

Bojjanala

Protecting the Environment • Growing Tourism
Special Edition • National Climate Change Conference 17 - 20 October 2005

Monday 17 October 2005 Issue I

Daily Journal of the National Climate Change Conference

**In Memory:
Joke Waller-Hunter (1946-2005)
Champion of Multilateral Cooperation for
Sustainable Development**



Joke Waller-Hunter, Executive Secretary of the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC), passed away on October 14, 2005. Joke will be remembered for her intelligent grasp of the issues for which she passionately worked and her down-to-earth, straightforward personality. She approached her work with a sincere commitment, believing deeply in the importance of the principles of the UNFCCC and the Kyoto Protocol. UN Secretary-General Kofi Annan called her a “firm believer in the principles of sustainable development” adding that she “knew that global cooperation was essential to advancing that cause.” On 16 October, Marthinus van Schalkwyk, South Africa’s Minister of Environmental Affairs and Tourism paid tribute to the memory of Joke Waller Hunter. Below is the Minister’s statement:

“In November 2004, when the Russian Federation formally ratified the Kyoto Protocol and set in motion the process that would give legal force to its provisions, Joke made the observation that climate change was ready to take its place at the top of the global agenda. With the sad news of her passing on Friday it falls to us, her colleagues, to take up the standard and to ensure that her work and legacy continues in the worldwide effort to combat climate change and its debilitating effects on sustainable development in communities

across the globe. An exceptional campaigner for multilateral action, Joke was both a valued colleague and a good friend – especially to the developing nations of the world. Even prior to her tenure in the UN, she was a passionate advocate for the perspective, plight, and voice of developing nations. Her zeal and her compassion played a significant role in her success within the UNFCCC as a bridge-builder and a leader of vision. On behalf of the people of South Africa we offer our sincere condolences to her friends and family. We pay tribute to her life and celebrate her memory.”

**NATIONAL CLIMATE CHANGE
CONFERENCE:**

Over the last few years climate change has emerged as a national and international priority issue for the government and many South African stakeholders. South Africa faces many challenges in its efforts to achieve sustainable development while simultaneously addressing the causes and impacts of climate change. New scientific conclusions indicate a range of worrying climate scenarios for South Africa’s decision makers, including: expanded desertification; increased range of malaria; reduced land area covered by the current biomes; and decreased maize production. The potential changes also include: a warming of between 1°-3° Celsius; a reduction of approximately 5-10% of current rainfall; and increased incidents of flood and drought.

As a Party to the UN Framework Convention on Climate Change and the Kyoto Protocol, South Africa is obligated to undertake a range of commitments in support of the Convention’s ultimate objective- the stabilisation of greenhouse gas emissions. Among these, South Africa is obliged to take climate change into account in relevant social, economic, and environmental policies; limit emissions and promote adaptation to future climate change impacts; submit information on national climate change programmes and inventories; promote technology transfer; cooperate in scientific, technical, and educational matters; and promote education, public awareness, and the exchange of information related to climate change.

In October 2004, Cabinet approved the *National Climate Change Response Strategy*, providing a comprehensive framework for dealing with climate change issues at the national and interdepartmental level.

dealing with climate change issues at the national and interdepartmental level. Cabinet also emphasised the need for a detailed assessment of the long-term impacts of climate change, and mandated the Department of Environmental Affairs and Tourism to convene a national conference to further develop and implement the *Response Strategy*. In parallel to these developments, non-government organisations, the business sector and a growing number of research institutions, universities and project implementers continue to champion measures to mitigate and adapt to the impacts of climate change at the local and global levels.

Hosted by the Department of Environmental Affairs and Tourism, the *National Conference on Climate Change* opens today at Gallagher Estate in Johannesburg, and continues to 20 October 2005. The Conference is organised under the auspices of an Inter-Ministerial Committee of Cabinet, chaired by the Minister of Environmental Affairs and Tourism, and including as the core Ministers the Ministers of Water Affairs and Forestry, Science and Technology, Minerals and Energy, and Agriculture and Land Affairs. In addition, broad stakeholder involvement in the planning of the Conference was ensured through the engagement of the National Climate Change Committee, a multi-stakeholder forum set up to guide the Department of Environmental Affairs and Tourism on matters relating to climate change. The overall objective of the Conference is to ensure that “all South Africans are informed about all aspects of climate change from a global, African and South African perspective and are empowered to consider climate change mitigation and adaptation in all their endeavours and spheres of influence.” The main outcome of the Conference will be the adoption of a consensus statement outlining approaches for South Africa to respond to international and national climate change commitments.

The Conference will run in two parallel and overlapping sessions. From 17-19 October, the *Climate*

Change Science in Africa Conference will bring together eminent African and international scientists to advance scientific methodologies and research findings relating to climate change in Africa. From 18-20 October, the *National Consultative Conference on Climate Change* will be held to test and inform South Africa’s policies, strategies and action plans, direct South Africa’s international negotiations on climate change, chart the way forward on future commitments, generate inputs for the second National Communication on climate change, revise policies to take into account new scientific developments, and more closely coordinate South Africa’s environmental approach with the national energy strategy. Over 500 participants from government, business, the scientific and academic communities, and NGOs from South Africa and abroad are expected to attend the Conference. Stakeholders will be invited to contribute to debate and shape the conference outcomes. This combination of meetings is therefore an innovative and ground-breaking initiative which brings scientists, politicians, NGO’s and other stakeholders into the same venue to discuss and deliberate on the urgency and potential responses to the threat of climate change in southern Africa and Africa as a whole. Stakeholders from the NGO and business communities will also host their own side-events and exhibit their work throughout the conference venue.

CLIMATE CHANGE IS A PRIORITY: SOUTH AFRICA’S LEADERS TALK

President Mbeki

Speaking at the opening ceremony of the *Second Festival of the Cultures and Civilisations of World Deserts*, held in Dubai in April 2005, President Mbeki stated “of even greater concern is the fact that deserts remain extremely



MAJOR EFFECTS OF CLIMATE CHANGE IN SOUTH AFRICA

Speaking at a Ministerial Meeting on the Arctic and Climate Change held in Greenland in August 2005, Minister van Schalkwyk stressed the following points about the impact of climate change in South Africa:

- ☀ Climate change is evident and will continue, even if greenhouse gas concentrations are stabilised, and as such will also continue to undermine sustainable development;
- ☀ Expanded desertification in the semi-arid areas of the country is already a feature of the South African landscape. In terms of biodiversity, there is a demonstrated die-back of desert plants, such as the Kokerboom, in the Northern Cape and southern Namibia;
- ☀ In the more moist areas in the East of South Africa there is a marked increase in the density of thickets, eg. thorn trees. Bush encroachment into productive grasslands in the summer rainfall regions holds implications for agricultural activities such as cattle and sheep ranching, wildlife management strategies and other ecosystem services;
- ☀ Climate change could lead to provinces like Mpumalanga, Limpopo, the North West, KwaZulu-Natal and even Gauteng becoming malaria zones by 2050 (if no control measures are implemented). The number of South Africans ‘at high malaria risk’ may quadruple by 2020 – at an added cost to the country of between 0,1% and 0,2% of GDP;
- ☀ Climate change modelling suggests a reduction of the area covered by the current biomes in South Africa by 35% to 55% in the next 50 years; and
- ☀ Under a hotter and drier climate, maize production will decrease by up to 20%, mostly in the drier western regions of the country. Marginal areas of maize production may well fail, especially for resource-poor farmers unable to rapidly adapt.

vulnerable to global warming and climate change. Climate change, not only further exacerbates the process of desertification, but can undermine the very integrity of the desert ecosystem itself, accelerating the process of degradation of the land and environmental resource-base upon which impoverished communities depend. The degradation of desert ecosystems, erosion of the cultural heritage of desert peoples, and the increasing number of people dependent on the natural resources of deserts for their basic livelihood creates a classical poverty trap.”

Foreign Affairs



In her opening statement to the *South Africa-Africa Union-Caribbean Diaspora Conference*, in Kingston, Jamaica in 2005, the Minister of Foreign Affairs Nkosazana Dlamini Zuma, said “we are also gathered here at a time when climate change is real and its effects are felt across the globe resulting in devastating hurricanes and cycles of drought and flood.

Natural disasters also continue to wreak havoc. The hurricane last year in this region took its toll on the people and on economic life - in fact this Conference would have been held in October were it not for the after effects of this disaster. The recent tsunamis also caused immense loss of lives and livelihoods. We need to acknowledge that the ability of people to recover is determined by their wealth. The rich can mitigate the effects of a disaster, but this is not the case with the poor. At a time when the harmony between us and nature is critical, we need to look at those who are most vulnerable and discuss what can be done.”

Science and Technology

At the launch of the South African Environmental Observation Network in April 2005, the Minister of Science and Technology, Mosibudi Mangena stated: “droughts, floods, pollution, changes in land use; soil degradation, invasive species and loss of species are recurrent phenomena within South African ecosystems. The need to establish long-term environmental measurement and experimentation practices is essential if we are to effectively deal with these environmental changes and disasters, and the attendant collapse of social systems in Southern Africa.”

In his 2005 budget speech, Deputy Minister Derek Hanekom stated “the science community is confronted head-on by continued environmental degradation, aggravated by temperature rises and droughts, the reality of poverty, inequality and hunger and the persistence of disease. Despite our water shortages, and the strain on our electricity grid, water and energy continue to be wasted through inefficiency, over-consumption and policy deficiencies. Industrial pollution of our soil, water and air remains unacceptably high. These are the challenges, and we will require the best of science, combined with a range of other interventions to find lasting solutions.”



IN AWE OF WEATHER

For centuries human beings stood in awe of the weather, which seemed to represent the power and might of inscrutable forces over which they had no control. The very terms in which we describe weather conditions still suggest supernatural forces that hold us mere mortals at their complete and utter mercy. In pre-modern agricultural societies, completely dependent on the seasons for their survival, the weather was regarded as the single most important aspect of life. It is quite understandable that they revered and respected it. Good weather led to a plentiful harvest, which in turn meant a well-fed and healthy people. Floods or droughts brought destruction and death. Invariably these were regarded as “the anger of the Gods being unleashed onto the earth”. Because human life was so dependent on weather conditions, early religions centred around Gods of the earth, the sun, the sea, rivers, the wind, thunder and the rain. These days, the weather is not such an unknown entity. Owing to the advances humankind has made in understanding the nature and causes of climatic conditions, we are better able to predict future weather conditions. Rather than praying for the sun to shine tomorrow, we consult the daily weather forecasts from the Weather Bureau in the newspapers, on the radio, or on television. Farmers now have more information at their disposal to plan in advance, for heavy rainfall or drought. Individuals are even able to know if they should dress cool or warmly for the following day, or wear a sun hat or carry an umbrella. Today, we focus not on the impact of the weather on society, but rather on the impact of society on weather conditions. Technological and industrial advances have been attained at a price. We are more fully aware of the negative impact that we as humans have had on the earth

- *Pallo Jordan, 1998 (Former Minister of Environmental Affairs and Tourism, current Minister of Arts and Culture). Towards an integrated management of our natural environment, Mayibuye March 1998 Internet: <http://www.anc.org.za/ancdocs/pubs/mayibuye/mayi9801c.html>*

Water Affairs and Forestry



Speaking at the establishment of the National Water Resource Infrastructure Agency in August 2005, the Minister of Water Affairs and Forestry, Buyelwa Patience Sonjica said “water is a strategic resource for South Africa which faces many water-related challenges, notably extreme rainfall variability which is being aggravated by climate change as well as growing demands from all sectors of the economy and society.” At the *Stockholm Water Week* in September 2005, the Minister stated “overall, South Africa comes far down the list of water availability per capita. And like many other countries, we are experiencing the impacts of global climate change, with increased variations in rainfall and extreme events. As a country already prone to droughts and floods this scenario remains extremely worrying, and one that threatens the water security of our nation.”

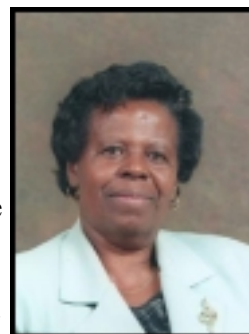
Environmental Affairs and Tourism



In his 2005 Budget Speech, the Minister of Environmental Affairs and Tourism, Martinus van Schalkwyk stated “addressing climate change requires action on two different levels - the first is international action to continue to pressure developed nations to further reduce global emissions of greenhouse gasses and to increase levels of assistance to developing nations adapting to climate change. The second level of action is domestic - we need to prepare our people and our economy to deal with the consequences of climate

change. South Africa accounts for 1,4% of global greenhouse gas emissions and we need to find ways of reducing these emission levels. Speaker, South African biodiversity is also under threat from one of the most noticeable and dangerous forms of change - climate change. The ten warmest years ever recorded have all occurred since 1990. From 1961 to 1990 alone the average annual temperature at the Cape Agulhas Lighthouse rose by 1-2 degrees. Scientific modelling suggests that over the next fifty years the areas covered by our current biomes will reduce by more than 50% - with hotter and drier conditions reducing maize production by as much as 20% with massive knock-on effects for our economy. Floods and droughts, increased water-borne diseases, more frequent fires, and the extinction of more animal species are all likely results of this change, unless we act swiftly and decisively.”

Speaking at the launch of the National Climate Change Response Strategy in October 2004, the Deputy Minister Rejoice Mabuhasi said “it is quite clear that our struggle to fight against poverty and our mandate to manage the natural resources will be undermined unless climate change response strategies are developed and implemented at local, regional and continental levels to ensure that problems associated with climate change are dealt with in a proactive manner.”



“It’s time for action! Climate change is here”

National Climate Change Conference • Gallagher Estate - Midrand

17-21 October 2005



NATIONAL CLIMATE CHANGE CONFERENCE

“Climate Action Now!”



CLIMATE CHANGE SCIENCE IN AFRICA: October 17-20, 2005

The *Climate Change Science in Africa Conference* will be opened on Monday morning by the Minister of Environmental Affairs and Tourism, Martinus van Schalkwyk and will be followed by a keynote address by the Minister of Science and Technology, Mosibudi Mangena. The opening session will include presentations on a climate change research and development (R&D) strategy for South Africa, global change and evolution, and translating sound climate science into practical and effective public policy. The session on *the science of climate change* will address the science of global change in Africa, including regional projections of climate change, synergistic interactions between vegetation and climate systems, and climate change attribution and detection. The afternoon session on *modelling impacts and adaptation to climate change* will address climate change impacts on African cities and societies, the likely impacts of climate change on biodiversity-based livelihoods, human health, and climate change in southern Africa, and climate change and water resources in South Africa. On Tuesday morning, the first session on *ecosystem impacts* will address marine ecosystems and fish, African tropical coral reefs, and biodiversity responses in the Southern Ocean African islands. The second session on *ecosystem impacts* will address droughts in South Africa, species migration, modelling and experimental approaches to quantifying species responses, and detecting and monitoring climate change impacts in arid ecosystems. On Tuesday afternoon, the third session on *ecosystem impacts* will address climate change impacts on southern African landscapes; carbon dioxide, fire and African ecosystems; climate change and the extinction risk of African terrestrial biodiversity; African mammal population responses and extinction risk; and climate change, ticks, and tick-borne diseases in Africa. The session on *global change professional capacity and networks* will address strategic research and professional capacity including the AIACC, the START network and AESEDA. The session will also address professional capacity building through bilateral engagement with a focus on the National Research Foundation/Royal Society experiences, and includes a facilitated discussion on priorities for capacity and research integration on the African continent.

On Wednesday morning, the first session on *climate change mitigation strategies* will address energy technologies for climate change mitigation, building local sustainable development into climate change mitigation, the importance of accurate greenhouse gas inventories as a basis for climate change mitigation, and human development and climate change looking at social science research indicating the minimum emissions required for basic human needs in China. The second session on *climate change mitigation strategies* will ad-

dress India's approach to climate change mitigation, innovative technologies from Brazil and the challenge for south-south cooperation, the science of the hydrogen economy, and nuclear power as a strategy to address climate change. On Wednesday afternoon three parallel interactive workshops will address: *New Research from Emerging Scientists*; *Compound Impacts of Invasive Species and Climate Change Project*; and *Translating Science into Practical Public Policy*.

CONSULTATIVE CONFERENCE: October 18-20, 2005

The *Consultative Conference* will be opened on Tuesday morning by Minister Martinus van Schalkwyk and includes a keynote address by the Deputy President, Phumzile Mlambo-Ngcuka. Other speakers in the opening session include Feng Gao for the UN Framework Convention on Climate Change, the Canadian Ambassador on Climate Change Ambassador Bilodeau, and Mohammed Valli Moosa, the Chair of Eskom. The session on *climate change impacts* will address climate scenarios from the Working Group I of the Intergovernmental Panel on Climate Change and R&D strategy and technology policy to address climate change in South Africa. In the afternoon, the Minister of Water Affairs and Forestry, Buyelwa Patience Sonjica will give a keynote address on *Vulnerability and Adaptation: Climate Change, Waster Supply, and appropriate responses*. The session on *climate change impacts: vulnerability and adaptation* will address the social impacts and implications of disasters, South Africa's emissions profile and the challenges of mitigation, and food security. The session on *the international dimensions of climate change* will address how much climate change mitigation can be expected from the USA post-2012, quantifying future emissions paths, financial implications, global equity and oil wars, and scenarios. The session will be followed by an open space interactive discussion.

On Wednesday, the morning session on *mitigation* will include a panel discussion on what kind of action can be taken by South Africa to mitigate climate change, and will include presenters from DEAT, business, local government and NGOs. It will also include a presentation on unmitigated damage costs. The afternoon session on *adaptation* will address community based agricultural adaptation, the interlinkages of rural development and climate change policy in South Africa, adaptation in Africa, and a case study on how Rooibos farmers are addressing adaptation measures. The afternoon session on the *international context of climate change* will address the African intergovernmental process on climate change; how to make the next round of international climate negotiations effective and prospects for Montreal; the Clean Development Mechanism and strengthening a post-2012 climate regime, and international NGO perspectives.

On Thursday morning participants will meet in commissions to discuss draft Science and Consultative

position statements, which will be followed by a keynote address by the Deputy Minister of Science and Technology, Derek Hanekom, on *the role of South Africa as a global citizen*. This will be followed by the adoption of a Conference Statement and the official closing by the Deputy Minister of Environmental Affairs and Tourism, Rejoice Mabudafhasi.

LAUNCH OF THE DESIGNATED NATIONAL AUTHORITY OF THE CLEAN DEVELOPMENT MECHANISM

On Wednesday October 19, the Department of Minerals and Energy will officially launch South Africa's Designated National Authority (DNA) of the Clean Development Mechanism (CDM). The CDM allows developing countries to implement projects that reduce greenhouse gas emissions and achieve sustainable development while assisting developed countries to meet their Kyoto commitments. To allow CDM projects to occur, host countries need to designate national authorities to evaluate and approve the operation of CDM projects in their country. In 2004, Cabinet established a DNA to fulfil this function as well as other functions related to the successful implementation of the CDM, including the promotion of investment in CDM projects. Cabinet also approved regulations establishing the DNA in the Department of Minerals and Energy and assigned it the main duties including to: consider applications by project proponents; facilitate the effective and beneficial participation of South African entities in CDM activities; and promote the establishment of CDM projects. South Africa's first CDM project was registered by the CDM Executive Board in August 2005. The Kuyasa Low-income Housing Energy Upgrade project in Khayelitsha is the first CDM project that has gone through South Africa's DNA approval procedures, and it is also the first African CDM project to be registered by the Executive Board. The Kuyasa project was also the first CDM project to be validated against the *Gold Standard*, and independent CDM benchmark that rewards projects with high sustainable development benefits.

CDM RESOURCES

- ☀ **DNA Website**
<http://www.dme.gov.za/cdm/main.htm>
- ☀ **Sustainable Development Criteria**
<http://www.dme.gov.za/publications/pdf/cdm/Sustainable%20Development%20Criteria.pdf>
- ☀ **SouthSouthNorth**
<http://www.southsouthnorth.org>
- ☀ **UNFCCC CDM Website**
<http://cdm.unfccc.int/>
- ☀ **Gold Standard**
<http://www.goldstandard.org>

INTERNET RESOURCES

- ☀ **Department of Environmental Affairs and Tourism**
<http://www.deat.gov.za>
- ☀ **Climate Change Website**
<http://www.environment.gov.za/ClimateChange2005/home.htm>
- ☀ **National Climate Change Response Strategy**
http://unfccc.int/files/meetings/seminar/application/pdf/sem_sup3_south_africa.pdf
- ☀ **Initial National Communication to the UN Framework Convention on Climate Change**
<http://unfccc.int/resource/docs/natc/zafnc01.pdf>
- ☀ **Air Quality Act**
http://www.environment.gov.za/PolLeg/Legislation/2005Mar15/air_quality_act_2004.htm
- ☀ **Vehicle Emissions Strategy**
http://www.environment.gov.za/PolLeg/Legislation/2003Nov28/Draft_National_Vehicle_Emission_Strategy.pdf
- ☀ **The National Biodiversity Strategy and Action Plan**
http://www.environment.gov.za/ProjProg/ProjProg/2004Jun10/natStrategy_26052004.html
- ☀ **National Strategy for Sustainable Development**
http://www.environment.gov.za/nssd_2005/nssd_11082005.htm
- ☀ **Department of Minerals and Energy**
<http://www.dme.gov.za>
- ☀ **Energy Efficiency Strategy**
http://www.dme.gov.za/publications/pdf/ee_strategy_05.pdf
- ☀ **Renewable Energy White Paper**
http://www.dme.gov.za/publications/pdf/policydocs/white_paper_on_renewable_energy.pdf
- ☀ **UNFCCC Secretariat**
<http://www.unfccc.int>
- ☀ **UNFCCC Text**
<http://unfccc.int/resource/conv/conv.html>
- ☀ **UNFCCC Technology Information Clearing House**
<http://unfccc.int/home/items/3092.php>
- ☀ **UNFCCC Greenhouse Gas Data**
<http://ghg.unfccc.int/index.html>
- ☀ **Kyoto Protocol Text**
<http://unfccc.int/resource/docs/convkp/kpeng.html>
- ☀ **Intergovernmental Panel on Climate Change**
<http://www.ipcc.ch>

In her Own Words: Joke Waller-Hunter (1946-2005)

Joke Waller-Hunter joined the secretariat of the UN Framework Convention on Climate Change as its Executive Secretary on 1 May 2002. Before joining the UNFCCC, from 1998 to 2002, she was the Director of the Environment Directorate of the Organisation for Economic Cooperation and Development, OECD in Paris. From 1994 to 1998, Joke Waller-Hunter was the UN's first Director for Sustainable Development, leading the division that provides the secretariat to the UN Commission on Sustainable Development, and co-ordinates the work of the UN in the field of sustainable development. From 1984 to 1994 she worked for the Netherlands Ministry of Housing, Spatial Planning and the Environment. As Deputy Director for International Environmental Affairs, she was actively involved in the preparations of the UN Conference in Environment and Development (Rio de Janeiro, 1992). From 1992 to 1994 she was Director for Strategic Planning, responsible for the preparations for the second National Environmental Policy Plan of the Netherlands. Born 15 November 1946, Joke Waller-Hunter was a national of the Netherlands.



Joke with Néstor Kirchner, President of Argentina
COP-10 December 2004.

Photo: IISD/ENB–Leila Mead 2004

Keynote address for the commemorative event to mark the entry into force of the Kyoto Protocol Kyoto, 16 February 2005

“We have good reasons to celebrate. At the same time we must realise that the Kyoto Protocol is the first step that sets action in motion but that by itself is not enough to deal with the problem. More is needed to come closer to the objective of the Convention: “to achieve [...] stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system (UNFCCC, Article 2). Let’s build on the experience that is now being gained to design the multilateral framework that will lead to a climate friendly future for all!”

Keynote address to the Carbon Expo Conference Cologne, 11 May 2005

“When looking at the latest scientific evidence, one cannot but conclude that a sense of urgency must prevail. Concentrations of greenhouse gases in the atmosphere continue to increase at an unprecedented rate. Although the stakes are high and the interests diverse, the world community cannot afford not to find a common approach to meeting the ultimate objective of the Convention: preventing dangerous interference with the climate system before it is too late.”



Joke with Miklós Persányi, Hungary’s Minister of Environment and Water (President of COP-9). December 2004

Photo: IISD/ENB–Leila Mead 2004

Green Week 2005 Brussels, Belgium, 31 May 2005

“Effectively addressing the climate change challenge is a major global task in which all countries must be engaged. It requires vision and courage. Success is crucial to ensure that climate change impacts do not endanger the achievement of the Millennium Development Goals. The urgency of the challenge and the global nature of its causes and impacts clearly require an aggressive multilateral response. Building on the areas of mutual interest, successful experiences and common understanding, rather than focusing on the existing differences in national circumstances and positions, may lead the way forward. But involvement of governments alone is not enough. Active engagement of business, civil society and the general public in the process and in implementation, is essential. There are challenges, but also many attractive opportunities. At the United Nations climate change conference in Montreal in November/December this year, Parties will have an opportunity to express their political will to continue and advance action on addressing climate change in the future, reassuring the rest of the world that the UNFCCC process is moving forward, and responding to the urgency of the issue.”

**MONDAY'S PROGRAMME:
Climate Change Science in Africa Conference**

Session 1 Chair: Ms Pam Yako, DEAT		Opening session
10:00	Minister of Environmental Affairs & Tourism, Mr M van Schalkwyk	Opening Address
10:20	Minister of Science and Technology, Mr M Mangena	Keynote Address
10:45	Dr Rob Adam, Director General, Department of Science and Technology, South Africa	A climate change research and development strategy for South Africa
11:15	Professor Sir Peter Crane, FRS, Director, Royal Botanic Gardens, Kew, United Kingdom	Global change and evolution – how will species stand the tests of time?
11:45	Professor Andrew Watkinson, Tyndall Centre for Climate Research, United Kingdom	Translating sound climate science into practical and effective public policy
12:30	Adjourn to luncheon hall	
12:30	Lunch	
Session 2 Chair: Dr Rob Adam, DST		The science of climate change
13:30	Dr Luanne Otter, Climate Research Group, Uni- versity of the Witwatersrand, South Africa	Global change in Africa: towards a synthesis of the science
13:50	Prof Bruce Hewitson, Climate Systems Analysis Group, University of Cape Town, South Africa	Regional projections of climate change for Africa
14:10	Dr Richard Betts, Hadley Centre, United King- dom	Synergistic interactions between vegetation and climate systems in Af- rica
14:30	Dr Myles Allen, Oxford University (telephone conference link from Oxford/Royal Soc)	Climate change attribution and detection in Africa
15:00	Questions and open discussion	
15:30	Tea / coffee	
Session 3 Chair: Prof Urmila Bob, UKZN		Modelling impacts and adaptation to CC
16:00	Prof Colleen Vogel, Univ. of the Witwatersrand, South Africa & Prof Sue Parnell, University of Cape Town, South Africa	Climate change impacts on African cities and societies
16:20	Mr Graham von Maltitz and Ms Carmel Mbizvo, CSIR, South Africa	Likely impacts of climate change on biodiversity based livelihoods
16:40	Mr Randall Spalding-Fecher, ECON South Africa	Human health and climate change in southern Africa
17:00	Prof Roland Schulze, University of KwaZulu- Natal, South Africa	Climate change and water resources in South Africa: Where from? Where to?
17:20	Questions and open discussion	
18:00	Session adjourns	
19:00	Evening events – Gala dinner	

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Tuesday 18 October 2005 Issue 2

Daily Journal of the National Climate Change Conference

CLIMATE CHANGE SCIENCE IN AFRICA: HIGHLIGHTS: MONDAY, 17 OCTOBER 2005

The Climate Change Science in Africa Conference opened on Monday, 17 October, with addresses by the Minister's of Environmental Affairs and Tourism, and Science and Technology. Throughout the day participants heard presentations from eminent African and international scientists on the science of climate change, and modelling impacts and adaptation to climate change. In the afternoon, the Department of Environmental Affairs and Business Unity South Africa held a ceremony to sign a Memorandum of Understanding on the development of a sustainable greenhouse gas inventory for South Africa. A side event hosted by the BASIC Project addressed "Looking to the Future-Challenges for Developing Countries on Climate Change."

OPENING

This session was chaired by Pam Yako, Director General of the Department of Environmental Affairs and Tourism, and began with the singing of the National Anthem and minutes silence in memory of Joke Waller-Hunter, the Executive Secretary of the UN Framework Convention on Climate Change (UNFCCC).



Opening Address

In his Opening Address, Marthinus van Schalkwyk, South Africa's Minister of Environmental Affairs and Tourism called on participants to ensure that "science, choice and action" occupy the Conference deliberations.

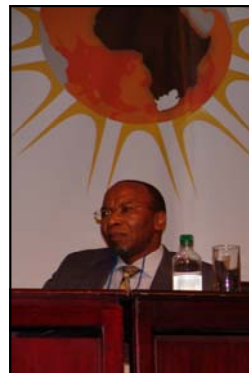
He said climate change was a

"global threat" and that the choice must be to "acknowledge the danger of climate change and act to avert the worst consequences." Noting that this was the first government initiated and driven event of its kind, and on this scale in South Africa, he said it was a concrete manifestation of Government's determination to act on climate change and to shape policy informed by the best available science. He stressed the need to give voice to Africa's climate change priorities, noting that few places on earth better embodies the proof of human

induced climate change, the vulnerabilities of its effects, or the need for improved adaptation and massively increased resources. He noted the value of healthy scepticism in the role of science, but pointed out that "when the weight of evidence is so persuasive, the failure to act, even from a position of scientific scepticism, is both negative and futile." He said the time had come to prepare communities to deal with the social, economic and human impacts of climate change. He called for a world-wide climate change awareness campaign to demystify and mainstream climate change, urging the need to make the link, in the minds of ordinary people around the world, between their actions and climate change. He said the recent extreme weather events such as Hurricane Katrina and Typhoon Longwang were signs of the "smoking gun" of global climate change and expressed concern that the US continues to remain outside the Kyoto Protocol. He also highlighted the need to focus more clearly on developing the scientific base and technologies to manage the unintended consequences of mitigation measures. On adaptation, he said it has not received the same attention or funding as mitigation, and stressed the need for more resistant crops, animal varieties, sustainable land management practices, and better support for farmers in South Africa. He also underlined the importance of improved disaster risk management and emergency response planning.

Online:

http://www.deat.gov.za/HotIssues/2005/climate_change/speeches/opening/climatechangeopening.pdf



Keynote Address

In his Keynote Address, Mosibuda Mangena, South Africa's Minister of Science and Technology identified the urgent need for improved understanding of climate change in South Africa and Africa, stressing that the science community has a critical role in helping humanity understand this phenomenon. He said that a balanced analysis of

both the impacts of climate change, as well as the measures taken to reduce greenhouse gas emissions is necessary, noting that both have a significant influence on decision-making processes. He identified several research areas needed to enhance understanding and help quantify and reduce existing uncertainties, including:

climate system forcing; projections of global and regional climate change, and their environmental and social impacts; and methods used to quantify the uncertainties of climate change predictions. He stressed the need for policy makers to access reliable, long-term climate information; adequate computational resources for climate research and projections; and a focused and well-coordinated multi-agency and international research and applications structure. While noting the mounting significance of renewable energy sources, he said the use of nuclear power is clearly one of the options that will become more pervasive.

He also mentioned that Cabinet had approved a plan for increased research, innovation and demonstration of technologies for the hydrogen economy. He underscored the need to recognise that the ecological footprint of the poor is tiny compared to the massive consumption patterns of the developed world, noting that this creates obligations for the developed world to partner with the developing world to find sustainable solutions for the future.

A Climate Change Research and Development Strategy for South Africa: In his address, Rob Adam, Director General, Department of Science and Technology said the rationale for the strategy include the need to address the complexity of climate change, socio-economic impacts, uncertainties in long term solutions, difficulties in finding clear-cut solutions and the opportunities that exist in influencing development policy in South Africa. He identified the key framework themes as the biophysical results of climate change and international political processes and agreements to combat climate change. On the biophysical side he identified the need to look at the science of climate systems, the impacts of climate change, adaptation, and recognising the links between climate change and other environmental problems. He outlined the international political processes with reference to South Africa's obligations and opportunities under the UNFCCC, including emissions inventories and data collection, climate change impacts, and adaptation and mitigation options.

He highlighted the opportunities for attracting foreign direct investment under the Clean Development Mechanism (CDM), and the opportunities for early learning through technology needs assessments, adapting overseas technologies, and developing local technologies. He cited the need for human resource development, the need to build on this capacity, and the need for scientific interventions in the health and agriculture sector. He also mapped out the role that should be played by the National Research Foundation, the South African National Biodiversity Institute and the Water Research Council in a coordinated approach by government research facilities. He said the way forward for the strategy included a workshop with small expert groups, focused studies on research themes, and the development of strategy.

Online:

http://www.deat.gov.za/HotIssues/2005/climate_change/presentations/17October_day1_science_conf/10H45/Rob%20Adam%20Climate%20Change%20Conf%2017%20Oct%202005%20R&D%20Strategy%20for%20climate%20change.pdf

Global Change and Evolution – How will Species Stand the Tests of Time? In his address Professor Sir Peter Crane, FRS, Director, Royal Botanic Gardens, (United Kingdom) focused on how climate change is reflected in the distribution of plant species. He underscored the interconnectivity between water, energy, health, agriculture and biodiversity (the WEHAB agenda) and climate change. He said that evolutionary changes are taking place on a smaller timescale and urged a focus on the necessity of refining the distribution of plants and identifying climate forcing factors. He also noted the difficulties in quantifying the rate of loss of diversity due to the large number of plant species, discovery of new species, and difficulty in modelling change and species sightings. He emphasised the decrease in population size and the susceptibility to extinction and growth of robust opportunistic species and weeds due to stress of environmental and global change. He added that invasive species are less likely to cause species extinction, as ecosystems with generic biota respond differently than natural vegetation. He illustrated that the loss of species diversity can be attributed to habitat destruction and degradation, and noted that the fragmentation of landscapes also disrupts natural processes that occur and affect adjacent landscapes. Noting that the drivers of change are often determined by the developed world, he stressed that developing countries in Africa will experience much of the effects of change. He emphasised the importance of addressing the causes of environmental change, the use of improved data and models and certainty of an on-going investment in human technological capacity particularly by increasing knowledge and protected areas.

Online:

http://www.deat.gov.za/HotIssues/2005/climate_change/presentation/17October_day1_science_conf/11H15/2%20Global%20Change%20and%20Evolution.pdf

Translating Sound Climate Science into Practical and Effective Public policy: In his address Professor Andrew Watkinson, Tyndall Centre for Climate Research (United Kingdom) underscored the global importance and recognition of climate change, and highlighted the contradicting and isolated opinions of the US and UK governments.

Noting the arguments proposed by climate sceptics, he drew attention to the large number of scientists who are in agreement regarding the occurrence of climate change, namely the IPCC. He said, however, that consensus on a workable strategy applicable to all groups of people in danger from climate change has still not been reached. He said that carbon dioxide reduction strategies need to take into account economic activity and consumption, and stressed that politicians need to facilitate the integration of de-carbonised energy sys-

tems, hydrogen-based energy systems, the clean development mechanism and integrated renewables. He proposed that adaptation strategies be based on and include: sound science; education and communication; responsibility of pathways and decisions; planning and risk assessment; legislation and enforcement; support networks; and finance. He emphasised the importance of acting responsibly and addressing social justice. In conclusion, he said that biodiversity conservation only works with a sustainable strategy, and noted that sound science and the acceptance of living within environmental limits are steps on the pathway to sustainable development.

SESSION 2: THE SCIENCE OF CLIMATE CHANGE

This session was chaired by Rob Adam, Director General, Department of Science and Technology.

Global change in Africa: Towards a Synthesis of the Science: In her presentation, Luanne Otter, Climate Research Group, University of the Witwatersrand (South Africa) highlighted several scientific conclusions including: increases in temperature in the region; changes in rainfall patterns; and increases in the frequency of extreme events, such as floods in Mozambique and Tanzania, and droughts in South Africa. She said that while climate change research is increasing in Africa, there is an urgent need to ensure a greater synthesis of the regional dimensions of global change. She underscored the need to identify gaps in information, improve data and models, transfer information to policy makers, and develop a regional and continental approach to global change. She focused on a START funded project on regional syntheses of global change in Africa, which aims to update and revise scientific syntheses with an emphasis on local, regional and continental linkages. She emphasised that the research will focus on past and present climate, human elements, water, carbon and nitrogen, transport and transformation, and impacts, vulnerability and adaptation.

Online:

http://www.deat.gov.za/HotIssues/2005/climate_change/presentations/17October_day1_science_conf/13H30/OtterClimateChangeConf05.pdf

Regional Projections of Climate Change for Africa: In his presentation, Bruce Hewitson, Climate Systems Analysis Group, University of Cape Town (South Africa) emphasised the importance of using the regional manifestations of climate change as the starting point for addressing adaptation in Africa. He stressed that this is the most under resourced aspect of climate research in Africa. He underscored the need to recognise the context of historical change, produce simple and robust messages, address the limitations and uncertainty in research, understand the roles of regional feedback mechanisms, and address the limitations of research tools. He noted that IPCC Working Group I used four basic scenarios for projecting future climate changes:

Global Climate Models, Regional Climate Models; Empirical/Statistical Downscaling, and Physically Plausible Mechanisms. He also identified the following research challenges: building capacity in targeted areas; developing regional projections; improving the understanding of local scale feedbacks; developing tools to translate the science to policy; and addressing the complexity of the system.

Synergistic Interactions between Vegetation and Climate Systems in Africa: In his presentation, Richard Betts, Hadley Centre (United Kingdom) said that at the global scale some areas are warmer than others; land areas warm faster than the ocean; there is faster warming near the poles; and some ocean areas warm faster than others. He noted that global average precipitation increases with global warming and highlighted the large decrease in vegetation carbon in the Amazon and to a certain degree, that in Africa. He said that expanded forests in Africa will increase local precipitation and partly counteract warming due to the increase in evaporation. He also said that forest die-back increases local drying and warming, and the loss of African carbon sinks contribute to positive feedbacks on the global climate.

Attribution of Climate Change, the Spectre of liability: In his presentation, via a conference telephone link up, Myles Allen, Oxford University (United Kingdom) underscored the need to think about civil liability as another vehicle for redistributing the costs of climate change and reducing emissions. He emphasised the increasingly strong evidence for human influence on global and regional temperature changes, citing the example of the 2003 heat waves in Europe which led to more than US\$ 10 billion of uninsured damages and between 22 000-35 000 heat related deaths. He cited research, which concluded that it is likely (90% confidence) that that past human influences on the climate was responsible for a least half the risk of the heat wave. He stressed that the rapid rise in global temperature over the second half of the 20th century was almost entirely attributed to the increase of anthropogenic greenhouse gas emissions, and noted that rainfall trends in the Sahel are projected to reverse, while droughts in southern Africa are projected to worsen. Highlighting civil liability as the new paradigm for redistributing the cost of climate change, he suggested that the risk of a liability law suit, even if remote, of a successful class action damages suit would have far more impacts than any conceivable follow-up to the Kyoto Protocol.

Online:

http://www.deat.gov.za/HotIssues/2005/climate_change/presentations/17October_day1_science_conf/14H30/pretoria05allen1.pdf

Discussion: In the discussion, a participant sought clarification whether the research on vegetation made any differentiation in the definition of normal forests compared to monoculture plantations. In response, Richard Betts said that the models did not address the

diversity of ecosystems and thus did not make any differentiation. Citing concerns about nuclear power-related emissions and nuclear waste, another participant questioned the statement by the Minister of Science and Technology, that nuclear power is an option that could be explored. Chair Adam said the Department does not take decisions to build power stations, but only provides relevant scientific information and resources for scientific research. In response to a question about the impacts of sea level rise in South Africa and Africa, Bruce Hewitson said that sea level rise is happening slowly, that there will be some local impacts, but that it was not a leading climate change concern for the continent. In answer to a question about the appropriate legal format for a liability scenario, Myles Allen suggested that it was a classic case of industrial pollution liability where buyers and sellers would be responsible and liable under most western legal systems. He stressed that 80% of the 2003 greenhouse gas emission emanated from the products sold by no more than 20 identifiable companies, and said that African governments seriously consider the liability option.

SESSION 3: MODELLING IMPACTS AND ADAPTATION TO CLIMATE CHANGE

This session was chaired by Urmila Bob, University of KwaZulu-Natal (South Africa).

Climate Change Impacts on African Cities and Societies: This presentation was jointly prepared by Colleen Vogel, Climatology Research Group (South Africa), and Sue Parnell, University of Cape Town. Colleen Vogel highlighted a multifaceted approach, focusing particularly on the human dimension of climate change in cities. She indicated that climatic events have a number of impacts, namely vulnerability and adaptation, other than just being part of a larger change in earth system. She highlighted how an increase in the frequency and intensity of disasters are attributed to climate change, but noted that human disasters have a greater impact due to multiple stresses on a community. She said that for a community where water accessibility is already a problem, a slight decrease in rainfall has an amplified effect. She suggested a shift from the physical debate of climate change to one with an increased focus on the socio-economic aspect, even though decisions concerning the climate agenda occur within a power-dynamic relationship.

She said that for communities experiencing risk and vulnerability climate is an added stress. She identified a range of factors making cities vulnerable, especially with growing demands due to increasing population growth and the challenge lies in applying the science that will target players to decrease vulnerability. She suggested that in order to reduce risk for climate change, the mitigation and political agenda's should: include urban planners in the debate; address risk insurance; develop national legislation, and develop capacity.

Likely Impacts of Climate Change on Biodiversity-based Livelihoods: This presentation was jointly prepared by Graham von Malitz and Carmel Mbizvo, CSIR (South Africa). Graham von Malitz said Africa was the poorest continent with the lowest economic growth rate where the majority of the population live in rural areas on a sub-subsistence income. Given the prevalence of HIV/AIDS and a large reliance on environmental goods and natural resources, he emphasised that communities were extremely vulnerable to climate change. He said that environmental changes in biomes have huge implications for individuals living at the interface where such change takes place, noting that changes in biomes result in different trends in consumption and trade, including tourism, meat consumption, and rural job creation.

He noted that changes in biomes will result in the possible loss of key species, and will affect the trade in small animals and medicinal plants, as well as the spread of certain diseases, such as malaria and cholera. Noting that land degradation takes place due to the need to use natural land because of the loss of crops, he said as resources decrease, insecurity increases, which may lead to conflict, which will further exacerbates poverty. He suggested that sustainable livelihoods can be created when a household is able to exist beyond stresses faced, including land use transformation, environmental decline, population growth and social aspects. Regarding adaptation options for community-based resource management strategies, he underscored the need to address structural inequalities, including introducing institutional stability, implementing early warning systems with climate and land use changes, and avoiding the movement of environmental refugees.

Online:

http://www.deat.gov.za/HotIssues/2005/climate_change/presentations/17October_day1_science_conf/16H20/PP-Climate%20Change_1.pdf

Human Health and Climate Change in South Africa: In his presentation, Randall Spalding-Fecher, ECON (South Africa) noted that 270 million cases and 1 million deaths occurred each year as a result of malaria. He said that increased temperature and rainfall was strongly linked to malaria risk, and that an increase in the global population at risk is projected to be more than 300 million this century. He highlighted that malaria was endemic to South Africa, that cases had risen from 4 693 in 1991 to 61 253 in 2000, and that increased drug resistance, influx of immigrants from uncontrolled areas, and reduced pesticide spraying were supplementary to climate change impacts. He further noted that the population at high risk is projected to quadruple to 36 million by 2020, implying 280 000 additional cases of malaria, and though less than 1% is fatal, he said it still meant an additional 2000 deaths due to climate change. He estimated the cost of lost productivity at R95 million, and the cost of treatment at R950 million in 2010. He concluded that malaria risk could rise very signifi-

cantly due to climate change, but that public health responses could limit this. However, he said that without any intervention, the total costs of increased malaria could reach between 0.1- 0.2% of GDP, and emphasised the need to understand the costs and effectiveness of preventive measures as adaptation measures.

Online:

http://www.deat.gov.za/HotIssues/2005/climate_change/presentation/s/17October_day1_science_conf/16H40/Spalding%20-%20CC%20&%20malaria%20in%20SA%20-%20Nat%20CC%20Conf%20Oct%202005.pdf

Climate Change and Water Resources in

South Africa: In his presentation, Roland Shulze University of KwaZulu-Natal (South Africa) referred to the World Summit on Sustainable Development where the increased risk of water and food shortages in South Africa as well as the need for increased research was identified. He identified water as a cross-cutting issue with global, regional and local implications on a vertical scale, as well as coastal, agriculture and health on a horizontal scale. He noted that South Africa is a water stressed country with variability in rainfall and arid regions. He also noted that dealing with climate change has to address the key issues of the National Water Act, such as water demand, environmental issues, socio-political issues and crisis management. He cited various studies conducted in South Africa, listing the first results as: temperature changes from 1,5-3 degrees; frost; reduced rainfall; potential increases in evaporation from 10–20 %; fewer but larger rainfall events resulting in more groundwater recharge; projected shifts in the distribution of stream flows; and irrigation likely to use more water. He also noted that climate change impacts on water resources will have impacts on exports, employment, land use, and that impacts of climate change on the water sector may be felt sooner than thought. He further highlighted that hotspots of climate change may need priority attention from the Department of Water Affairs and Forestry. While acknowledging that uncertainties remain, he warned that the ecological reserve will be impacted, that aquatic environments will suffer, and that water quality will be impacted on at the physical, chemical and biological levels. He also suggested that water availability for the poor will be impacted, and that transboundary water agreements may have to be revisited.

Discussion: In the discussion, participants addressed the need to shift the paradigm to socio-political elements of climate change and stressed the importance of addressing the vulnerability of the poor and creating alternative livelihoods. In response to a question about the lack of insurance for adaptation and damage due to US inaction, Randall Spalding-Fecher said the costs of implementing Kyoto are not that large and benefits may occur further down the road. He said there was a need for further political consideration and advised young scien-

tists to take a political course along with science courses, noting that politics and science are closely connected.

GOVERNMENT AND BUSINESS SIGN NEW AGREEMENT ON COMBATING CLIMATE CHANGE

On Monday, 17 October, Government and organised business in South Africa signed a landmark Memorandum of Understanding formalising their partnership to address the challenges of global climate change. The Minister of Environmental Affairs & Tourism, Marthinus van Schalkwyk, was joined by Patrice Motsepe, President of Business Unity South Africa (BUSA), at the signing ceremony held at Gallagher Estate. “The vast bulk of international scientific evidence has linked global warming and the challenges of climate change, to the world-wide emissions of greenhouse gases,” said the Minister, “One of our national responsibilities, as members of the Kyoto Protocol, is to compile an accurate inventory of our own emissions.

This agreement is a voluntary commitment by our private sector to help Government create a system for monitoring and reporting on the levels of greenhouse gasses emissions in South Africa. It represents a major step forwards in our efforts to promote sustainable development, and is yet another indication of the strong commitment of most businesses in South Africa to responsible environmental practices.” One of the first tasks of the new partnership will be the drafting of national guidelines for the collection and management of emission data.

“At the World Summit on Sustainable Development, South Africa led the way in highlighting the ‘Triple Bottom Line’ of business – economic, social, and environmental concerns,” said Mr. Motsepe, “This



Minister van Schalkwyk and Patrice Motsepe signing the MOU on the development of a sustainable greenhouse gas inventory for South Africa.



Joanne Yawitch, DEAT Deputy Director General, Pam Yako, DEAT Director General, Minister Van Schalkwyk, Patrice Motsepe and Laurraine Lotter, Chemical and Allied Industries Association

agreement gives further content to that approach. BUSA understands the importance of economic growth that does not mortgage our future for the sake of short-term profit, and we will work with Government to ensure that we address the challenges of climate change together.” Mr Motsepe also referred to the increasing number of South African companies, that are exploring the investment opportunities presented by the Clean Development Mechanism, and emphasized the need for accurate greenhouse gasses data at corporate level. Speaking about the importance of an accurate inventory of emissions, Minister Van Schalkwyk added:

“Our policy and investment decisions to address climate change must be based on the most accurate information possible, and this partnership will help us to achieve that goal. It will also provide a base from which we can map out future actions needed to address climate change. We hope to extend this partnership with business to other interventions – especially those which will help our rural and agricultural communities adapt to the impacts of climate change through the diversification of the rural economy.”

SIDE EVENTS: 18 OCTOBER 2005

Legal Issues Relating to the Implementation of Climate Change Policies in SA and the International Climate Change Regime

Organised by Baker & McKenzie and the Institute of Development Studies (UK), this seminar includes presentations and open dialogue on: legal issues around implementation of climate change policies in South Africa, including the Clean Development Mechanism; the legal basis and options for a post 2012 framework, including supplementing the Kyoto Protocol; and the legal Status of CERs under the CDM after 2012 and contractual issues of relevance to project developers and investors looking to enter into sale and purchase agreements for carbon credits. This seminar is one of a series being held under the CCLaw Assist Program.

Venue: Gallagher 3

Time: 09h30-12h30

For more information: Julie Middleton 082 546 0260

Website: <http://www.basic-project.net>

The Urgent Need for Energy Rationing

Organised by the EcoCity Trust, this side event features Richard Douthwaite, an internationally acclaimed author and economist, currently visiting South Africa. Richard will be discussing the issue of peaks in oil and gas production and the effect of this on energy prices. He will also speak about the opportunities for addressing climate change in light of current prices, including the potential for an international system of energy rationing, which would be a step towards slowing climate change. Equally important, a system of energy rationing would ensure that the wealthy did not continue to use the unlimited supplies of energy at the expense of the poor.

Venue: Gallagher 3

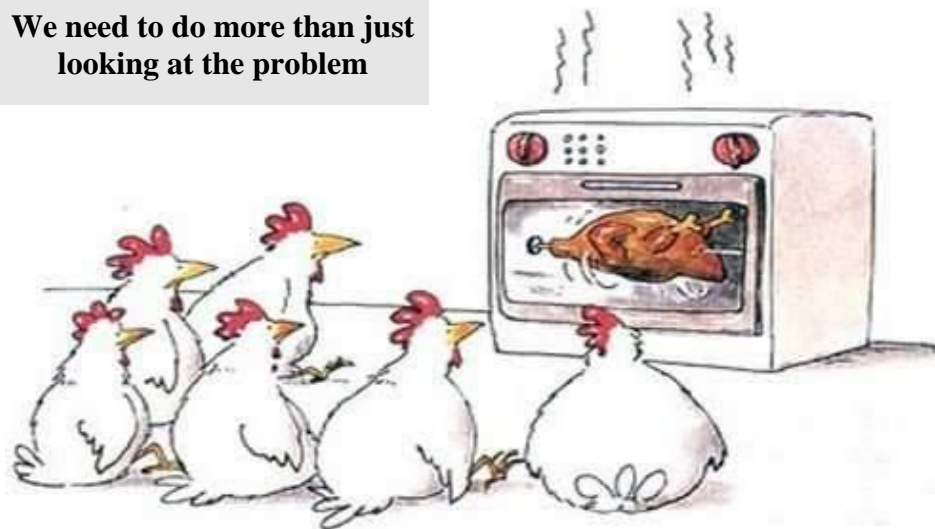
Time: 19h00-21h00 (refreshments from 18h30)

For more information: Jodi-Anne Williams on 083 9448726 or visit the SACAN stand in the exhibition hall

Website: <http://www.earthlife.org/sacan>

We need to do more than just looking at the problem

CONFERENCE HUMOUR



Adapted from the presentation of Roland Schulze

Climate Change Science in Africa: Tuesday Programme		
Session 4 Chair: Dr Luanne Otter (University of the Witwatersrand)		Ecosystem impacts – I.
09:00	Prof John Reynolds, University of East Anglia / Simon Fraser University, Canada	Marine ecosystems and fish under climate change
09:20	Dr David Obura, CORDIO, Kenya	Climate change and African tropical coral reefs
9.40	Prof Steven Chown, Stellenbosch University, South Africa	Biodiversity responses in the Southern Ocean African islands
10:00	Questions and open discussion: implications for natural resource management and ecosystem services	
10:30	Tea / coffee	
Session 5 Chair: Mr Saliem Fakir (IUCN-S Africa)		Ecosystem impacts – II.
11.00	Dr Tiba Kabanda, University of Venda	Droughts in South Africa are becoming longer, more intense and more frequent: is it a boost from climate change?
11:20	Dr Pam Berry, Oxford University & Dr Richard Pearson, American Museum of Natural History	Species migration under climate change
11:40	Dr Guy Midgley, Mr Barney Kgope, Dr Nthabiseng Motete* & Mr Brian Mantlana, South African National Biodiversity Institute	Modelling and experimental approaches to quantifying species responses (*Currently at DEAT)
12.00	Ms Wendy Foden, South African National Biodiversity Institute	Detecting and monitoring climate change impacts in arid ecosystems
12:20	Questions and open discussion: implications for natural resource management and ecosystem services	
13:00	Lunch	
Session 6 Chair: Prof Brian Huntley (SANBI)		Ecosystem impacts – III.
14:00	Prof David Thomas, Oxford University, UK	Climate change impacts on southern African landscapes in the 21st Century
14:20	Prof William Bond, University of Cape Town, S Africa, & Mr Barney Kgope, SANBI	CO ₂ , fire and African ecosystems
14:40	Prof Chris Thomas, University of York, UK	Climate change and extinction risk of African terrestrial biodiversity
15:00	Prof Norman Owen-Smith, Univ. of the Witwatersrand, S Africa	African mammal population responses and extinction risk (tbc)
15:20	Dr Jane Olwoch, University of Pretoria	Climate change, ticks, and tick-borne diseases in Africa
15:40	Questions and open discussion: implications for natural resource management and ecosystem services	
16:150	Tea	
Session 7 Chair Dr James Murombedzi (IUCN-ROSA) Global change professional capacity & networks		
16.45	Mr Graham von Maltitz, CSIR Environmentek, South Africa	Strategic research and professional capacity: AIACC
17.05	Dr Luanne Otter, University of the Witwatersrand and PACOM/START	Strategic research and professional capacity: the START network
17.25	Profs Paul Desanker & Michael Adewumi, AE-SEDA, Pennsylvania State University	Strategic research and professional networks: AESEDA (tbc)
17.45	Mr Martin Hendricks & Prof Mark Gibbons, University of the Western Cape, & Prof John Lambshead, Natural History Museum, London	Professional capacity building through bilateral engagement: the NRF/Royal Society experiences
18.05	Facilitated discussion - Priorities for capacity and research integration on the African continent (L Otter or C Vogel and P Barnard)	
18:30	Session adjourns	
19:00	Evening events	
19:00-21:00	Bruce Hewitson, Roland Schulze, Amadou Gaye (co-facilitators)	Interactive Workshop: Data resources for regional climate change analyses

Consultative Conference: Tuesday Programme		
08:00-11:00 : Arrival and Registration		
Session 1 : Chair, Pam Yako, DEAT Director General		
Formal Opening		
11:00	Delegates start to take up seats	
	Chair	Welcome
11:30	Minister of Environmental Affairs and Tourism M van Schalkwyk	Opening and Introduction of Deputy President
11:45	Deputy President of South Africa Phumzile Mlambo-Ngcuka	Keynote Address
12:15	Break for lunch	
12.15	Light Lunch	
Session 2 : Chair		
13:00	Coordinator of the Implementation Programme, UNFCCC, Mr Feng Gao	Perspectives on the Montreal Conference and beyond
13:20	Canadian Climate Change Ambassador Bilodeau	COP11/MOP1 Montreal
13:40	Mr Valli Moosa (Eskom Chair)	What kind of action can South Africa take to mitigate climate change?
Session 3: Chair Dhesigen Naidoo Department of Science and Technology		
Why are we worried? What are we doing?- International Dimensions		
14h00	Minister of Water Affairs and Forestry Keynote Buyelwa Patience Sonjica	Impacts of climate change on water resources and how we can adapt to them?
14.20	Minister of Agriculture and Land Affairs Thoko Didiza	
14.50	Dr Niklas Hoehne	Quantifying future emissions paths – what is needed from whom to keep stabilisation in reach?
15:10	Dr Richard Douthwaite	Financial implications, global equity and oil wars
15:30	Tea	
16.00	Dr Bill Hare	Scenarios
16:20	Prof Bruce Hewitson	International Panel on Climate Change Working Group 1 scenarios
Session 5: Chair: Marjorie Pyoos Department of Science and Technology		
Climate Change Impacts – Vulnerability, Mitigation & Adaptation		
16:40	Prof Colleen Vogel	Disasters – social impacts and implications
17:20	Harald Winkler	SA Emissions profile, and challenges of mitigation in SA
17:40	Dr Emma Archer & Dr Scott Drimie	Food Security

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Protecting the Environment • Growing Tourism
Special Edition • National Climate Change Conference 17 - 20 October 2005

Wednesday 19 October 2005 Issue 3

Daily Journal of the National Climate Change Confer-

NATIONAL CLIMATE CHANGE CONFERENCE HIGHLIGHTS, TUESDAY, 17 OCTOBER

The National Consultative Conference on Climate Change opened on Tuesday morning, with a keynote address by the Deputy President of South Africa, and an address by the Minister of Environmental Affairs and Tourism. During the day, participants also heard addresses from the Minister's of Water Affairs and Forestry and Agriculture and Land Affairs. Participants to the Climate Change Science in Africa Conference continued their deliberations, focusing on ecosystem impacts and global change professional capacity and networks. Several side events were held throughout the day.

HIGH-LEVEL HIGHLIGHTS OPENING ADDRESS

In his opening address, the Minister of Environmental Affairs and Tourism, Marthinus van Schalkwyk, described the seemingly unrelated incidents of children caught in extreme weather events from hurricane Katrina in New Orleans to mudslides in El Salvador, citing as a global truth that "no nation, no community, and no person can rest assured of their security." He observed the significance of the Conference discussions on appropriate responses for South Africa, cited the National Climate Change Response Strategy and expressed hope that the Conference outcomes will lay the foundation for future National Action Plans. He referred to the cost of recovering from hurricane Katrina, as well as the plight of Tuvalu, one of the countries that will be most affected by climate change, yet is least able to adapt or prepare, with a total GDP which is 17 000 times less than the costs to the US of Katrina's devastation.

Identifying South Africa as one of the countries least able to afford the risks posed by climate change, he underscored that a global commitment and mechanisms to provide new and additional finance, capacity and technology to assist affected countries and populations to cope with the consequences of climate change was needed. He highlighted that the first Meeting of Parties to the Kyoto Protocol will be held in November of this year, that post 2012 commitments will be on the agenda, and that developing countries like Brazil, China, India and South Africa must acknowledge their duty to do more on climate change, and that this conference should be used to reflect on what kind of policies and measures

are practical, affordable, and consistent with our development path. The Minister stated that South Africa stands ready to decarbonise its development provided developed countries commit to taking the lead on deeper emission reductions, new and additional financial support, improved technology transfer and capacity building. He emphasised, however, that on the international level, South Africa will shift the current bias from a focus primarily on mitigation, to one which gives substantial content and resources to adaptation measures, and that future commitment for developing countries must "map out a proactive, sustainable and equitable growth path which meets our objectives to eradicate poverty while at the same addressing climate change."

The Minister said that the government has made a choice to be guided by science, and reiterated that it will not engage in futile academic debate with fringe scientists and climate sceptics. He further reaffirmed South Africa's commitment to the multilateral process, and stressed the need to build a more inclusive international regime to get the US and Australia on board. The Minister identified the Conference as a means of focusing government's and the private sector's efforts, citing Eskom's plans to reduce coal in South Africa's energy mix, and the need to use existing legislation, such as the new Air Quality Act in support of our climate change responses.

KEYNOTE ADDRESS

In her Keynote Address, the Deputy President, Phumzile Mlambo-Ngcuka opened by quoting Wangari Maathai, the first African woman Nobel Peace Prize Laureate, on the continued activities that devastate the environment and societies, and the shift in thinking required in order for humanity to stop threatening its life-support systems and to heal the wounds of the earth. The Deputy President lamented the worldwide pattern of natural misfortune on a massive scale revealed by newspaper headlines and graphic representation on television, noting that these problems require global responses and represents a challenge that no nation can ignore. She bemoaned that the plants and animals that our grandparents once knew are now only known to us through written accounts, citing the case of the Dodo which was pervasive in Mauritius, and the irony of the Queen Victoria decreeing that it should be protected only after it had already become extinct.

She also stated that one tenth of birds had become extinct over the past 1000 years, that two out of three of terrestrial species that exist today are projected to die out within decades, that changes in biodiversity due to human activities have been more rapid in the last 50 years than at any other time in history, and that over the last 100 years human caused species extinction has multiplied as much as 1000 times. Noting that in times of extreme events, poor people suffer the most, she stressed that we cannot any longer blame lack of info, and commended the people who have sounded that alarm bells from all spheres of society. She identified the challenge to developing communities by having to halt the negative impacts of climate change, and on the conference, she said that it was not solely about South Africa, but about all the people of the world. She added that the conference was not merely an exercise in academic dialogue, but that it is about putting into place an efficient programme to address the issues that face us.

While noting that South Africa, we have slightly less obligations under Kyoto than that of developed countries, She stated that South Africa must not abdicate responsibility, and that we will do more than we are required to do, mobilising the different sectors in our economy in order to do more. The Deputy President also stated that in developing a strategy for accelerated and sustained growth, the need exists to look at all the options available to us, so that the growth is not of a short term nature, and is aligned to the Millennium Development Goals. She stated that the strategies adopted by South Africa will be driven by poverty alleviation, job creation and environmental sustainability, and that the government looks forward to the outcomes of this conference to inform our actions taken.

She underscored the importance of the private sector in taking climate change action, and that it needs to not merely look at profits, but to look at the capacity of community and the planet to remain profitable, adding that the country's industrial strategy is also premised on these considerations She highlighted the role of tourism, saying that it cannot deliver to the people of South Africa without addressing sustainable development.

The Deputy President also addressed the challenges in undertaking Environmental Impact Assessment, and the challenges South Africa faces in its development path. She further noted the need to address decisively the human resource and capacity constraints in South Africa, warning that, "if we do not put the issue of skills upfront, we will not achieve development."

THE IMPACTS OF CLIMATE CHANGE ON WATER RESOURCES AND HOW WE CAN ADAPT TO THEM

In her Keynote Address, the Minister of Water Affairs and Forestry, Buyelwa Sonjica, stressed that climate change is an issue of the utmost seriousness, and that its effects will be felt by everyone all over the world. She noted that as with all hazards, those in soci-

ety with the least resources - the very young, the very old, the poor and the sick - will be the most vulnerable to these effects, and the least able to cope with and adapt to them. She emphasised that the Kyoto Protocol was devised precisely to ensure that the onus of addressing the causes of climate change was placed on those countries who were contributing the most to emissions of greenhouse gases. Noting that some industrialised countries refuse to ratify the Kyoto Protocol, she said it is difficult to escape the conclusion that they are more concerned about the effects on their own already wealthy economies, than they are about the potentially catastrophic effects on the developing countries of the world.

The Minister stressed that changes in the flow regimes of South Africa's rivers will necessitate that the country reviews and reassess the ways in which it operates dams, and presents quantifications of the Ecological Reserve. Regarding transboundary water management, she said South Africa will have to regularly review the details of water sharing agreements to match the new physical realities. She underscored that South Africans will have to learn to adapt to a climate that is already changing, and that will continue to change - possibly for 100 years. Emphasising that the fundamental requirements of South Africa's water policy is to achieve equity, sustainability and efficiency in water matters; she said there are things the country can do now, to build adaptation strategies into our normal work to accomplish these goals. The Minister highlighted the need to carefully examine the design and implementation of the water allocation reform programme to ensure that climate change considerations are taken into account. She also identified the need to study plans for existing and proposed water institutions, and to ensure that they are attuned to the needs of the poor, and able to assist them to meet their needs. She underscored the importance for all water institutions to be in a position to provide sufficient information to create awareness of the implications of climate change among stakeholders and customers.

CLIMATE CHANGE, FOOD SECURITY AND AGRICULTURE

In her address, the Minister of Agriculture and Land Affairs, Thoko Didiza, emphasised that extreme climate events adversely affect land use planning, levels of agricultural yield, cost of production, sowing and harvesting, irrigation needs, transport, storage, pests and diseases, marketing, farm management, food security and many other socio-economic indicators. Noting that food security is linked to the prevailing climate, she said any long or short term changes are paramount to our ability to feed the nation with high quality affordable and staple foods. She stressed that such realities should be part of our decisions making processes and strategic interventions when existing and new research and development projects are evaluated. The Minister said that increased droughts in combination with higher temperatures could have a serious impact on the availability of food and stressed that the impacts of droughts extend

beyond food shortages and will negatively affect the national economy and reduce the country's ability to export crops and generate foreign currency. She underscored the importance of adaptation policies that focus on providing stable conditions and support for making the livelihood assets of poor communities more resilient to climate change through resource accessibility and policy reforms. The Minister noted that the Department of Agriculture places an emphasis on prevention, adaptation and mitigations strategies that include: supporting risk management initiatives; researching large scale epidemics and hazards; and providing information to farmers on markets and climate. She stressed that the Department would ensure that four elements of early warning systems are successfully met, namely: prior risk knowledge; monitoring and warning services; dissemination of warnings/information; and response capacity.

NATIONAL CONSULTATIVE CONFERENCE HIGHLIGHTS, TUESDAY, 17 OCTOBER

SESSION 2:

This session was chaired by Joanne Yawitch, Department of Environmental Affairs and Tourism.

Perspectives on the Montreal Conference and Beyond: In his presentation, Feng Gao, Coordinator of the UNFCCC Implementation Programme, noted with concern that concentrations of greenhouse gases are 33% higher today, than before the industrial revolution. He said that many of the effects of climate change can be seen today and that there are many more to come. He affirmed that with the entry into force of the Kyoto Protocol, 30 countries are now legally bound by the limits set in terms of the Protocol. He noted that the price per unit of greenhouse gas emission has increased by about 5 times.

He identified six areas in need of hard work to make achievements: implementing the Marrakech Accords; adopting compliance procedures and electing member for the Compliance Committee; launching of CDM projects to respond in the most effective way to the needs of developing countries; implementing the Buenos Aires Plan of Action on adaptation; strengthening financial support for the most vulnerable countries; and moving forward on the how to implement Protocol Article 3.9, which calls for negotiation on the Protocol's second commitment period. He also noted that COP-11 will discuss issues relating to financial support for developing countries.

Perspectives on the Montreal Conference: In his presentation, Ambassador Bilodeau, Canada's Climate Change Ambassador, said Canada has undertaken a global consultation process to ensure a successful meeting, which has comprised of discussions among more than 140 developed and developing countries, and

the hosting of a Preparatory Ministerial meeting in Ottawa involving representatives from 38 countries. He emphasized the following listed as desirable outcomes for COP/MOP-1: successful implementation of the Kyoto Protocol; strengthening the Protocol and UNFCCC; and launching of a process to set the direction for a global approach post-2012. He noted the need to improve the Clean Development Mechanism (CDM) by streamlining the approval process, providing professional oversight, and stable funding. He also indicated that the Canadian Government will purchase carbon credits to offset the emission at the conference.

What Kind of Action can South Africa take to Mitigate Climate Change? In his address, Mohamed Valli Moosa, Chairman of Eskom, stressed that climate change is a major challenge both globally and nationally, and must feature prominently in the agendas of government, civil society and business. He said the UNFCCC and government policies and strategies provide a framework under which we can all collectively identify what can be done to integrate climate change issues in our day to day activities, as well as to ensure that it forms part of our future actions. He underscored that Eskom was committed to investigating and evaluation options for the diversification of the energy mix, with, amongst other, opportunities to deploy renewable energies. He reaffirmed Eskom's stated aspiration of reducing the percentage of coal for electricity generation by 10% by 2012 and even further reductions beyond that. He stressed that Eskom was committed to redoubling efforts in finding solutions to climate change challenges, and assured the Conference that Eskom would exceed any policy and regulation established by government.

SESSION 3: WHY ARE WE WORRIED? WHAT ARE WE DOING?- INTERNATIONAL DIMENSIONS

This session was chaired by Dhesigan Naidoo, Department of Science and Technology.

Quantifying Future Emissions Paths-What is needed from whom to keep Stabilisation in Reach? In his presentation, Niklas Höhne, Ecofys (Germany), noted that CO₂ concentration levels have increased from 280ppm in pre-industrial times to 360ppm today, and emissions, and hence temperatures must urgently be stabilised. He said that business as usual will push temperatures over the 2°C limit of dangerous climate change. He added that global emissions have to peak and decline before 2020 to stay below 450 ppm. He outlined three international climate policy approaches proposed for post-2012 emissions allowances: contraction and convergence; multistage, where countries graduate from 'no target' to 'sustainable development policies and measures' to 'moderate reductions' to 'full reduction' regimes; and Triptych, a multi-sectoral approach involving industry, energy, waste, and domestic targets. He illustrated that South Africa has higher per capita

and per GDP emissions than the global average, but that they are still lower than industrialised countries. He further underlined that the effect of delay of action significantly increases the effort to achieve the same environmental goal.

Financial Implications, Global Equity and Oil Wars: In his presentation, Dr Richard Douthwaite asserted that the world's supply of oil and gas was about to contract, and that this would reduce emissions in exactly the way that was required to limit climate change. He said that from 2015 onwards, the energy available to the world from the two fuels would begin to fall by about 3% a year and emissions would fall as a result unless dirtier sources of energy such as coal were developed as replacements. He noted that if there was a fall in total energy availability, world economic growth would be impossible unless energy efficiency improved, that the world economy was likely to contract. He suggested a new way of putting money into circulation, that governments should spend money into circulation rather than allowing the banks to lend it into use. He said that this would make their economies much more stable and controllable. He proposed that a new form of money, the EBCU, or emissions-backed currency unit, was needed for international trade, to prevent the US and the other issuers of reserve currencies from being able to buy greenhouse gas emissions permits at a discount.

Intergovernmental Panel on Climate Change Working Group 1 Scenarios: In his presentation, Bruce Hewitson, University of Cape Town, identified the key chapters in the IPCC's fourth assessment report (AR4). He described the AR4 model archive as a unique and unprecedented development, with 20 Global Circulation Models archived and made available to scientists, and simulations of the 19th, 20th and 21st century, which allow for an assessment of changes from the pre-industrial to the present into the future. He explored scenarios on temperature, rainfall and precipitation, and emphasised that though models don't necessarily seem to agree, they merely don't agree on the boundaries and that where they do agree, the degree of accuracy may be the greater. He invited participants to register on the IPCC (www.ipcc.ch) website in order to review the draft report.

SESSION 5: CLIMATE CHANGE IMPACTS-VULNERABILITY, MITIGATION AND ADAPTATION

This session was chaired by Marjorie Pyoos, Department of Science and Technology.

Disasters - Social Impacts and Implications: In her presentation, Colleen Vogel, Climatology Research Group (South Africa) underscored the connections and links between climate change, climate variability and disaster risk, and noted that there are multiple agents dealing with these problems related to climate change (Oxfam, Save the Children, World Food Programme). She underscored the need for the varied organisations working on disasters to find a common plat-

form to work on the same problems. She explored the roles of disaster risk management, early warning systems, vulnerability science, sustainable rural livelihoods, and the modelling and mapping of vulnerability. She stated the need to go beyond traditional approaches to disaster risk management and approach adaptation on multi-disciplinary levels. She also explored the effective adaptation to climate risks and the challenges of taking action.

Climate Change Mitigation in South Africa: Challenges and Opportunities: In his presentation, Harald Winkler, Energy Research Centre (South Africa) outlined the key sources of emissions in South Africa, noting that the energy sector contributed 80% of greenhouse gas emissions, while supply, Eskom and Sasol, on its own contributes 45%. He said the challenge of mitigation in South Africa is an energy question, and emphasised that there was 'no question' that the fuel mix will have to change if South Africa is to take some responsibility for mitigation. He said South Africa contributes 1-1.5% of global emissions and that the country's share of annual energy CO₂ emissions is more than 50% higher than for historical cumulative CO₂ emissions with LULUCF.

He said that climate impacts that will affect South Africa depend more on the emissions of others than on our own, but cautioned that if do not act, others are unlikely to act either. He noted that in terms of an international comparison, South Africa contributes more than its fair share to the problem. Underscoring the challenge, he said the scientific evidence justifies action now, to avoid deeper cuts later, and suggested that the opportunity exists for South Africa to play a proactive bridge-building role, rather than having a commitment imposed on us in the future.

Food Security: In her presentation, Emma Archer, University of Witwatersrand, asserted that there is a decreased dependence on agriculture for food supply, and that the need existed for a more sophisticated notion of food security. She also noted that food security is about 'access to food' rather than the 'availability of food' and that there are potentially clashing perspectives in current thinking about it, explaining that "quantified food shortfalls" is more accessible to decision makers as opposed to "characterising food access at the sub-national level." Emphasising that climate change is about more than impacts on maize production, she proposed going "beyond the maize" with a more comprehensive view on food security characterised by: "clear implications for thinking about climate change impacts, adaptation and vulnerability with regard to food security"; and "thinking outside of traditional comfort zones of sectors, methodologies and conventional partner institutions."

HIGHLIGHTS:
CLIMATE CHANGE SCIENCE IN AFRICA CON-
FERENCE TUESDAY, 17 OCTOBER

SESSION 4: ECOSYSTEM IMPACTS

This session was chaired by Roland Schulz, University of KwaZulu-Natal.

Marine Ecosystems and Fish under Climate Change: In his presentation, John Reynolds, University of East Anglia (United Kingdom) explored the potential impacts of climate change on fisheries, and fisheries-dependent communities. Regarding the vulnerability of African fisheries, he said that West and Central Africa exhibit a high exposure and dependency, and a low adaptive capacity. For South Africa, he said the country indicated a moderate exposure, with low dependency and adaptive capacity. He noted that African fisheries are among 12 of the top 15 most vulnerability fisheries. He underscored the need for better data on sea temperature, finer scale data at the national level, and addressing the uncertainties regarding ocean temperature, currents and upwellings. Regarding possible policy recommendations for inland fisheries, he emphasised the need to ensure that biodiversity and fisheries are integrated into freshwater management. On marine fisheries, he proposed a focus on small scale livelihoods, noted the importance of large scale networks of marine protected areas as an integral part of marine management, and suggested that negotiations on foreign access agreements consider the future value of fisheries.

Climate Change and African Tropical Coral Reefs: In his presentation, David Obura, Coral Reef Degradation of the Indian Ocean (Kenya) said the first major regional signal regarding the impacts of climate change on coral reefs was the 1982-83 ENSO in the eastern Pacific, while the 1997-98 ENSO provided the first major global signal of change. He identified the major impacts on coral reefs as changes in ocean current and processes, increased sea surface temperature and solar radiation, sea level rise, and the acidification of sea water. He said that coral bleaching affects the whole reef ecosystem, as well as related ecosystem services, and noted that 10% of the world's coral reefs have already been impacted by climate change. He underscored that the loss of coral cover results in a loss of livelihoods for reef communities. Regarding the vulnerability of African reefs, he noted that by 2015 catastrophic bleaching would take place every 5 years in East Africa. Regarding policy options and actions, he emphasised the need for local responses and management, and monitoring and research, including climate vulnerability studies.

Biodiversity Responses in the Southern Ocean African Islands: In his presentation, Steven Chown, University of Stellenbosch (South Africa), stressed the effects of climate change on interactions between indigenous and invasive species. He said that invasive species grow faster under warmer conditions

than indigenous species. He also said that climate change was already 'promoting' invasive species over indigenous species. He also noted that the interaction between biological invasions and climate change has not been sufficiently addressed.

Discussion: In the discussion, a participant enquired whether the ceiling temperature of heat tolerant coral species was known, and if so, when that temperature is expected to be reached. In response, David Obura stated that these threshold values are not known, as they are determined in retrospect, but that the current threshold would be exceeded. Stephen Chown outlined the high conservation status of the Prince Edward Islands. He continued to say that the management plan for the islands is under revision, introducing more stringent rules regarding the transport of people and goods to the island. He responded to the question regarding the role of scientists and government further by mentioning the management agency allowing for space for eradication of invasive species. In a question to all three presenters, the possibility of looking at impacts in relation to fixed oceanic fronts was raised. John Reynolds answered that no studies have been undertaken as of yet, whereas as Stephen Chown responded that ocean-atmosphere coupling programme exists with regards to sea fronts and the parameterisation and impacts of sea fronts. A delegate asked the presenters how they would differentiate between climate change and natural variability. John Reynolds replied that the speed at which changes are occurring does not allow species time to adapt and change. In addition to this he stated that the rate of warming is much faster than evidence from records. David Obura added that large-scale ocean-atmosphere interactions and warming of sea surface temperatures are a consensus amongst ocean-atmosphere scientists. Stephen Chown also pointed out that colonisation through human interaction is $\frac{3}{4}$ higher than natural colonization from South America. David Obura confirmed the uniqueness of the Indian Ocean, as it doesn't fully extend north and south, and is only affected by the El Niño phenomenon. A participant enquired about the direct impact of increased tourism to Antarctica and its impact on large mammals out to sea. Steven Chown responded by assuring the audience that tour ships do not pass Marion Island, and the acoustic soundings used have very little effect on large mammals, although extensive studies have not taken place. He also raised the point that there is an active interaction with all countries interested in Antarctica, and organisations managing tourism. John Reynolds was asked to expand on what he meant by adaptive capacity specifically in an African context. He replied that in developed countries it is possible for people to switch to another livelihood, whereas in developing nations, often their occupation of fishing is out of necessity and will starve without it. Governments of developed countries may buy them out of their business and train them for another occupation. Seasonal fishing is carried out on a part-time basis for farm-

ers or undertaken by migrants, which makes parameterisation difficult.

SESSION 5: ECOSYSTEM IMPACTS

This session was chaired by Saliem Fakir, IUCN-South Africa.

Droughts in South Africa are becoming Longer, More Intense and More Frequent: Is it a boost from Climate Change? In his presentation, Tiba Kabanda, University of Venda (South Africa), provided a case study of droughts in the Limpopo Province in South Africa between 1960 and 1999. He pointed out an increase in rainfall from 1960 to 1980's, followed by a negative trend up until 2000. Using the case study, he illustrated the evolution of spatial patterns of drought as well as changes in intensity. He suggested that increases in the distribution and intensity of drought could be attributed to an increase in sea surface temperatures in the Indian Ocean, therefore decreasing the amount of moisture affected inland, which would normally provide this semi-arid region with rainfall. In addition to this, ENSO and QBO events may disturb the rain-producing systems in the area.

Species Migration under Climate Change:

This presentation was co-authored by Pam Berry, Oxford University and Richard Pearson, American Museum of Natural History. In his presentation, Richard Pearson said fossil evidence illustrates large-scale species shifts, indicating that migration is one of the key responses to climate change; however, he said these changes are occurring more rapidly and can be due to a climate change signal. He highlighted the consensus in the scientific community of a poleward shift however; he said difficulties lie in projecting present climate situations for the future as well as the parameterisation of models. He stressed the importance of providing suitable climate space for species to shift, but said these shifts will be species dependent, and may result in global species extinction. He stressed the importance of clustering small reserves to ensure species homogeneity and dispersal, as well as providing dispersal corridors. He also highlighted the importance of decisions regarding conservation policies in protected areas.

Modelling and Experimental Approaches to Quantifying Species Responses: This presentation was co-authored by Guy Midgley, Barney Kgope, Nthabiseng Motete and Brian Mantlana (South African National Biodiversity Institute). In his presentation, Guy Midgley identified two approaches for assessing how plants species respond to climate change: passive responses which address species geographic range responses to climate change; and active responses which address the effects of species responses on system processes/functioning, and other species. He presented research findings on range responses from the Protea Atlas Databases, highlighting how species fit into the passive and active response frameworks. In concluding he noted that deductions from evolutionary history, early modelling work and experi-

mental trials suggest appreciable vulnerability of endemic plant diversity to climate change. He said that some species are likely to benefit, mostly invasive alien species, and stressed the need to develop a better mechanistic understanding of bioclimatic approaches. He also suggested that important system responses are mediated by species responses, which can either accelerate or counteract climate change impacts.

Detecting and Monitoring Climate Change Impacts in Arid Ecosystems: This presentation was co-authored by Guy Midgley, Greg Hughes, William Bond, Wilfried Thuiller, Timm Hoffman, Prince Kaleme, Tony Rebelo and Lee Hannah. In her presentation, Wendy Foden, South African National Biodiversity Institute, presented the major findings of SANBI research on the Kokerbome or quiver tree. She noted that there is large scale dieback of kokerboom at the equatorward and low altitude parts of its range and an increase in abundance of kokerboom at poleward and high altitude parts of its range. This is a clear sign of the early stages of a poleward range shift in response to climate change. She also showed that significant increases in temperature have been experienced in Namibia and the northern Cape over the last 24 years, with a mean temperature increase of 0.2 degrees per decade in the region, showing a clear relationship between the declining soil water availability and kokerboom mortality. This study of the kokerboom provides a unique opportunity to ground truth conventionally climate change models. Comparison between actual and modelled kokerboom mortality shows that modelled mortality is fairly conservative and does not overestimate the threat from climate change.

She expressed concern over the absence of signs of new populations and recruitment, as this would be expected in response to climate change. She concluded that sedentary, slow dispersing species like plants may not be able to disperse fast enough to keep up with climate change. This has important implications for ecosystems throughout the world and may have serious implications both for further modelling as well as for future global biodiversity. Finally, she suggested that, contrary to popular belief, desert ecosystems are not well prepared for global warming as the species within them may already be at the limits of their climatic tolerance. This study is one of the first to examine climate change impacts in Africa, and the first to examine the entire range of a sedentary desert species.

Discussion: In the discussion participants addressed questions of clarification regarding the use of soil characteristics in developing scenarios for species migration, patterns and trends related to recruitment, and the need to delineate the direct and indirect impacts of climate change on plant species. One participant highlighted the need to consider species migration together with species adaptation and extinction. Guy Midgley noted that in some cases relying on natural adaptation may not be sufficient. In response to a question about the

South Africa's preparedness to track and monitor species movements, presenters stressed the importance of a more dense approach to monitoring, the need to engage the public in species monitoring, particularly on the ground monitoring, and the urgency of assessing the threat of climate change on individual species.

SESSION 6: ECOSYSTEM IMPACTS

This session was chaired by Brian Huntley, SANBI.

Climate Change Impacts on southern Africa in the 21st Century: In his presentation, David Thomas, Oxford University (United Kingdom), focused on landscape dynamics, particularly high sediment dynamics at times of climate change. He said that soft unconsolidated sediment, as found in the Kalahari, are particularly sensitive to climate changes. He said that moderate Global Climate Models indicate a significant possibility of activity, but noted that vegetation responses may be enhanced in response to enhanced CO₂ and moisture reduction.

CO₂, Fire, and African Ecosystems: In his presentation, William Bond, University of Cape Town (South Africa), said that the normal trend of vegetation coupled with climate does not apply to a South African context, as there are areas with the same soils and climate, yet different vegetation. Without fire, he said, there would be a massive increase in woody biomass with increased rainfall. He underscored that in an environment with high CO₂ levels, saplings that survive burns, tend to grow faster to avoid fire. He highlighted that fire and herbivores are the main culprits of low tree cover in African grasslands and savannah. He said the effects of global change are indirect where CO₂ favours tree growth over grasses. In addition to this, he posed the question of climate feedback systems, especially in relation to changes in albedo, socio-economic costs, burning regulations and fire policy, as well as other factors that contribute towards plant growth.

Climate Change and Extinction Risk of Terrestrial Biodiversity: In his presentation, Chris Thomas, University of York (US), stated that "climate change will not affect us and come at a vague time in the future, but that it has happened and is happening." He said that changes in species distribution will be limited by factors other than climate. He noted that some species are at risk of extinction as they have no climatically suitable areas left, while others are proportionately at risk as some of the species decline and others find areas where they can exist. He also raised concerns over conservation strategies, where solutions lie in the expansion of national parks, and said the movement of species and the effects of other species, as well as the preservation of natural and semi-natural areas, need to be taken into consideration in conservation planning as well.

Population Declines by African Large Herbivores: Disentangling the Causes: In his presentation, Norman Owen-Smith, University of the Witwatersrand

(South Africa), underscored the statistical relationship between seasonal rainfall and herbivore population density, noting the significant relationship between low rainfall and population declines. He said that population changes rarely result in single causes, noted that the challenge is to separate climatic influence from other factors, and stressed that the loss in functional heterogeneity in the system raised the vulnerability of species to climatic variability.

Climate Change, Ticks and Tick-borne Diseases in Africa: In her presentation, Jane Olwoch, University of Pretoria (South Africa), welcomed the Conference as an important opportunity to take necessary the steps to address the impact of current decisions on future generations. Noting that ticks infect over 600 million cattle world wide, she underscored the lack of focus on climate related-diseases, and said it would be unfortunate to ignore the impacts and increases of tick-borne diseases. Presenting her research outcomes, she noted that among the 30 species researched, more than 50% expanded in ranges, with 70% of the expansion impacting negatively on economic activity. She also said that a warmer climate favours expansion of tick ranges, which will lead to an increased prevalence of tick-related diseases on domestic animals. She called for further interdisciplinary cooperation, increased country specific research, the regulation of cattle ranching, and the need more funds for more studies on climate change.

Discussion: In the discussion, participants discussed the merits of carbon sinks, with one participant suggesting that biological carbon sequestration 'is a non starter.' Another participant expressed concern that there is little knowledge in the medical profession on the impact of tick-related diseases in humans.

SESSION 7: GLOBAL CHANGE PROFESSIONAL CAPACITY AND NETWORKS

This session was chaired by James Murombedzi, IUCN-ROSA.

Strategic Research and Professional Capacity: AIACC: In his presentation, Graham von Maltitz, CSIR (South Africa), introduced the Assessment of Impacts and Adaptations to Climate Change (AIACC) project as a strategy that has allowed for a global collaboration with specific objectives, including building scientific and technology capacity, and taking scientific understanding of impacts and adaptations back to policy of the environment. He said the project's predominate focus is on agriculture/food security, water resources, land use, rural livelihoods, coastal zones, biodiversity, aquatic ecosystems, fisheries, human health, extreme events and tourism. He noted that the project promotes an advanced understanding of vulnerability, integrated assessment modelling, food security, capacity building, increasing the number of post-graduate students, and a strong relationship with stakeholders in promoting awareness of climate change and adaptation.

Strategic Research and Professional Capacity: the START Network: In her presentation, Luanne Otter, Climatology Research Group (South Africa), introduced START as a programme that fosters regional networks, capacity building, regional global change and developing regions. She highlighted the importance of allowing interaction between developed and developing countries, as well as supporting young scientists through conferences and publications which allows them to voice 'fresh ideas.' She also outlined the proposed African Network on Global Environmental Change, an African-wide network to integrate different scientific perspectives and allow African scientists to present their views to policy makers. Despite language barriers dividing scientific work, she emphasised the necessity of developing one speaking voice for Africa on global change to policy makers. She proposed a resolution that consisted of a structural network that included an active dialogue between science, society and policy, relying on both internal and external funding from developing countries and organisations. She said the network could focus on key areas of interest such as land degradation, water, food security, aquatic ecosystems, health and biodiversity.

Strategic Research and Professional Networks: AESEDA: In his presentation, Bruce Hewitson, University of Cape Town, (South Africa) outlined the multidisciplinary approach of AESEDA. He said the network includes multiple international partners, and integrates various disciplines of social science, physical science and engineering. He emphasised the 'integrated synergistic power of joining disciplines together' in conjunction with partnerships to ensure that knowledge and experience remains in Africa, thereby reducing the "brain drain." He stressed the strategy was driven by African interests and knowledge, particularly societal needs. He underscored the importance of addressing the challenge to develop science professionals, preserve the knowledge in Africa, and provide links through knowledge distribution and possible links with other networks

Professional Capacity Building through Bilateral Engagement: the NRF/Royal Society Experience: In his presentation, Martin Hendricks, University of the Western Cape (South Africa), provided a brief introduction to the apartheid legacy of historically black universities in South Africa. He focused on how these institutions are working to increase their scientific capacity and resources, particularly through focusing on collaboration with foreign associates and supervisors, as well as attempts to create centres of excellence. He pointed out that even with international collaboration, the publication of peer-review papers and the attainment of independent funding there still remains a struggle to meet certain criteria to exist as a centre of excellence. **Discussion:** In the discussion, participants expressed positive feedback on how the session addressed different approaches to address capacity requirements. Several participants supported the notion of sponsoring students to study in de-

veloped countries, and stressed the importance of correct management and enthusiasm in the success of START projects was noted.

Facilitated Session: Following the conclusion of the session a facilitated discussion on priorities for capacity and research integration on the African continent, was held. Issues addressed in the discussion, included: a suggestion to build up skills for the next generation in Africa, particularly the need for a mass base of policy makers who are literate in scientific policy issues; the establishment of a multifunctional multidisciplinary team, so that trained scientists are able to deal with multiple issues and impart their knowledge onto others; and the need for a structure so that capacity building programmes can be implemented by a critical mass of scientists forming networks on an informal basis where connections are made rather than meetings merely being held.

SOUTH AFRICA'S DESIGNATED NATIONAL AUTHORITY

In order to participate in the Clean Development Mechanism developing countries are expected to establish a CDM agency known as Designated National Authority (DNA), whose role is to regulate CDM activities and promote CDM activities. As a secretariat, the DNA screens and approves CDM projects before they are submitted to the CDM Executive Board for registration as CDM projects. South Africa's DNA was established along these principles, and has been operating since December 2004. The DNA sits within the DME, and has a Steering Committee (DNA Steering Committee) drawn from different national departments (Minerals & Energy, Environmental Affairs & Tourism, Science & Technology, Trade & Industry, Foreign Affairs, Agriculture, and Health) acting as an advisory body. The DNA's vision is to lead in the development and promotion of CDM in the developing world. Its mission is to provide effective and efficient regulation of CDM activities in accordance with objective of UNFCCC and Kyoto Protocol. Its values are transparency, integrity, information sharing and promotion of sustainable development to regulate and promote CDM activities. To date, the DNA has received 4 project design documents of which one – the City of Cape Town's Kuyasa Low-Cost Housing Project in Khayelitsha – has recently been registered by the CDM Executive Board as the first CDM in Africa.

The DNA will be officially launched on Wednesday evening at a cocktail dinner at Gallagher Estate.

COVERAGE OF SIDE EVENTS

CCLaw Assist Side-Event (18 October)

Baker & McKenzie and the Institute of Development Studies (IDS) co-hosted a side-event looking at the

legal issues relating to the international climate change regime, implementation of mitigation options in South Africa and contracting issues for CDM. The side-event was held as part of CCLaw Assist, a program funded by the United Kingdom Foreign & Commonwealth Office seeking to support climate change law in developing countries, including South Africa, through the creation of a network of legal advisors working in the area of climate change. CCLaw Assist is being implemented by Baker & McKenzie and IDS. Farhana Yamin, Research Fellow at IDS (f.yamin@ids.ac.uk) presented on the legal basis and options for a negotiating mandate for the future climate change regime after 2012. Andrew Gilder, Director of Imbewu Enviro-Legal Specialists Pty Ltd (andrew@imbewu.co.za) examined the possible location of greenhouse gas mitigation measures within South African legislation. Paul Curnow, Senior Associate with Baker & McKenzie's Global Climate Change Practice (paul.curnow@bakernet.com) presented on the global carbon market and the legal issues around contracting for the sale and purchase of carbon credits. Copies of the presentations, and further information on the program, are available from the presenters directly.

INTERACTIVE WORKSHOPS: CLIMATE CHANGE SCIENCE IN AFRICA **19 OCTOBER 2005**

Parallel session 2: Interactive workshop: Compound Impacts of Invasive Species and Climate Change

Facilitators: Greg Masters and Guy Midgley

Invasive species and climate change are two of the most important factors affecting ecosystems, globally. But, such environmental threats do not act singly. Integrated synergistic environmental threats can be considered as "COMBINATION PUNCHES" on ecosystems. Of all possible combination punches, invasive alien species and climate change are possibly the most destructive. As already indicated at this Conference, there is growing concern about the links between climate change and invasive alien species. This workshop explores the potential relationships between invasive species and climate change. The work is based on a World Bank/ Global Invasive Species Report co-authored by Greg Masters and Guy Midgley.

Parallel Session: Global Change and the Challenges for Young Scientists

Facilitators: Barney Kgope (SANBI)

The purpose of this session is to stimulate a debate among young scientists in the presence and under the guidance of senior scientists working on global change research. The session aims to: stimulate a debate among your scientists about climate change and the challenges it poses to our generation; identify priorities where possible for future global change research; and to discuss the importance of interaction between young researchers, senior researchers and policy makers.

SIDE EVENTS

FUTURE FRAMEWORK TO ADDRESS CLIMATE CHANGE

Organised by the South African Climate Action Network this side event will discuss future frameworks to address climate change post-2012, including possible options for South Africa. The event will include presentations on the urgency of taking climate action, defining 'dangerous climate change' and determining what level of responsibility may be adequate, and options for the multilateral regime after the first commitment period of the Kyoto Protocol in 2012. The event will also include a presentation of the future framework proposed by the global Climate Action Network. Presenters include; Harald Winkler (Energy Research Centre), Alf Wills (DEAT); Jennifer Morgan (WWF-International) and Richard Worthington (SACAN).

Venue: Gallagher Estate

Time: 13h00-14h00

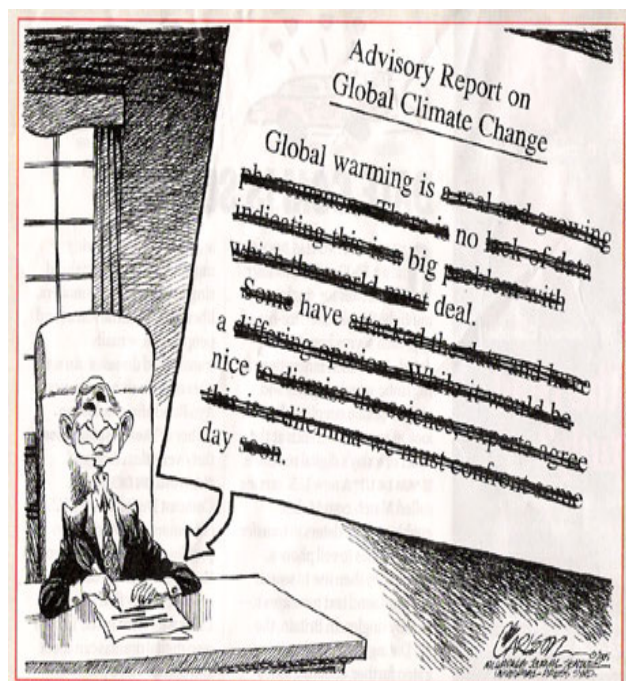
FROM VULNERABILITY TO ADAPTATION: EXPERIENCE FROM INDIA

Organised by the BASIC project, this presentation will briefly explore recent advances which have been made in the field of vulnerability and adaptation in India – as experienced by some of the leading researchers in this field. Speakers include:

D Parthasarthy (Indian Institute of Technology), Manmohan Kapshe and Maulana Azad (National Institute of Technology), Sumana Bhattacharya and Aditi Dass (Winrock International India), and Amit Garg (Risoe, Denmark)

Venue: Gallagher 2

Time: 12h45-14h00



**Climate Change Science in Africa
Day 3: Wednesday, 19 October**

Session 8 Chair: Mr Harald Winkler (Energy Research Centre, UCT) – Climate change mitigation strategies I.		
09:00	Monga Mehlwana, CSIR Environmentek	Energy technologies for climate change mitigation – what is appropriate for SA?
09:20	Shirene Rosenberg, South-SouthNorth	Building <i>local</i> sustainable development into climate change mitigation: The experience of the Kuyasa CDM project
09:40	Stanford Mwakasonda, Energy Research Centre, UCT	The importance of accurate GHG inventories as a basis for climate change mitigation
10:00	Dr Chen Ying, Chinese Academy of Social Sciences	Human development and climate change: Social science research indicating the minimum emissions required for basic human needs in China
10:20	Tea	
Session 9 Chair: Mr Harald Winkler (Energy Research Centre, UCT) – Climate change mitigation strategies II.		
10:50	Amit Garg (UNEP Risoe)	India's approach to climate change mitigation (tbc)
11:20	Prof Jacques Marcovitch, Universidade de Sao Paolo, Brazil	Innovative technologies from Brazil and the challenge for south-south cooperation
11:40	Dr Boni Mehlomakulu, DST	The science of the hydrogen economy
12:00:	Hareesh Haricharun, DME	Nuclear power as an energy option for South Africa
12:20	Questions and open discussion	
12:40	Plenary discussion of science meeting statement	
13:00	Lunch – Summary of the scientific implications	
14:00-17:30	<p>Parallel session 1:</p> <p>Interactive workshop: New Research from Emerging Scientists</p> <p>Facilitators: Barney Kgope (SANBI) and team [facilitated open discussion on key themes]</p>	<p>Parallel session 2:</p> <p>Interactive workshop: Compound Impacts of Invasive Species & Climate Change Project</p> <p>Facilitators: Guy Midgley, Greg Masters [planning meeting related to the proposed project]</p>
14:00-17:30	<p>Parallel session 3:</p> <p>Interactive workshop: Translating Science into Practical Public Policy</p> <p>Facilitator: Professor Andrew Watkinson, Univ. East Anglia/ Tyndall Centre for Climate Change Research</p>	
18:30	Reception hosted by the Minister of Minerals and Energy (Launch of Designated National Authority)	
19:00	Supper meeting of Task Team on Science Meeting statement	

Consultative Conference on Climate Change in Africa		
Day 3: Wednesday, 19 October		
Session 6: Chair Report Back from Science Conf		
08:15	Dr Guy Midgley (SANBI)	Report back from Science Conference
Session 7: Chair DME		Mitigation – key issues: Panel discussion: What can we do?
08:45	Cities for Climate Protection: Claire Janisch, Meluzi Nontangana (SEA)	What kind of action can South Africa take to mitigate climate change?
09:00	Prof. Mark van der Riet Fossil Fuel Foundation	Fossil Fuel Usage – present and future
09:15	Laurraine Lotter (BUSA / CAIA)	What kind of action can South Africa take to mitigate climate change?
09:30	ICLEI Roger Williams	Local government responses to climate change internationally.
09:45	Richard Worthington (NGO / SA-CAN)	What kind of action can South Africa take to mitigate climate change?
10:00	Tea	
10:30	Facilitated Discussion	Responses to Climate Change
13:00	Joint Lunch	
Session 8 : Chair: Prof Robin Barnard		Adaptation
14:00	Dr Gina Ziervogel	Community Based Agricultural Adaptation
14:20	Khamarunga Banda	Inter-linkages of Rural Dev. And Climate Change Policy in South Africa
15:00	Rhoda Louw, Lionel Louw, Jacobus Koopman	Climate Change Adaptation and Rooibos: Research in Action
15:20	Discussion	
15:45	Tea	
Session 9 : Chair Dr Crispian Olver		PANEL DISCUSSION: THE INTERNATIONAL CONTEXT
16:00	Henry Derwent (UK)	A G8 perspective
16:20	Alf Willis	What is needed to make the next round of negotiations effective – looking forward to Montreal
16:40	Farhana Yamin (IDS)	The CDM and strengthening a post-2012 climate regime
17:00	Jennifer Morgan WWF	Perspectives from an International NGO
17:20	Discussion	
18h00	Tea	
18h30	Department of Minerals & Energy Affairs	Launch of CDM Designated National Authority

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