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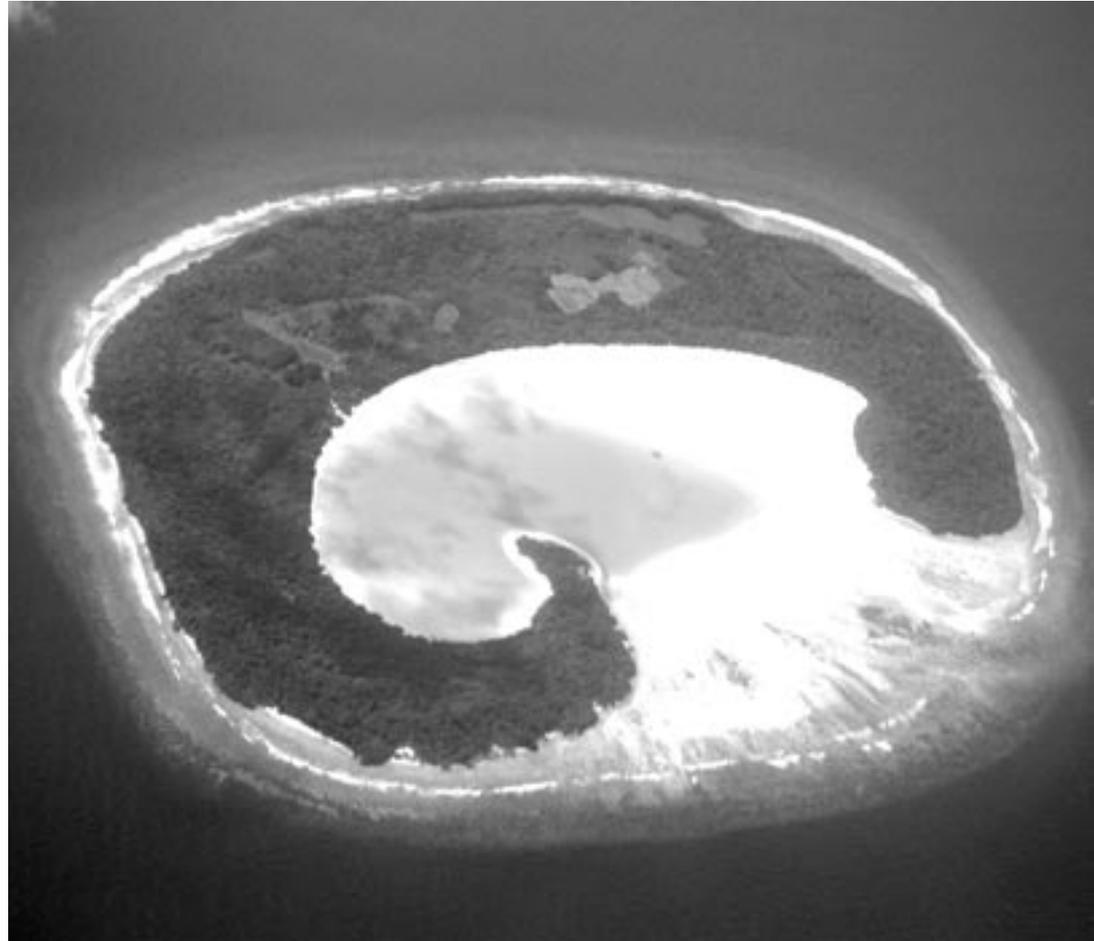
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Cover photo: US National Oceanic and Atmospheric Administration (NOAA is part of the DoC)



Low-lying coral atolls, such as this one in the Maldives, are at serious risk due to sea-level rise.

The world's fragile islands

Agnès Sinaï argues that, from the low-lying point of view of Pacific islanders or circumpolar-dwelling Inuit, the Kyoto Protocol seems an exploitative deal.

Some 600 idyllic islands in the South Pacific make up Micronesia; perhaps not so idyllic any more, as in recent years half of the 150,000 inhabitants have had their houses damaged or destroyed by storms more frequent and violent than before. Sea levels rose in the region through the second half of the 20th century, and this, linked with exceptionally high tides and unpredictable rain, exacerbated the intensity of the storms. As coastal erosion increases, salt creeps into the water table and ruins plantations, while rising temperatures nurture parasites that attack copra plants.

Joseph Komo, a member of the official Micronesian delegation to the Ninth Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) in Milan, Italy, December 2003, says: "We are the first people to die as a direct result of climate change". He went to Milan to plead

with the international community to speed up the release of promised funds for vulnerable countries to protect themselves from the effects of global warming.

The demands of the Alliance of Small Island States (AOSIS) are clear: urgent action to safeguard food resources, build desalination plants and dykes and develop solar energy. Since its creation in 1994, AOSIS has been a highly active lobby of 43 tiny island nations

MAIN POINTS

- **Agnès Sinaï discusses** the Kyoto Protocol from the low-lying perspective of Pacific islanders or circumpolar-dwelling Inuit.

- **She observes** that the Protocol appears an exploitative deal between

those in the North who already pollute heavily and those in the South who want to do the same.

- **It is concluded** that smaller southern nations may have to find their own systems for sustainable development.

from the Caribbean to the Pacific via the Mediterranean and the South China Seas. All are on the front line because of the consequences of climate change.

The Maldives are preparing for the worst. Work has begun on an artificial island: Hulhumale is being built two metres above sea level, 20 minutes from the archipelago's overcrowded capital, Malé; it should eventually be home to 100,000 people. It is surrounded by coral reefs, bathed in the warm currents that flow around the islands. But the reefs are under serious threat from rising sea levels, surface water temperatures and violent storms, as successive reports from the Intergovernmental Panel on Climate Change (IPCC) have confirmed.

The islanders' demands are seconded by another vulnerable group: the Inuit Circumpolar Conference, which represents 155,000 Inuits from Canada, Alaska, Greenland and Russia. Its president, Sheila Watt-Cloutier,

used the Milan conference to announce Inuit Circumpolar Conference plans to bring a legal action before the UN Commission on Human Rights. The Conference accuses countries that have refused to sign the Kyoto Protocol – United States, Russia and Australia – of violating human rights by imperilling the ancestral ways of life of the North Pole’s aboriginal people.

“Today, the earth is changing under our feet”, says Watt-Cloutier. Canadian climatologists are predicting the unthinkable: 50 years from now, the northwest passage linking the Atlantic and Pacific Oceans via the Northern Canadian islands will be completely ice-free in summer.

The inhabitants of the frozen north are in the same boat as the Micronesians of the tropics, a reminder that climate disturbances affect the entire global system. The experts warn that, after thermal expansion, the melting of glaciers and ice caps is likely to be one of the main causes of rises in sea level in the 21st century. From the poles to the Maldives, every area of our biosphere is linked, along with all the creatures that live in it. But the areas most vulnerable to climate change are on the fringes of the industrialized world, an injustice worsened by the fact that these regions’ contribution to global warming is minimal, while that of the Northern industrialized countries is massive.

From a logical mathematical perspective, each individual should be entitled to an equal share in our ecosystem. As the biosphere can

recycle three gigatonnes of carbon a year, the sustainable average is estimated at half a tonne of greenhouse gas a year for each person worldwide. The average resident of Burkina Faso could increase his or her production of greenhouse gases fivefold from a current 100 kg. A citizen of the United States ought to pollute ten times less than the current average of 5,000 kg a year.

Clearly, the polluting countries are al-

the Parties to the UNFCCC in Delhi, the Indian environment minister, T R Balu, provoked a row by refusing to talk of reductions targets that might apply to countries like India. The small island states felt betrayed by this intransigence.

The disparity between North and South is exacerbated by disagreements between Southern countries. The Group of 77 represents diverse interests often diametrically

“If some of the more alarming predictions are accurate, there would be a meteorological catastrophe in the name of equality.”

ready too heavily industrialized to have any hope of meeting a target of equal pollution around the globe even without taking past emissions into account. And emissions from large, rapidly developing countries such as India, China, Brazil and Saudi Arabia will increase substantially over the next few years. It is predicted that their emissions will equal those of the industrialized countries by 2050. Their development may reduce the discrepancy between the rich and poor world, but it defies environmental concerns. If some of the IPCC’s more alarming predictions are accurate, there would be a meteorological catastrophe in the name of equality.

Yet countries such as China and India do not want to consider emission reductions until the industrialized countries reduce their own pollution. At the 2002 Conference of

opposed over environmental concerns. The great deforesters, China and Brazil, and the Opec member states, generally oppose regulation. The Opec states even demand financial compensation for potential losses in oil revenue in the event of a reduction in fossil fuel use. On the other side are the most vulnerable countries, such as Mozambique, which suffered severe flooding in 2000, and the Pacific micro-states, which have acquired political weight by turning themselves into symbols.

With multilateralism stalled, mostly because of United States isolationism, the fight against climate change begins to look like an international political sham. The Kyoto Protocol has been buried under casuistry from mostly Western ‘experts’. It has been said that these interminable talking shops keep

the discussion process alive and that even a sham is better than nothing.

The Protocol is responsible for an important innovation: economic mechanisms that put a price on the tonne of carbon emissions. Thanks to these, the atmosphere is no longer free, but can be traded on the international market. Theoretically all we need to do is ensure that the rarity and fragility of this commodity is reflected in its price.

The Clean Development Mechanism (CDM) is the only tool of North/South cooperation proposed by the Kyoto Protocol. It allows for industrialized countries to get additional emissions rights by helping reduce pollution in Southern countries. Governments, businesses and other organizations in the North provide funding and expertise for projects in the South that aim to reduce pollution through the use of environmentally-friendly technology, such as solar and water power, cogeneration plants and cleaner fuels. The emissions they helped prevent abroad are then added to their own rights.

The 2003 Conference of the Parties in Milan made much of the advantages these CDM schemes might have for southern countries. Yet from a geopolitical perspective the idea is based on a view of these countries as passive recipients of a system designed to free emissions credits for industrialized countries – as many as their investors want. The only motivation for these investors is the value, traded in carbon dioxide equivalents, of the avoided emissions. ►

The South South North Project

NETWORKING

The South South North Project is a network aimed at helping public and private stakeholders develop the necessary confidence for dealing effectively with the Clean Development Mechanism.

The Project consists of organizations, research institutions and consultants grouped into one developmental organization. It operates in Brazil, South Africa, Bangladesh and Indonesia. The South South North Project website can be found at www.southsouthnorth.org.

The Kyoto Protocol mechanisms, particularly the Clean Development Mechanism (CDM), are as yet relatively untested. The South South North Project seeks to add to the international body of knowledge on the CDM by developing capacity through the actual experience of developing a number of CDM projects. The CDM offers an opportunity to promote sustainable development and to direct the flow of capital, expertise and technology into developing economies

through the climate window. Brazil, South Africa, Bangladesh and Indonesia face similar challenges in being ready to seize such opportunities.

The South South North Project can help build capacity in this field for host governments, CDM project owners, their technical intermediaries and project beneficiaries. It can help decision-making authorities to handle applications for CDM approval with objectivity.

The Project fosters capacity by providing training, development facilitation services and technical support as well as by ensuring a flow of information and the forging of links between the countries in which it operates.

The South South North Project enhances cooperation between countries of the South, so-called 'developing countries'. It is a uniquely Southern drive to promote capacity in countries of the South to seize the initiative in the climate arena. This 'South-South' link is then matched with the 'North' link: to the investment community and the project's partners in the developed world. ■

The CDM is unlikely to affect Micronesians or Inuit, since they pollute too little to be of any interest to investors looking for credits. But the big developing countries have much to gain from the scheme and it was the possibility of attracting investment through the CDM that ultimately persuaded China to ratify the Kyoto Protocol, which it did in 2002. Canada has been its most active partner, financing carbon sequestration projects, solar and micro-hydraulic power and clean-up schemes for coal-fired power stations.

The value of avoided emissions is inherently hard to work out, the more so in countries such as China and Brazil, which are waiting for a special climate change fund to cover the costs of calculating their emissions. With a derisory budget of US\$50m a year, this fund, managed by the Global Environmental Facility, may be active from 2005. Its primary objective is to assist the most threatened countries to adapt to climate change.

Micronesians and Inuit will just have to muddle through, unless they manage to get involved with the South South North Project, one of the most encouraging recent initiatives to have emerged from climate politics. This is a network of organizations, research institutions, lawyers and consultants from South Africa, Indonesia, Bangladesh and Brazil, who have come together to promote an ecologically sustainable vision of development and put the Kyoto Protocol's mechanisms to good use (see box on page 5).

The South South North Project hopes to

carry out CDM projects that will benefit local people by facilitating deserving ecological development ventures appropriate to their context, for example:

- in Dhaka, Bangladesh, it is helping to build 2,000 electric minivans for public transport, and setting up solar powered plants in more isolated areas of Bangladesh;
- a project in South Africa provides both insulation and solar-powered water heaters to homes in a deprived area of Cape Town;
- in Brazil, it generates biodiesel out of a Rio rubbish dump; and,
- in Yogyakarta, Indonesia, it replaces old buses with new ones that run on clean fuel.

The plan is for projects like these all over the South, proving that poorer countries are capable of moving straight into no-regrets development with lasting, non-polluting equipment. Yet the CDM principle is as much a stumbling block as a help for such initiatives, as it favours the countries that pollute more. Since greenhouse gas emissions in Bangladesh are very low – less than one car for every 1,000 inhabitants – there is no pressure to reduce emissions and Bangladesh can't get credits from the reductions it does make.

The Kyoto Protocol is a prefabricated idea designed to benefit Northern industrialized countries and gas-guzzling Southern giants. If our biosphere is to survive, it could be up to the smaller Southern countries to find alternative systems for sustainable development. ■

ABOUT THE AUTHOR



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FURTHER INFORMATION

- **In the Tiempo Cyberlibrary:** A list of small island theme sites can be found at www.cru.uea.ac.uk/tiempo/floor0/theme/t3637web.htm
- **On the Web:** The latest assessment of the climate negotiations can be found at Linkages, www.iisd.ca/process/climate_atm.htm
- **Newswatch:** For weekly news and more on the climate negotiations, related issues and weather events worldwide, visit Tiempo Newswatch, www.cru.uea.ac.uk/tiempo/newswatch/

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CORAL REEFS

“Coral reefs are one of the first major casualties of climate change”, says Professor Ove Hoegh-Guldberg.

He calls for massive reductions in emissions to save “these beautiful ecosystems.”

A new World Wildlife Fund (WWF) report charts the implications of the climate change for the Great Barrier Reef off Australia. It warns that coral populations could collapse by 2100.

Holding the degree of global warming to less than two degrees Celsius would assist the recovery of the Great Barrier Reef, according to both WWF and the Intergovernmental Panel on Climate Change.

Read more:
www.wwf.org.au/News_and_information/News_room/viewnews.php?news_id=65

SOMALIA

Food emergency threatens Somalia, according to a multilateral report from the United Nations, European Union and the United States.

Parts of Somalia face the worst period of drought in 30 years, with more than 200,000 people facing food shortages and starvation. Around 10 per cent of the population are in crisis.

Rainfall has been below normal for several years and pastoralists in the worst-affected areas have lost up to four-fifths of their livestock. “The situation is fragile”, warned Robert McCarthy, UNICEF Somalia Emergency Officer.

Read more:
<http://allafrica.com/stories/200402280003.html>
www.reliefweb.int/w/rwb.nsf/0/b436c57ec39077c685256e14005aa470?OpenDocument

RUSSIA

“Europe holds the trump card, and it can save Kyoto if it wants to”, claims Jonathan Lash, head of the World Resources Institute.

The survival of the Kyoto Protocol rests on Russia ratifying. Lash argues that Europe must offer diplomatic and economic gains to ensure that a positive decision is made, calling for “a signal from 10 Downing Street” to other European politicians.

A range of possibilities exists. Europe could allow Russia to join the World Trade Organisation, a move it currently opposes. Guarantees of investment in the energy sector could be given. Debt reductions might be traded for pollution control.

Read more:
<http://news.bbc.co.uk/1/hi/sci/tech/3410519.stm>

OZONE

The Bush administration plans to increase production of methyl bromide, an ozone depleter and greenhouse gas.

The United States is seeking an exemption from the controls set by the Montreal Protocol, the treaty intended to protect the ozone layer. The chemical should largely be phased out by 2005.

“This is the first time any country has tried to reverse the phase-out and increase production of an ozone-destroying chemical”, said David Doniger of the Natural Resources Defense Council. “The Bush administration is putting Americans’ health at risk by catering to big chemical and agribusiness companies.”

Read more:
www.commondreams.org/news/2004/0304-02.htm

AFRICA

The FAO has urged African countries that are prone to drought to adopt measures to lessen the risks associated with rain-dependent agriculture.

The FAO Regional Conference for Africa, held in March 2004, recognized the critical part that irrigation must play in the continent’s food production. Only three per cent of Africa’s arable land is under irrigation.

South African Minister Thoko Didiza reported the meeting had resolved to give top priority to the development of the fertilizer industry. The use of fertilizer in sub-Saharan Africa is only 9 kg/ha compared to 100 kg/ha in south Asia and 206 kg/ha in the industrialized countries.

Read more:
<http://allafrica.com/stories/200403080887.html>

The Kyoto Protocol – what next?

Lisa Schipper reports on the outcome of the Ninth Conference of the Parties to the United Nations Framework for Climate Change.

In December 2003, Parties to the United Nations Framework Convention on Climate Change (UNFCCC) once again gathered for their annual Conference of the Parties (COP). This ninth session was held in Milan, Italy, and attracted over 5000 participants.

The agendas were full, but the meeting had been expected to be low-key and straightforward up to a few weeks before its opening. What was on offer was anything but. Exhausted negotiators sat through all-night sessions of informal consultations on what became the most pressing issue at the Conference – that of funding. Despite the (often unintentional) flow of information through the thin paper walls of the over-heated meeting rooms of the maze-like conference centre, consensus seemed difficult to achieve.

Although there was success in completing negotiations under the 1998 Buenos Aires Plan of Action (BAPA) as well as agreeing

on guidance for the operation of the Least Developed Countries (LDC) Fund and the Special Climate Change Fund (SCCF), this did not prevent a subdued, if slightly desperate, atmosphere at the meeting. Negotiations on several issues became entangled in old debates involving North-South conflicts. Numerous contact groups heard delegates attempting to return to the Marrakech Accords and revisit the agreed provisions, suggesting

MAIN POINTS

● **Lisa Schipper discusses** the latest phase of the climate negotiations, held in Milan, Italy, in December 2003.

● **She reports that** the failure of Russia to ratify the Kyoto Protocol to the climate treaty led to

doubt and desperation, though not defeat.

● **It is concluded that** alternative approaches may have to be sought if the Protocol commitments cannot be implemented in time.

reinterpretations, renegotiations and disagreements over already agreed text.

A sophisticated and participatory dialogue on actions to respond to climate change took place within the parallel world of side-events. These events involved non-governmental organizations, academics, indigenous peoples, intergovernmental agencies and industry groups. Their dialogue made it clear that action is on-going despite the lack of progress evident in the negotiating rooms. However, the negotiations process must advance if many of the provisions that are discussed in side-events, such as the Protocol's Clean Development Mechanism, are to become a political reality. This report explores the outcomes at COP9 and contemplates the future of the international climate regime.

Challenges at COP9

The fact that the momentum from COP6 Part II in Bonn persisted at Marrakech in 2001, and

the dynamism from the World Summit on Sustainable Development provided energy for COP8 in Delhi in 2002, it was reasonable to expect that COP9 would be a low-key meeting.

Complications began to appear when, in September 2003 a World Climate Change Conference was held in Moscow. The conference was heavily supported by so-called 'climate-sceptics' who hold that the scientific evidence contains too many uncertainties for conclusions about climate change to be drawn.

Although the World Climate Change Conference was intended as a scientific conference, its political message was clear: Russia remains undecided as to whether or not they will ratify the Protocol. In response to this, COP9, in December, became a grander affair than had been expected. The number of ministers who participated in the high-level segment was on a par with the numbers who attended COP6 and side-events abounded. An incorrectly reported statement from Russia saying that it would not ratify Kyoto which appeared toward the end of the first week caused consternation. Although the statement was played down, it became apparent that Russia had made no formal decision yet of declaring its intention to ratify the Protocol at COP9.

In attending COP9, it was clear that the 'largest' issues on the agenda included the remaining discussion on afforestation and reforestation under the Clean Development

Mechanism – the final outstanding BAPA issue. Another issue to be dealt with was that the UNFCCC Secretariat's 2004–5 budget had exploded at the eighteenth Subsidiary Bodies (SB18) session in June 2003 and this was expected to generate much discussion.

Observers were also aware that guidance for the operation of the Special Climate Change Fund could generate some controversy as it had already done so at SB18. The issue of sinks in the Clean Development Mechanism as well as budget issues were settled. Discussions on the Special Climate Change Fund, however, proved difficult. The number of contact group meetings scheduled for this, and other 'developing country issues' proved too few, and informal consultations, particularly for discussing the funds, absorbed many hours. In the opening plenary from the Subsidiary Body for Implementation it became clear that even the wording of agenda items was susceptible to attack. In fact, the controversy of these issues was probably underestimated.

Forests

The Marrakech Accords had already agreed that only afforestation and reforestation activities would be eligible under the Clean Development Mechanism, but details on the definitions and modalities for including such project activities for the first commitment period were not set.

Delegates entered COP9 with a draft negotiating text and had participated in pre-

sessional consultations to try to resolve the outstanding issues. Unresolved issues were addressed relatively quickly in a friendly atmosphere amongst delegates who have come to know each other well after working on the issues since at least 1998. It has been decided that 1989 be designated as the reference year for reforestation activities.

On the matter of accounting for positive leakage, the Parties agreed to exclude this. Two types of definition for Certified Emission Reduction (CERs) units were identified: the first, a long-term Certified Emission Reduction unit (lCER) that expires at the end of the crediting period for the project activity and the second, a temporary Certified Emission Reduction unit (tCER) that expires after five years.

In respect to ensuring that environmental and socio-economic impacts be accounted for in projects, the previous Appendix E from SB18 was removed and a general list of criteria for the Project Design Document was included instead. A decision on simplified modalities and procedures for small-scale projects was postponed until COP10.

COP9 also addressed other forestry issues relating to the work of the Intergovernmental Panel on Climate Change (IPCC). It was agreed that work would continue at the twentieth session of the Subsidiary Body for Scientific and Technical Advice to be held in June 2004.

Parties examined the IPCC report on Good Practice Guidance for land use, land-use

change and forestry (LULUCF). They also discussed the issues of factoring out direct human-induced changes in carbon stocks from the indirect and natural effects, along with the IPCC report on forest degradation and deforestation of other vegetation types.

The Parties agreed for the Subsidiary Body for Scientific and Technological Advice to hear further views on degradation and deforestation and on factoring out at SBSTA20 in June. It was agreed also to consider at this point the furthering of the common reporting format tables in the Good Practice Guidance for reporting under the Protocol. On harvested wood products, Parties agreed that this issue should be included in the second, rather than the first, commitment period. This will also be considered further at SBSTA20.

Developing country issues

Although forestry issues drew much attention from delegates, it was the “developing country issues” – technology transfer, capacity building, non-Annex I national communications, implementation of Decision 5/CP.7, and particularly funding – that consumed the majority of negotiating hours.

Non-Annex I national communications was the first issue to spark upset and discord. In this discussion, the frequency of submission of national communications was contested. Developing countries opposed a more frequent submission rate as suggested by Annex I Parties and called this a “non-is-

sue”. Then, a report tabled by the Secretariat containing steps taken by non-Annex I Parties to reduce their emissions was virulently opposed by developing countries.

Underlying both of these issues was a fear by developing countries that this information, more frequently submitted and compiled into clear tables, would indicate that first, some developing countries have considerable emissions, and, second, that developing countries are already undertaking steps toward reducing these emissions.

Their view is that with such information on the table for discussion, the call for developing countries to take on reduction commitments is not far away. This fear was perceptible in numerous other discussions as well, and could be described as a cross-cutting concern of developing countries. Other negotiations during the years that the Buenos Aires Plan of Action dominated, had overshadowed these fears, but with the setting of rules for a second commitment period looming, developing countries are once again starting to feel the pressure.

Guidance for the Least Developed Countries Fund may have been agreed, but numerous participants questioned the robustness of the guidance. Informal negotiations on this Fund were unsuccessful, and the Subsidiary Body for Implementation decided to forward the issue directly to the COP President at the last minute. What was particularly contentious in this decision is the agreement for the Fund to support activities on an agreed

full-cost basis. Annex I Parties were not keen to adopt this provision and fear that the actual implementation of this decision will consequently be compromised.

The final decision on the Special Climate Change Fund was also forwarded to the COP President. Negotiations under the Special Climate Change Fund have been more difficult than those on the Least Developed Countries Fund even though the final outcome may well be less problematic. The negotiations suffered due to internal problems in the negotiating blocks, where legal differences on a national level threatened to divide the European Union.

The Special Climate Change Fund will support the implementation of adaptation activities outlined in national communications and National Adaptation Plans of Action and will fund technology transfer activities. Regarding activities relating to economic diversification, these will be supported by the Special Climate Change Fund in principle, as was set out in the Marrakech Accords, with further elaboration on activities, programmes and measures to support this to be decided at COP10.

At the eighteenth Subsidiary Bodies session in June 2003 the issue of implementation of Decision 5/CP.7 had not moved far. This decision contains provisions on addressing the adverse effects of climate change and the issue of adaptation in vulnerable countries. There was no further development on this at COP9. A draft decision is attached to the

Subsidiary Body for Implementation conclusions and may be adopted at COP10.

There is, however, a clear impasse here for two related reasons. OPEC countries have essentially 'hijacked' the issue by creating a procedural linkage with this and their demand for compensation from inadvertent impacts on developing countries by policies and measures taken by Annex I Parties to reduce greenhouse gas emissions. In particular, this refers to how the fuel markets will be affected by a reduction in fossil fuel use and, hence, a reduction in demand. Annex I Parties oppose this proposal among other matters partly because the OPEC group has traditionally opposed any reduction in greenhouse gas emissions at all and therefore are happy with no movement on the issue. Perhaps this is an attempt to eventually force other developing countries to put enough pressure on the OPEC group to reverse their position; however, it is unclear whether such a tactic would work within an already turbulent negotiating group. What is clear is that movement on adaptation may not occur before any decoupling takes place. Considering that adaptation has, since COP7 in 2001, become one of the most popular developing country issues, it may very well be the case that we will see new approaches to removing this procedural link in the coming negotiation sessions.

Next steps

It was decided that COP10 will be held in Buenos Aires, the same as COP4 at which the

Buenos Aires Plan of Action was adopted. Argentina has already taken on voluntary emission reductions, and with the issue of non-Annex I commitments lurking, it will be interesting to see whether the location of the Climate Conference will have any bearing on this aspect of negotiations.

At the eighteenth session of the Subsidiary Bodies there was much speculation as to whether COP9 could become COP/MOP1: that is, the first Conference of the Parties to a fully ratified Kyoto Protocol. This turned out not to be, and there was little talk of such prospects for COP10.

Perhaps it is too early to tell, but every six-month inter-sessional period unfortunately only makes clearer that time for meeting the Kyoto commitments within the first commitment period is growing shorter. If there is no clear signal from Russia by COP10 it will not be surprising if alternative approaches are sought.

It could be that all energies will be directed at the second commitment period instead, or perhaps an altogether different framework will be designed. However, while academics and non-governmental organizations may be thinking of such matters and possibilities, those involved directly in the UNFCCC process remain committed. Although doubt and desperation may be sitting at the table, defeat certainly isn't. ■

ABOUT THE AUTHOR



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FURTHER INFORMATION

- **In the Tiempo Cyberlibrary:** A list of sites providing coverage of the climate negotiations can be found at www.cru.uea.ac.uk/tiempo/floor0/theme/t25web.htm
- **On the Web:** A full report on COP9, SBI-19 and SBSTA 19 can be found on the Earth Negotiations Bulletin website, www.iisd.ca/linkages/climate/cop9/. An examination of the outcomes of COP9 in greater detail is available through Tyndall Briefing Note No 11, www.tyndall.ac.uk/publications/briefing_notes/note11.pdf
- **Newswatch:** For weekly news and more on the climate negotiations, related issues and weather events worldwide, visit Tiempo Newswatch, www.cru.uea.ac.uk/tiempo/newswatch/

CONFERENCES

Renewables 2004: International Conference for Renewable Energies

**Bonn, Germany
01-06-2004 to 04-06-2004**

Will carry forward the process initiated at the WSSD in 2002 for the global development of renewable energies including the development of the Johannesburg Renewable Energy Coalition. Participation from international and national organizations, non-governmental organizations and governmental representation on a ministerial level.

Details: Conference Secretariat, Renewables 2004, Postfach 5180, 65726 Eschborn, Germany. Fax: +49-6196-794405. Email: info@renewables2004.de Web: www.renewables2004.de

World Bioenergy 2004 - "Taking You from Know-How to Show-How"

**Jönköping, Sweden
02-06-2004 to 04-06-2004**

Conference intends to be professional focal point for all major players in the global bioenergy industry. Forum topics for discussion include: networking with international bioenergy "movers and shakers"; learning about modern techniques and technologies; locating potential partners for cooperation projects; and meeting existing and potential business partners.

Details: SVEBIO, Torsgatan 12, SE-11 23 Stockholm, Sweden. Fax: +46-8-4417089. Email: info@svebio.se Web: www.svebio.org

Sharing Indigenous Wisdom: An International Dialogue on Sustainable Development

**Wisconsin, USA
06-06-2004 to 10-06-2004**

Conference participants will include all practitioners, scholars and policy makers committed to the concepts of sustainable development. The uniqueness and the expertise within the Menominee model for sustainable development will be a focus. Invited speakers include David Korten, Adil Najam, Ricardo Navarro and Vandana Shiva.

Details: William Van Lopik, Sustainable Development Institute, College of Menominee Nation, PO Box 1179, Keshena, WI 54135, USA. Fax: +715-7995951. Email: wvanlopik@menominee.edu Web: www.sharingindigenouswisdom.org

7th International Symposium on Environmental Geotechnology & Global Sustainable Development

**Helsinki, Finland
08-06-2004 to 10-06-2004**

Jointly organized by the Finnish Environment Institute and the Helsinki University of Technology with assistance from the International Society of Environmental Geotechnology. Main themes will cover ecosystems and site improvement, geotechnical problems and solutions, risk assessment and sustainable development. There will be analysis and discussion of all scientific and technical aspects.

Details: Kata Kreft-Burman, Finnish Environment Institute, PO Box 140, 00251 Helsinki, Finland. Fax: +358-9-40300880. Email: jouko.

*saarela@ymparisto.fi
Web: www.environment.fi/syke/*

32nd Session of the International Geological Congress

**Florence, Italy
20-08-2004 to 28-08-2004**

Main theme of the Congress is "From the Mediterranean Area Toward a Global Geological Renaissance: Geology, Natural Hazard, and Cultural Heritage". Primary objectives and themes for discussion, debate and working sessions include: geological renaissance; understanding the earth; international cooperation; fundamental/applied geosciences closer interaction; and preservation of cultural heritage.

Details: Organizing Secretariat, Newtours, Via San Donato, 20 - 50127 Firenze, Italy. Fax: +39-055-3361250. Email: secretariat@32igc.org Web: www.32igc.org

2004 ACEEE Summer Study on Energy Efficiency in Buildings

**California, USA
22-08-2004 to 27-08-2004**

Theme of the 12th biennial conference is "Breaking Out of the Box". Participants will discuss the technological basis for, and practical implementation of, improving energy use in buildings. Areas for debate include: design and performance of buildings; human

and social dimensions of energy use; efficient buildings in efficient communities; energy and environmental policies; and programme design, implementation and evaluation.

Details: ACEEE Summer Study Office, Rebecca Lunetta, PO Box 7588, Newark, DE 19714-7588, USA. Fax: +1-302-2923965. Email: rlunetta@comcast.net Web: www.aceee.org

Bjerknes Centenary 2004: Climate Change in High Latitudes

**Bergen, Norway
01-09-2004 to 03-09-2004**

Main focus of the conference will be on climate change in polar and sub-polar regions. Will also commemorate the centenary of the publication "1904: The problem of weather forecasting as a problem in mechanics and physics," which is seen as a pioneer publication, by Vilhelm Bjerknes. Topics include abrupt climate changes and extreme weather events, carbon cycle and high-latitude processes and ocean, land and sea ice response to atmospheric variability.

Details: Beatriz Balino, Bjerknes Centre for Climate Research, Allegaten 55, 5007 Bergen, Norway. Email: conference2004@bjerknes.uib.no Web: www.bjerknes.uib.no/conference2004/

8th International Global Atmospheric Chemistry Conference

**Christchurch, New Zealand
04-09-2004 to 09-09-2004**

Working theme of the conference is "Atmospheric Chemistry in the Envi-

ronment". Main issues to be discussed will cover atmospheric chemistry in a variety of distinct regions such as the marine boundary layer, stratosphere, cryosphere and urban areas as well as trans-boundary transport effects and global biogeochemical cycling.

Details: Conference Innovators, PO Box 13494, Christchurch, New Zealand. Fax: +64-3-3790390. Email: kim@conference.co.nz Web: www.IGAConference2004.co.nz

Coastal Zone Asia Pacific Conference 2004

Brisbane, Australia
05-09-2004 to 09-09-2004

Conference theme is "Improving the quality of life in coastal areas". There are seven main topics for presentations and discussion: coastal poverty and sustainable livelihoods; community participation; coastal ecosystem management; coastal resource economics; coastal area planning; integrated coastal management; and coastal communities and cultures.

Details: Sally Brown Conference Connections, PO Box 108, Kenmore, Qld 4069, Australia. Fax: +61-7-32012809. Email: sally.brown@uq.net.au Web: www.coastal.crc.org.au/czap04/index.html

19th World Energy Congress Sydney, Australia **05-09-2004 to 09-09-2004**

A major international energy-oriented event. The main technical programme

will focus on key energy issues covering a wide range of topics within the energy industry. The Congress will also launch the new World Energy Congress Global Coal Study intended to review issues and developments in the worldwide coal industry to date. Will also include oral and poster sessions, workshops, tutorials, symposia and panel sessions.

Details: 19th World Energy Congress Managers, GPO Box 128, Sydney, NSW 2001, Australia. Fax: +61-2-92480894. Email: energy2004@tourhosts.com.au Web: www.tourhosts.com.au/energy2004/

2nd International Ukrainian Conference on Biomass for Energy Kyiv, Ukraine **20-09-2004 to 22-09-2004**

Conference is intended to encourage the use of biomass for energy production and promotion of the sustainable development of bioenergy technologies in the Ukraine. Programme will include plenary lectures on state-of-the-art and prospects of biomass technologies plus oral and poster presentations on specific research, development and commercial projects as well as technical excursions.

Details: Georgiy Geletukha, Institute of Engineering Thermophysics, National Academy of Sciences of Ukraine, 2a Zhelyabov St, Kyiv 03057, Ukraine, Fax: +38-044-4566091. Email: conference@biomass.kiev.ua Web: www.biomass.kiev.ua

4th EMS Annual Meeting Nice, France **26-09-2004 to 30-09-2004**

Organized by the European Meteorological Society. Main themes include: atmosphere and the water cycle; Instruments and methods of observations; computing in atmospheric sciences; and information provision and education. The 5th European Conference on Applied Climatology will be held concurrently.

Details: Werner Wehry, 4th EMS Annual Meeting, Applied Synoptics, Carl-Heinrich-Becker-Weg 6-10, 12165 Berlin, Germany. Fax: +49-30-7919002. Email: wehry@met.fu-berlin.de Web: www.emetsoc.org/lems_4th_annual_meeting.html

7th Asian Fisheries Forum Penang, Malaysia **30-11-2004 to 04-12-2004**

Theme for triennial meeting is "New Dimensions and Challenges in Asian Fisheries in the 21st Century". Conference to include special symposia, plenary and technical sessions, plus five post-conference field visits. Forum topics will cover issues such as technology needs, participation of the poor, aquatic ecosystem health, and management of small-scale fisheries.

Details: The Secretariat, 7th Asian Fisheries Forum, School of Biological Sciences, Universiti Sains Malaysia, 11800 Minden, Penang, Malaysia. Fax: +60-4-6565125. Email: 7aff2004@usm.my Web: www.usm.my/7AFF2004/

Tenth Session of the Conference of the Parties to the UNFCCC Buenos Aires, Argentina **06-12-2004 to 17-12-2004**

The Tenth Conference will take place at the "La Rural" Exhibition and Conference Centre in Buenos Aires.

Details: UNFCCC Secretariat, PO Box 260 124, D-53153 Bonn, Germany. Fax: +49-228-8151999. Email: secretariat@unfccc.int Web: www.unfccc.int

8th International Conference on Solar Energy & Applied Photochemistry - SOLAR'05 Luxor/Aswan, Egypt **20-02-2005 to 26-02-2005**

SOLAR05 conference will be held in conjunction with the 5th Training Workshop on Environmental Sciences and the 2nd International Workshop on Nanotechnology. It is intended that these combined scientific events will give a broad overview on the various fascinating and emerging aspects of phototechnologies. Fundamental aspects and present and future applications will be discussed.

Details: Sabry Abdel-Mottaleb, Director, Photoenergy Centre, Ain Shams University, Abbassia, Cairo 11566, Egypt, Fax: +202-4845941. Email: solar05@photoenergy.org Web: www.photoenergy.org

Adaptation Day at COP9

Hannah Reid and Saleemul Huq report on Adaptation Day, a major COP9 side event held in Milan in December 2003.

The ninth Conference of Parties (COP9) to the United Nations Framework Convention on Climate Change (UNFCCC) was held in Milan, during December 2003. For the second year running, the International Institute for Environment and Development (IIED) and the Regional and International Networking Group (RING) held 'Adaptation Day at COP'. This was hosted by the Fondazione Eni Enrico Mattei (FEEM) and funded by ETC International. Well over 100 people attended.

The first session on the science of adaptation was chaired by Saleemul Huq (IIED, UK). Stephen Schneider (University of Stanford, USA) opened by describing what changes in the global climate scientists anticipate that the world will have to adapt to, and the debate over what level of change was considered 'dangerous'. He placed particular emphasis on equity issues: equity between

species (it is not the human species alone which will have to adapt to climate change); equity between poor and rich countries; and equity between generations. Jouni Paavola (Centre for Social and Economic Research on the Global Environment – CSERGE, University of East Anglia, UK) developed this theme by describing a recent project investigating justice and equity issues relating to climate change. Equity needs consideration at multiple decision-making levels: the international legal framework; national adaptation poli-

cies and actions; daily individual adaptation actions; and interactions between these levels. Decision-makers need to tackle issues ranging from historical responsibility for dealing with climate change, to local adaptive responses increasing the vulnerability of nearby poor communities.

Barry Smit (University of Guelph, Canada) explained that whilst a 'top-down' scenario-based approach could help answer the question 'how dangerous is climate change?', a 'bottom-up' systems approach is required to assess how communities adapt to climate change. These approaches do not necessarily lead to the same conclusions: for example, government policies can in fact lead to 'maladaptation' if they fail to address current and future local risks. Richard Klein (Potsdam Institute for Climate Impact Research – PIK, Germany) then described PIK's project on Environmental Vulnerability Assessment, which combines these two approaches. The

MAIN POINTS

Hannah Reid and Saleemul Huq describe the presentations and discussion at Adaptation Day at COP9.
● **Issues covered** include the science,

funding, actions and politics of adaptation.
● **It is concluded that,** despite growing interest, the issue still needs to be pushed to the fore.

project aims to evaluate the mechanisms and magnitude by which global change affects natural and human systems, and how systems respond and interact to reduce their exposure and enhance their adaptive capacity to this change.

Neil Leary (SysTem for Analysis Research and Training – START, Washington) described the Assessments of Impacts and Adaptations to Climate Change in Multiple Regions and Sectors (AIACC) project, which involves 24 regional studies in 46 countries in Latin America, Africa, Asia, and the Small Island States. The project aims to inform policy by understanding who is vulnerable and why, and what types of adaptation strategies are likely to be effective.

The second session on funding adaptation was chaired by Joel Smith (Stratus Consulting). Mary Jane Mace (Foundation for International Environmental Law and Development – FIELD, UK) began by providing an overview of current funding opportunities for adaptation under the UNFCCC. She emphasized that the text is often unclear, and the language used ‘slippery’. Definitions of adaptation and technology transfer remain contentious. Progress has been made with the Least Development Countries (LDC) fund, but how the Adaptation Fund and the Special Climate Change Fund will function remains debated. There are also problems with the Global Environment Facility (GEF) approach, which currently favours large projects and requires them to demonstrate the incremen-

tal global environmental benefits of funding. This is problematic in the context of adaptation benefits, most of which are accrued locally. Boni Biagini (GEF) stated that GEF has recently allocated US\$50 million specifically for adaptation activities, and is developing guidance on how funds should be distributed. Richard Hosier (UNDP) elaborated fur-

“Definitions of adaptation and technology transfer remain contentious.”

ther on GEF’s strategic approach to adaptation. He described the difficulties in coming up with sensible adaptation projects, and stressed that the first priority should be to ensure that funded projects do no harm. He also described the need to build on existing strengths, tools and activities, stressing the importance of meeting the immediate needs of the LDCs, as well as the long-term adaptation needs of all poor countries.

Frank Sperlberg (World Bank) discussed the need to link development planning with adaptation to climate change, focusing on capacity building. He described the difficulties encountered in separating adaptation costs from other costs (such as road building), and raised the key question of who should pay for adaptation and how much. For example, he questioned whether developing countries should have to pay at all. He stated that the World Bank has moved from a reactive approach to dealing with adaptation,

to a preventative approach. Avis Robinson (us Environmental Protection Agency) ended the session by stressing the importance of considering adaptation in conjunction with mitigation. She described the need to educate senior us officials in issues relating to adaptation, especially the Department of State. She also expressed the need for donors

(as well as countries) to prioritise their activities with regards to adaptation, and said that USAID is currently assessing the extent to which its project activities account for adaptation, and also possibilities for making new resources available.

The fourth session on adaptation in action was chaired by Andrew Simms (New Economics Foundation, UK). Brett Orlando (The World Conservation Union – IUCN) began by describing three adaptation-related projects in which IUCN is involved. Firstly, the Water and Climate Change Dialogue looks at climate variability and change as well as the instability of water systems, and human responses. Secondly, protected areas, which may end up being located in the ‘wrong’ places if climate change causes ecosystem boundaries to shift, are considered. Lastly, IUCN is involved with the Task Force on Climate Change, Vulnerable Communities and Adaptation, which aims to strengthen the role of ecosystem manage-

ment and restoration activities in reducing the vulnerability of communities to climate change and climate-related hazards. Anne Hammill (International Institute for Sustainable Development – IISD, Canada) elaborated further on this Task Force: phase one ended in 2003, and phase two will facilitate the implementation of adaptation activities that use community-based approaches. A toolkit will be developed from pilot implementation activities, and outreach activities will continue. Adaptation screening tools, to allow people to assess their project portfolios in the context of adaptation, will also be developed.

Jan Verhagen (Wageningen University, The Netherlands) described the Development and Climate project, which aims to identify development pathways that are sustainable and facilitate the delivery of positive climate change outcomes. The project started by looking at current development priorities in Bangladesh, Brazil, China, India, Senegal and South Africa, and then assessing which of these increased vulnerability to climate change, and led to low greenhouse gas emissions. Specific case studies are drawn from the water, food and energy sectors.

Madeleen Helmer (Red Cross/Red Crescent Centre on Climate Change and Disaster Preparedness) addressed issues relating to climate change and disaster preparedness. Weather-related disasters have increased over the past ten years, affecting an increasing number of people. The Red Cross responds to disasters, but also aims to reduce risk through

adaptation, disaster preparedness, disaster mitigation and development. She described seven steps to improve risk reduction: preliminary climate risk assessment; assess priorities and plan follow up; raise awareness; establish and enhance partnerships; highlight climate-related vulnerability with other actors; document and share experiences and information; advocacy and shaping the global response to climate change. Youba Sokona (Environmental Development Action in the Third World – ENDA, Senegal) stated that rather than theorising, the key issue was to learn from the considerable body of existing knowledge that communities currently have and use on adapting to climate change. He also stressed the links between adaptation

and poverty, and combined these with ecosystem vulnerability to produce a sensitivity map for India. She stressed that globalisation can alter vulnerability patterns, for example, by changing relationships between corporate organisations and small farmers, and described how case studies were chosen based on their sensitivity to both climate change and globalisation. Household surveys at each case study site revealed how local coping mechanisms (such as migration) were short-term and temporary. There is, therefore, a need to develop longer-term coping solutions such as seed banks and insurance. She stressed the need to increase local awareness, but also strengthen institutions. Sharadul Agarwala (Organisation for Economic

“Socially, people can cope with climate change, but economically, they can’t.”

and poverty, stating that socially, people can cope with climate change, but economically, they can’t. Funding is therefore needed at the local level and to help scale up existing community adaptation activities to regional and national levels.

Suruchi Bhadwal (The Energy and Resources Institute – TERI, India) described the project, Coping with Global Change; Vulnerability and Adaptation in Indian Agriculture. The project chose various indicators (such as literacy rates, irrigation and infrastructure development) to represent adaptation ca-

Co-operation and Development – OECD) concluded the third session by describing an OECD project examining synergies and conflicts in mainstreaming responses to climate change within development planning and assistance. Case studies included Bangladesh, Egypt, Fiji, Nepal, Tanzania and Uruguay. The project identified the importance of policy coherence (within climate policies, between climate and other environmental policies, and between climate and development policies) in preventing ‘maladaptation’ and finding ‘no-regrets’ solutions. He added

that climate change impacts can be positive as well as negative: for example, coffee production is expected to increase in Tanzania.

The final session on the politics and negotiations relating to adaptation was chaired by Jan Pronk (Chairman IIED, UK). Discussants included Phil O'Keefe (ETC International), Farhana Yamin (Institute of Development Studies – IDS, UK), Bakari Kante (UNEP), Joke Waller-Hunter (UNFCCC) and Sabihuddin Ahmad (leader of Bangladesh delegation). Issues discussed included the increasing international commitment to adaptation, but lack of associated funding, and lack of linkages with relevant work on poverty.

How to reach the poorest communities remains problematic, and stakeholders must realise that working with the poor is expensive and adaptation projects are difficult to deliver in practice. Various institutions and processes within civil society can help prevent stalemates by diffusing/deflecting problems, and also provide ways to take adaptation issues forward outside the UNFCCC negotiations. Adaptation has less 'backup' from the research/methodological community than mitigation, and has only seriously been on the agenda for two years. However, links between adaptation and mitigation are being developed, and this needs to be built on rather than discouraged. Choosing between adaptation and mitigation, or excluding adaptation from the UNFCCC process, is, therefore, not an option. Implementation of UNFCCC commitments has, however, been

weak to date, and Pronk suggested that poor countries should demand operationalisation of the many existing instruments (for example, National Adaptation Plans of Action, Millennium Development targets, Poverty Reduction Strategy Papers) before proceeding with negotiations to develop new instruments. Collaboration with other multilateral environmental agreements is important, as is mainstreaming adaptation into existing development actions (as long as additional funding is provided for this). Lastly, capacity building is needed, in both the North and the South.

Despite the growing interest in adaptation, the issue still needs greater attention from negotiators and policy makers. Many of those attending Adaptation Day were already adaptation advocates, and the need to reach out to a broader community and bring in those not usually associated with adaptation issues was apparent. Another key group of stakeholders, which had little presence at Adaptation Day, and indeed the whole COP, was the development NGO community. People are increasingly asking questions such as: What is adaptation? How do we implement adaptation on the ground? And how best can we fund adaptation? The development community, including key NGOs such as ActionAid, Oxfam and Christian Aid, which has long experience with such issues in the broader arena of sustainable development, now needs to join the process and help provide answers to these pressing questions. ■

ABOUT THE AUTHORS



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FURTHER INFORMATION

- **In the Cyberlibrary:** Search for 'adaptation' using www.cru.uea.ac.uk/tiempo/search.htm to locate relevant material.
- **On the Web:** For an account of how the climate negotiations are handling the issue of adaptation see the Climate Compendium, www.cckn.net/compendium/int_vulnerability.asp
- **Publication:** Free electronic and hard copies of the report will soon be available from IIED. Contact Hannah Reid (details above) or see www.iied.org/climate_change/pubs.html

Island climate update

Ashmita Gosai, Penehuro Lefale and Jim Salinger describe the content and application of a highly successful seasonal climate bulletin.

The Small Island Developing States (SIDS) in the South Pacific have long recognized that their social, cultural, environmental and economic well-being are solely dependent on their natural environments, which are largely driven by weather and climate.

While there are increasing concerns over the likely impacts of future anthropogenic climate change, the more immediate issues for Small Island Developing States emanate from natural weather and climate variability on the much shorter timescales of daily, seasonal and interannual. Extreme events, tropical cyclones, droughts and flooding, predominantly driven by the El Niño Southern Oscillation (ENSO) – El Niño and La Niña events – are classic examples.

According to the World Meteorological Organization, seventy per cent of natural disasters worldwide can be attributed to weather

and climate. The paper, *A needs analysis for the strengthening of Pacific Island Meteorological Services* for the Australian Agency for International Development which was published by the South Pacific Regional Environment Programme in 2001, confirmed this assessment.

Recent statistical analyses of natural disasters show that over the past three decades, the proportion of the global population affected

MAIN POINTS

- **Asmita Gosai, Penehuro Lefale and Jim Salinger describe** a regional project to produce a monthly climate bulletin, the Island Climate Update, for the Pacific.
- **They discuss** the multinational produc-

tion, careful verification and application in the Pacific island states of the seasonal predictions.

- **It is concluded** that reliable and usable short-term climate forecasts are vital and achievable.

by weather and climate-related extremes and disasters has doubled. This rise was from roughly two per cent in 1975 to four per cent in 2001 as shown by Benito Müller in his paper 'Equity in Climate Change: The Great Divide', published by Oxford University in 2002 (www.oxfordclimatepolicy.org).

In absolute numbers, these trends have quadrupled over the same period rising from 70 to 250 million people. The Small Island Developing States of the South Pacific are strongly affected because of their geographical location which is frequently traversed by tropical cyclones, which are readily influenced by ENSO. Other research shows there is an increasing trend in climate extremes and variability in the Small Island Developing States of the South Pacific region.

It is imperative, therefore, that the Small Island Developing States of the South Pacific have access to accurate and timely climate forecasts to manage the risks associated with

weather and climate extremes. The Island Climate Update (ICU) was conceived, after a ten-year consultation process involving these nations, climate research organizations, development partners and end-users, to address this need.

A virtual regional mechanism

The concept of a Small Island Developing States regional climate bulletin was first suggested in a study, *The Changing Climate in Paradise: Feasibility Study on Climate Monitoring and Impacts in the Southwest Pacific*, undertaken for the World Meteorological Organization in 1991. The concept was unanimously endorsed by the third annual South Pacific Regional Environment Programme's Meeting of Regional Meteorological Services Directors held in Samoa in 1995. It was recognized at the time that most of these small nation islands of the South Pacific, with the exception of the French and United States Territories, do not have the resources to develop locally their own global climate models. This, in turn, meant that they were unable to undertake analyses of climate information and products to be able to produce local climate forecasts.

The South Pacific Regional Environment Programme and the South Pacific Geo-Science Commission are the regional hosts for the Island Climate Update. Together with their development partners, the Italian Ministry for the Environment, the New Zealand Agency for International Development, cli-

mate research organizations and the National Meteorological Services of Small Island Developing States in the South Pacific, they form a virtual regional mechanism to produce the Island Climate Update. Our institute, The National Institute of Water and Atmospheric Research of New Zealand (NIWA), coordinates the scientific process involved in the Island Climate Update production.

Today, the Island Climate Update is a multinational monthly climate bulletin. Its primary goal is to assist Small Island Developing States of the South Pacific make informed planning and management decisions relating to climate sensitive sectors like agriculture, water, tourism, fisheries and energy through the provision of timely and accurate seasonal climate forecasts.

A MOST VALUABLE TOOL

"We, in the Pacific have now come about to realizing the potential usefulness and appropriateness, especially in having a more comprehensible and more knowledgeable tool (Island Climate Update), of assisting our people; plan and prepare adequately for the months ahead.

I commend and congratulate the producers and contributors and especially the donors for without this financial support, this most valuable and useful tool to the Pacific Islands shall never come forth."

Mr Faatoia Malele, Samoa National Meteorological Division, February 2001.

Putting it together – the process

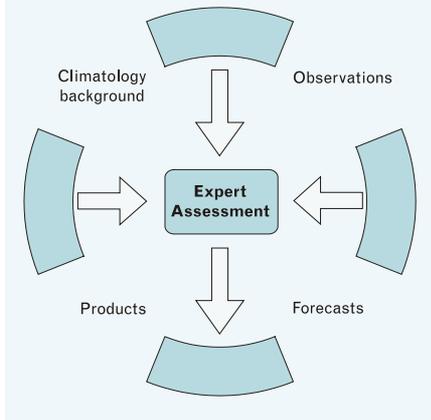
The success of the Island Climate Update is solely dependent on the multinational collaboration amongst all the organizations and stakeholders involved. The figure on the next page summarizes the main steps involved in preparing the bulletin.

The preparation of seasonal guidance materials such as observations and background climatology, are first circulated amongst the participating partners. This is followed by a monthly teleconference where the current and three monthly seasonal climate analyses (expert assessment), based on the seasonal guidance materials, are discussed. A consensus on the behaviour of the large-scale climate patterns, such as ENSO and the South Pacific Convergence Zone, that affect the weather and climate of the Small Island Developing States region, is reached. This consensus forms the basis of the next three-month climate outlook shown as Products and Forecasts opposite.

A number of organizations and countries are involved in the monthly teleconference discussions:

- the Australian Bureau of Meteorology;
- Meteo-France (New Caledonia and French Polynesia);
- the Fiji Meteorological Service;
- the Samoa Meteorological Service;
- the us National Oceanic and Atmospheric Administration (NOAA);
- the National Weather Service;
- NOAA Climate Prediction Center; and,

PREPARING THE ICU TOGETHER



- the International Research Institute for Climate Prediction.

The Island Climate Update teleconference commences with a climate synopsis of the previous month by all participants. This is encapsulated in the second page of the bulletin. The first page of the Island Climate Update provides a general climate summary of previous monthly conditions with seasonal climate outlooks for the next three months.

The next major task is the global climate diagnostics. This involves a thorough review process by climate scientists in the Small Island Developing States with essential input from internationally renowned climate scientists during the teleconference. This is a very important part of the whole discussion

as there is a need for consensus on ENSO.

ENSO is an important climatic feature as it plays a principal role in the seasonal climate of the Pacific region. Furthermore, in recent years, ENSO has been recognized as a critical climate factor that modulates rainfall and tropical cyclones in the region. Therefore, consensus has to be reached to ensure timely disaster preparedness if there be a need. It is also extremely vital to ensure the various organizations reduce the chances of conflicting ENSO forecasts. This, in turn, reduces any untimely anxiety in the Pacific Island communities who rely largely on their knowledge of the climate for their subsistence crops and water supply.

Seasonal rainfall forecasts for Small Island Developing States in the South Pacific are achieved through an ensemble of global forecast models. Generally, NIWA, in New Zealand, produces the seasonal rainfall forecast through interpolation techniques of a number of global rainfall forecast models for twenty countries in the region. Rainfall forecasts are thoroughly discussed and the local island scientists use their vast resident climate experience to reach consensus on a seasonal rainfall forecast for their particular country. Normally, the regional scientists

provide advice on the Small Island Developing States in the South Pacific who are not present in the teleconference.

During the tropical cyclone season which is from November to April, the Island Climate Update team also prepares a tropical cyclone outlook for the season based on the phase of ENSO, the Southwest Pacific sea surface temperatures and statistical tropical cyclone data. This is usually done at the beginning of the season, October or November. Many National Meteorological Services rely on the Island Climate Update's tropical cyclone guidance to plan and prepare for cyclone related disasters. Once again, consensus is reached by the Island Climate Update team before the tropical cyclone outlook is released to the public.

How accurate are the climate outlooks?

Seasonal climate outlooks should be verified to determine the skill of models and the forecasters. This is carried out at the start of the new month, prior to the teleconference. A number of Small Island Developing States and collaborating partners provide rainfall and temperature information for verification of past three-month outlooks. This group

“ENSO is an important climatic feature as it plays a principal role in the seasonal climate of the Pacific region.”

includes: Australia, the Cook Islands, Fiji, French Polynesia, Kiribati, New Caledonia, Niue, Papua New Guinea, Samoa, the Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna.

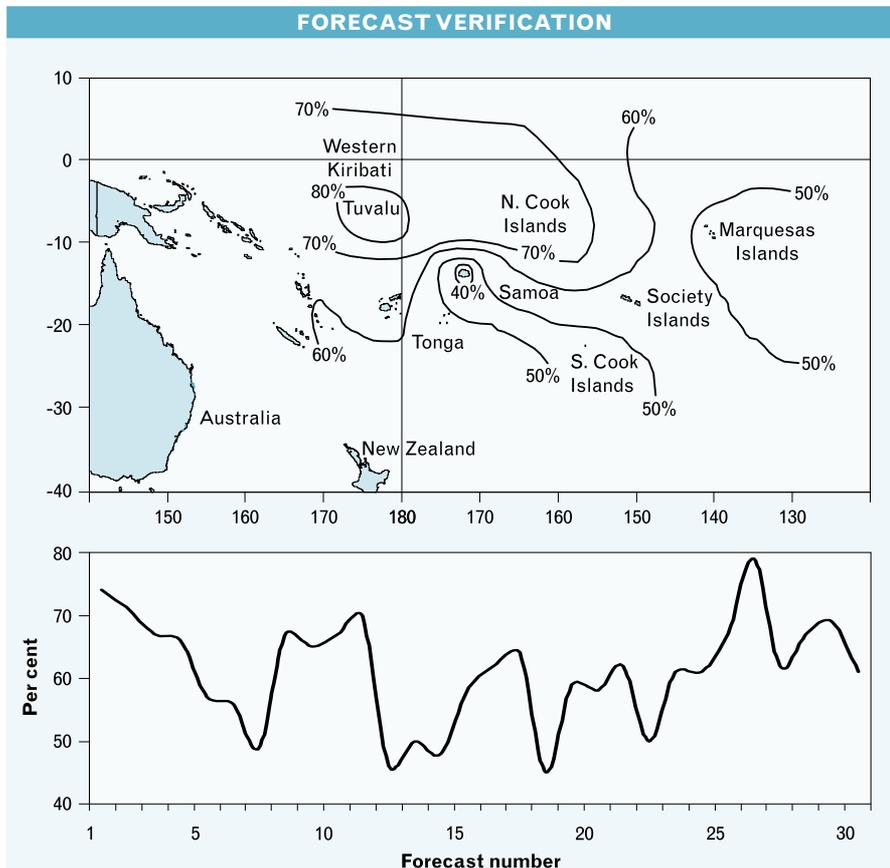
Validation of the first thirty Island Climate Update forecast outlooks for the Southwest Pacific (see figure) indicates how often the forecasts have been correct in a categorical sense.

Taking the Island Climate Update forecast category (below, average or below, average, average or above, or above average) to be assigned the highest probability, the contours and numbers show the percentage frequency of correct forecasts.

The hit rate has been highest (>seventy per cent) in the 0–20°S latitudes west of about 155°W, in the region from Western Kiribati to the Northern Cook Islands, including Tokelau, and especially over Tuvalu (eighty-one per cent). The scores have, however, been much lower in areas around and to the south and east of Samoa. For the thirty issue period (see figure) the average hit rate for the whole of the forecast region has ranged between about forty-five and eighty per cent. The distribution of forecast success is affected by some extent to the ENSO state and the location of the South Pacific Convergence Zone. With much of the period being above fifty per cent, a useful skill has been achieved.

Conclusions

Accurate seasonal to interannual climate prediction has been a major research and



● Frequency of correct 3-month rainfall outlooks (top panel), and validation scores for the 30 (3-month) rainfall outlooks (bottom panel). This shows the percentage correct forecasts. Scores of 60% or more indicate significantly better outcomes than by chance.

application topic for the Small Island Developing States in the South Pacific. The experience so far from the Island Climate Update has demonstrated unequivocally that short-range climate prediction is achievable with skill.

Through the provision of such accurate and timely seasonal climate outlooks the small island nations of the South Pacific are becoming increasingly aware of the value of climate predictions. In some of these nations, they are using the outlooks from the Island Climate Update to formulate appropriate response strategies to impending climate events such as tropical cyclones and other climate-related impacts.

“The success of the Island Climate Update has been solely dependent on the multi-national collaboration by all participating partners.”

The success of the Island Climate Update to date, however, has been solely dependent on the multi-national collaboration by all participating partners. This has been facilitated especially through access to historical and real time climate data and expert advice from the Small Island Developing States of the South Pacific. This dataset is used for climate forecast validation and improving future seasonal forecasts.

The continued success of the Island Climate Update is ultimately attributable to the wide multilateral cooperation and commitment of many nations and organizations. As a result, the Island Climate Update has succeeded in delivering scientifically sound climate information and products to the Small Island Developing States of the South Pacific in a cost effective manner. ■

ABOUT THE AUTHORS



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Web: www.niwa.co.nz

FURTHER INFORMATION

● **In the Tiempo Cyberlibrary:** A list of sites providing monitoring and forecast information related to ENSO phenomenon can be found at www.cru.uea.ac.uk/tiempo/floor0/theme/t47web.htm. See also www.cru.uea.ac.uk/tiempo/floor0/bright/ideas/bi020403.htm

● **The latest issue** of the Pacific Climate Update can be found at www.niwa.cri.nz/ncc/icu/current/
● **For weekly news** and more on weather events worldwide, visit Tiempo Newswatch, www.cru.uea.ac.uk/tiempo/newswatch/

Global demand destroys rainforest

TROPICAL FORESTS

Rainforest in Brazil and Indonesia is being cleared to meet increasing demand for soya and palm oil.

In the Amazon, forest destruction is occurring faster than logging ever achieved as land is being cleared for new crops. Around 25,000 square kilometres of forest disappeared in 2002. “We will soon see the irreversible substitution of the rainforest by a landscape of grains”, warns Cristovan Sena, government forestry engineer.

The Brazilian invasion of the soya bean is driven by a growing market in China and increasing use as cattle feed in Europe, as well as the activities of multinational companies. In Santarém in the state of Pará, it has been estimated that the area of soya in production will quadruple to 35,000 hectares from this year to next.

Local farmers are under pressure to sell their land to larger concerns. According to Jose Taveira da Silva, a rural union leader, “the soya growers are following the loggers into land that was forested, and there have

been cases of small farmers suffering threats or actual violence when they refuse to sell. Small farmers produce for their own family and the local markets. Soya is geared to exports. Does this improve the lives of the local people?”

Infrastructure development is accelerating throughout the region, with roads being built to support the new industry. At least one food multinational, Cargill, based in the United States, is being challenged by the Brazilian government concerned that facilities have been built without any environmental impact assessment.

The government’s environment minister Marina Silva is hoping to make progress combating forest destruction. More stringent inspections and enforcement of controls on deforestation had led to a 54 per cent increase in fines. But she admits that the “challenges are so huge they cannot be the work of one single person, one single ministry. It should be the effort of a government at large and a whole nation”.

In Indonesia, palm oil has led to an even greater scale of forest destruction. By the mid-1990s, an area of the size of Hungary

has been allocated to palm oil production by the government. The establishment of palm plantation at the expense of primary forest leads, it has been estimated, to the loss of 80–100 per cent of species. Indonesia is one of the world’s richest nations in its range of biodiversity.

Palm oil is found in a staggering one-tenth of supermarket products, ranging from margarine, through cosmetics to cakes, biscuits, toothpaste, ice cream, noodles and detergents. Friends of the Earth has called on manufacturers to declare whether or not their products contain palm oil from sustainably-managed plantations.

Again, local communities are suffering because of this global demand. Over 100 million Indonesians depend on the forest for their livelihood. As with soya beans, converting forest to grow profitable palm oil – palm oil prices have risen steeply in recent years – generally reduces income for local people but makes money for others. Palm monoculture often results in uncontrolled pesticide use and effluent from processing plants, polluting the local environment and damaging human health.

Malaysia, being the biggest palm oil producer, controls over 60 per cent of the industry's world output. Malaysian Palm Oil Board director-general Datuk Dr Yusof Basiron believes that criticism of the palm oil industry by non-governmental organizations in the west is being orchestrated by competitors, such as soya bean oil producers. He said the latest tactic of using the environment as an indirect campaign tool was the result of the failure of smear campaigns in the past.

Launching a counter-offensive, he asserted that "consumers, particularly in the west, will be enlightened with the fact that the palm oil industry has contributed in the preservation of the environment. Our ability to supply the world with relatively low priced edible oil had made it possible for countries with short supply of such product to refrain from chopping down their forests to meet that need." ■

● **Information sources:** Greenpeace has further details of soya's role in forest destruction in the Amazon, including photos and video, at www.greenpeace.org/international_en/features/details?item_id=367386. The report by Friends of the Earth on palm oil and the environment can be found at www.foe.co.uk/resource/reports/greasy_palms_summary.pdf. See also the World Rainforest Movement report at www.wrm.org.uy/plantations/material/oilpalm2.html.



Destruction of rainforest to prepare for soya plantations in Para State, Brazil.

Photo: © Greenpeace/Daniel Beltra

Adaptation research – new insights

RESEARCH WORKSHOP

Tom Downing describes the main outcomes of the Adaptation Research Workshop, which took place in Delhi, 9-12 November 2003.

Some 60 people from Africa, Asia, Europe and North America, spanning interests from water and disasters to climate adaptation and livelihoods, met in Delhi as part of a process to review key policy issues and research demands in the realm of adaptation to climate change. The opening session of the cluster of events, sponsored by the Government of India, placed adaptation firmly on both the climate and development agendas. The workshop participants agreed that adaptation is urgent and necessary and not a substitute for mitigation. The headline conclusions from the workshop are as follows.

A more complete theory of adaptation is emerging. There is a clear need to draw upon and extend theoretical literature and relevant experience from more than 50 years of effort in disasters and development. Among the many relevant paradigms and discourses,

theoretical insight is likely to stem from consideration of livelihoods, actor-networks, political ecology, resilience, risk assessment, vulnerability, and justice. Theoretical development should focus on processes and the dynamic nature of vulnerability and adaptive capacity; include actors and social networks, and their perceptions, expectations, and responses to risks; consider the coupled character of human and environmental systems; understand the triggers of events and surprises; link multi-scale processes from the local to global; and link across stressors and stresses.

Methodologies for targeting vulnerabilities are improving, but remain inadequate for prioritising adaptation. The dominant model for ‘mapping’ vulnerability relies on selection of indicators, transforming the indicators into relative scores and combining the indicators into an overall vulnerability index. Indicators should relate to actors, and choice of indicators needs to be based on an explicit conceptual framework. Possibilities for combining indicators into aggregate scores should be evaluated. Identifying priority areas can target resources, but the

potential to stigmatise an area should also be considered. Even if undertaken competently, mapping hot spots may be a poor guide to targeting adaptation.

Structured vulnerability assessments can, however, provide useful information for stakeholders. We know enough to act now in many situations, but recognizing local differences, we should invest in gathering more information that might facilitate identification of generic approaches. Generic templates of adaptation may be possible for similar conditions of vulnerability and adaptive capacity. Existing proposals for generic adaptation policies have, however, not been systematically collected and field-tested.

An expanded toolkit for vulnerability and adaptation research is available. Adaptation is a dynamic process that requires a wider array of tools than the ‘scenario-impact’ approach common in first generation adaptation studies. The tools are suitable for diverse applications, from awareness raising and impact assessment to strategic policy to specific climate-sensitive decisions.

A risk assessment approach to adaptation



Speakers at the Adaptation Research Workshop.

Photo: Paul Desanker

planning emphasises the value of information to support decision-making and avoids some of the difficulties of a climate scenario-impacts vulnerability methodology. Risk-based approaches to climate change offer new opportunities for adaptation research, but also new challenges. Probabilistic scenarios are becoming available from large ensemble runs of global climate models (e.g. www.climateprediction.net).

Adaptation research requires local information on climatic parameters, such as the distribution of events (e.g. dry spells), which are closely dependent on time frames and geographic scales. To avoid the limitations of climate scenario-led research, the new assumptions need to be clear and clearly com-

municated. Adaptation planning requires linking present and future climate risks (over the next few years to decades). Yet, there is still a gap between seasonal climate forecasts and longer-term simulations of anthropogenic climate change. A risk assessment requires a common understanding of probabilities, uncertainty and decision-making across a span of research traditions.

Integrating stakeholder and local knowledge is a priority. Promising methods range from participatory integrated assessment to knowledge elicitation. Stakeholder methods should be designed especially to link between qualitative understanding and formal models. Opportunities for innovation in climate change science, impacts and responses

are at the regional scale. Participatory approaches can involve stakeholders at this scale, relying on expert knowledge and high resolution data bases of local conditions.

Capacity in climate adaptation research and assessment is a priority. International linkages should support local adaptation and facilitate the integration of local lessons into more general strategies. Major insight will come from developing countries. To expand the research community with greater depth it is essential to develop long-term partnerships with and among developing country researchers and institutes.

The workshop is part of a process of capacity building. Briefing notes were prepared and a set of papers is in preparation. The Vulnerability Network seeks to stimulate discussion and facilitate access to literature (www.VulnerabilityNet.org). Finally, a pioneering award to Ian Burton for leadership in climate change adaptation was made at the meeting. ■

● **About the author:** Tom Downing leads the SEI Oxford Office and the SEI Risk and Vulnerability Programme. His research, training and applications concern vulnerability assessment and the processes of adaptation to climate risks in food systems and integrated water management.

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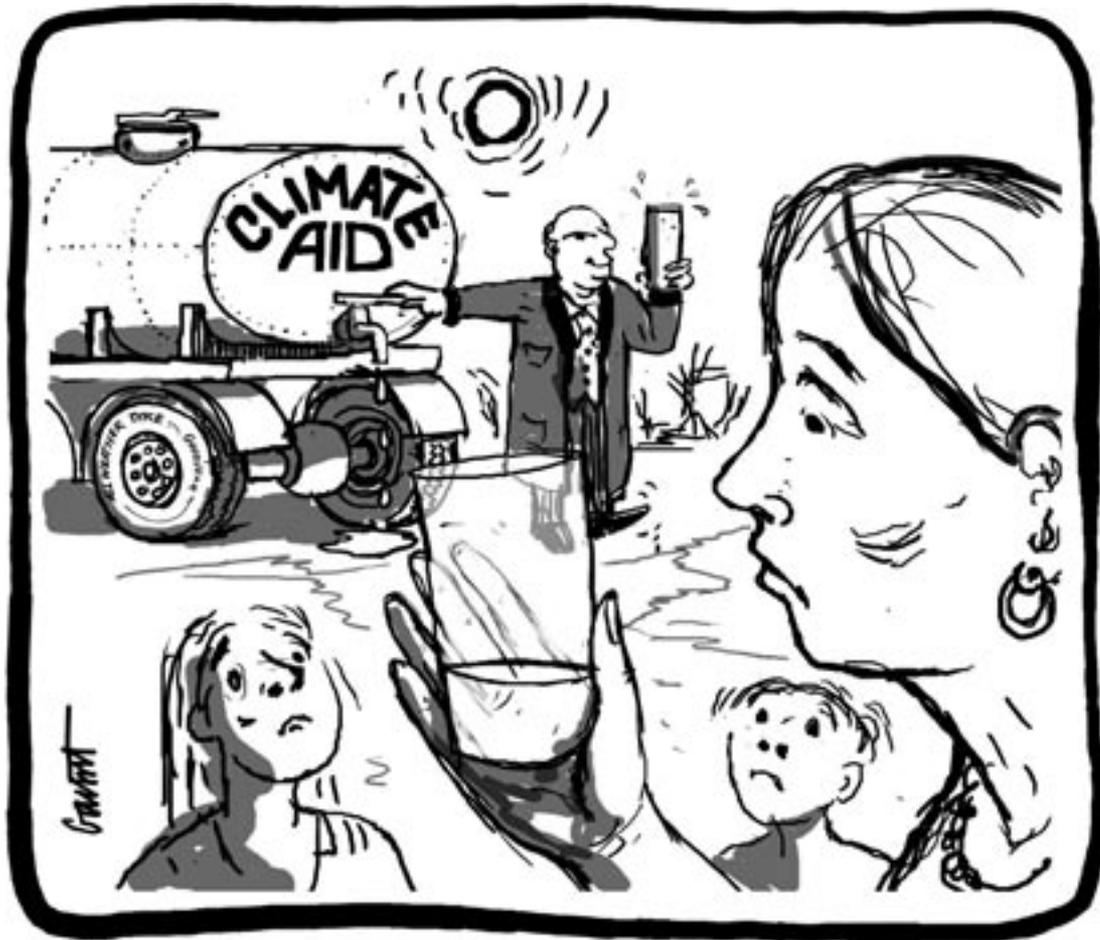
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A new era for Tiempo

As you will have noticed, Tiempo has a new look. We hope that you find that the new design makes it easier for you to find the information that you need and the articles that you are most interested in.

Beneath the surface, there are other changes affecting the way in which the bulletin is produced. We have an expanded editorial team. Saleemul Huq, Hannah Reid and Gerald Leach are joining us from this issue onwards.

Saleemul Huq is Director of the Climate Change Programme at the International Institute for Environment and Development (IIED), London, UK, and Chairman of the Bangladesh Centre for Advanced Studies, Dhaka, Bangladesh.

Hannah Reid is a Research Associate working with the Climate Change Programme at IIED. She has a broad background of working in development, community-based biodiversity management and climate change related issues.

Gerald Leach directed the energy programme at IIED from 1974 to 1988. Since then, he has been a Senior Research Fellow with the Stockholm Environment Institute, working on various aspects of energy, environment and development.

Saleem, Hannah and Gerald will now commission most of the material for the printed bulletin.

The overall aim of Tiempo continues to be providing a voice to the South in a debate often dominated by the North, providing accurate and timely information reflecting southern interests, and promoting

mutual understanding between South and North.

At this time we feel that greater attention must be paid to the interests of the least developed nations, combining climate concerns with poverty reduction and other development priorities. Alongside coverage of the broader climate issue, these countries will provide a focus for the bulletin over the next few years.

THE FINAL WORD

Greater attention must be paid to the interests of the least developed nations.

Sarah Granich and Mick Kelly.

Finally, with increasing access to the Internet in the developing world, the Tiempo website is going to play a more important role – and this is the area that the two of us will be most involved with from now on.

We are going to expand the existing site with a new central section, a weekly news magazine. The web-based magazine will then feed material into the printed bulletin.

At this time, though, we feel that Tiempo can continue to play a modest but significant part in furthering the effective and equitable participation of southern nations in the international response to climate change.



Sarah Granich is an environmental consultant, based in Norwich, UK. She founded Tiempo, with Mick Kelly and Richard Sandbrook, in 1991.



Mick Kelly is an atmospheric scientist with the Climatic Research Unit, University of East Anglia, Norwich, UK.