued after August this year when its first report will be agreed upon and distributed around the world. The many hundred people that have been involved in this work full-time or part-time, I am sure, are anxious to attend to this global issue also in the future. This is one in which the marriage of science and politics in the good sense of the word is indeed most essential.

Let us get to work. Thank you".

1.5 Approval of the agenda

The provisional agenda was amended as follows:

a. Under Item 2.1, the Paris economic summit was included;

b. New Item 2.4 was inserted on the preparations by UNEP and WMO for negotiations on a framework convention on climate change;

c. New Item 2.5 was inserted for statements by non-governmental organizations;

d. New Item 3.0 was inserted on emissions scenarios.

The agenda, as approved, is given in Appendix B.

1.6 Programme of work of the session

The Panel agreed to arrive at decisions by consensus.

2. OTHER ACTIVITIES RELATED TO CLIMATE CHANGE

The Panel noted that the Paris economic summit and conferences in Tokyo, Noordwijk, Malé, Cairo and the Federal Republic of Germany, the meeting of the Commonwealth Heads of States and the Conference of the Non-Aligned Nations had considered the issue of climate change.

2.1 Declarations at various international/intergovernmental/ministerial conferences

The delegates of France, Japan, The Netherlands, Maldives, Egypt, the Federal Republic of Germany, Malaysia and India highlighted the main parts of the above conferences that relate to climate change and to IPCC. Copies of the reports of the conferences are available in the IPCC Secretariat.

2.2 Resolution of the 44th (1989) session of the U.N. General Assembly related to IPCC activities

Resolutions 44/207 on the protection of global climate for present and future generations of mankind and 44/228 on the UN Conference on Environment and Development were circulated to the Panel for information.

2.3 Preparations for the Second World Climate Conference (SWCC)

2.3.1 Mr. Howard Ferguson, the SWCC Co-ordinator, informed the Panel that the Conference is scheduled to take place from 29 October to 7 November 1990 at the International Conference Centre in Geneva. The major themes would be the World Climate Programme and the issue of climate change, including the IPCC first assessment report. Six days of scientific/technical discussions would be followed by a two-day preparatory interval and a two-day Ministerial meeting. The attendance is expected at 350 to 500 and 100 to 150 media representatives. The output of the Conference would include a Declaration and an Action Plan which might be endorsed by the Ministers.

2.3.2 After considerable discussion of the needs of the developing countries and the contents of the Ministerial declaration, the Panel agreed that:

a. it unanimously supported the views of the developing countries that their interests in the climate change issue might be one focal point within the SWCC process;

b. the subjects for consideration at the ministerial segment of the Conference should be defined by the Organizing Committee in consultation with the participating governments;

c. it would make all its information available to the SWCC Organizing Committee as soon as possible.

2.3.3. The Panel urged the Secretary-General of WMO and the Executive Director of UNEP to seek active participation of governments in planning for the Conference and the ministerial segment, including the preparation of a ministerial declaration, to ensure that their views are fully taken into account, and to consider, for this purpose, the possibility of calling a meeting of an open-ended working group.

2.3.4 Several countries expressed the view that governments should engage in the preparatory work for the Ministerial component of the Second World Climate Conference with the aim that the Ministers adopt - on the basis in particular of the IPCC report and the Noordwijk Declaration - a declaration including:

- a commitment from the industrialized nations to stabilize, as a first step, emissions of carbon dioxide not later than the year 2000;

- principles and possible elements of a framework convention and protocols, the first of which could possibly cover carbon dioxide reductions in industrialized nations, reforestation measures, protection of tropical forests and the financing of these.

In their view, this would require at least two preparatory meetings, one in early summer and one in September.

2.4 Preparations by UNEP and WMO for negotiations on a framework convention on climate change

2.4.1 The Executive Director of UNEP, at the request of the Chairman, informed the session of the preparatory work being undertaken in connection with the forthcoming negotiations for a framework convention on climate change.

He stated that:

- o the IPCC is expected to produce the elements for a framework convention on climate change. Resolution 43/53 of the UN General Assembly called on the Executive Heads of WMO and UNEP to ensure that the IPCC report covers five areas, including elements for a framework convention on climate change. The responsibility of IPCC is to produce those elements and not to negotiate a convention;

- o the Task Force established by UNEP and WMO for the preparation for negotiations was part of the process of formulating a framework convention on climate change. It was an advisory body to the two Executive Heads on the steps to be taken by both WMO and UNEP in the development of a framework convention on climate change. The Task Force consisted of two members from UNEP, two from WMO, the Co-ordinator of the Second World Climate Conference and three members from IPCC in their personal capacities;

- o the Second World Climate Conference would provide a third forum in the preparatory process for the development of a framework convention on climate change. The Ministerial part of that conference would make recommendations on which elements proposed by IPCC should be stressed in a framework convention;

- o the General Assembly had directed that the negotiation process commence shortly after the publication of the IPCC First Assessment Report and that on the commencement of its 45th session, it would make recommendations on the modalities of conducting further negotiations;

- o a body that would have to be periodically informed of the progress in the negotiations is the Preparatory Committee for the 1992 UN Conference on Environment and Development. It may be recalled that one of the items to be discussed at the 1992 Conference is the atmosphere, including climate;

- o apart from soliciting views of governments, the WMO/UNEP Task Force was examining ways of ensuring proper co-ordination between the various organs established as part of the preparatory process in the negotiations for the framework convention on climate change.

2.4.2 Dr. Tolba proposed the following timetable:

(i) A meeting of the legal and technical intergovernmental group, which would negotiate the convention, is expected to be convened jointly by the Secretary General of WMO and the Executive Director of UNEP during late September or early October 1990 in an organisational session. He re-iterated that he would recommend to the UNEP Governing Council that participants in IPCC form part of their governments' delegations to the legal and technical intergovernmental group. He expected similar recommendation to be made by the Secretary General of WMO to his Executive Council.

ii) The Ministerial part of the SWCC (November 1990) would have before it, the deliberations of the organisational meeting of the legal and technical intergovernmental group and the report of IPCC.

iii) The relevant deliberations of

(a) the Preparatory Committee for the 1992 Conference,
(b) the legal and technical intergovernmental group, and
(c) the Ministerial part of the SWCC,

would all be expected to be available to the 45th session of the UN General Assembly.

2.4.3 Dr. Tolba added that he and Prof. Obasi would be recommending to their respective governing bodies that the IPCC continue to have the responsibility to generate information for the negotiators of the convention (and the protocols, as the case may be) and later as a continuing process to advise governments on science, impacts and policy responses after the convention is signed.

2.4.4 While agreeing that the IPCC should not divert itself from its specific objectives of providing response options, a view was expressed that an ad-hoc group of legal and technical experts was not the only or best way to prepare for negotiations. That process may depend upon the outcome of the 45th (1990) session of the UN General Assembly.

2.4.5 Another delegation noted that the findings and conclusions of the IPCC, appearing as part of its first assessment report, should have a sound scientific basis. This was important because the outcome of the work of IPCC and its Working Groups would have much socio-economic and political value.

The delegation stressed that legal measures should be considered as an element of response strategies which would be based on comprehensive assessments of national capabilities and interests. It further stressed that an approach to the climate change issue based on the conclusions of the IPCC would be the most effective mechanism, which would permit the solution of the problem taking into account the concept of environmentally sustainable development.

2.4.6 Several delegations, having in mind the interim reports and discussions of the third plenary session of the IPCC, convinced that any delay in action may endanger the future of further generations of mankind and concerned about decisive action which is urgently needed, urged to channel and accelerate ongoing international activities and therefore, to avoid duplication of work, proposed that:

> bearing in mind the resolution 44/207 of the UN General Assembly which requested the Executive Director of UNEP in co-operation with the Secretary-General of WMO to begin preparations for negotiations on a framework convention on climate, the Executive Director of UNEP and the Secretary-General of WMO should establish an open ended ad-hoc working group of legal and technical experts with the aim to prepare the formal negotiations for a climate convention with additional protocols. Such negotiations should start immediately after the adoption of the IPCC Report, should be based on the IPCC Report and inter alia, on the Noordwijk Declaration, and should take into account the results of the Special Session of the Governing Council of UNEP as well as of the Ministerial Conference of the Second World Climate Conference.

2.5 Statements by non-governmental organizations

2.5.1 On behalf of the non-governmental organizations, the following representatives addressed the session:

(i) Jan Henselmans, Stichting Natuur en Milieu (Netherlands)
(ii) Jerremy Leggett, Greenpeace International (UK)
(iii) Andrzej Kassenberg, Polish Ecological Club (Poland)
(iv) Argus Turnomo, Indonesian Environmental Forum (Indonesia)
(v) Kwame Takyi-Mensah, Friends of the Earth (Ghana)
(vi) Professor Tsonet Ushi Yamamura, Citizens Alliance Saving the Atmosphere (Japan)
(vii) Alden Meyer, Union of Concerned Scientists (USA)

2.5.2 Summaries of their statements are given in Appendix E.

3. PROGRESS REPORTS BY THE CHAIRMEN OF THE WORKING GROUPS (WGs) AND DISCUSSION

3.0 Emissions scenarios

3.0.1 On behalf of the U.S./Netherlands Task Group on scenarios, Drs. Tirpak and Vellinga presented the Working Group III scenarios which assume an equivalent doubling of CO_2 during the years 2030, 2060, and 2090 and stabilization well below doubling. The scenarios correspond to high emissions, low emissions, controlled policies and accelerated policies. Population growth and economic growth are assumed to be equal for all cases; both are higher for developing countries than for industrialized countries. Technological developments and environmental measures vary in different scenarios.

3.0.2 The high emissions scenario reflects a coal intensive future, continuing deforestation and no further CFC reductions beyond the Montreal Protocol. The low emissions case is gas intensive, deforestation is reversed and energy efficiency is increased globally by 2% annually. In the control policies case, additional renewable and nuclear energy are phased in, in the middle of the next century and CFCs are phased out. Two cases were developed for the accelerated policies scenarios. One of them assumes a rapid deployment of renewables in the first half of the next century. The other is consistent with the Toronto* recommendations and implies an immediate shift to non-carbon fuels.

3.0.3 The scenarios suggest that a reduction of greenhouse gas emissions in the industrialized countries combined with a moderate growth of emissions in the developing countries can slow down climate change; further economic analysis is urgently required to assess these scenarios.

3.0.4 In the discussions, the representative of Working Group I stated that the climate and sea level consequences of the four scenarios had been computed. He cautioned that the calculated times for the equivalent CO_2 doubling were ahead of the times the titles of the four scenarios would suggest. He also stated that in Working Group I, these four scenarios are referred to as A, B, C, D; he pointed out that in order to be understandable the scenarios should be referred to by the same name in both Working Groups I and III.

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* Conference on the Changing Atmosphere: Implications for Global Security, Toronto, Canada, June 1988

3.1 Progress Report of Working Group I

3.1.1 On behalf of Dr. J. Houghton, Chairman of Working Group I, Dr. G. Jenkins reported that work was proceeding according to schedule and the report and policy-makers' summary would be available in mid-June. He informed the session that from the latter half of 1989 to January 1990, 16 workshops had been organized to prepare drafts of each of the sections. The workshops, which had involved experts from developing and developed countries, had ranged from one day preparatory sessions to week-long meetings.

3.1.2 Dr. Jenkins reported that, whilst there are a number of techniques which can be used to produce scenarios in order to investigate the sensitivity of, for example, ecosystems, one specific task placed on Working Group I is to advise Working Group II on the most likely scenario of climate change over the next few decades. Workshops to review the predictions from numerical models (GCMs) and their credibility were held in Brisbane, Australia, in December 1989.

3.1.3 At the specific request of Chairman of Working Group II, an additional workshop was organised to consider the paleo-analog technique of climate forecasting and the predictions arising from it, at Bath, UK, in November 1989.

3.1.4 As a result of these workshops, information was passed to Chairman, Working Group II, advising that, whilst paleo-analogs can be used as scenarios to investigate the sensitivity of ecosystems etc. to climate change, they cannot be employed directly for predictions. In addition, paleo climate information is important, especially in validating numerical models.

3.1.5 Therefore, whilst both techniques have their shortcomings, the global and continental scale changes from numerical models should be employed as predictions to represent the important features of a changed climate.

3.1.6 Dr. Jenkins reiterated that as requested by IPCC, Working Group I was paying special attention to modeling studies in five regions of the globe selected on the basis of their climatological characteristics. This would indicate the manner in which temperature and precipitation changes predicted by different models differ. The discussion of the results would form a major component of the Working Group report.

3.1.7 The Panel was informed of the modeling work being undertaken in several countries but co-ordinated by Working Group I to study the relationships between the emissions of greenhouse gases and their atmospheric concentrations for stabilization at their current or other levels. This is one of the recommendations contained in the Noordwijk Declaration (see para 3.4.19 below also).

3.1.8 The Panel was further informed that the drafts of each of the sections had been combined into the first draft report of the group which would be presented to a meeting of lead authors scheduled for late February (1990) in Edinburgh. The lead authors would ensure that the document is a clear and concise statement of the current understanding of the climate change issue. A second draft of the complete report would be presented to the Working Group plenary in Windsor, UK, during 23-25 May, 1990.

3.1.9 Dr. Jenkins said that the question of peer review would be raised at the meeting of lead authors but noted that as a wide peer review as possible would be sought. He also stated that the issue of distinguishing between natural fluctuations and those due to human activities would be addressed in the report. Dr. Bernthal, the Chairman of Working Group III, stressed that the peer reviewers should not be confined to those directly involved with climate research.

3.1.10 Dr. Jenkins indicated that a detailed description of the models being used will be made available to those scientists who request them. He reiterated that the models do not have the capacity to provide regional characteristics of climate change.

3.2 Progress Report on Working Group II

3.2.1 On behalf of Professor Yu. A. Izrael, Chairman of Working Group II, Dr. Metalnikov presented a report on the second plenary of the Working Group (Geneva, 31 October - 3 November 1989).

3.2.2 For assessing the socio-economic consequences of future climate changes resulting from man's activities, it is necessary to know the scenarios of those changes. The scenarios should include indications of ranges of possible air temperature, precipitation amounts, soil moisture, and run-off in different seasons in various regions of the globe by the year 2000. Such information is, in fact, necessary into the next century up to the time of the equivalent doubling of CO_2 concentration in the atmosphere. In this respect, the Working Group II participants expressed their particular concern with the absence of any recommendations from Working Group I on scenarios of possible climate change. This absence had caused difficulties in the carrying out of Working Group II tasks, and in the long run may lead to incorrect assessments of consequences.

3.2.3 Dr. Metalnikov informed the Panel that the report of the subgroup on agriculture, forestry and land use was presented to the session. Some delegates emphasized the need to evaluate the consequences on the sensitivity and vulnerability of various geographical regions without being country specific. Others expressed the view that some of the assessments for some countries and types of produce (e.g., China, USSR, Africa) were not specific enough; they emphasized the need to include such specificity where possible. The participants generally agreed that the interactive effects of various greenhouse gases on crops needed to be assessed and that separate sections on extreme events and the impact of climate change on soil degradation and land use needed to be included.

3.2.4 Five draft manuscripts of lead authors were tabled to the subgroup on natural terrestrial ecosystems. Countries not previously involved in the report were invited to identify contacts to become active in preparing the draft and subsequent reviews. It was agreed that CO_2 enrichment and impacts of other greenhouse or polluting gases would be examined. There are only a few well-known effects of CO_2 enrichment and climate change and the subgroup emphasized that only two -- changes on productivity of plants and decomposition of organic matter under changes of temperature and precipitation -- appear almost immediately following changes in temperature and CO_2 concentration.

3.2.5 The status of the work of the subgroup on hydrology and water resources was reported to the session. It was noted that changes of the regional run-off due to climate warming could be very significant, especially in arid and northern areas. New inputs were received from a number of countries with others expected. The Working Group had recommended that the number of participants and the area of estimates of hydrological results be increased and that participants from Latin America, China and Nigeria prepare submissions for those regions.

3.2.6 The subgroup on energy, industry, transport, human settlements and health agreed that a better projection of possible impacts of climate change on development was desirable and asked those with relevant case studies to supply them; more information on climate-change impacts on biomass and other energy forms was also requested. It was recommended that research on alternative energy sources and demonstration of their dependence on climate change should be accelerated. There was consensus that the report should acknowledge that response strategies could have large impacts on energy, industry, transport and human settlements but that further evaluation of these alternatives be left to Work Group III (see also para 3.2.11).

3.2.7 The draft reports on climate-change impacts on world oceans were presented to the session. It was stressed that expected climate warming would be accompanied by changes in physical, chemical and biological processes in oceans. The drafts included a report on sea-level rise and the final report would quantify impacts based on three scenarios -- use of 0.5, 1 and 2 metres. It was recommended that the subgroup interface with the UNEP regional seas programme.

3.2.8 The presentation of the subgroup on cryosphere and permafrost contained analyses of the state of the understanding of the impact of climate change on permafrost. It was noted that some nations may require norms and standards for design and construction and other similar kinds of human activities taking into account the predicted climate warming in the cryolitho-zones and that Working Group III should be made aware of this. This section would contain a discussion of climate-warming impact on glaciers and Alpine cryolitho-zones.

3.2.9 Dr. Tegart, Vice Chairman of Working Group II, noted the complexity of the work of the group resulting from the multidisciplinary nature of the topics it encompasses. Most of the experts involved in its work have had no previous interaction as they came from different disciplines. He informed the session that the group would shortly bring together a final series of reports which would enable it to identify any existing gaps and therefore complete the report on schedule. He informed the Panel that the planned meeting of the co-chairmen would go a long way in achieving that objective.

3.2.10 Dr. Tegart added that one of the difficulties the group had experienced was that of lack of scenarios and welcomed the updated inputs from Working Group I. He also stressed the significance of inputs from Working Group III, in particular those from the Coastal Zone Management subgroup which were needed for any consideration of the impacts on coastal areas, particularly on the question of wetlands.

3.2.11 Vice Chairman Hashimoto noted that due to lack of time, the impact of response strategies had not been given sufficient attention by Working Group II. He reiterated that collaboration between Working Group II and Working Group III could resolve this issue.

3.2.12 The Panel noted that the report of Working Group II would determine the potential environmental and socio-economic consequences resulting from climate change and would therefore underpin the case for action. The attention of the Working Group was drawn to the report of the Commonwealth Group of Experts which was identified by the Commonwealth as a valuable contribution to the work of IPCC.

3.3 Progress report of Working Group III

3.3.1 Dr. F. M. Bernthal, the Chairman of the Working Group, made the report to the Panel.

3.3.2 After describing the meetings of the subgroups and the two meetings of the Working Group, Dr. Bernthal pointed out that the energy and industry subgroup (EIS) was: (i) renewing its repeated request for more country submissions, and (ii) considering how to integrate case studies and other analyses so as to prepare an assessment with global relevance. There is a need for more case studies also.

3.3.3 The subgroup on agriculture, forestry and other human activities (AFOS) was concentrating its efforts on assessing the current knowledge of emissions of CO_2, methane and nitrous oxide from boreal forests, temperate forests, tropical forests, tropical savannahs and agriculture. The emphasis in the boreal and temperate forest work was on silvicultural technology to improve production, while the tropical forest work emphasized policy options to promote conservation, sustainable agriculture and reforestation, including the development of an international forestry protocol in conjunction with an energy protocol on fossil fuels. The agricultural emissions work was focussing on understanding and characterizing emissions and identifying emission mitigation technologies for agricultural systems in boreal, temperate and tropical climate zones, and for rice and livestock production systems.

3.3.4 The coastal zone management subgroup (CZMS) had considered potential strategies to adapt to sea level rise and other impacts of climate change and the socio-economic, legal, environmental, financial and cultural implications of such strategies.

3.3.5 The subgroup on resource use and management (RUMS) was focussing on food security, biological diversity and water resources along with eight topic papers on agriculture, forests, fisheries, animal husbandry, water resources, unmanaged ecosystems, salinization and desertification and land use management. Response strategies were broadly classified in three categories: (i) those actions which are necessary to develop the knowledge essential for making decisions; (ii) those which could make sense whether or not climate were to change and therefore could be considered in the short run; (iii) those, because of their costs, which could wait for a better definition of the magnitude and timing of climate change.

3.3.6 In addition to the above, the Working Group had addressed the tasks of developing scenarios for future greenhouse gas emissions and of considering mechanisms for implementing response strategies. A description of the former task is given in section 3.1 (emissions scenarios) above.

3.3.7 The implementation measures in the areas of public education and information, financial measures, technology development and transfer, economic measures, and legal measures were being considered. The last included elements of a framework convention on climate change. The topic papers on these areas were open for further comments from countries.

3.3.8 The public education and information measures would emphasize the importance of an informed global population. The Working Group was developing suggestions for improving international awareness of the climate change issue, recognizing that, while broad-based understanding is essential, no single mechanism is appropriate for every group, culture or country.

3.3.9 In respect of financial measures, the responsibility of the industrialized and developing worlds in sharing the common responsibility would be pointed out. The special needs of the latter, including their vulnerability to climate change, lack of financial resources and technology and the need for additional resources is recognized. Co-operation at the international, regional and subregional levels is essential.

3.3.10 With regard to technology development, assistance and transfer, the success of limitation and adaptation strategies depends upon increased access to appropriate technologies and their deployment on a broad scale. Technology development and transfer incentives, energy end-use and supply technologies, chlorofluorocarbon substitutes, and innovative agricultural and forestry production methods would be considered as important activities for measures to limit greenhouse gas emissions.

3.3.11 Among the economic measures considered would be tradeable permits, emission charges, subsidies and economic sanctions used in the enforcement of international agreements. The importance of regulations and other government directives, particularly in centrally-planned economies, is recognized. The total social costs of achieving national and international goals for the limitation or reduction of greenhouse gas emissions and adaptation to climate change could be minimized through the use of economic instruments.

3.3.12 A framework convention on climate change is considered timely and necessary; the 1985 Vienna Convention should provide a point of departure for developing such a document. There is consensus that, at a minimum, the convention should set forth principles of co-operation, provide a legal and institutional framework for monitoring and assessing climate change and for developing and implementing responses. The convention and its protocols should deal with the special circumstances of developing countries, including mechanisms for providing financial and technical assistance. Some nations have suggested that binding commitments and control measures also be included in a framework convention.

3.3.13 The topic co-ordinators on the legal measures paper have further refined and rationalized the paper developed in a workshop held in October 1989. The revised paper focussed more clearly on areas of agreement among the participants, while equally clearly identifying remaining areas of disagreement or alternative suggestions which have been made on certain issues.

3.3.14 The topic co-ordinators would continue to refine the papers until 1 April 1990. It is hoped that the legal issues paper would ultimately provide a road-map for negotiation of the framework climate convention by laying out clearly those issues that require negotiation.

3.3.15 The Working Group requested the IPCC, which the Panel endorsed, to urge all countries to undertake national analyses of their greenhouse gas emissions. Not only would such data be necessary for an accurate assessment, but countries could learn much about their individual situation through such an exercise. There is recognition that such data might be considered sensitive in some countries; nevertheless, for example, the coastal zone management work would benefit greatly from a large number of country submissions on coastal zone data.

3.3.16 In the course of the discussion of the report of the Chairman of Working Group III, various countries expressed the following views:

a. that the whole range of alternatives for response strategies should be made available to countries;

b. that follow-up by IPCC on Noordwijk Declaration (see Appendix F) is essential;

c. that the preparations for negotiations should be pursued;

d. that the convention and its protocols should be designed on the basis of equal benefits for both industrialized and developing countries. The special circumstances of developing countries should be paid attention, by providing financial and technical assistance.

3.3.17 One delegation observed that slowly but surely the discussion was being driven towards the issue of a framework convention, instead of on the real outcome of the Working Group activities. As examples of the latter, the importance of the availability of a set of scenarios of the evolution of the climate system was cited as was the question of whether Working Group III would provide a set of recommendations on response strategies. The delegation noted that with the current level of knowledge, it seemed premature to discuss the content of future protocols.

3.3.18 A few delegations supported initiation of activities as soon as possible on climate convention (see para 2.4.4 above also).

3.3.19 With regard to the remits of the Ministerial Conference in Noordwijk, Netherlands in November 1989, the Panel agreed to undertake within its Working Groups, the work necessary to respond to them.

a. To the extent possible, the responses on the requests for analysis of policy options to stabilize or reduce greenhouse gas emissions would be included in the IPCC First Assessment Report and in the information provided to the Second World Climate Conference. These include:

   - "analysis of target options" (para 15 of the Noordwijk declaration)

   - levels of stabilization of CO_2 emissions of greenhouse gases not controlled by the Montreal Protocol (para 16)

- "the investigation of the feasibility of achieving targets to limit or reduce CO_2 emissions including, e.g., a 20% reduction of CO_2 emission levels by the year 2005" (para 16). The Energy and Industry Subgroup (EIS) of IPCC Working Group III was requested to explore the above remits in concert as necessary with the task group on emission scenarios of the Working Group*. The Energy and Industry Subgroup (EIS) requested case studies and relevant economic, technical assessments and analyses to complete this work. It would establish a work plan taking into account voluntary offers (e.g., of UK to host a meeting in June 1990).

b. The feasibility of the provisional aim of afforesting 12 million hectares per year by the beginning of the next century (para 21) would be examined by the subgroup on agriculture, forestry and other human activities (AFOS) of Working Group III.

c. The analysis of "the concept of CO_2 equivalence" (para 10) was referred to Working Group I.

3.3.20 The Panel also agreed that:

- Working Group III prepare its work in a way that the whole range of response strategies and options are included in its report;

- the urgency of the issue of response be stressed;

- the report of the Working Group would be of value to the Second World Climate Conference;

- UNEP and WMO deal with questions of when work should begin with respect to legal instruments on climate change; however, the Panel expresses its willingness to provide factual information;

- it unanimously considers the strengthening of the Montreal Protocol, consistent with the needs of the developing countries, as essential to slow down the potential global warming effects of the substances that deplete the ozone layer.

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* See section 3.0 for a report of the task group.

4. REPORT OF THE IPCC SPECIAL COMMITTEE ON THE PARTICIPATION OF DEVELOPING COUNTRIES

4.1 Mr. Jean Ripert, the Chairman of the Special Committee on the Participation of Developing Countries, made the report to the Panel.

4.2 The Committee met in its first session in Paris from 28 to 29 September 1989. Dr. A. Al-Gain, the Vice-Chairman of IPCC and the Chairman of the earlier Ad-Hoc Group on the subject, attended as a special invitee.

4.3 Mr. Ripert placed before the Panel the terms of reference which the Committee had agreed to. The Panel endorsed the terms of reference, which appear in Appendix G.

4.4 Mr. Ripert stated that the Committee was focussing on the immediate-to-near term measures, knowing that some of the measures may be overlapping with the responsibilities of Working Group III. The Committee recommended the following four areas for the attention of the Panel:

- travel assistance for the experts from the developing countries for participation in IPCC activities;

- seminars, undertaken on a quick basis (the so-called crash seminars), to inform the opinion leaders;

- establishment of national mechanisms to co-ordinate all aspects of the climate change issue; this step could also provide a central point of contact;

- development of informed manpower; this would include both information and technology transfer.

4.5 Mr. Ripert further stated that in 1989, travel assistance in the amount of approximately SFR 370,000 was provided. This may be compared with the proposed amount of SFR 220,000 in the 1989 budget. This was possible only because of the generosity of the contributors. The efforts in this regard both by the donor nations and the IPCC Secretariat should continue and be strengthened in 1990.

4.6 The other recommendations of the Committee would be on the agenda of its second session (Washington D.C., 9 February 1990) for further discussion.

4.7 The Government of France announced an additional contribution of FF 200,000 to the IPCC Trust Fund. It also offered to second a professional officer to WMO to assist in matters related to the developing countries within the World Climate Programme.

4.8 The Government of the Netherlands announced a contribution of Hfl 200,000 to the IPCC Trust Fund for the purpose of providing travel assistance to experts from the developing countries to participate in IPCC activities.

4.9 In the course of its discussion, the Panel:

- noted the offer of Nepal to host a regional seminar on the Himalayas as a climate determinant and the plans of Japan to host a seminar for the developing countries in Asia in 1991;

- agreed that existing centres of training such as the WMO Regional Training Centres need strengthening;

- agreed that meetings of the developing nations prior to international activities such as the fourth plenary of IPCC and the Second World Climate Conference be facilitated;

- endorsed the proposal by the developing countries on the immediate activities to be carried out (see Appendix H for details).

5. IPCC BUDGET AND OTHER SUPPORT

5.1 The Chairman called upon the Secretary of IPCC, Dr. N.Sundararaman, to present the budget request for 1990 (see Appendix I for details). In the course of the presentation, Dr. Sundararaman emphasized that the budget was based on the assumption of no activities (e.g., meetings) in addition to those itemized in the budget proposal. If any activity were added on, then corresponding resources would have to be found. Also, the budget was formulated only through the fourth plenary of IPCC (Sundsvall, Sweden, 27-30 August 1990).

5.2 Dr. Sundararaman pointed out that no request had been made for translating the 200-odd page reports of the Working Groups into the UN languages. Individual countries were considering providing such translation (see also Appendix I):

* The State Meteorological Administration of the Government of China had agreed to do the translation into Chinese.

* The Atmospheric Environment Service of the Government of Canada had agreed to do the translation into French.

* Dr. A. Al-Gain, Vice-Chairman of IPCC, was looking into the possibility of translating into Arabic.

* The State Committee for Hydrometeorology of the Government of the USSR had been approached for translation into Russian.

* The National Meteorological Institute of the Government of Spain was looking into the possibility of translating into Spanish.

5.3 The Government of Sweden announced a contribution to the IPCC Trust Fund of $30,000 of which $20,000 were to be earmarked for supporting the travel of experts from the developing countries. The Government of Canada announced a contribution of Can$ 100,000 which would include its offer to translate the Working Groups reports into French. The Government of Norway announced a contribution of Nkr 150,000 for the support of travel of experts from low income developing countries.

The Government of the United Kingdom announced a contribution of £45,000 of which £25,000 were to be reserved for the support of travel of experts from the developing countries. These and the contributions pledged earlier (see section 4) are included in Appendix I)

5.4 The Panel approved the 1990 budget request with the following additions:

(i) the number of developing countries which would be supported for attendance at the plenary meetings of the 3 Working Groups would be raised to 20 from the 15 proposed in the budget (see Appendix J for the schedule of IPCC meetings).

(ii) the Special Committee would hold the following meetings to draft and approve its contribution to the IPCC first assessment report:

* a meeting of the drafting group in early April 1990;

* a plenary convened as an "open-ended" group in late May/early June 1990 to approve the draft.

5.5 The Panel also endorsed the proposal of the developing countries (see Appendix G) for holding a one or two day pre-session meeting of the developing countries prior to its fourth plenary. The Chairman of IPCC would explore the feasibility of this action further.

5.6 The Panel agreed that there may be a need for meetings of/on the subgroups/sections/topics in addition to those proposed in the 1990 budget request. In such an event, the co-chairmen/lead authors/topic co-ordinators should work closely with the Secretary of IPCC to ensure adequate funding for the participation of the developing countries and other expenditures.

5.7 One delegation from the developing world, supported by two other delegations, suggested that the developing countries need guidance in the legal aspects connected to climate change and that provision be considered for such. The Chairman proposed that Working Group III discuss this matter further.

6. IPCC ACTIVITIES AFTER THE COMPLETION OF THE IPCC FIRST ASSESSMENT REPORT

6.1 There was general consensus on the need for the continuation of IPCC. The Panel would take up details such as structure, terms of reference, and additional tasks such as economic and legal aspects, in its fourth plenary.

6.2 In order to facilitate further discussion, the Panel requested the Working Groups and the Special Committee to develop plans during their respective plenaries on their future work.

7. ADOPTION OF THE REPORT OF THE SESSION

The Panel authorized the Chairman to finalize the report of the session.

8. CLOSURE OF THE SESSION

This third session of the Intergovernmental Panel on Climate Change closed at 1645 hours on Wednesday, 7 February 1990.

APPENDIX B

AGENDA

1. OPENING OF THE SESSION

1.1 Address by President George Bush, President of the United States of America

1.2 Opening remarks by Professor G.O.P. Obasi, the Secretary-General of the World Meteorological Organization (WMO)

1.3 Opening remarks by Dr. M.K. Tolba, the Executive Director of the United Nations Environment Programme (UNEP)

1.4 Opening remarks by Professor B. Bolin, Chairman of IPCC

1.5 Approval of the agenda

1.6 Programme of work of the session

2. OTHER ACTIVITIES RELATED TO CLIMATE CHANGE

2.1 Declarations at various international/intergovernmental/ ministerial conferences

2.2 Resolution of the 44th (1989) session of the UN General Assembly related to IPCC activities

2.3 Preparations for the Second World Climate Conference (SWCC)

2.4 Preparations by UNEP and WMO for negotiations on a framework convention on climate change

2.5 Statements by non-governmental organizations

3. PROGRESS REPORTS BY THE CHAIRMEN OF THE WORKING GROUPS (WG's) AND DISCUSSION

3.0 Emissions scenarios

3.1 Progress report of Working Group I

3.2 Progress report of Working Group II

3.3 Progress report of Working Group III

4. REPORT OF THE IPCC SPECIAL COMMITTEE ON THE PARTICIPATION OF DEVELOPING COUNTRIES

5. IPCC BUDGET AND OTHER SUPPORT

6. IPCC ACTIVITIES AFTER COMPLETION OF THE IPCC FIRST ASSESSMENT REPORT

7. OTHER BUSINESS

8. ADOPTION OF THE REPORT OF THE SESSION

9. CLOSURE OF THE SESSION

ENGLISH ONLY

APPENDIX C

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

Third Session

Washington , D.C., 5-7 February 1990

Statements by Non-Governmental Organizations to the Third Session of the Intergovernmental panel on Climate Change

Jan Henselmans, Stichting Natuur en Milieu (Netherlands)

Jerremy Leggett, Greenpeace Internation (United Kingdon)

Andrzej Kassenberg, Polish Ecological Club (Poland)

Argus Turnomo, Indonesian Environmental Forum (Indonesia)

Kwami Takyi-Mensah, Friends of the Earth (Ghana)

Professor Tsnot Ushi Yamamura, Citizens Alliance Saving the Atmosphere (Japan)

Alden Meyer, Union of Concerned Scientists (United States of America.)

Jan Henselmans, Stichting Natuur en Milieu (Netherlands)

Mr. Chairman, distinguished delegates.

First of all, Mr. Chairman, I want to thank you for giving us the opportunity to address the distinguished delegates of IPCC today.

We represent here today 50 environmental groups from 20 industrialized, Eastern European and developing countries. W are working together in a climate action network, which is growing every day.

Although we have different perspectives on the problem, we share a common belief that concerted action is necessary to meet the threat of climate change. After my remarks, a number of us will briefly highlight the perspectives of different regions of the world.

When I spoke on behalf of NGOs at the Noordwyk_ conference, we called on the ministers to take immediate action in the following areas:

<u>As a first step, industrialized nations to commit themselves to reducing their CO2 emissions by at least 20% from 1988 levels by the year 2000</u>. Those countries with higher than average per capita energy use should recognize their responsibility to make correspondingly greater reductions. The goal of international efforts should be the reduction of worldwide CO2 emissions as necessary to allow atmospheric concentrations of CO2 to begin declining at the earliest possible date, so as to protect the Earth's ecosystems and human societies. Available scenarios indicate that, to prevent further human-induced climate alteration, the range of necessary reductions in CO2 emissions may be as high as 70-80%.

In the wealthier industrialized nations to support innovative means to facilitate access to energy efficiency and renewable energy technology among industrialized nations with less flexible economies.

To endorse the completion of a framework convention by the end of 1990, and the initiation of simultaneous negotiations towards an international agreement on CO2 reductions, to be completed by 1992.

We reaffirm our commitment to these goals. I am pleased to report that there has been some progress in achieving them. For example, recently the State of Vermont, the Australian State of Victoria, the City of Toronto, Canada, and The Netherlands have committed to significant net reductions in CO2 emissions. There is mounting evidence that all industrialized nations can make similar cuts in emissions at little or no costs.

This meeting has to respond to the Noordwyk declarations mandate to set CO2 emission targets and schedules and -- crucially - give not just a list of opinions but clear policy recommendations.

We expect that the industrialized countries have in place a CO2 reduction agreement by the time of the Second World Climate Conference. This means that an agreement amongst the G7 countries must be reached by the time of the G7 summit in Houston. We want to remind you that at the G7 summit of last year, it was agreed that "decisive action is urgently needed." The agreement could later be incorporated in a climate convention, but CO2 reductions could start now.

Dr. Jerremy Leggett, Director of Science, Greenpeace International (United Kingdom)

Mr. Chairman, distinguished delegates, I am speaking on behalf of Greenpeace, an environmental organization with a worldwide membership measured in millions, and offices ranging from Washington to Moscow, Tokyo to Buenos Aires. We welcome this opportunity to contribute to the IPCC's important work.

Mr. Chairman, against the background of the UNGA resolution last December on Protection of the Global Climate, which invited NGOs to "participate actively" in the IPCC, Greenpeace wishes to draw the attention of this meeting to the findings of a scientific report which we have commissioned on halting global warming.

In these times of growing international concern about the global environment, increasing emphasis is being placed on stabilizing the level of pollutants in different environments. Greenpeace is concerned that no studies have been done -- to our knowledge -- on what would be required to stabilize the greenhouse gas content of the atmosphere. Accordingly, we commissioned a leading climate researcher at the University of East Anglia in the United Kingdom, Dr. Michael Kelly, to undertake such a study. We emphasize, Mr. Chairman., that we are talking about stabilizing concentrations of greenhouse gases in the atmosphere, not stabilizing emissions. As distinguished delegates know, stabilizing emissions would merely slow, not stop, global warming. We urge delegates to adopt the goal of stabilizing concentrations in the atmosphere of the gases which cause global warming.

Mr. Chairman, permit me two minutes to highlight some of the key findings of the report. Dr. Kelly's scenario for stabilizing the greenhouse gas content of the atmosphere involves the following measures. First, cessation of CFC production by 1995. Second, a linear decrease in deforestation to zero by the end of the century. Third, the sequestration of 1.65 billion tons of carbon each year in 200m hectares of new forest by the year 2030. Fourth, a decrease in the annual rate of rise in methane and nitrous oxide emissions to 20% of the current value by 2030. Lastly, Mr. Chairman, and most importantly, Dr. Kelly estimates that stabilizing the greenhouse gas content of the atmosphere would also require a global cut of CO2, by 2020, of fully 70%.

Even with these five stringent policy prescriptions, the model suggests that the world would experience warming of 1.8°C ± 0.7°C by the year 2050, and an equilibrium warming of 2.1° ± 1°C some decades thereafter. In other words, the world could be up to 3°C warmer by the late 21st Century -- a temperature rise unprecedented in human history -- even if we adopted the five stringent (some would say impossible) policy responses the goal of stabilizing the greenhouse gas content of the atmosphere demands.

All this make the assumption that no feedbacks, amplifying the rate of warming, are triggered in the course of the inevitable warming to come. We suspect, Mr. Chairman, that the scientific knowledge we have today makes this assumption, sadly, an optimistic one.

This leads us, despite the well-known uncertainties involved in models such as these, inescapably to the conclusion that the greenhouse crisis demands the application of the precautionary principle as a matter of urgency. Greenpeace believes that the world community is capable of achieving a cut in CO2 emissions of 30% by the year 2000 as a first step towards the stringent goals needed to stabilize greenhouse gases in the atmosphere, and is capable of doing so without compromising the goal of sustainable development for all countries. In the modern world, paradigms are shifting, walls are collapsing, week by week.

Our first contribution to the science of global warming, which we are circulating for analysis by government scientists, underlines once again the pressing need for immediate national action to reduce greenhouse gas emissions, and the need for IPCC recommendations which realistically reflect the imminent threat of global warming.

Andrzej Kassenberg, Polish Ecological Club (Poland)

In Central Europe, we started to change mostly everything. We changed our political, social and economic system. We reoriented our economy from planned to market economy. But we still live in environmental crisis and our participation in global warming is still very high. For example, in Poland scientists estimated possibilities of cutting CO2 emissions 20%. But how do we achieve that. We changed a lot but we have not yet built a new environmental policy. Some elements are new, but in general there are intentions not programs yet. The new political, social and economic situation produced new environmental challenge. New risk has grown up. Foreign capital is sometimes oriented towards dirty technologies and the disposal of toxic wastes. Local self-government is not ecologically oriented. Our management of environmental protection is weak. If we want to solve old environmental problems as well as new ones we need financial support, technical aid, transfer of technologies from the West and cooperation with the West.

What we really need:

- training people how to support, aid and transfer of technologies. People in Central Europe lived in a totally different system and now we must change our mentality after 45 years terrible experience. It is very difficult.

- Western consultants which help us save energy and how to be more effective in using natural resources or raw materials; organizing this kind of consulting network in our countries.

- Control from the West on the directions in which supporting the private sector will be used. Very often supporting the private sector means new environmental problems, but the system of environmental protection in our countries is very weak. It is necessary to put into the statute of the European Bank for Central Europe which is being constructed the principle of no double standards. It may be necessary to produce environmental impact assessment or ecological risk assessments for each project.

- Support to project on carbon sequestration oriented towards changes in forestry or agricultural management and changes in land use planning.

Helping us with our local environmental problems very often means creating solutions for global problems, including global warming.

Agus Purnomo, Indonesian Environmental Forum (Indonesia)

Mr. Chairman and distinguish delegates; as a non-governmental organization activist in Indonesia I would like to draw your attention to the problem of deforestation that contributes to global climate change significantly. Deforestation, as a major environmental problem in several developing countries is caused by international markets. With the high demand for wood products, also for pulp and paper at the global level, developing countries allow their forests to be cut in order to develop their economies and also to repay their ever-growing foreign debts. In addressing this issue, I would like to quote President Bush's remark this morning about the need to create market incentives in promoting the development of the economy and the conservation of the environment "HAND-IN-HAND".

Therefore I challenge the United States of America and other industrialized countries to preserve the tropical forests while promoting much-needed economic development.

Thank you for your attention.

K. A. Takyi-Mensah Friends of the Earth (Ghana)

Mr. Chairman, distinguished delegates, I speak on behalf of NGOs from the African region. Climate change is a global problem. It is, therefore, imperative that both developed and developing countries find concentrated ways of reducing the effects of global warming.

The NGOs from African countries recognize that developing countries are not major producers of greenhouse gases; on the other hand, the effects are bound to hit us harder because of our present economic and technological situations. We must, therefore, be part of the international pressure in the effort to reduce the emission of greenhouse gases.

Again, while we recognize that developing countries need to develop, we must be conscious of the impact of technology transfer from the developed world. In the same manner, the developed countries need not only dump their obsolete technologies on the developing countries but must weigh the effects of emissions of greenhouse gases from some against the immediate economic gains.

Trade statistics indicate that the importation of equipment and facilities such as deep freezers, air conditioners, etc., containing CFCs by African countries has increased 280 percent within the last decade.

Mr. Chairman, we NGOs as a matter of principle, therefore, call for the transfer of technologies with the least practicable environmental hazards.

While it is clear that there is no commitment from developing countries in general on critical issues relating to global warming, environmental issues such as water and air pollution, conservation practices on forest lands, pesticide control, renewable energy and sustainable development receive negligible attention and are low on the various national political agenda.

Development policies of developing countries tend to follow the same path as the developed world and have a high potential to generate rapid increase of greenhouse gases. There is, therefore, the urgent need for their involvement in international decision making on environmental issues. The neglect has been due partly to the limited interest of our people. However, recent development of interest is encouraging.

Mr. Chairman, a key factor in the success or otherwise of achieving international agreements and legislation will be the commitment and support of the south???? who could develop the capability to rapid increase in greenhouse gases.

NGOs are effective through lobbying of governments, public opinion and the media but NGOs of developing countries lack the

resources, particularly material to respond to increasing pressure on natural resources and, therefore, require assistance.

It is in the light of the foregoing that we of Friends of the Earth-Ghana, an NGO, has proposed a West African Regional Conference scheduled for September this year on Environment and Development with the theme:

> "Economic Development and Environmental Sustainability in West Africa -- the responsibilities of Northern and Southern NGOs."

Copies of the proposals are available for study and I appeal to funding agencies and delegates herein assembled to respond to our call for financial support towards this conference.

Finally, we urge developing countries to come out with energy and environmental legislation to check the excesses and destruction of our natural resources which otherwise clean the atmosphere.

Thank you.

Professor T. Yamamura, Citizens' Alliance Saving the Atmosphere (Japan)

I am a professor of environmental law at Kobe University, and a representative of Citizens' Alliance Saving the Atmosphere, which is the largest environmental NGO in western Japan.

Last year we carried out a survey of several thousand people in the Osaka area on climate change issues. Over 80% of the respondents stated that they were very concerned about the threat of global warming: most, however, were not sure what they as individuals could do. Following the survey, we organized an international conference on climate change in Kyoto and Osaka which was attended by over 1500 people. So let me assure you that the Japanese people are both aware and concerned about climate change.

As a Japanese NGO representative, I would like to address the unfortunate reluctance of my government to take a leadership role on the issue of setting definite dates and targets for stabilization and reduction of greenhouse gas emissions. Their main argument is that Japanese industry does not yet have the knowledge or technology to make a definite commitment to specific CO_2 reductions.

I would simply like to point out that when the Japanese Environment Agency imposed strict new automobile emission standards on the Japanese car industry in 1972, the industry was united in claiming that the new emission targets could not be met, that the necessary technology did not exist, and that it would severely damage the Japanese economy. But the new regulations went ahead anyway, and not only did the Japanese auto industry survive, it became the most successful one in the world --due largely to the new technology it had earlier said it couldn't develop.

Finally, I am disturbed by the apparent attitude of my government that because Japan in already a world leader in energy efficiency, it has no further obligation to press for further improvements. I ask the delegates from Japan to find the courage to take a leadership role on the development and transfer of CO_2 emission reduction technology and anxiously wait for Japan to contribute more to the world than just cards and radios.

Alden Meyer, Union of Concerned Scientists (United States of America)

Mr. Chairman and delegates to the IPPC, I want to share with you the appeal by American scientists to prevent global warming. This statement delivered to President Bush by UCS last week was signed by 700 members of the National Academy of Sciences, including 49 Nobel lauareates. While the appeal focussed on the need for U.S. policy action, it is relevant to the task facing the IPCC. I quote:

> "Global warming has emerged as the most serious environmental threat of the 21st century. There is broad agreement within the scientific community that amplification of the earth's natural greenhouse effect by the buildup of various gases introduced by human activity has the potential to produce dramatic changes in climate. The severity and rate of climate change cannot yet be confidently predicted, but the impacts of changes in surface temperature, sea level, precipitation, and other components of climate could be substantial and irreversible on a time scale of centuries. Such changes could result in severe disruption of natural and economic systems throughout the world.
>
> More research on global warming is necessary to provide a steadily improving data base and better predictive capabilities. But uncertainty is not excuse for complacency. In view of the potential consequences, actions to curb the introduction of greenhouse gases, including carbon dioxide, chlorofluocrocarbons, methane, nitrogen oxides, and tropospheric ozone, must be initiated immediately. Only by taking action now can we insure that future generations will not be put at risk.
>
> The United States bears a special responsibility to provide leadership in the prevention of global warming. It is the world's largest producer of greenhouse gases, and it has the resources to make a great contribution. A thoughtful and vigorous U.S. policy can have a direct, beneficial effect and set an important example for other nations.
>
> The United States should develop and implement a new National Energy Policy, based on the need to substantially reduce the emission of carbon dioxide, while sustaining economic growth. The cornerstones of this policy should be energy efficiency and the expansion of clean energy sources."

The statement then calls for several energy action steps, including among others:

" 1. A steady increase in motor vehicle fuel economy standards.

2. A substantial increase in federal fund for research on energy efficiency technologies and the development, demonstration, and commercialization of renewable energy technologies on a massive scale;

These measures, along with others designed to curtail the use of chlorofluocarbons and promote prudent agricultural and reforestation practices, can form the basis for the lowering of greenhouse gas emissions in the United States and other nations. They will provide other, worthwhile benefits to the nation as well, such as more diverse and flexible energy supplies, reduced dependency on imported oil, and the creation of new energy technologies for export and sale in the international marketplace."

Copies of this appeal, with a complete list of signatures, are available at the Union of Concerned Scientists' booth outside this conference room.

Mr. Chairman, in closing, let me restate the points made earlier by Jan Henselmans. This plenary session of the IPCC should make a firm commitment, during your deliberations this week, to

first, follow through on the Noodwijk declaration's mandate to the IPCC to set carbon dioxide emission targets and schedules;

second, produce, in the IPCC interim report, clear recommendations on policy actions to reduce greenhouse gas emissions, and not just a compilation of possible options; and

third, to encourage the industrialized nations of the world to make specific commitments on CO_2 emission limits by not later than the end of this year; starting with action by the G-7 nations at the Houston economic summit in July.

President Bush told this conference this morning that "the future of the Earth must not be compromised." Unfortunately, it has already been compromised, and the peril grows everyday. The time for lengthy discussion has passed - the time for bold responsible action has arrived. We owe our children and grandchildren no less.

ministerial conference on
ATMOSPHERIC
POLLUTION &
CLIMATIC
CHANGE

APPENDIX D

ENGLISH ONLY

THE NOORDWIJK DECLARATION ON CLIMATE CHANGE

ATMOSPHERIC POLLUTION AND CLIMATIC CHANGE
MINISTERIAL CONFERENCE HELD AT NOORDWIJK,
THE NETHERLANDS ON 6TH AND 7TH NOVEMBER 1989

CONTENTS

NOVEMBER 1989

INTRODUCTION

The Ministerial Conference on Atmospheric Pollution and Climatic Change held in Noordwijk, The Netherlands on the 6th and 7th November 1989, is an important landmark in the present series of international meetings. The Conference breaks new ground in the field of climate change policy at the political level.

Consultations and discussions prior to, and during, the Conference culminated in the adoption of a Declaration, by consensus of all parties present.

The Noordwijk Declaration is unique. For the very first time, new concepts and targets are addressed. The issues covered are:

- CO_2-emission stabilization and future reductions;
- a global forest stock balance and future net forest growth;
- funding mechanisms for both existing and additional funds;
- elements of a climate change convention;
- the principle of shared responsibility and the particular responsibilities of both developed and developing countries.

There were 67 countries represented at the Conference, most of them at Ministerial level. 11 international organizations also attended. The total number of delegates at the Conference was about 400.

As mentioned in the Declaration, the issues addressed will be further elaborated by the Intergovernmental Panel on Climate Change and by the Second World Climate Conference in Geneva, November 1990.

Dr. Pier Vellinga
Conference Secretary

THE NOORDWIJK DECLARATION ON CLIMATE CHANGE

(1) The composition of the earth's atmosphere is being seriously altered at an unprecedented rate due to human activity. Based on our current understanding, society is being threatened by man-made changes to the global climate.

(2) While there are still uncertainties regarding the magnitude, timing and regional effects of climate change due to human activity, there is a growing consensus in the scientific community that significant climate change and instability are most likely over the next century.
Predictions available today indicate potentially severe economic and social dislocations for future generations.
Assuming these predictions, delay in action may endanger the future of the planet as we know it.

(3) Fortunately, there is a growing awareness among the world population and their political leaders that action is needed. The basic principle of ecologically sustainable development has gained wide currency following the report of the World Commission on Environment and Development. This principle should be fundamental to efforts to tackle the problem of climate change and atmospheric pollution. The protection of the ozone layer is being addressed by the 1985 Vienna Convention on the Protection of the Ozone Layer and the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer. Further strengthening of control measures contained in the Protocol was called for at the London Conference on Saving the Ozone Layer in March 1989 and the first meeting of the parties to the Montreal Protocol at Helsinki in May 1989. A decision will be taken by the second meeting of the contracting parties to be held in London in 1990. The process aims at phasing out the production and consumption of chlorofluorocarbons (CFCs) controlled under the Montreal Protocol by the year 2000 by the developed countries. They should also phase out other controlled substances which deplete the ozone layer as soon as feasible. Developing countries should also phase out these substances as soon as possible after their technology and resource needs are met.

(4) Global warming is being addressed by the Intergovernmental Panel on Climate Change (IPCC), which was established by UNEP and WMO, and recognized by UN General Assembly Resolution 43/53 on Protection of global climate for present and future generations of mankind. The Hague Declaration of March 1989 put forward challenging ideas for international co-operation, and legal and institutional measures. The 15th session of the UNEP Governing Council and the XLI session of the WMO Executive Council in 1989 requested their executive heads to begin preparations for negotiations on a framework convention on climate; these negotiations should be initiated as soon as possible after the interim report of the IPCC is adopted. This interim report will be reviewed at the Second World Climate Conference in November 1990. The 1989 Economic Summit agreed that a framework convention on climate change setting out general principles was urgently required and that specific protocols containing concrete commitments could be fitted into the framework as scientific evidence requires and permits. The Economic Summit also strongly advocated common efforts to limit emissions of carbon dioxide and other greenhouse gases. The July 1988 declaration of the states, parties to the Warsaw Treaty, and the meeting of non-aligned countries in Belgrade in September 1989 also addressed the issue of climate change. The Tokyo Conference on Global Environment and Human Response Towards Sustainable Development was held in September 1989. The Langkawi Declaration on Environment issued by the Commonwealth Heads of Governments in October 1989 stated the need to take new action to address the serious deterioration in the environment, including climate change. Given this base it is now time for governments of all countries to commit themselves to the IPCC, to strengthen and to extend the process of addressing climate change.

(5) Measures to limit climate change will have other significant benefits such as reducing acidification, protecting the ozone layer, preserving biodiversity and other natural resources, preventing mean sea-level change and promoting sustainable development.

(6) The Conference recognizes the principle of the sovereign right of States to manage their natural resources independently. The Conference also reaffirms that global environmental problems have to be approached through international co-operation. Solving the external debt problem of developing countries, and establishing fair economic and commercial relationships between industrialized and developing countries would assist developing countries in creating appropriate conditions to protect the environment.

(7) Climate change is a common concern of mankind. All countries should now, according to their capabilities and the means at their disposal, initiate actions and develop and maintain effective and operational strategies to control, limit or reduce emissions of greenhouse gases. As a first step, they should take those actions which are beneficial in their own right. Industrialized countries, in view of their contribution to the increase of greenhouse gas concentrations, and in view of their capabilities, have specific responsibilities of different kinds: i) they should set an example by initiating domestic action, ii) they should support, financially and otherwise, the action by countries to which the protection of the atmosphere and adjustment to climate change would prove to be an excessive burden and iii) they should reduce emissions of greenhouse gases, also taking into account the need of the developing countries to have sustainable development. Developing countries establishing industrial facilities for the first time have a unique opportunity to include up-to-date technologies for controlling the emissions of greenhouse gases.

(8) For the long term safeguarding of our planet and maintaining its ecological balance, joint effort and action should aim at limiting or reducing emissions and increasing sinks for greenhouse gases to a level consistent with the natural capacity of the planet. Such a level should be reached within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and permit economic activity to develop in a sustainable and environmentally sound manner. Stabilizing the atmospheric concentrations of greenhouse gases is an imperative goal. The

IPCC will need to report on the best scientific knowledge as to the options for containing climate change within tolerable limits. Some currently available estimates indicate that this could require a reduction of global anthropogenic greenhouse gas emissions by more than 50 per cent. These estimates should be the subject of further examination by the IPCC.

(9) While striving to preserve the global environment, it is important to work at the same time to ensure stable development of the world economy, in line with the concept of "sustainable development". Effort and action should include: i) the phasing-out of CFCs controlled by the Montreal Protocol, which are responsible for about one fifth of projected global warming, by national action and international co-operation in the context of the Montreal Protocol. This includes financial assistance and transfer of technology and information. In this connection, it is important that the substitutes for CFCs also should not contribute significantly to the global warming problem, ii) action especially by industrialized countries to limit or reduce CO_2-emissions, iii) action to reduce deforestation, prevent soil erosion and desertification; increase afforestation, and sound forest management in the temperate as well as the tropical zones, iv) action to limit or reduce the emissions of all greenhouse gases other than CO_2 and their precursors and to increase the sinks for such substances and v) intensified efforts for technological breakthroughs, for example with regards to renewable energy and removal and re-utilization of CO_2.

(10) The conference recommends that appropriate fora, including the IPCC, consider the necessity and efficiency of the introduction of the concept of CO_2-equivalence. This would provide a single parameter to describe the radiative effects of the various greenhouse gases, including CFCs. Such a concept, after taking into account other environmental considerations, creates a basis for negotiations in response measures for different greenhouse gases in the most cost-effective manner.
The Conference further recommends the development of common definitions and the harmonization of methods to calculate CO_2-emissions.

(11) All countries should increase co-operation in developing new, environmentally sound technologies, to improve existing technologies and increasingly to use these technologies in order to limit climate change or adapt to it. Maximum use should be made of existing international organizations, institutions and mechanisms, governmental and non-governmental, for technology co-operation with and transfer to interested countries, especially developing countries. Factors that impede effective transfer of appropriate technologies should be identified and measures implemented to overcome these impediments.

(12) Progress in reducing atmospheric pollution depends not only on technical and economic issues but also on attitudinal and conceptual changes. All countries, especially industrialized countries, should recognize the need to make their socio-economic activities and life-styles environmentally sound. Improved dissemination of information and better training of personnel is needed, both at the national and international level. Public awareness programmes, including school curricula, should include the issue of climate change and its connection with the way individuals use energy and other natural resources. Wider public awareness can be supported by increased scientific evidence arising from systematic research and monitoring activities. The Conference calls upon the non-govenmental organizations to participate, in co-operation with international, regional and national authorities, in the efforts that are needed to respond to the problems of global warming, more specifically in the field of education and awareness building.

(13) Many countries, especially developing countries will require assistance in identifying the causes of anthropogenic climate change, in establishing its extent and effect and also in responding to it. They will need help in acquiring, using, developing and maintaining technologies that are appropriate to their industrial, energy, transport, forestry and agricultural infrastructure. Industrialized countries will take steps to facilitate the transfer to developing countries of technologies to limit the global climate change through financial assistance and other mechanisms to overcome the incremental costs of acquiring and using these technologies. Furthermore, the

capabilities of these countries should be increased so that they can develop appropriate technologies themselves. In this context the concept of assured access to appropriate technologies in relation to proprietory rights needs to be explored.

Given this stage of development of the issue of climate change, the Conference more specifically:

CARBON DIOXIDE (CO_2)

- (14) *Urges* all countries to take steps individually and collectively, to promote better energy conservation and efficiency and the use of environmentally sound energy sources, practices and technologies with no or minimum environmentally damaging characteristics. These policies should be reflected in short and long term energy policies and be pursued by all relevant sectors, including industry and transport, taking into account the need of developing countries for an adaptation period in order to enable them to meet their technological and other developmental needs. One direct means of allowing markets to incorporate the risk of climate change could be to ensure that the prices of all fuels reflect their full social, long run marginal and environmental costs and benefits.

- (15) *Agrees* that it is timely to investigate quantitative emission targets to limit or reduce CO_2 emissions and encourages the IPCC, in their interim report due in 1990, to include an analysis of target options.

- (16) *Recognizes* the need to stabilize, while ensuring stable development of the world economy, CO_2 emissions and emissions of other greenhouse gases not controlled by the Montreal Protocol. Industrialized nations agree that such stabilization should be achieved by them as soon as possible, at levels to be considered by the IPCC and the Second World Climate Conference of November 1990. In the view of many industrialized nations such stabilization of CO_2 emissions should be achieved as a first step at the latest by the year 2000.
  Urges all industrialized countries to support the process

of IPCC through the investigation of the feasibility of achieving targets to limit or reduce CO_2 emissions including e.g. a 20 per cent reduction of CO_2 emission levels by the year 2005 as recommended by the scientific World Conference on the Changing Atmosphere in Toronto 1988.
Urges all industrialized countries to intensify their efforts in this respect, while ensuring sustainable development and taking into account the specific circumstances of individual countries.

- (17) *Agrees* that industialized countries with, as yet, relatively low energy requirements, which can reasonably be expected to grow in step with their development, may have targets that accommodate that development.

- (18) *Calls* on the IPCC to present the analysis and conclusions referred to above to the Second World Climate Conference in November 1990.

- (19) *Agrees* that developing countries endeavour to meet future targets for CO_2-emissions and sinks, with due regard to their development requirements and within the limits of their financial and technical capabilities. International co-operation, whenever available, would be a contributing factor for greater action. New processes or industries to be introduced should, as far as possible, incorporate technologies which are more energy-efficient and produce less pollution than present technologies.

- (20) *Agrees* that developing countries will need to be assisted financially and technically, including assistance with training, i.a. by strengthening relevant mechanisms to ensure that they will be in a position to manage, develop, and conserve their forest resources in a sustainable and environmentally sound manner. This will also contribute to combatting erosion and desertification. Recognition by the market of the total value of forests, including non-wood values, is a precondition for developing countries' being able to successfully use such financial and technical assistance for sustainable forest management.

- (21) *Agrees* to pursue a global balance between deforestation on the one hand and sound forest management and afforestation on the other. A world net forest growth of 12 million hectares a year in the beginning of next century should be considered as a provisional aim.
Requests the IPCC to consider the feasibility of achieving this aim. To this end; the world deforestation rate should be slowed inter alia through the suppression of acid rain and other pollutants and of fires and through the reduction of pressures on biota. Sound forest management practices should be encouraged and at the same time vigorous forestry programmes should be developed in both temperate and tropical zones; biological diversity should be maintained; strategies addressing climate change issues through forest management and afforestation should be integrated with strategies addressing the sustainability of other forest based values resulting in full multiple-use plans where appropriate, but with due consideration of the people living in or dependent on forest land.
Welcomes the work of the Tropical Forestry Action Plan and the International Timber Trade Organisation in pursuit of these goals.

CHLOROFLUOROCARBONS (CFCs)

- (22) *Welcomes* the commitment of the industrialized countries to amend the Montreal Protocol and to phase out the production and consumption of controlled chlorofluorocarbons by the year 2000, and of other controlled ozone depleting substances as soon as feasible.
Urges all countries to become Parties to the Vienna Convention for the Protection of the Ozone Layer and to the Montreal Protocol. To facilitate this broad participation suitable amendments of the Montreal Protocol should be considered urgently by the Parties to the Protocol.
Urges industrialized countries to use financial and other means to assist developing countries in phasing out their production and consumption of controlled substances as soon as possible, by providing them with sufficient means to enable them to meet their target date. The development of

alternative technologies and products in developing countries should be promoted.

OTHER GREENHOUSE GASES

- (23) *Recommends* that the development and implementation of specific means of limiting the atmospheric concentrations of greenhouse gases other than CO_2 and CFCs should be energetically pursued, taking into consideration the special situation of developing countries.

MINISTERIAL MEETING

- (24) *Recognizes* the need to convene a Ministerial Conference to review the interim report of the IPCC. The conference endorses the plan of the organization by WMO, UNEP, UNESCO and ICSU of such a meeting as part of the Second World Climate Conference in November 1990.

FUNDING

- (25) *Recommends* that existing institutions for development and financial assistance including the Multilateral Development Banks, Bilateral Assistance Programmes, the relevant United Nations organisations and specialized agencies, and scientific and technological organisations should give greater attention to climate change issues within their environmental and other relevant programmes by providing expanded funding including concessional funding. In addition, regional and subregional co-operation should be reinforced and funded so as to address and implement the required action at that level.

- (26) *Recommends* that additional resources should, over time, be mobilized to help developing countries take the necessary measures to address climate change and that are compatible with their development requirements.
  Further *recommends* that the scope of resources needed must be assessed. Such assessments should include inter alia country studies and the capabilities of existing institutions and mechanisms to meet the financing needs identified, similar to the approaches developed under the Montreal Protocol.

Further consideration should be given to the need for funding facilities including a clearinghouse mechanism and a possible new international fund and their relationship to existing funding mechanisms, both multilateral and bilateral. Such funding should be related to the implementation of a future climate convention and associated protocols. In the meantime the donor community is urged to provide assistance to developing countries to support actions addressing climate change.

(27) *Recommends* that, initially, international funding be directed towards

(i) funding of a CFC phase-out in developing countries in the context of the Montreal Protocol;

(ii) promoting efficient use of energy, including appropriate end use technologies, increasing the use of non-fossil fuels and switching to energy sources with lower greenhouse gas emissions, and the use of renewable energy sources;

(iii) increased financial support for forest protection and forest management improvement, for example through the Tropical Forestry Action Plan (TFAP), the Plan of Action to Combat Desertification, the International Tropical Timber Organization (ITTO) and other relevant international organizations;

(iv) assisting developing countries in planning how to address problems posed by climate change;

(v) supporting developing countries to enable their participation in the IPCC process and the other international meetings on this subject;

(vi) conducting research and monitoring;

(vii) arranging for technology transfer to and technology development in developing countries;

(viii) promoting public awareness, education and institutional and manpower development.

The use of financial resources could subsequently be extended inter alia to major energy sources with little or no environmentally damaging characteristics and for steps to reduce other global man-made emissions of greenhouse gases.

RESEARCH AND MONITORING

- (28) *Urges* all countries and relevant organizations to increase their climate change research and monitoring activities and to provide for adequate data bases on emissions. *Also urges* states to co-operate in, and provide increasing support for, international co-ordination of these activities building on international programmes such as the World Climate Programme and the International Geosphere-Biosphere Programme, and on the present roles of the UNEP, WMO, ICSU, IEA, UNESCO, IOC, and other competent international organizations and bodies. The enhancement and strenghtening of operational aspects of their work should be examined.

  Recommends that more research should be carried out by 1992 into the sources and sinks of the greenhouse gases other than CO_2 and CFCs, like methane (CH_4), nitrous oxide (N_2O) and tropospheric ozone (O_3), including further research on the effect of the ocean on the concentration of radiatively active gases in the atmosphere.

CLIMATE CHANGE CONVENTION

- (29) 1. *Urges* all countries to join and intensify the ongoing work within UNEP and WMO through the IPCC with respect to the compilation of elements for a framework convention on climate change so that negotiations upon it can start as soon as possible after the adoption of the interim report of the IPCC.

  2. *Recommends* that such convention will be framed in such a way as to gain the adherence of the largest possible number and most suitably balanced spread of countries.

  3. *Agrees* that to this end the framework convention and associated protocols should commit the parties inter alia to:

     - enhancement of research and systematic observation of climate, aimed at detecting and monitoring climate variations and change;

- action to deal with greenhouse gas emissions and the effects of global warming;
- address the particular financial needs of the developing countries in the access to and transfer of technology; and
- strengthen sustainable forest management.

4. *Agrees* further that in developing the framework convention on climate change special attention should be given to ensuring that provision is made for appropriate decision making procedures and powers.

5. *Urges* all involved or to be involved in the negotiations to do their utmost to conclude these negotiations to ensure adoption of the convention as early as 1991 if possible and no later than at the Conference of the United Nations on Environment and Development in 1992.

6. *Considers* that in the preparation of the framework convention and protocols the relevant aspects of the Vienna Convention on the Protection of the Ozone Layer should be taken into account, as well as innovative approaches as may be required by the complex character of the problem.

- (30) *Recommends* that this declaration and the supporting papers be conveyed to the IPCC at the conclusion of this Conference for further consideration and action.

LIST OF PARTICIPATING COUNTRIES

Argentina
Australia
Austria
Bangladesh
Belgium

Bolivia
Brazil
Bulgaria
Cameroon
Canada

China
Colombia
Costa Rica
Cuba
Denmark

Egypt
Finland
France
Gambia
German Democratic Republic

Germany, Federal Republic of
Ghana
Greece
Guinea
Hungary

India
Indonesia
Ireland
Israel
Ivory Coast

Italy
Jamaica
Japan
Jordan
Kenya

Luxembourg
Malaysia
Mali
Malta
Mexico

Netherlands, Kingdom of the
New Zealand
Nigeria
Norway
Pakistan

Philippines
Poland
Portugal
Republic of Korea
Saudi Arabia

Senegal
Spain
Sweden
Switzerland
Thailand

Trinidad and Tobago
Tunisia
Turkey
United States of America
Union of Soviet Socialist Republics

United Kingdom of Great Britain and Northern Ireland
United Republic of Tanzania
Venezuela
Yugoslavia
Zaire

Zambia
Zimbabwe

Commission of European Communities and International Organizations

Commission of European Communities

Food and Agriculture Organization
International Atomic Energy Agency
International Energy Agency
Organization for Economic Cooperation and Development
United Nations Development Program

United Nations Education, Scientific and Cultural Organization
United Nations Industrial Development Organization
United Nations Environment Program
World Meteorological Organization
World Bank

APPENDIX E

TERMS OF REFERENCE OF THE IPCC SPECIAL COMMITTEE ON THE PARTICIPATION OF DEVELOPING COUNTRIES

After discussion, the Committee approved its terms of reference:

1. The Committee will recommend to IPCC and its Bureau, specific measures to be undertaken for promoting the full participation of the developing countries in all IPCC activities.

2. It will include in such recommendation institutional arrangement(s) and implementation schedule(s) if and as needed.

3. It will develop action plans for the implementation of its recommendations.

4. It will identify the resource requirements and the means of meeting them to accomplish the task outlined in (1) above.

5. It will periodically review the progress of the implementation of its recommendations and make modifications thereof, as appropriate.

6. It will work closely with IPCC Working Groups.

7. It will continue its work until its dissolution by IPCC.

APPENDIX F

AD HOC MEETING OF DEVELOPING COUNTRIES' REPRESENTATIVES

7 FEBRUARY 1990

On Wednesday, February 7th, 1990, IPCC participants from developing countries met under the chairmanship of Malta, with Mexico as Rapporteur.

The view was shared that the existing IPCC Special Committee on the Participations of Developing Countries should continue operation on an "open-ended" basis and expand, both for developing and developed countries, and serve as a forum to deal with the concerns of the former. Also, the view was shared that through meetings such as the one hereby reported, developing countries could get together in order to exchange views and harmonize the positions they would take in the said Special Committee. Such meetings would be held as an advisory or consultative instance or group.

The participant from Ethiopia submitted the document he had prepared (see the following pages of this Appendix) and presented the day before to the IPCC Plenary on developing countries' participation, and highlighted the proposal for a meeting of developing countries to be held before the Fourth Plenary Conference of the IPCC, to be prepared by an organizing committee as specified in this document. He also suggested that during such an event the developing countries would deal with subjects such as the one referring to the elements to be included in an eventual framework convention on Global Warming. The meeting in principle supported these suggestions.

One participant pointed out his concern that some of the participants may be viewing the IPCC too academically, and losing sight of the fact that the process is leading to a political negotiation, which requires greater governmental participation from developing countries as soon as possible in the IPCC process.

It was suggested that, in view of the certainty that several of the member-States present may not be participating in all future IPCC meetings, this consultative group should meet on an ad hoc basis, at an early stage in the proceedings of each meeting, in order to identify issues, and discuss views concerning matters particularly relevant to the developing countries.

It was also proposed that the group should include representative members from each working group so that a combined representation of views could then be submitted to the "open-ended" Special Committee on developing countries' participation.

Another participant proposed that the Plenary be told of the concern of developing countries about the way the latter had been treated to date. He added that it was felt to date that developing countries were being brought along to the IPCC to create the impression only of being part of the action.

It was agreed by all delegates present that the group was not a traditional UN grouping such as the Group of 77, and that it would operate through the Special Committee on developing countries' participation.

PROPOSAL BY ETHIOPIA

Immediate activities to be carried out:

1. Organize a meeting of the developing countries, where they will discuss and define their role and involvement in the ongoing climate change activities.

2. Hold national seminars where scientists, economists and decision makers participate to get acquainted with on-going climate change activities, IPCC to assist by providing experts to run these seminars -- if countries request it.

3 Sponsor experts/scientists from developing countries to engage in research work in advanced centres/institutions on subjects related to climate change, when requested by countries.

Details of the meeting/conference shown in Item 1 above:

Date: No later than the end of April (in time for input to IPCC Working Group III and IPCC 4th Session, SWCC*)

Period: 4 - 5 days

Venue: ?

Objectives: 1) To create awareness among policy makers of climate change issues.

2) To discuss and agree on the role of developing countries in climate change issues; to contribute to the work of the IPCC/SWCC.

3) To develop strategies/plans/activities to develop the knowledge of the science of climate and to combat the adverse effect of climate change by the developing countries.

Organization Committee for the meeting:

Setup an organizing committee representing the main developing regions of the world (not exceeding 5 members):

-- Africa
-- Asia
-- Middle East
-- Latin America
-- Central America and the Caribbean region

Developed countries could also participate. As an alternative, the Special Committee could serve as organizing committee for the meeting suggested.

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* SWCC: Second World Climate Conference (Geneva, 29 October - 7 November 1990)

1990 IPCC BUDGET AND OTHER SUPPORT

(Approved by the Executive Heads of WMO and UNEP
and by IPCC)

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1. IPCC Secretariat is responsible for developing the budget proposals for consideration by the Executive Heads of UNEP and WMO and by the IPCC. It can commit funds up to the approved amounts and has the responsibility of drawing the attention of the Executive Heads and the Chairman of IPCC to problems such as potential shortfalls.

2. The joint WMO/UNEP IPCC Trust Fund is administered by the Secretary-General of WMO in accordance with the WMO Financial Regulations by mutual agreement of the Executive Heads.

3. The Executive Heads, by decision 36 of the 15th session (1989) of the UNEP Governing Council and resolution 4 of the 41st session (1989), of the WMO Executive Council, are requested "to consult with the IPCC with respect to the determination of its internal organization and procedures, its budget and means of financing such budget".

4. 1990 Budget

The budget estimates presented in this document are in Swiss Francs (SFR). The budget incorporates the decisions of the Panel (see section 5 of the report).

Additions to the 1989 budget

5. In the 1989 budget a new line item was introduced, with the approval of the Executive Heads, for travel support for the developing countries to participate in IPCC activities. All expenditures other than for such support were restricted to the original amount proposed to and approved by the Bureau and the Panel; the amount in the line item for developing country support was continuously adjusted to match the incoming contributions for the purpose.

1989 receipts and carry-over into 1990

7. The contributions received in 1989 totalled SFR 892,814.40 with the following breakdown:

Table 1

1989 RECEIPTS

MEMBER	AMOUNT SFR	CURRENCY RECEIVED	
Australia	24,963.05	$	15,175.00
Canada	14,519.50	C$	11,000.00
China	16,400.00	$	10,000.00
Denmark	7,550.00	$	5,000.00
Finland	7,950.00	$	5,000.00
France	25,303.00	F	100,000.00
FRG	43,750.00	SFR	43,750.00
Japan	75,500.00	$	50,000.00
Netherlands	40,250.00	$	25,000.00
Norway	25,050.00	$	15,000.00
Saudi Arabia	16,500.00	$	10,000.00
Switzerland	55,000.00	SFR	55,000.00
UK	90,578.85	£	35,000.00
USA	199,500.00	$	120,000.00
UNEP	125,000.00	SFR	125,000.00
WMO	125,000.00	SFR	125,000.00
TOTAL	SFR 892,814.40		

The details of the contributions (e.g., those exclusively meant for the developing countries) can be found in Annex V of IPCC-3, Report of the Second session, Nairobi, 28-30 June 1989.

8. Of this amount, as of 31 December 1989, SFR 489,365 had been spent; claims were outstanding against SFR 250,276. This leaves SFR 153,174 for carry-over into 1990. A detailed statement of the 1989 expenses would be available from the WMO in April 1990.

While the 1989 account shows a surplus, the Trust Fund experienced acute cash flow problems throughout the year; without the understanding and support of the WMO, the IPCC Secretariat would have been hard put to carry out its task.

1990 budget estimate

9. The following assumptions have been made in preparing the 1990 budget:

a) An average travel cost of SFR 4,000 per trip unless (i) the travel is obviously of short range (e.g., Geneva-UK) or (ii) the trip is of long duration (e.g., the meetings in Washington D.C., between 2 and 9 February 1990). In such cases, a subjective adjustment has been made. This cost may be compared with the average 1989 cost of SFR 4,260 per trip;

There is no listing of the developing countries planned to be supported for travel, unless a country is a Vice-Chairman/Co-Chairman/Lead Author of a Working Group (Working Group)/Subgroup/Section or Member of the Bureau or the Special Committee;

b) Increased travel needs of the Secretariat staff.

c) No interpretation for any of the meetings of the sections or the subgroups, nor for the sessions of Working Group I and Working Group III.

d) No translation of the Working Group and Special Committee reports in the UN languages. (It may be noted here that individual countries are considering providing the translation.)

However, the Working Group/Special Committee summaries for policy-makers and the IPCC synthesis summary (ca. 100 pages in total) would be translated into the UN languages prior to their distribution to countries as a draft; this draft would be the subject of review and adoption at the fourth session of IPCC (Sundsvall, Sweden, 27-30 August 1990).

e) Need for more clerical/secretarial assistance to help with increased requests from the developing countries for travel support, to expedite finalization/production of reports and production of the IPCC Gazette.

f) Six issues of the IPCC Gazette.

10. The approved IPCC budget for 1990 amounts to SFR 1,589,500. The details can be found on pages 6-11.

The expected receipts are approximately SFR 1,521,763 with the following breakdown:

Carry-over from 1989	SFR	153,174	
WMO/UNEP cash contribution		250,000	
Pledges/receipts from members:		1,088,589	(Table 2 for details)
TOTAL	SFR	1,491,763	

This leaves a deficit of SFR 97,737.

Table 2

PLEDGES/RECEIPTS IPCC TRUST FUND, 1990

MEMBER	AMOUNT		AMOUNT EQ.SFR (approx.)
Australia	AUD	60,000	72,347 *(4) *(R)
Canada	Can$	25,000	30,000 *(7)
Denmark	$	100,000	153,000 *(3) *(R)
Finland	$	10,000	15,742 *(R)
France	F	200,000	51,000 *(5)
FRG	DM	80,000	71,000 *(2)
Italy	$	50,000	75,500
Japan	$	50,000	75,500 *(R)
Netherlands	Hfl	200,000	150,000
Norway	Nkr	150,000	30,000 *(6)
Sweden	$	30,000	45,000
UK	£	45,000	90,000
USA	$	150,000	229,500 *(1)
TOTAL			1,088,589

*(1) Of the US contribution, $ 100,000 is earmarked for the travel support to the developing countries. Part of the balance of $ 50,000 includes the provision of interpretation services for the IPCC meetings scheduled for 5-9 February 1990 in Washington D.C.

*(2) FRG contribution is DM 160,000 for both IPCC and the Second World Climate Conference. The contribution to IPCC has been assumed to be one-half of this amount.

*(3) The Denmark contribution is specifically for travel and other assistance to the low income developing countries for 1989 and 1990 (see page 14 for a listing).

*(4) Of the Australian contribution, AUD 20,000 is earmarked for the travel support of South Pacific delegates to the meeting of the Coastal Zone Management subgroup of Working Group III (Perth, 19-23 February 1990).

*(5) In addition, France will contribute F 200,000 to augment the staff of the IPCC Secretariat (see para 13 below).

*(6) In addition, Norway has given Nkr 700,000 for the purpose of holding an IPCC Information Exchange seminar of the Developing countries on climate change issues.

*(R) The amounts have been received in the Trust Fund.

*(7) The Canadian contribution is part of Can$ 100,000; the full Canadian contribution includes translation of the three IPCC Working Group reports into French.

WMO support

11. The person-year cost of the IPCC Secretary, the housing and associated costs of IPCC Secretariat and annual cash contributions of SFR 125,000 are provided by WMO.

UNEP support

12. The person-year cost of the Senior Programme Officer and annual cash contributions of SFR 125,000 are provided by UNEP.

13. Staff

The Secretary-General of WMO has assigned to the IPCC Secretariat a full-time Scientific Officer seconded to WMO by the Government of France.

1990 IPCC BUDGET DETAILS

(in Swiss Francs)

SECTION A: INSTITUTIONAL SUPPORT

1.	SESSIONS OF WORKING GROUPS AND THEIR SUBGROUPS OR SECTIONS	
1.1	WORKING GROUP I, WINDSOR, UK, 23-25 MAY 1990	
1.1.1	Interpretation	-
1.1.2	Translation	-
1.1.3	Printing of report	-
1.1.4	Travel of Secretariat Staff (2 staff)	4,000
1.1.5	Support to developing countries (20 countries)	80,000
	SUB TOTAL	84,000
1.2	WORKSHOPS OF SECTIONS OF WORKING GROUP I	
1.2.1	Interpretation	-
1.2.2	Translation of report	-
1.2.3	Printing of report	-
1.2.4	Travel of Secretariat Staff (Lead Authors' Meeting, 2 staff)	4,000
	Support to developing countries:	-
1.2.6	Section 2, Reading 4-5 Jan. 1990 (1 country)	4,000

1.2.7	Section 8, Washington, 10-11 Jan. 1990 (4 countries)	16,000
1.2.8	Lead Authors' Meeting, Edinburgh, 26 February to 2 March 1990 (Brazil, China, India, Senegal Nigeria)	20,000
	SUB TOTAL	44,000
1.3	WORKING GROUP II, MOSCOW, 28-31 MAY 1990	
1.3.1	Interpretation (R,E)	5,000
1.3.2	Translation of report	-
1.3.3	Printing of report	-
1.3.4	Travel of Secretariat staff (2 staff)	8,000
1.3.5	Support to developing countries (20 countries)	80,000
	SUB TOTAL	93,000
1.4	WORKSHOPS OF WORKING GROUP II	
1.4.1	Interpretation for Co-chairmen's meeting (E,F,R)	5,000
1.4.2	Co-chairmen's meeting, Tashkent March 1990 (Algeria, India)	8,000
1.4.3	Travel of Secretariat Staff (2 staff)	8,000
	SUB TOTAL	21,000
1.5	WORKING GROUP III, USA OR GENEVA, 5-8 JUNE 1990	
1.5.1	Interpretation	-
1.5.2	Translation of report	-
1.5.3	Printing of report	-
1.5.4	Travel of Secretariat Staff, if in USA (2 staff)	8,000

1.5.5	Support to developing countries (20 countries)	80,000
1.5.6	Miscellaneous	6,000
	SUB TOTAL	94,000
1.6	WORKSHOPS OF SUBGROUPS OF WORKING GROUP III	
1.6.1	Tropical forests, Sao Paulo, 9-12 Jan. 1990 (5 countries)	20,000
1.6.2	Energy and Industry Subgroup, 8-9 Feb. 1990 (China, one other)	8,000
1.6.3	Coastal Zone Management Subgroup, Perth, 19-23 February 1990 (8 countries)	32,000
1.6.4	Resource Use and Management Subgroup, Geneva, 23-25 April 1990 (India, Nepal and two others)	16,000
1.6.5	Agriculture and Forestry Subgroup, Geneva, 26-27 April 1990 (Zimbabwe and three others)	16,000
1.6.6	Legal Measures Consultation meeting, Geneva, 10-11 April 1990 (Brazil, China, Egypt, India Indonesia, Malaysia, Maldives, Mexico, Senegal, Zimbabwe)	40,000
1.6.7	Miscellaneous	5,000
	SUB TOTAL	137,000
1.7	SPECIAL COMMITTEE ON THE PARTICIPATION OF DEVELOPING COUNTRIES, o Second Session, Washington D.C., 9 February 1990 o Drafting Group, Paris, 5-6 April 1990. o Plenary, Geneva, 31 May-1 June 1990	
1.7.1	Interpretation (E,F,R) including plenary (see item 1.7.9)	34,000
1.7.2	Translation of report (E,F,R,S) including plenary (see item 1.7.9)	4,000
1.7.3	Printing of report including plenary (see item 1.7.9)	1,800
1.7.4	Travel of Secretariat Staff, Drafting Group (see item 1.7.8)	2,500
1.7.5	Support to developing countries for second session (Algeria, Brazil, India, Indonesia, Kenya)	20,000

1.7.6	Hospitality	-
1.7.7	Miscellaneous	5,000
1.7.8	Drafting Group, Paris,5-6- April 1990 (Brazil, Indonesia, Kenya)	12,000
1.7.9	Plenary, Geneva, 31 May-1 June 1990 (25 countries)*	54,000
	SUB TOTAL	133,300
1.8	THIRD SESSION OF IPCC, WASHINGTON D.C., 5-7 FEBRUARY 1990	
1.8.1	Interpretation (E,F,R,S)	21,000
1.8.2	Translation of report 50 pages (and pre-session 5 pages)	11,000
1.8.3	Printing of report	5,000
1.8.4	Travel of Secretariat Staff (3 staff)	18,000
1.8.5	Support to developing countries (30 countries)	120,000
1.8.6	Hospitality	3,000
1.8.7	Temporary staff	-
1.8.8	Miscellaneous	-
	SUB TOTAL	178,000
1.9	SECOND SESSION IPCC BUREAU, WASHINGTON D.C., 8 FEBRUARY 1990	
1.9.1	Interpretation (E,F,R)	19,000
1.9.2	Translation of report (and pre-session)	7,000
1.9.3	Printing of report	2,500
1.9.4	Travel of Secretariat Staff (covered under 1.8.4)	-

* 20 countries are already slated for support to attend the plenary of Working Group III. This amount represents additional per diem to them and full support for the 5 members of the Special Committee from the developing countries.

1.9.5	Support to developing countries (6 countries)	24,000
1.9.6	Hospitality	500
1.9.7	Temporary staff	-
1.9.8	Miscellaneous	-
	SUB TOTAL	53,000
2.0	MEETING OF THE DRAFTING COMMITTEE, GENEVA, 18-20 JUNE 1990	
2.0.1	Interpretation (whispered, R,F)	9,200
2.0.2	Support to developing countries (Nigeria)	4,000
2.0.3	Hospitality	-
2.0.4	Miscellaneous	-
	SUB TOTAL	13,200
2.1	FOURTH SESSION OF IPCC, SUNDSVALL, 27-30 AUGUST 1990	
2.1.1	Interpretation (E,F,R,S)	25,000
2.1.2	Translation (pre-session and report)	11,000
2.1.3	Printing of report	5,000
2.1.4	Travel of Secretariat Staff (3 staff)	12,000
2.1.5	Support to developing countries (30 countries)	120,000
2.1.6	Hospitality	3,000
2.1.7	Temporary staff	-
2.1.8	Miscellaneous	-
2.1.9	Pre-session consultation for the developing countries	20,000
	SUB TOTAL	196,000

SECTION B: FIRST IPCC ASSESSMENT REPORT

1.	Translation and typing of policy summaries and Chairman's synthesis report (approx.100 pages into A,C,F,R,S)	83,000
2.	Translation and typing of Special Committee report (approx. 20 pages into A,C,F,R,S)	17,000
3.	Translation and typing of Working Group reports* (approx 600 pages into A,C,F,R,S)	-
4.	Printing, distribution of 1500 copies each of 1,2,3 above:	80,000
	SUB TOTAL	180,000

SECTION C: PUBLIC INFORMATION

	IPCC Gazette	15,000
	SUB TOTAL	15,000

SECTION D PERSONNEL

1.	IPCC Secretary **	-
2.	Senior Programme Officer ***	-
3.	Scientific Officer****	-
4.	Administrative Assistant (G6)	90,000
5.	Typist/Clerk	70,000
6.	Hire of Temporary Staff	90,000
	SUB TOTAL	250,000

* Under consideration by volunteer countries (see para 5.2 of the report)
** Borne by WMO
*** Borne by UNEP
**** Assigned by the Secretary-General of WMO; the Scientific Officer is seconded to WMO by the Government of France

SECTION E: OVERHEAD COSTS AND OFFICE EQUIPMENT

1.	Telex, Telefax, Phone, Postage etc (12.5% of personnel costs including those of the IPCC Secretary and Programme Officer)	73,000
2.	Office equipment and stationery	25,000
	SUB TOTAL	98,000
	GRAND TOTAL	1,589,500

SUMMARY OF PROPOSED IPCC BUDGET 1990
(SWISS FRANCS)

	INTERPRE-TATION	TRANSLA-TION	REPRODUC-TION	TRAVEL SECRET.	LDC SUPPORT	HOSPITA-LITY	PERSONNEL	OVERHEAD COSTS	TOTAL
WG I	-	-	-	8,000	120,000	-	-	-	128,000
WG II	10,000	-	-	16,000	88,000	-	-	-	114,000
WG III	-	-	-	8,000	212,000	-	-	11,000**	220,000
SPECIAL COMMITTEE	34,000	4,000	1,800	2,500	86,000	-	-	5,000**	133,300
BUREAU	19,000	7,000	2,500	-	24,000	500	-	-	53,000
PANEL SESSIONS (3RD & 4TH)	46,000	22,000	10,000	30,000	260,000	6,000	-	-	374,000
DRAFTING COMMITTEE	9,200	-	-	-	4,000	-	-	-	13,200
1ST ASSESSMENT REPORT	-	100,000	80,000*	-	-	-	-	-	180,000
PUBLIC INFO.	-	-	15,000	-	-	-	-	-	15,000
IPCC SECRETARIAT	-	-	-	-	-	-	250,000	98,000	348,000
TOTAL	118,200	133,000	109,300	64,500	794,000	6,500	250,000	114,000	1,589,500
(PERCENTAGE)	7.44	8.37	6.88	4.06	49.95	0.40	15.73	7.17	100

* INCLUDES DISTRIBUTION COSTS
** MEETING ARRANGEMENTS

LIST OF LOW INCOME DEVELOPING COUNTRIES

	Afghanistan	...		Laos	...
X	Bangladesh	160		Lesotho	410
	Benin	270		Malawi	160
	Bhutan	160		Maldives	310
X	Botswana	840		Mali	170
	Burkina Faso	150		Mauritania	420
	Burma	200		Nepal	160
	Burundi	240		Niger	260
	Cape Verde	500		Rwanda	290
	Central African Rep.	310		Sao Tome & Principe	340
	Chad	...		Sierra Leone	310
	Comoros	...		Somalia	280
	Djibouti	...		Sudan	320
	Equatorial Guinea	...	X	Tanzania	230
	Ethiopia	130		Togo	250
	Gambia	230		Tuvalu	...
	Guinea	290		Uganda	...
	Guinea-Bissau	170		Vanuatu	...
	Haiti	330		Western Samoa	690
	Kiribati	...		Yemen	550
	Yemen Dem.	480			

OTHER LOW INCOME COUNTRIES:

	Anguilla	...	X	Mozambique	...
	Bolivia	540	X	Nicaragua	790
	China	280	X	Pakistan	380
	Côte d'Ivoire	720	X	Papua New Guinea	690
	Dominican Republic	710		Senegal	420
	Egypt	730		Solomon Islands	...
	Ghana	390	X	Sri Lanka	400
	Guyana	500		St. Helena	...
	Honduras	740		Swaziland	610
X	India	270		Tonga	690
	Indonesia	500		Turks & Caicos Islands	...
	Kampuchea	...		Viet Nam	...
X	Kenya	310		Zaire	160
	Liberia	450	X	Zambia	300
	Madagasca	230	X	Zimbabwe	620
	Mayotte				
	Mongolia				

APPENDIX H

ENGLISH ONLY

LIST OF IPCC MEETINGS

Date	Venue	Meeting/activity	Organization
AUGUST			
8	Toronto	Ecosystems subgroups	IPCC WGI/WGII
SEPTEMBER			
11-15	Berne	Workshop: Greenhouse Gases Subgroup	IPCC WGI
18-20	Toronto	Meeting of Subgroup on Cryosphere and Permafrost	IPCC WGII
18-21	Tokyo Japan	Subgroup on Energy, Industry, Transportation, Settlements and Human Health	IPCC WGII
21-22 (postponed)	Paris	Agriculture and Forestry Subgroup	IPCC WGII/OECD*
25-26	Pangbourne, UK	Workshop: Sea level rise Subgroup	IPCC WGI/Univ. of East Anglia
28-29	Paris	IPCC Special Committee on Developing Countries	Govt. of France/ IPCC
28-29	Geneva	Energy and Industry Subgroup	IPCC WGIII
OCTOBER			
2-6	Geneva	Second session	IPCC WGIII
2-6	Moscow	Climate Change and World Fisheries: Subgroup on World Oceans and Cryosphere	IPCC WGII
9-11	Joensuu	Workshop on Boreal Forests: (AFOS)**	IPCC WGIII

* OECD - Organization for Economic Co-operation & Development
** AFOS - Agriculture and Forestry Subgroup WGIII

18-20	Boston	Workshop: Greenhouse gases (non-CO_2)	IPCC WGI
23-24	USA	Workshop: Ecosystems	IPCC WGI
26-27	Geneva	Hydrology and Water Resources Subgroup	IPCC WGII
30-31	Bonn	Workshop on Temperate Forests (AFOS)	IPCC WGIII
30-1 Nov.	Geneva	Resource Use & Management Subgroup	IPCC WGIII
31-3 Nov.	Geneva	Second session	IPCC WGII

NOVEMBER

2-3	Geneva	Agriculture & Forestry Subgroup	IPCC WGIII
6-7	UK	Workshop: Ecosystems	IPCC WGI
20-21	Bath UK	Paleo-analogue Climate Forecasting	IPCC WGI/WGII
27-1 Dec.	Miami	Coastal Zone Management Subgroup	IPCC WGIII
29-1 Dec.	Broadway UK	Climate Trends Subgroup	IPCC WGI

DECEMBER

11-15	Brisbane Australia	Subgroup on Model Predictions and Validation	IPCC WGI
12-14	Washington	Agricultural Emissions: AFOS	IPCC WGIII

SECTION B: 1990

JANUARY

4-5	Reading UK	Workshop: Relative Importance of Climate Forcing Agencies	IPCC WGI
9-12	Sao Paulo Brazil	Workshop: Tropical Forests, WGIII (AFOS)	Govts. of USA/ Brazil/IPCC WGIII
10-11	Washington D.C.	Workshop Comparison of Observations and Simulations	IPCC WGI

11-12	Woods Hole USA	Section 10 Lead Authors	IPCC WGI
17-19	Asheville USA	Section 7 Lead Authors	IPCC WGI
22-24	Bracknell UK	Section 1 Lead Authors	IPCC WGI
25-26	Utrecht Netherlands	Section 9 Lead Authors	IPCC WGI

FEBRUARY

2	Washington	Informal officers RSWG meeting	IPCC WG III
5-7	Washington	IPCC, Third Session	Govt. of USA/IPCC
8	Washington	IPCC Bureau, Second Session	Govt. of USA/IPCC
8-9	Washington	Energy and Industry Subgroup	IPCC WGIII
9	Washington	IPCC Special Committee on Developing Countries Second Session	Govt. of USA/IPCC
19-23	Perth Australia	Coastal Zone Management Subgroup	IPCC WGIII
26-2 Mar.	Edinburgh UK	Lead Authors' Meeting	IPCC WGI
26-2 Mar.	Nalchik USSR	Co-chairmen meeting	IPCC WGII

APRIL

5-6	Paris	Special Committee/ Drafting Group	IPCC Special Committee
23-25	Geneva	Resource Use and Management Subgroup	IPCC WGIII
23-25	Toronto	Energy and Industry Subgroup	IPCC WG III
26-27	Geneva	Subgroup on Agriculture, Forestry and other Human activities	IPCC WGIII

MAY			
22-23	Paris	Preparatory meeting of technical experts/Energy and Industry Subgroup	IPCC WG III
23-25	Windsor, UK	Second session, approval of report of the WG	Govt. of UK/ IPCC WGI
28-31	Moscow	Third session, approval of report of the WG	Govt. of USSR/ WGII
31 May - 1 June	Geneva	Special Committee/ open ended group	IPCC Special Committee
JUNE			
5-8	Geneva	Third Session, approval of report of the WG	IPCC WGIII
11-13	London	Workshop on Emissions of Greenhouse Gases/Energy and Industry Subgroup	IPCC WG III
18-20	Geneva	Drafting Committee	IPCC
AUGUST			
24-25	Sundsvall Sweden	Pre-consultation; Developing Countries	Govt. of Sweden/ IPCC
27-30	Sundsvall, Sweden	IPCC fourth session, approval of first assessment report of IPCC	Govt. Sweden/IPCC
SEPTEMBER			
24-26	Geneva	Preparations for Negotiations of a Convention on Climate Change	UNEP/WMO
27-29	Geneva	Discussions of the Draft Ministerial Declaration of the Second World Climate Conference	WMO/UNEP/ UNESCO-IOC/ ICSU
OCTOBER			
29-7 Nov.	Geneva	Second World Climate Conference	WMO/UNEP/UNESCO-IOC/ICSU