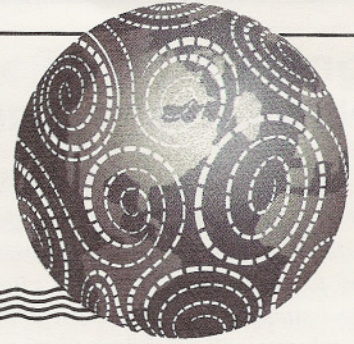


# CLIMATE ALERT



Volume 4, Number 7

November-December 1991

## UN Meeting Will Confer on Island States' Perils

Experts from around the world will discuss the scientific implications and the social consequences of climate change for small island states and low lying coastal developing countries at a symposium at the Trusteeship Council of the United Nations on February 14, 1992.

The symposium will be opened by H.E. Mr. Robert F. Van Lierop, Permanent Representative of Vanuatu to the United Nations and Chairman of the Alliance of Small Island States (AOSIS) which, together with UNEP, is convening the meeting.

The effects of sea level rise, of changed storm patterns, the response of coral reefs and the impact on the economies of islands and low lying coastal states will be addressed by participants from Micronesia, Cape Verde, Bangladesh, Papua New Guinea and other concerned nations. H.E. Hon. Mrs. Daniel de St. Jorre, Minister for Planning and External Relations of Seychelles, will deliver the keynote address.

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- Climate Change Impact on Caribbean Region



H.E. Mr. Robert F. Van Lierop, Permanent Representative of Vanuatu to the UN and Chairman of AOSIS

## UNEP'S First Country Reports Unveiled

### Regional Studies Cover Asian, South American Nations

More severe drought in Brazil's dry Northeast, drought damage in the Mekong River Delta of Vietnam, and declining production of Indonesian maize and shrimp and Malaysian rubber and rice crops are among the potential effects of climate change delineated in recently released UNEP reports on five developing countries. These are the first products of UNEP's World Climate Impacts and Responses Program to consider the effects of present climatic variability on the environment and the economy and attempt to draw useful lessons on how society may cope with possible future changes.

At a 1985 meeting in Villach, Austria, scientists recommended that priority be given to regional scale studies of the impact greenhouse gas emissions might have on climate change. Currently, according to the best estimate based on the judgement of the Intergovernmental Panel on Climate Change (IPCC) reporting in 1990, if greenhouse gas emissions continue to increase at the present rate, global mean temperatures will increase by 0.2 to 0.4 degrees C per decade for the next century. The six warmest years on record during the past century have all been in the 1980s. Predictions by general circulation models (GCMs) are broadly consistent with these trends, but because of the natural variability of the Earth's climate, scientists are not yet prepared to outline unequivocally the dimensions of man-made climate change. There is some

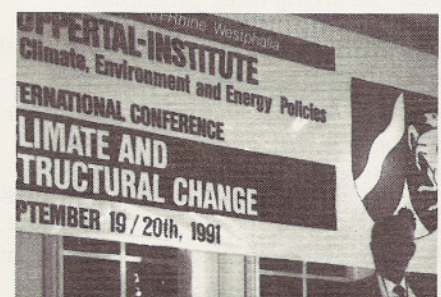
*(continued on page 4)*

## Wuppertal Institute Launched at Climate, Structural Change Parley

An international conference on climate and energy policy September 19-20, 1991 drew over 160 scientists, energy and policy experts to Wuppertal, Germany to help shape the agenda of a newly created Wuppertal Institute for Climate, Environment and Energy Policies.

Germany's most populous state, North Rhine-Westphalia — whose population roughly equals that of the former East Germany — has agreed to provide the core funding for the Wuppertal Institute. The Institute's President, Dr. Ernest von Weizsacker, a well respected and politically knowledgeable scientist, has projected that the Institute may ultimately have a staff of 60.

Presentations at the Wuppertal Conference underscored the broad political consensus in Germany behind aggressive measures to limit emissions of greenhouse gases. The Social Democratic controlled government of North Rhine-Westphalia appeared to be moving decisively to shape national and international policies. Such



Dr. Ernest von Weizsacker, President of the Wuppertal Institute.

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## GUEST COLUMN

## New Zealand Enacts Path-Breaking Sustainable Management Law

by Roger Blakeley, Secretary for the Environment, New Zealand

(With this issue of *Climate Alert*, a new feature, a Guest Column, is inaugurated to create a dialogue on vital climate issues for our audience network. The column will provide a platform for invited writers to give first-hand reports and exchange opinion on climate topics.)

New Zealand is the first country, as far as I know, to enshrine the concept of sustainable development into its resource management law. Sustainable management of resources will be at the heart of policy measures that will provide long term solutions to global warming, while ensuring economic and social wellbeing.

The Government established the New Zealand Climate Change Programme in 1988 to examine what science, impacts and policy responses global change would entail.

After four years of intensive effort, the Parliament passed the Resource Management Act 1991, demonstrating its continuing concern for the environment. It was the largest resource law reform in New Zealand's history, repealing and replacing 59 previous laws. It took effect on October 1, 1991.

**Sustainable Management**

Sustainable management is defined by the Act as managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural wellbeing and their health and safety, while satisfying three principles:

1) Sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations;

2) Safeguarding the life-supporting capacity of the receiving environment, that is ensuring that ecological "bottom lines" are not crossed; and

3) Avoiding, remedying and mitigating the adverse effects of use and development.

Features of the new Act are:

- It imposes a duty on decision makers to assess costs and benefits and identify the most efficient and effective means of achieving the desired ends. These could include regulations, market mechanisms, information and service delivery.

- The presumption, reversing the thrust of the previous Town and Country Planning Act, is that private land can be used for whatever purpose the owner wishes unless the use violates a provision of the new Act.

- Planning under the new Act means deciding what effects, such as noise, smoke, smell, or dust, should be controlled and how best to do this, not about deciding where particular activities should take place.

- The Act requires integrated management of pollution and waste to ensure cleaner air and water, replacing previous overlapping and contradictory laws.

- In a new standardized process for all agreements, an applicant must provide an assessment of effects, and all relevant agreements can be considered together.

- Local governments must ensure that the principles of the Treaty of Waitangi (signed by the British Crown and the Chiefs and Tribes of Maori people) are considered in all decision-making.

**Emissions Reduction Target**

The new Act is good for the environment and good for business, requiring high environmental standards but reduced and better targeted regulation. The greater freedom for economic and social choices, within environmental limits, will create a more stable milieu for business investment and job creation.

The Act is consistent with the Government's progressive approach to global climate change which includes an interim target of 20 percent reduction of 1990-level CO<sub>2</sub> emissions by the year 2000. Policy options are being evaluated against this target.

We are now examining policy measures to reduce sources of all greenhouse gases and enhance sinks, and evaluating their economic and social impacts. Priority will be given to those measures which have benefits in their own right, such as improved energy efficiency. Major plantation forestry will also help by enhancing carbon dioxide sinks. Other measures include:

- estimates of the amount of carbon sequestered in New Zealand's indigenous and exotic plantation forests;

- research on the sources and quantities of methane and nitrous oxide emissions from the agricultural sector and the potential for reducing these;

- a comprehensive waste management strategy, including national standards for landfills which will help reduce methane emissions.

- research to quantify nitrous oxide emissions from the agricultural sector;

- updating New Zealand's inventory of greenhouse gases, using methodologies consistent with those of IPCC and Australia New Zealand Environment Council (ANZEC).

## CLIMATE ALERT

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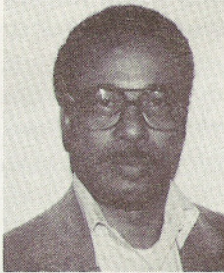
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## Caribbean Area Study Shows Pitfalls, Benefits of Warming

The Greater Caribbean Region, with its large number of poor states, its dependence on agriculture, forestry and fisheries, and its vulnerability to sea level rise, provides a distinctive area for study of the implications of climate change.

Increasing concentrations of CO<sub>2</sub> could prove beneficial to crop growth and forest productivity in the area, but the threat of more intense hurricanes, higher storm surges and damages to settlements, habitats, and beaches could far exceed its capacity to protect itself, according to an in-depth research project by Orman Granger of the University of California, Berkeley.



Dr. Orman Granger

In a "cautious extrapolation," Granger estimates the total rise in average annual temperatures over the next 50 years will be significant, amounting to 0.75-2.3 degrees C, magnitudes unprecedented in such a short time span. The greatest increases will occur in large urban areas.

Rainfall will increase by 10-15% near the equator and western sections of the region, where totals are already high, and will decrease in the eastern and northern margins by 10-15%. By 2030, annual rainfall is projected to rise 8-40 cm. in some areas and decrease 12-14 cm. in others.

### Ocean Heating in Summer

Warming of the oceans in August may reach between 2.3 and 4.8 degrees C. Such changes are likely to alter the magnitude and frequency of hurricanes, floods, droughts, or extremes of heat. One scientist estimates that a 2 to 5 degree C summer warming of the ocean could increase the maximum intensity of hurricanes by 60%. A succession of environmental disasters, requiring resettlement and reducing the capacity of most countries to produce goods and services and supply the needs of their most impoverished citizens, would be devastating. One or two storms could threaten the viability of some communities, Granger suggests.

The rising sea level poses many risks. Salt water may intrude into ground water, affecting agricultural and domestic water supply systems. Coral reefs and mangroves, already under stress from pollution, sedimentation, overfishing, coral block quarrying and mangrove harvesting for poles and fuel, will suffer further. Intense settlement and investment have been concentrated on some coasts, increasing their susceptibility to damage from severe storm surges and flooding. Estimated shoreline retreat of 30 to 50 meters by 2030 will lead to a significant loss of valuable coastal real estate and of opportunities for investment and employment.

It appears that Greater Caribbean agriculture and food supply should benefit from climate change induced by higher CO<sub>2</sub> emissions, Granger reports. New patterns of agricultural production could emerge. Rising CO<sub>2</sub> concentrations could increase the growth of trees that are important economically and ecologically. (However, warming and aridity in some regions could contribute to more forest fires and changes in the mix of species. Also greater pressure for agriculture land could deplete forests and doom uncatalogued species and habitats.)

### Agricultural Impacts

A high proportion of the population of low-income developing countries in the Caribbean region depend on agriculture and other climate-sensitive activities. Many of the economies are overdependent on a small number of agricultural crops. Increased productivity and yield of traditional crops, taking advantage of climate change, plus value added through further processing and development of new products would help the economies. Agricultural diversification would bring benefits through more secure food supplies, foreign exchange savings and earnings, and more jobs. Greater efficiency in food production would raise nutritional levels, although this would entail investing in land development, drainage and irrigation, roads and marketing facilities.

Most countries in the area have "large stocks of unused or underutilized" public and private land and underutilized

manpower, but they need technical and economic changes to improve national, regional and international competitiveness, stabilization and adjustment measures.

Freer intraregional trade, joint regional actions to compensate for inequalities, and regional links in production to promote more equal distribution of benefits could help free the region from a marginal and dependent status.

### Effect on Tourism

Tourism has been pushed in the area as a path toward economic diversification. But sea level rise threatens loss of the beaches which attract the tourists. Protection of beaches, even if desired, is exorbitantly expensive, and few Caribbean countries have the budget resources or capital that would be required. In addition there are the obstacles of a preponderance of foreign ownership and control, and profit repatriation.

The problems transcend the financial means of most of the nations. Granger suggests regional planning to spread the near-term costs as the most effective approach. Outside assistance to promote development should take care to preserve biodiversity in the region and should also assure consideration of "quality of life and living space rather than an ever-increasing GNP," Granger argues. Climate change may generate new sources of financing but in the short run gains are likely to evolve more slowly than losses. It is crucial to identify the groups who will bear the costs as well as those who will reap the benefits of reallocation of financial resources because of climate change.

If sea level rises, what will be the decisions and who will make them? Will protection of resorts and lands for housing, plantations, and industry have top priority or will lands for peasant agriculture and housing for the urban poor come first? The answers, says Granger, are "perplexing but not unfathomable."

*This article appeared in The Environmental Professional, Vol. 13 pp. 43-58, John Lemons, Editor-in-Chief, FAX 207/282-6379. Granger is also author of a recent book entitled Natural Disasters and Social Change: An Eastern Caribbean Perspective.*

## First Country Reports

(continued from page 1)

agreement, the report on the five developing countries says in its introduction, on the following directions of possible future changes:

- Warming will be greater at higher latitudes, a potentially welcome development for agriculture and forestry in northern North America, Europe and Asia, but not adequate to compensate for possibly substantial negative effects in mid and low latitudes.

- Monsoon rains might spread further toward the poles in Africa and Asia, enhancing rainfall in drought-prone regions such as the Sahel and northwest India. However, it is possible that this rain would come mostly in intense storms during a short period, aggravating flooding and erosion.

- Higher evapotranspiration would probably be the most important consequence of warming, raising considerably the rate of moisture loss from plants and soils, particularly in the dry season. Increased humidity and cloudiness, however, could alleviate moisture loss in rainy seasons.

### BRAZIL

Drought, the most substantial effect of climate change in Brazil, especially in the Northeast, would have substantial repercussions beyond a fall in agricultural yields. Present droughts set in motion a cycle of hunger and malnutrition, leading to infant brain damage and a rise in infectious diseases. A further impact is an increase of rural unemployment influx to cities of immigrants from the Northeast. If long-term climate change brought future extreme droughts, the implications for the rural poor would be even more threatening.

A change in the frequency and duration of dry spells, as a result of greenhouse gas-induced changes, could have a marked impact on the agricultural output of the Midwest frontier region. New technologies and increasing productivity which rely more heavily on a sustained water supply may have increased the area's sensitivity to drought and dry spells.

Inadequate urban planning has left the more industrialized South and South-

east regions of the country more vulnerable to floods. And deforestation has increased the whole country's vulnerability to drought. Deforestation has also altered the pattern of floods and droughts in the Pantanal (Great Swamp) area of the Midwest leading to imbalance in the ecology.

Climatic variability is a very important issue in Brazil, according to report editors Antonio Magalhaes and Bezerra Neto of the UNEP/SEPLAN Case Studies in Brazil, and has a substantial impact on the society, the economy, and the environment, bringing much human suffering and lost income. While the population has previously endured hardship passively, in the last two decades the people have begun to challenge the government's response. The traditional palliative measure, establishing "work fronts" which supply temporary jobs for



M.L. Parry, A. Magalhaes and N.H. Ninh, Editors, *The Potential Socio-Economic Effects of Climate Change*.

survival, could be extended beyond short-term emergency relief to long-term strengthening of the regional capacity to cope with droughts. A policy of sustainable development would pursue both a reduction in greenhouse gas emissions and an improvement in the capacity of the environment to adapt to possible future climate changes.

### INDONESIA, MALAYSIA & THAILAND

Sea level rise threatens mangrove forests, beach resorts, and aquaculture of fish and prawns, arousing major concern in these three Southeast Asian countries, according to a study by Martin Parry et al. of the United Nations Environment Programme, Nairobi. Parry, a Climate Institute Board member, is now head of the Environmental Change Unit at the University of Oxford.

A high proportion of the coastal plains in this region are sandy and swampy, with beaches vulnerable to erosion. While increased rainfall could deposit more sediment in the river deltas, sea level rise could overwhelm the deposits and cut back the shorelines. The cliffs that line some of the coasts would be undercut by waves and recede. Coral reefs, already under ecological stress, could be further damaged. Rising seas would drive the mangroves, and the fisheries associated with them, landward. But developed land behind them would interfere with this migration, and mangrove forest strips would become narrower or disappear.

Another trend, marine submergence of coastal areas, will raise the water table so that some low lying coastal plains will become permanent swamps or lakes.

An increase in mean annual temperatures of 3 - 4 degrees c is estimated by the year 2050.

**Indonesia.** The loss of land in Indonesia is estimated to decrease rice and maize production and in general reduce potential average income.

Rainfall is expected to increase which would provide more water for irrigation, and this could offset increased evaporation. However, more rain would bring more erosion and leaching of the soil, decreasing fertility. The most severe losses in crop yields — on the order of 25 - 65 % — are predicted for maize, with soybeans following at a 10% loss and rice yields also declining.

**Malaysia.** A one-meter rise in sea level would have a severe impact in Malaysia, leading to a shoreline retreat of 2.5 kilometers and substantial losses of agricultural land.

Warmer temperatures would lead to a shorter maturation period for rice, decreasing the crop yield by 12-22% and increasing the demand for irrigation by 15%. Yields from rubber trees might be reduced by 15%, but this loss could be offset by improved clones of trees. Maize yields, affected by changes in solar radiation, might decline by 10%.

Higher rates of evaporation are estimated to lead to a one-third increase in the water deficit in the dry season, caus-

(continued on next page)

## First Country Reports

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ing a shortage of irrigation water and declining rice yields.

Expected increases in rainfall would lead to more flood damage and a 5% rise in the size of the flood-affected population.

**Thailand.** In the Suratthani Province of southern Thailand, chosen as an example to study the effect of a one-meter sea level rise, 7400 hectares, 37% of the area, would be affected by inundation. About 4200 hectares of productive agricultural land and large numbers of shrimp ponds would be lost.

In the short term, the wisest response in the three-country region would be the reorganization of land-use planning in the low-lying coastal areas, discouraging new resorts too close to high tide lines. Aquaculture should also be restructured.

### VIETNAM

Authors Nguyen Huu Ninh, Michael Glantz and Hoang Minh Hien report in a Vietnam study that present climate variability is quite strongly related to the El Nino/Southern Oscillation (ENSO) phenomenon. Temperatures are above average in the years before an ENSO, and tend to be lower in the winter and spring afterwards. Storms during an ENSO event are 20% fewer but are above normal in intensity. Climate change affects the incidence and intensity of El Ninos.

Ninh and Hien are associated with the University of Hanoi, Glantz with the National Center for Atmospheric Research in Boulder, Colorado.

According to the authors' scenario, monsoons will be more intense as climate warms and there will be a more northern penetration of summer monsoons. Storms are expected to be more frequent with important implications for settlement and agriculture in low lying coastal areas.

Rainfall is expected to be higher in the North but lower in the South, where the evaporation rate may increase 5 to 10%. Available moisture will decline in summer, and droughts may increase, especially in the South.

An increase in drought will have a major adverse effect on crops, and the greater evaporation and more prolonged dry season will involve a range of crops. Lower availability of soil water in the South would bring higher demand for irrigation and the power that supplies it. The decrease in moisture will have the greatest impact in the Mekong River Delta. Higher temperatures and humidity may lead to more frequent outbreaks of crop pests.

Even a small rise in temperature will substantially decrease the levels of human comfort, as current temperatures are near the tolerable limit. Hotter weather is also more conducive to intestinal diseases, measles and meningitis. However, higher winter temperatures will lower the demand for domestic space heating.

The Vietnam report lists the following important questions for further research:

- Matching the crop growth requirements more closely with climate potential.
- Studying the value of mixed cropping strategies in adapting to climatic variability. What zones are likely to be affected by sea level rise and intrusion of saline water into coastal groundwaters.
- The effect of possible increases in typhoons and the prolongation of the typhoon season.
- The effect of higher temperatures on crop pests and diseases and on human diseases.

A copy of this publication may be obtained from Global Environmental Monitoring System, Nairobi, Kenya, FAX: 254 2 22 68 91. Please refer to M.L. Parry, A. Magalhaes, and N.H. Ninh (1991). *The Potential Socio-Economic Effects of Climate Change*. A summary of three regional assessments.

## UN Meeting

(continued from page 1)

At least 200 representatives of the UN, the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, non-governmental organizations and other interested groups are expected to attend the one-day symposium. The Climate Institute and the Centre for International and Environ-

mental Law (CIEL) have assisted in organizing the meeting which has also been sponsored by the W. Alton Jones Foundation and The William Bingham Foundation.

Other speakers at the Symposium include:

Dr. Jean Ripert, Chairman, Intergovernmental Negotiating Committee for a Framework Convention on Climate Change;

H.E. Mr. Jamshaid Marker, Permanent Representative of Pakistan to the UN and Chairman, Group of 77;

H.E. Mr. Jose Luis Jesus, Permanent Representative of Cape Verde to the UN chairing a panel on Scientific Climate Change. Panel Members include:

1. Dr. Stephen Leatherman, Director, Laboratory for Coastal Research, U. Of Maryland, and Co-Chairman, Climate Institute, "How is Sea Level Rise Likely to Affect Small Island and Low Lying Coastal Developing Countries?"

2. Dr. Atiq Rahman, Director of Climate Action Network South Asia, and Director of Bangladesh Center for Advanced Studies, "Impacts of Climate Change and Sea Level Rise: A Case Study of Bangladesh."

3. Dr. Hector M. Guzman, Coral Reef Scientist, Smithsonian Tropical Research Institute (Panama), "How Will Coral Respond to Sea Level Rise and Sea Surface Warming?"

4. Dr. Oman Granger, Professor of Geography, U. of California, Berkeley, "How Can Small Island and Low Lying Coastal Developing Countries Address the Possibility of Changed Storm Patterns and Rising Seas?"

H.E. Mr. Eugene M. Pursoo, Permanent Representative of Grenada to the UN, chairing a panel on Social Consequences of Sea Level Rise and Possible Response Strategies. Panel Members Include:

1. H.E. Mr. Jesse B. Marelhau, Permanent Representative of Micronesia to the UN, "Social Consequences of Sea level Rise."

2. Dr. Jeremy Leggett, Director of Research, Greenpeace, "Why Is an Enhanced Greenhouse Effect a Concern of Small Island and Low Lying Coastal Developing Countries?"

3. Prof. Philippe Sands, Centre for International Environmental Law and Legal Advisor to AOSIS, "Establishing International Legal Rights of Small Island and Low Lying Coastal Developing Countries Adversely Affected by Sea Level Rise."

Dr. Noel Brown, Regional Director for North America, UNEP, chairing a panel on Informing and Mobilizing International Public Opinion. Panel Members include:

1. H.E. Mr. Renagi Renagi Lohia, Permanent Representative of Papua New Guinea to the UN, "Delivering the Message to the International Community."

2. Ms. Lynne Edgerton, Climate Institute, Author, *Rising Tides*, "How Individuals and NGOs Can Make a Difference."

# Climate Institute News

## Martin Parry

On October 1, Oxford University opened an Environmental Change Unit under the leadership of Institute Board Member Professor Martin Parry, Chairman of the UK Climate Change Impacts Review Group.

The ECU is an interdisciplinary unit dedicated to collaborative research on the nature, causes and impact of environmental change and to the development of management strategies for coping with future changes. It will concentrate on five major research themes: modelling and forecasting of future changes, geological and archaeological evidence for long-term changes, historical records of land use, monitoring of contemporary environmental changes, and information retrieval and collation.

Parry was formerly head of the Atmospheric Impacts Research Group at the University of Birmingham and is a world authority on the possible effects of climate change on agriculture. He is the lead author of the principal UN study of the impacts of climate change on world agriculture.

He took with him to Oxford five core members of the Birmingham Group, with their projects and funding of 1.5 million pounds. The first two of the five themes listed above have been established with funded projects and staff.

Merton College, one of the richest of the Oxford Colleges, has provided a building for the new unit. IBM is funding Professor Parry's salary for five years and has donated computer equipment worth 100 thousand pounds.

Parry was director of the UNEP study on Malaysia, Indonesia and Thailand, described in an article on page 1 of this issue of *Climate Alert*.

## Pier Vellinga

Board Member Prof. Dr. Pier Vellinga, formerly Coordinator for the National Climate Programme in the Ministry of Housing, Physical Planning and Environment, The Netherlands, in September became Director of the Institute for Envi-

ronmental Studies (IES) at the Free University in Amsterdam.

The IES, the oldest academic institute for basic and applied environmental research in The Netherlands, was established in 1971. Thirty or forty researchers are employed to carry out its primary objective, multi- and interdisciplinary research, based on cross-fertilization among disciplines including chemistry, ecology, hydrology, geography, geochemistry, economics, econometrics, psychology and sociology.

The environment and third world issues are among its focal points, and cooperation with developing country research institutes is a prominent feature of many of its studies.

Besides funding from various Ministries, the Dutch National Science Foundation and several non-governmental organizations, its list of international sponsors includes the European Community, OECD, UNEP, UNESCO and a number of others.

## Bert Metz

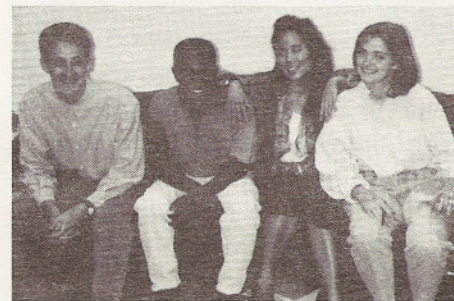
Dr. Bert Metz, who for the past four years has been Counsellor for Health of the Netherlands Embassy to the U.S., returned to the Netherlands in January to become coordinator of the Netherlands Climate Program, replacing Pier Vellinga.

Dr. Metz has been a leader among science attaches in Washington on environmental issues. He has worked closely with the Climate Institute since attending the Institute's First North American Conference on Preparing for Climate Change in October 1987.

## Interns

Five interns worked on three projects during the summer of 1991: 1) strato-

spheric ozone, 2) public health implications of climate change and ozone depletion, and 3) forests, biodiversity and climate change. They also supplied invaluable research related to ministerial briefings. Since the Institute did not engage in extensive recruiting, it took initiative on the part of the students to seek out these opportunities. Most of the interns combined working at outside jobs part time as well as fulfilling their Institute duties which included no more than 30 percent of working time spent on clerical work.



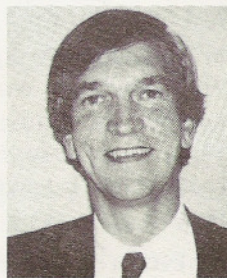
Executive Administrator Scott Stefanski, Interns Kadi Mbanefo, Kathie Moh, Teresa Crean

The names and status of the interns as of the fall of 1991 are: Teresa Crean, a senior at the University of Michigan; Tess Erb, a senior at Allegheny College in Pennsylvania; Kadi Mbanefo, a Guelph University, Ontario student; Kathie Moh, a junior at Indiana University; Jamie Troy, a senior at the College of William and Mary in Virginia.

The Institute intern program is available to undergraduates during both winter and summer and enrolled 9 students during the summer of 1990. A January 1991 intern, Scott Stefanski, returned to the Institute in May, after graduating from Drew University in New Jersey, to become the Institute's executive administrator.

David Hobbie, an intern during the summer of 1990, graduated from Oberlin College in May 1991 and has now become Director of Impacts Research for the Institute.

Two interns provided intelligent and cheerful full-time help during the month of January 1992: Christine Cavanagh, a senior at Wheaton College in Massachusetts, and John Bleakney, a junior at Drew University.



Professor Pier Vellinga



Dr. Bert Metz

## Wuppertal

(continued from page 1)

support appeared especially remarkable as this highly industrial German state possesses significant coal and other resources which might be adversely affected by greenhouse emissions limitations.

The broad political consensus in Germany—one encompassing majority party Christian Democrats and their allies, the Free Democrats, the opposing Social Democrats and the Greens—is due in part to the remarkable report of the Bundestag's Enquete Commission. Dr. Bernd Schmidbauer, Deputy Environment Minister and the Chairman of the Enquete Commission, stated the strong commitment of the present German national government to achieve sizable reductions in emissions of carbon dioxide and other greenhouse gases by 2000. The Enquete Commission in a series of reports over the past year has spelled out in very specific terms how Germany might at quite modest cost achieve these reductions.

The current country-wide target is to achieve a 25 percent decrease in CO<sub>2</sub> emissions by 2005 and commensurate reductions in other greenhouse gases.

The core of this emerging strategy appears to be aggressive reliance on energy efficiency, with some switching to less carbon intensive fuels.

Considerable attention during the Wuppertal Conference was given to the economic and environmental crisis of the former Soviet bloc states and the opportunity to couple environmental protection and energy efficiency strategies. One conference speaker, John Topping, President of the Climate Institute, suggested that Germany could be the leader in reshaping the economics and energy technologies of the former Soviet Bloc nations. Germany's experience in cleaning up the environment and resuscitating the economy of the former East Germany could also provide a guide to similar efforts in the previous Warsaw Pact States.

Dr. Pier Vellinga, who arrived at Wuppertal just after serving as the chief European Community Negotiator in the September INC sessions in Nairobi, reviewed the Government of the Netherlands climate research program which includes support for vulnerability assessments of low lying developing countries to sea level rise. These efforts, focusing on adapting to some inevitable sea level rise as a result of the buildup in greenhouse concentrations, are coupled with

aggressive steps to limit greenhouse emissions. In very specific plans to reduce the emissions, the Dutch have begun changing public investment strategies to encourage increased public transport, enhanced energy efficiency and some fuel shifting. Moreover, the Netherlands, like Germany, has been at the forefront within the European Community in pressing for a Community tax designed to limit greenhouse emissions and encourage energy efficiency.

From the discussions at the Wuppertal meeting emerged a clear theme now evident in German climate policy: climate change must be integrated into a broader effort to structure energy efficiency into industrial investment, residential construction, and transportation policies.

The Wuppertal Institute has also begun to assemble a strong staff, recruiting as co-director Dr. Jill Jager, who had formerly served with the Stockholm Environment Institute. Another key staff member is Raimund Bleischwitz who played a central role in organizing the Wuppertal Conference.



### MEMBERSHIP

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\_\_\_\_\_ Please send me \_\_\_\_\_ copy/copies of *Coping With Climate Change*, Proceedings of the Second North American Conference on Preparing for Climate Change. Cost: \$35 per copy (\$30 to Climate Institute members), plus \$2.50 postage and handling U.S., \$6 for Canada, and \$10 elsewhere.

\_\_\_\_\_ Please send me \_\_\_\_\_ copy/copies of *Cairo Compact & Panel Reports*, the output of the World Conference on Preparing for Climate Change, Cairo Egypt, Dec. 17-21, 1989. Cost: \$10, includes postage and handling.

\_\_\_\_\_ Please send me \_\_\_\_\_ copy/copies of *Report of the International Workshop on Framework Convention and Associated Protocols: A Nongovernmental Perspective*. February 2-4, 1990, Washington, D.C. Cost: \$10, includes postage and handling.

\_\_\_\_\_ Please send me \_\_\_\_\_ copy/copies of *The Arctic and Global Change*, October 25-27, 1989, Ottawa, Ontario, Canada. Cost: \$25 plus \$2 for postage and handling.

\_\_\_\_\_ Please notify me when *Proceedings of the North American Conference on Forestry Responses to Climate Change*, May 15-17, 1990, Washington, D.C. have been issued (Conference registrants will receive free copy as part of registration fee.)

\_\_\_\_\_ Please send me \_\_\_\_\_ set/sets of greenhouse effect slides. Approximately 40 slides with accompanying talking points script. Cost: \$85 plus \$10 shipping and handling.

Circle language(s) you wish to order: English, Spanish, Turkish, Indonesian, Arabic, French, Chinese, Russian

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## Boutros-Ghali Becomes UN Secretary General

The new Secretary General of the United Nations, Boutros Boutros-Ghali, has strong climate and environmental interests and was very helpful to the Climate Institute in its December 1989 Cairo World Conference on Preparing for Climate Change.



UN Secretary General  
Boutros Boutros-Ghali

Mr. Boutros-Ghali assumed his position as Secretary General for a five-year term beginning January 1, 1992. He has been Deputy Prime Minister for Foreign Affairs of Egypt since last May and before that served as Minister of State for Foreign Affairs for nearly 15 years.

As the first Secretary General in the post-Cold War era, he is also the first

Secretary General from Africa. He is an architect of Egypt's policy toward sub-Saharan Africa and has been very involved in negotiations concerning the Nile River. He had a role in negotiating the Camp David accords between Egypt and Israel which were signed in 1979.

Mr. Boutros-Ghali received a Ph.D. in international law from Paris University in 1949, writing a thesis on the study of regional organizations.

## Thai Joint Venture Protects Ozone Layer

Thailand, an early ratifier of the Montreal Protocol, has been a leading nation in Southeast Asia in protecting the ozone layer. Now it has announced an innovative joint international partnership with the U.S. and Japan to encourage multinational companies to halt the use of solvents in their Thai operations on the same schedule as they follow in their home countries.

The new partners will organize conferences, workshops, demonstrations, internships and training programs and provide information on environmentally acceptable technologies for eliminating ozone-depleting solvents, the fastest growing area of consumption. They will help Thai companies prepare applications for investment funding from the World Bank.

Solvents account for 45 percent of CFC use in Thailand; most of its use is by Japanese, American and European companies or their joint ventures.

This government-industry partnership will serve as a valuable model for other countries. The partners include the Government of Thailand, the U.S. Environmental Protection Agency, the Ministry of International Trade and Industry (MITI), the Industry Cooperative for Ozone Layer Protection, and the Japan Industrial Conference for Ozone Layer Protection.

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*The Climate Institute is a private nonprofit organization formed to advance public understanding of climate change including the greenhouse effect and of strategies to avert stratospheric ozone depletion.*