The IPCC's Fifth Assessment Report:

What does it mean for Africa?

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

ipcc
INTERGOVERNMENTAL PANEL ON
climate change
WMO UNEP

CDKN

Contents

Executive Summary

Carbon emissions are disturbing the natural balance of the planet. Global mean temperature measurements indicate that we are on track for a hottest year on record with major energy uptake by the oceans. A multiplicity of indicators shows that there is a discernible impact on global warming through greenhouse gas emissions. Statistically, significant warming is found to have occurred around the world, and the 10 warmest years have occurred after 1997. Projected changes in temperature are, however, highly dependent on the representative concentration pathway used in the models: RCP8.5 (business as usual scenario) shows a more dramatic increase in temperature at the end of the century compared to RCP2.6 (intensive mitigation scenario). The same applies to sea level rise. Even with various mitigation options, the climate system is committed to warming in the future – this is due to the emissions that have already been baked in to the system. Climate change has a direct impact on natural disasters with drought/floods accounting for almost 50% of natural disasters in Africa. This latest IPCC report affirms that there has been an increase in frequency and intensity/severity in the occurrence of weather and climate extremes. In terms of temperature, changes in extremes will likely be greatest in subtropical Africa, whereas increase in heavy rainfall is more likely to be found in tropical Africa.

The way forward

A cross-sectoral approach is needed with wide scale application of available best practice. Both individual and collective responses are significant with the problem being ethical and epistemic. Our choices will determine to what degree we follow a pathway to resilience**.** It is not just about adaptation. Opportunities for risk reduction through mitigation **and** adaptation lie in strengthening governance, reducing non-climate stressors, integrated land and water management, diversifying livelihoods, social protection, behavioural, technological and infrastructural responses, and responses that integrate local/traditional and scientific knowledge. Climate change adaptation can contribute to building robust economies and vibrant communities - adaptation is already occurring on the local scale and does not necessarily require the use of expensive technology. Lessons need to be learned from successful/unsuccessful adaption measures across the world and empirical evidence is desperately needed to identify limits of specific sectors, regions, ecosystems or species to adaptation. Successful, sustainable adaptation calls for strong efforts to reduce poverty, vulnerability and inequality, effective institutions and governance, innovation and investments in environmentally sound technologies. We are in an era of climate change responsibility and need to position adaptation on a continuum informed by a research agenda. Research and sophisticated analysis will facilitate the transition from reactive to proactive, anticipatory adaptation investments - we need to understand what works and what does not; this requires cyclical, social learning in order for the implementation of anticipatory adaptation in high poverty and vulnerability contexts. Multidimensional

vulnerability is driven by intersecting dimensions of inequality, socioeconomic pathways and climate change and climate change responses.

Africa, in general, has little responsibility for historical emissions, yet is projected to be one of the regions hardest hit by climate change. Coincidently, the continent is expected to be one that contains high growth, with current figures revealing that 6 of the top 10 fastest growing countries around the world are within Africa. Given the need to cut down on emissions, how is it possible to decouple this growth with greenhouse gases emissions?

This provides opportunities to explore and trial low carbon measures in the region. Careful consideration of infrastructure developments and long-lived products need to be made, given that they can lock societies into an intensive future emission pathway and will be costly to change if required. Both the private and public sector need to play a role in this. The key will be to establish clear, consistent achievable targets for clean energy development.

Many challenges exist – such as finding the balance between greenhouse gas emissions and economic growth in a developing country (i.e. the transition to a climate resilience country, while growing the economy). Climate change dialogue is essential in order to build a coherent and structured national response. Bold steps are needed to address the very real threats of climate change. It is something that will affect everyone and is a cross-boundary, cross-sector, cross-department problem.

Energy mitigation options can lead to a range of socio economic and health co-benefits. The energy access challenge is complex but can be achieved with the implementation of cross-sectoral mitigation strategies. A substantial share of emission increase in Africa in the next few decades will come from cities. However, a broad diversity of opportunities exist to keep these emissions at bay while increasing services to lower urban emissions; we need a diverse urban land use mix.

Energy efficiency has been a powerful tool to assist with the management of emissions and energy use worldwide. Many energy efficiency opportunities exist that also contribute to development goals, rather than compromise them; stabilisation scenarios are dependent upon the full decarbonisations of energy supply in the long term and international cooperation is necessary to significantly mitigate climate change impacts. The nature of the problem is the nature of the solution and depends on collective action that has **equity** as one of the drivers.

We need to adapt *and* mitigate - we have to make investments now; climate change impacts are already baked into the system. Temperature anomalies don't diverge for the next few decades between the different emissions scenarios because of inertia in the

climate system and inertia in the social and economic system. But it will be an error in responsibility if we do not take action now because decisions made in the next few decades will play out until the end of the century.

Climate change is ethical and the choices we make now influence the future.

MEDIA WORKSHOP

DATE: 9 NOVEMBER 2014

VENUE: DEPARTMENT OF ENVIRONMENTAL AFFAIRS GREEN BUILDING,

Think Globally … Act Locally

Welcome and Opening:

Members of the Press, the Inter-governmental Panel on Climate Change (IPCC), the Climate and Development Knowledge Network (CDKN) and the Department of Environmental Affairs (DEA) were welcomed to the media workshop on climate change by Mr Albi Modise, (DEA).

SESSION 1: UNPACKING AR5

Facilitator: Professor Bob Scholes (CSIR)

Speakers:
Professor Bruce Hewitson (Climate System Analysis Group - UCT, LA Ch 21 WG2)
Penny Urquhart (independent climate change adaptation and sustainable development analyst, South Africa, LA Ch 22 WG2)
Jonathan Lynn, IPCC Head of Communications

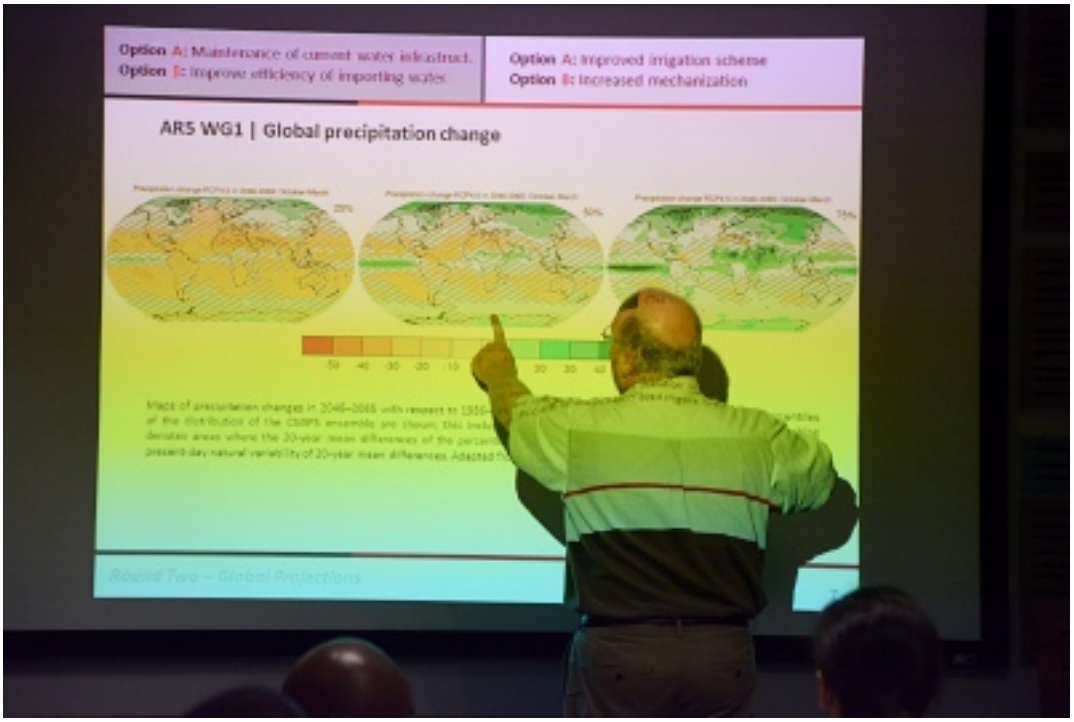
Prof. Scholes framed the session by asking: "What has changed? We've heard all this before? Why should we care?"

- Uncomfortable truths need to be repeated
- We need the evidence now for COP 21 (2015) – if we don't take action in this decade it will be too late
- The debate has moved on – the evidence is unequivocal
- The IPCC's *Fifth Assessment Report* shows there are many things we can do, and although they may be expensive, it is more expensive to do nothing

Introduction to climate science

Professor Hewitson introduced the topic of climate science through the following headline ideas:

Climate change is ethical and the choices we make now influence the future.
Understanding the reality of climate change is easy - responding is complicated.
The language of climate science is exact and needs to be relayed carefully.
Risks cause impacts on the interrelated socio-cultural-climatic systems.

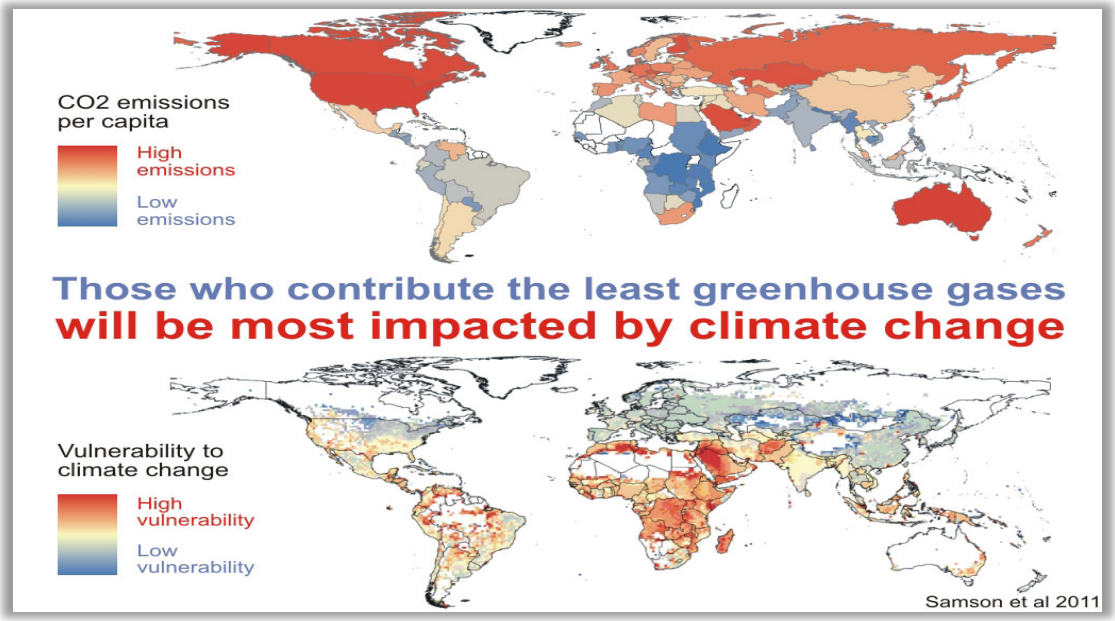


Prof. Bruce Hewitson talks about global precipitation change during the training.

Carbon emissions are disturbing natural balance: global mean temperature measurement shows that we are on track for a hottest year on record, there is major energy uptake by the oceans and a multiplicity of indicators of change shows that there is a discernible impact on global warming through greenhouse gas emissions.

Consequences:

- Sea level rise
- Temperatures get amplified over land
- Rainfall – increase in intensity
- Increased acidification of oceans



Impacts: Adaptation

- Reducing and managing risks
- Vulnerability around the world is increasing
- Adaptation is already occurring
- Nations who contribute least to greenhouse gasses will be most impacted

Impacts: Mitigation

- Climate change is a global commons problem
- GHG emissions have increased
- Mitigation costs – **we can afford this** – particularly if we look at co-benefits such as impacts on health
- Africa has an opportunity to choose a development pathway that is sustainable – this will require substantial economic, technological and institutional commitments. **Are governments up to the challenge?**

Take home messages

We are in this together – a cross-sectoral approach is needed with wide scale application of available best practice. Individual and collective responses are significant - some may require transformation. It is not just about adaptation. Policy and governance are key and require political pressure. The problem is ethical and epistemic.

We live with risk. The impacts of climate change are progressive. What is the threshold? We have enough clarity on the nature of the consequences and are used to making decisions under inexact conditions. **Our choices will determine to what degree we follow a pathway to resilience.**

The AR5 process: how the IPCC produces reports

Jonathan Lynn gave an overview of the IPCC, which was founded in 1988 by UNEP and the World Meteorological Organization to inform policy makers about climate change. It has a membership of 195 governments. The IPCC does not conduct its own research but looks at thousands of research reports in order to tell governments what the scientific community is saying. The mandate is to cover the full spectrum of human activity relevant to climate change, its potential impacts and options for adaptation and mitigation. The reports are neutral with no view or agenda and are used by policy makers to formulate policy at an international, national and local level.

The IPCC structure is comprised of 3 Working Groups who look at research covering:

1. The science of climate change (what is happening in the climate system)
2. Impacts, adaptation and vulnerability (risks)
3. Mitigation (what can be done)

The IPCC has produced five Assessment Reports, with the current one being the most comprehensive, containing the most data, a better integration of adaptation and mitigation and a risk management framework. The AR5 had:

- 836 authors from 85 countries (301 from developing countries, 179 were women and 529 were new)
- 30 000 papers were cited
- 5 000 pages
- 143 000 papers from the scientific community had to be processed by the authors.

What does AR5 say about Africa?

Penny Urquhart presented key headline statements for Africa:

- Under high emissions scenarios, much of Africa could exceed 2° C by mid-century, and reach between 3 and 6° C by 2100
- African ecosystems are already impacted by climate change and future impacts will be substantial
- Existing stress on water availability will be amplified
- Increased evidence of effects on vulnerability from interaction of climate and non-climate drivers
- All aspects of food security are potentially affected by climate change, including food access, utilisation, and price stability
- Climate change multiplies existing health vulnerabilities and is a trigger for social conflict and migration
- Governance systems for adaptation are being developed across the continent, but cannot yet effectively co-ordinate adaptation initiatives

- Climate change threatens to overwhelm the ability of people to cope and adapt, especially if the root causes of poverty and vulnerability are not addressed
- Significant financial resources, technological support and institutional and capacity development are needed
- The wide range of data and research gaps constrain decision making

Adaptation Responses:

- In **Africa**, national governments initiating adaptation governance systems; approaches include disaster risk management, technologies and infrastructure, ecosystem-based approaches, public health measures, and livelihood diversification
- Common to **Asia, Africa and Central and South America**: ecosystem based adaptation; resilient crop varieties; expansion of agro-ecological approaches; climate forecasts; early warning systems
  - Conservation agriculture & NRM experiences
- Most adaptation in developing regions – e.g. in **sub-Saharan Africa**, remains autonomous, reactive and unsupported, and not at scale
- Few small-scale farmers across Africa are able to adapt to climatic changes, while others are restricted by a suite of overlapping barriers (*high agreement, robust evidence*)
- Constraints identified in Kenya, South Africa, Ethiopia, Malawi, Mozambique, Zimbabwe, Zambia and Ghana included:
  1. Poverty and a lack of cash or credit (**financial barriers**);
  2. Limited access to water and land, poor soil quality, land fragmentation, poor roads, and pests and diseases (**biophysical and infrastructural barriers**);
  3. Lack of access to inputs, shortage of labour, poor quality of seed and inputs attributed to a lack of quality controls by government and corrupt business practices by traders, insecure tenure, and poor market access **(institutional, technological, and political barriers**); and finally
  4. A lack of information on agroforestry/afforestation, different crop varieties, climate change predictions and weather, and adaptation strategies (**informational barriers**)

Principles for Building Adaptive Capacity

- **Supporting autonomous adaptation** through policy that recognises the multiple stressor nature of vulnerable livelihoods;
- Increasing attention to the **cultural, ethical, and rights considerations of adaptation** by increasing the participation of women, youth and poor and vulnerable people in adaptation policy and implementation;
- **Combining 'soft path' options and flexible and iterative learning** approaches with **technological and infrastructural** approaches, as well as **blending scientific, local and indigenous knowledge** when developing adaptation strategies;

- Focusing on **building resilience** and implementing **low-regrets adaptation with development synergies**, in the face of future climate and socio-economic uncertainties; and
- **Building adaptive management** and **social and institutional learning** into adaptation processes at all levels.

Key take home messages

OPPORTUNITIES FOR RISK REDUCTION through mitigation and adaptation lie in strengthening governance, reducing non-climate stressors, integrated land and water management, diversifying livelihoods, social protection, behavioural, technological and infrastructural responses, and responses that integrate local/traditional and scientific knowledge.

SESSION 2: INFORMATION DIALOGUE

Facilitator: Mr Albi Modise

Speakers:

Claire Mathieson: CDKN

Judy Beaumont DDG DEA: Climate Change and Air Quality

Climate Change in Africa – a journalist's perspective

Claire Mathieson opened this session stating that the sharing of knowledge is key. It is vital to inform the people on the ground, who vote for policy makers, about climate change and the role that journalists play is therefore crucial.

The discussion was opened to the floor and journalists were asked to share some of the challenges they face when reporting on climate change. These included: *how to persuade people to move away from coal in a developing economy; how to make climate change interesting to readers; how to simplify the terminology so that is accurate but accessible; lack of government support; recalcitrance – sometimes people do not listen until disaster has struck; making linkages to climate change in stories when the links are not immediately obvious e.g. the death of elephants in Hwange National Park because of drinking from salt pans*.

There are useful tool kits on line at www.cdkn.org - infographics, images and presentations which are freely available.

Following the climate change story in South Africa

Judy Beaumont presented South Africa's national climate change response policy:

- VISION: Transition to a lower carbon and climate resilient society

- OBJECTIVE: Make a fair contribution to the global effort to stabilise GHG concentrations

The strategic approach is:

- Developmental
- Transformational and participatory
- Needs driven and customised
- Dynamic and evidence based
- Informed decision-making

With an objective of managing climate change impacts through interventions that build and sustain South Africa's social, economic and environmental resilience.

BUILDING SOUTH AFRICA'S RESILIENCE: HIGH LEVEL MESSAGES

1. There will be an increasingly dramatic **shift in the nature and scale of adaptation required** if global mean temperature rises more than 2°C,
2. **Balanced development** enables effective adaptation, **must plan across sectors**: water, food, health, human settlements, infrastructure
3. Adaptation must **focus on vulnerable communities**, most at risk to climate change,
4. Adapting to an uncertain climate future with finite resources will result in **trade-offs**
5. As the climate changes, **systemic transformation** will be needed in the medium and long term,
6. Challenge to the full delivery of the National Development Plan vision,
7. Climate change will likely **accentuate inequality, undermining social justice and cohesio**n if South Africa does not adopt effective adaptation responses,
8. The **benefits of adapting outweigh the costs** in the long run,
9. **Effective approaches to disaster risk reduction** (DRR), including Early Warning Systems, yield early returns on investment across all sectors
10. **Institutions must prepare** to appropriately manage infrastructure under a more extreme and variable climate

EMISSION REDUCTION

Overall approach

- Assess mitigation potential and define desired emission reduction outcomes; fact based analysis of what is technically possible; methodology based on internationally accepted practice – from the Intergovernmental Panel on Climate Change (IPCC)
- Set desired emission reduction outcomes (DEROs)
- Use of a mix of mitigation instruments, including carbon tax
- Formulation of mitigation plans for sectors and sub-sectors, and monitoring and evaluation

South Africa's GHG Mitigation Potential Analysis

- Comprehensive analysis of mitigation potential of key economic sectors (Energy, Industry, Transport, Waste, Agriculture/forestry/landuse (AFOLU)

EMISSION REDUCTION FLAGSHIPS

- **Renewable energy**: (DOE) – Renewable Energy Independent Power Producers Procurement (REIPP); Solar Park Corridor Initiative, Concentrated Solar Power Plants, Solar Water Heaters etc
- **Energy efficiency**: (DOE) – National Energy Efficiency Strategy is guiding framework; programmes include Municipal Energy Efficiency; Integrated Demand Management; Energy Efficiency in Government Departments
- **Transport:** (DOT) – Integrated Public Transport initiatives (incl BRT); Passengers to Rail; Freight to Rail; Biofuels; CNG and LPG vehicles
- **Carbon Capture and Storage**: pilot in 2017

Dialogue: Media reporting on climate change: journalist experiences

Claire Mathieson facilitated this session, reinforcing the conference theme of dialogue, and asked journalists to speak about climate-related stories they had written; the topics listed by the journalists included:

Linking indigenous knowledge to climate change
Linking climate change to why people are moving into forests in Zimbabwe
In Zambia there is a high degree of absenteeism because girl children have to go and fetch water – and are forced into early marriage
How climate change impacts on Lake Victoria and the effects of the dwindling fish supplies on families

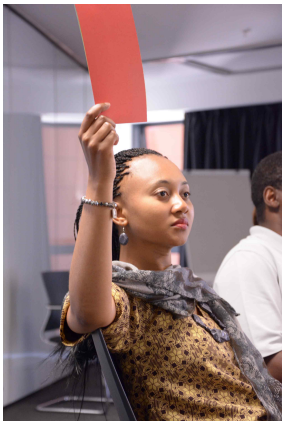
In Ugand,a human faeces are turned into energy for cooking – this idea originated in Rwanda
Conservation vs slash and burn
Food security in Malawi
Small scale farms and small scale businesses – how flash floods affect them both – issue of insurance
Marginalised communities and reforestation projects
Climate change and health – the Highlands are now experiencing malaria.

Session Summary:

The focus of the session revolved around how media within Africa respond to reporting on climate change. The participants were introduced to media-friendly climate resources made available by CDKN, including executive summaries, infographics and presentations. The discussion then moved to challenges faced by journalists in reporting climate-related stories, followed by a presentation on South Africa's policy roadmap in the lead-up to the upcoming COP 20 summit.

Key Points:

1. Challenges in relating global stories to local issues, relevant to readership (convincing the editor is a challenge). One suggestion was to incorporate a climate angle into everyday stories, even if they are not primarily focussed on climate change.
2. Lack of resources and funding to adequately pursue in-depth stories.
3. The media often face resistance when it comes to discussing emissions. There needs to be a stronger emphasis on "feel-good" stories.
4. Simplification of terms used in the IPCC reports is needed. There appears to be a disconnect between what scientists are saying and what the media need to report. There is often a lack of knowledge, specifically adaptation and mitigation stories.
5. Access to news stories is a problem. The example given was that government often prohibits visits to renewable energy sites (e.g. wind farm). This makes spreading the message about topics such as renewable energy difficult.
6. Cross border learning with Africa should be encouraged and there is a need for sharing knowledge, and increased collaboration and cross-pollination within the media fraternity.



Journalists participate in a workshop exercise

Select Audience Questions/Concerns:

Q Does South Africa have a different agenda than the rest of Africa when it comes to COP20 in Paris?
A Every country goes to COP with its own position. They then identify what the common ground is. This is then used to create a blueprint for the negotiations. (Judy Beaumont)

Q Is wind energy the way forward given the limitations that SA are faced? Why are we still going ahead with Medupi or nuclear power when there are other options?
A The problem with renewable energy is that it does not provide the base load for a growing economy. Energy discussion is very political. Why nuclear? Because it reduces our emissions quickly and is a "long term" solution. (Judy Beaumont)

Additional Sources of Information:

Skeptical Science website – http://www.skepticalscience.com/ – more layman terms/figures used, which potentially make it easier for media to understand climate change compared to IPCC reports.

Climate Development Knowledge Network website – http://cdkn.org/ar5-toolkit/– reports, presentation slides and infographics that can be used by the media.

Mr Albi Modise closed the workshop.

OUTREACH EVENT

DATE: 10 – 11 NOVEMBER 2013

VENUE: GALLAGHER CONVENTION CENTRE, MIDRAND, SOUTH AFRICA

Concept: Outreach event focusing on AR5 findings (WG I, II and III and Synthesis Report) and how the report affects policies (science-policy) with an African focus.

Target audience: Policymakers in Africa at national and local government level, African-based international and intergovernmental organisations, climate and disaster risk management community, civil society organisations, local science and research community, African media. Focus on participants from Southern Africa (SADC) but also other larger African countries across the continent.

Objectives

- To **raise awareness** on the outcomes of Fifth Assessment Report (AR5) of the IPCC
- To **build capacity** for media, and local science and research community and government sector

DAY 1:

Day 1 opened with a video on climate change which reinforced the messages from the media workshop: "*This is a matter of choice – we either face catastrophic consequences of climate change or listen to the voice of science and act accordingly*".

INTRODUCTION

- **Maesela Kekana, Chief Director, International Climate Change, DEA**
- **Jean-Pascal van Ypersele, (Professor of Climatology and Environmental Sciences at UCL Belgium) Vice-Chair of the IPCC**

PRESENTATION OF THE OUTCOMES OF THE AR5 WGS:

Masters of Ceremony to introduce thematic speakers and Co-Chair

Working Group I: Dr Luanne Stevens, Extraordinary Senior Lecturer, North West University
Working Group II: Dr Emma Archer, Chief Researcher, CSIR
Working Group III: Mr Enoch Liphoto (LA Chapter 9)

Working Group I: The Physical Science Base

Chair for Working Group I: **Dr Luanne Stevens, Extraordinary Senior Lecturer, North West University**

Speakers:

- **Professor Chris Reason (Head of Department of Oceanography, University of Cape Town; LA Ch 9, WG1)**
- **Dr. Mxolisi Shongwe (South African Weather Service researcher; CA Ch12, WG1, and Ch 22 WG2)**
- **Dr. Joseph Kanyanga, (Chief Meteorologist: Zambia Meteorological Department; LA, AR5 WGI, Chapter 14)**

Overview

Prof Chris Reason gave an overview of WG1 report (259 authors and 14 chapters) and provided insight into what makes southern Africa interesting from the point of view of climate science – this includes 3 unique ocean areas: the Agulhas Current retroflection; the Seychelles–Chagos Thermocline Ridge (SCTR) and the Angola Benguella frontal zone (ABFZ) as well as the Hadley circulation. The headline statement from this overview was that the warming of the climate system is unequivocal.

Climate projections, observations and irreversibility: what does it mean for Africa

Dr Mxolisi Shongwe looked at past trends and projections using the RCP 2.6 – RCP8.5[1] range and what this means from an African perspective: warming is projected to continue with the magnitude being dependent on the forcing that occurs; climate change will be characterised by more intense rainfall and increasing frequency of dry spells. In RCP8.5, southern Africa is projected to become drier while East Africa and the Great Horn are projected to become wetter. Long-term projections are strongly dependent on the GHG emissions pathway.

Africa remains the most under assessed continent because of the lack of scientific research outputs and the unavailability and/or inaccessibility of data.

Climate extremes in Africa focusing on precipitation, floods and drought, temperature and sea level rise

Dr Kanyanga presented the impacts of projected climate change on Africa which included natural disasters (drought, epidemics, flood, windstorms, wild fires, mud slides, earthquakes, volcanoes and tsunamis) and seal level rise.

[1] RCP – Representative concentration pathways are greenhouse gas concentration trajectories

Session Summary:

The focus of the session revolved around the scientific findings in WG1 in the latest IPCC report. The three presentations looked at what the science says about the recent past climate and what is projected to take place in the future (with particular focus being placed on Africa). Results indicate that warming (due to human activity) has taken place across the continent and will continue to take place well into the future. Past changes in rainfall are also apparent, with regional variations evident across the continent.

A few major limitations with regards to understanding climate change in southern Africa were also highlighted in the presentations. The first being the lack of observation data in the region and the second being the incomplete understanding of regional climate dynamics. Southern Africa contains a complicated regional climate and models have to be able to capture this in order to have confidence in model results.

Key Points:

1. Statistically significant warming is found to have occurred around the world, while the 10 warmest years have occurred after 1997.
2. Although climate is warming globally, there are large regional variations (i.e. some places getting warmer than others). The same applies with rainfall patterns across southern Africa.
3. Projected changes in temperature are highly dependent on the forcing/pathway used in the models. RCP8.5 (business as usual scenario) shows a more dramatic increase temperature at the end of the century compared to RCP2.6 (intensive mitigation scenario). The same applies to sea level rise.
4. Even with various mitigation options, the climate system is already committed to warming in the future – this is due to the emissions that have already been emitted.
5. Climate change has a direct impact with regards to natural disasters. Hydrological disasters appear to be the most common across Africa. Drought/floods make up for almost 50% of the natural disasters in Africa.
6. The latest IPCC report affirms that there has been an increase in frequency and intensity/severity in the occurrence of weather and climate extremes.
7. In terms of temperature, changes in extremes will likely be greatest in subtropical Africa, whereas increase in heavy rainfall is more likely to be found in tropical Africa.

Q&A:

1. When the WGI came out about a year ago, there was a lot of press about the warming hiatus…what is the latest on this? Dave Collins

2. Lack of ice melt in the Antarctic compared to other? Can the panel please discuss this. Guy Midgley
3. Do wars contribute to these problems with the lack of data?
4. Is it not part of Africa problem that we are reactive rather than proactive – what is the state of Africa's preparedness to climate change?

A1. Natural climate variability on decadal to multi-decadal time scales, which occurs without anthropogenic warming. Thus, the hiatus is partly linked to Pacific – Decadal Oscillation that operates on 10-30 year time scales, while changes in solar cycles and volcano activity could also be partly responsible. CR

A2. Artic is warming faster than elsewhere, which is linked to various feedbacks. Hence appears to be melting faster than the Antarctic and that warming is not symmetric between the poles. MX

A3. Wars are linked to migration. MX

A4. The number of African scientists are too few. Africa also has poor observations over Africa. However, it is up to governments to help with mitigation/adaptation. There are steps in place. JK

OFFICIAL OPENING

Programme Director

Nosipho Ngcaba - DG Department of Environmental Affairs

Speakers

- **Councillor Parks Tau – Mayor City Of Johannesburg – *Welcome on Behalf of the City Johannesburg***
- **Hon Dr. H. E. Horst Freitag – Ambassador of German Embassy – *Welcome Address***
- **Hon L Maile - Dept Agriculture, Economic and Rural Development – *Climate Change Responses and Challenges***
- **Hon Patrick Mabilo – Acting Chair of the Portfolio Committee on Environmental Affairs – *Role of Legislature in Climate Change Response***
- **Youba Sokona - Co-Chair of WG III – *IPCC and 5AR Overview***
- **Prof Van Ypersele – (Professor of Climatology and Environmental Sciences at UCL Belgium) Vice Chair IPCC – *Potential Risks of Climate Change***
- **Hon Minister Bomo Edna Molewa - Minister of Environmental Affairs, South Africa – *Welcome Address***
-

Prof Jean-Pascal Van Ypersele, Vice Chair IPCC

Session Summary:

Many challenges still exist as a developing country trying to reduce its greenhouse gas emissions, while at the same time building the economy. There are efforts that have been put in place since COP 17 (Durban) that have started to pave the way in which South Africa is reducing its carbon footprint, particularly at the city level (the example presented here was the city of Johannesburg).

South Africa remains a country highly dependent on coal as a source of energy and is looking at other viable alternatives. Germany is one of the experienced countries that South Africa is looking to in sharing common approaches and policies in the transition from fossil fuels to natural energy resources (i.e. African-European cooperation).

Minister Edna Molewa

Key Points:

1. Many challenges exist – such as finding the balance between greenhouse gas emissions and a developing country (i.e. the transition to a climate resilience country, while growing the economy).
2. Climate change dialogue in the country is essential in order to build a coherent and structured national response.
3. Despite all the mitigation policies that have been developed so far, they still need to be implemented. The countries' current actions have not been enough.

4. Bold steps are needed to address the very real threats of climate change. It is not something we are waiting for - it is already here and is something that will affect everyone; it is a cross-boundary, cross-sector, cross-department problem.

   The aim should be to become a low carbon and climate change resilient society.

WG II: IMPACTS, ADAPTATION AND VULNERABILITY

Chair for Working Group II: **Dr Emma Archer, CSIR**

Speakers**:**

- **Professor Bruce Hewitson (Climate System Analysis Group - UCT, LA Ch 21 WG II)**
- **Penny Urquhart (independent climate change adaptation and sustainable development analyst, South Africa, LA Ch 22 WG II)**
- **Professor Guy Midgley (University of Stellenbosch and SANBI, LA Ch16 WG II)**
- **Dr Christopher Field (Director, Department of Global Ecology, Carnegie Institution) Co-Chair of WGII**

The Regional Context

Prof Hewitson gave an overview of decision making in a regional context; headline messages from Chapter 21 include: it is necessary to have a good understanding of decision making contexts; a greater range of regional scale climate information is now available; the available information is limited by lack of observations and analyses; there is substantial regional variation in projections; there are contested definitions of approach; cross-regional phenomena can be crucial; downscaling of global climate reconstruction and models has advanced; there are uncertainties of future impacts and there are multiple stressors.

Africa: impacts, adaptation and vulnerability

Penny Urquhart emphasised that the opportunities for risk reduction through mitigation and adaptation lie in strengthening governance, reducing non-climate stressors, integrated land and water management, diversifying livelihoods, social protection, behavioural, technological and infrastructural responses, and responses that integrate local/traditional and scientific knowledge.

Adaptation opportunities, constraints and limits: what does it mean for Africa?

Prof. Midgley asked the question “How much can we adapt?” Trees will not be able to photosynthesise at a 5-6^{o} C increase – we face limits somewhere between RCP2.6 – RCP 8.5;

RCP 8.5 is beyond adaptive capacity; some messages from chapter 16 include: the empirical evidence needed to identify limits is lacking; the selection and implementation of specific adaptation options has ethical implications – if we adapt in the right way we can address inequality; there are institutional weaknesses, lack of co-ordinated actions and governance; **think different Africa**! This means Africa has the opportunity to think differently from the West and not invest in economic growth at the expense of the environment - we can use resilience in ecosystems to improve adaptation and create a positive spiral.

Close

Dr Field closed the session with thoughts on framing where we are with impacts and vulnerability issues - and listed 6 key findings of WGII:

- Observed impacts of climate change are widespread
- Vulnerability is pervasive
- Adaptation is already occurring – adjust –adapt –learn – adjust – adapt –learn
- Increasing magnitude of warming increases the likelihood of severe and pervasive impacts
- Risks of climate change are increasing
- Effective climate change adaptation means being smart about investments in short and long term – this can contribute to building robust economies and vibrant communities.

Session Summary:

Society and ecosystems within Africa are already impacted by climate change, which will likely get worse unless drastic measures are taken to reduce emissions. Future projections indicate that climate change will likely amplify current stresses, such as water availability or food security, across the continent.

Adaptation to climate change is already occurring on the local scale and does not necessarily require the use of expensive technology. Lessons need to be learned from adaption measures that are / are not successful across the world.

Climate change adaptation can contribute to building robust economies and vibrant communities.

Key Points:

1. Climate change impacts are already widespread (most challenging in poor communities).

2. When it comes to adaptation options, the choice has implication of ethics and values, political consequences, societal impact, regional and trans-boundary issues. Understanding the context of the decision is vital and at times has been ignored.
3. Decision makers are often confronted with numerous challenges, ranging from the availability of reliable regional information to poor understanding of local vulnerabilities.
4. Empirical evidence is desperately needed to identify limits of specific sectors, regions, ecosystems or species to adaptation.
5. The selection and implementation of specific adaptation options has ethical implications, which need to be considered.
6. Climate change threatens to overwhelm the ability of people to cope and adapt (especially if root causes, such as poverty, are not addressed)
7. Institutional weaknesses, lack of governance and conflicting objectives limit our options to adapt.

Q&A:

1. The mining industry often looks at long term planning – how does mining fit into the whole adaption? Can it be used as examples or in research projects?
2. The pictures in IPCC reports always show extreme images – flooding, droughts, etc. This gives the impression that policy makers might think "we not there yet". Do these images give a false sense of comfort?
3. What are the opportunities in climate change? Are we discussing with communities around the world that live in warmer climates? Could we use their knowledge to adapt? Part 3 – is there any work on soil management and soil nutrients/fertility?
4. Why has the panel not taking into consideration the mines that have started in Kuurman? How is the mining in the area affecting climate change?

A1. The issue is to try figure out what climate risks are for mining (GM).
The use of electricity and water by the mining sector are issues that impact society. This is something that needs to be evaluated how mining adds to that stress and what/how it can alleviate it. (BH)

A2. We face extremes now, around the world now. Extremes are really important to understand the full range of climate change. (CF).
We still need to understand the full context of extremes (BH).
A lot of the work in WGII does not just focus on extremes, but on other changing climate characteristics…those that increase the climate variability (PU).

A3. Climate change is really a threat multiplier (CF). Dealing with climate change is the biggest economic opportunity in the coming century.

Adaptation is a social response and experiential learning. (PU)
There are massive opportunities, but we must understand them, because some will take advantage of the situation in a negative way (BH). It is an ethical dilemma that we need to be aware of.

A4. It is extremely unlikely the mining in the area has had an impact on climate in your area. It is more a global scale scenario. Yes there may be small scale land use changes, but it shouldn't have a big impact on seasonal shifts in climate. GM

WG III: MITIGATION OF CLIMATE CHANGE

Chair for Working Group III: **Enoch Liphoto - LA Chapter 9**

Speakers:

- **Youba Sokona (Special advisor on sustainable development, the South Centre, Switzerland, IIED), Co-Chair of WGIII**
- **Yacob Mulugetta (Professor of Energy and Development Policy, and Director of the MPA programme at the Department of Science, Technology, Engineering & Public Policy (STEaPP) at University College London) CLA AR5 WG III Chapter 7**
- **Diana Ürge-Vorsatz (Center for Climate Change and Sustainable Energy Policy, Central European University) Coordinating Lead Author, WGIII, AR5, WG III Chapter 9**
- **Harald Winkler (Director, Energy Research Centre UCT, South Africa) LA AR5 WG III Chapter 13**

Overview

Youba Sokona gave an overview of the findings of WG III: greenhouse gas emissions have accelerated despite reduction efforts; mitigation involves substantial upscaling of low carbon energy; climate change is a global commons problem; delaying mitigation increases the difficulties and narrows the options for limiting warming to 2^0 C; mitigation costs vary but do not strongly effect GDP growth and can result in substantive co-benefits.

Mitigation pathways and measures in the context of sustainable development- the energy perspective

Yacob Mulugetta emphasised the point that energy mitigation options can lead to a range of socio economic and health co-benefits. In LDCs 79% of people do not have access to electricity and 71% rely exclusively on biomass. The energy access challenge is complex but can be achieved with the implementation of cross-sectoral mitigation strategies.

Mitigation in the context of urban development and the built environment What do these mean for Africa?

Diana Ürge-Vorsatz provided the following key messages:

- A substantial share of emission increase in Africa in the next few decades will come from cities
- A broad diversity of opportunities exist to keep these emissions at bay while even increasing services – to lower urban emissions we need a diverse urban land use mix
- Energy efficiency has been a very powerful tool to keep emissions and energy use at bay worldwide
- Many energy efficiency opportunities exist that also contribute to development goals rather than compromise them
- However, there is a major lock-in risk

Policy and Cooperation

Harald Winkler emphasised that stabilisation scenarios are dependent upon the full decarbonisations of energy supply in the long term and that international cooperation is necessary to significantly mitigate climate change impacts. The nature of the problem is the nature of the solution and depends on collective action that has equity as one of the drivers.

Session Summary:

Greenhouse gas emissions have increased/accelerated despite change policies that have been implemented in the past few decades. Evidence suggests that in the past decade, emissions have been more than the previous decades. This reason/s behind this is likely linked to the growth in economies and fossil fuel usage.

Largest emissions of greenhouse gases are predominantly found in urban areas. The magnitude of emissions is often linked to the density, land use, connectivity and accessibility within the urban area. There is an opportunity to keep emissions under control, but it will require a concerted effort amongst various sectors of society, starting with energy efficiency in urban areas.

A participant at the event

Key Points:

1. Despite more rigorous climate change policies being implemented, the reduction of carbon emissions has been reversed in the past decade (i.e. more emissions).
2. Many substantial technological, economic and institutional challenges remain when it comes to mitigation of emissions.
3. Delaying mitigation plans narrows the options for limiting warming to 2°C by the end of the century. Thus, immediate mitigation is required to achieve the 2°C target.
4. Mitigation can result in large co-benefits for human health and other societal goals. The latter have not thoroughly been researched yet, but they do depend on the implemented practice, scale and pace at which it is done.
5. Low stabilisation scenarios are dependent upon a full decarbonisation of energy supply.
6. Energy efficiency has been a very powerful tool to keep emission and energy use at bay on a worldwide scale.
7. Climate change is a global problem, with no single country being able to solve its own climate problem by reducing its own emissions. A global solution is needed. This requires the co-operation amongst numerous countries. It will also require large investment patterns (e.g. move away from fossil fuels).
8. International cooperation is necessary to significantly mitigate climate change impacts. Emissions are not distributed evenly across the world, but it is still a global problem.

Q&A:

1. Does delaying mitigation result in difficulties for future options?
2. The cost of mitigation increases the more we delay, particularly in getting to the 2°C goal– how achievable is this goal?
3. The transition to a low carbon economy – nuclear is an option – how do we address the risks linked to nuclear.

A1. Yes, delaying will leave us with more work to do.
A2. *Question not answered.*
A3. We have to look at a variety of technologies if we want to reach a low carbon economy. Nuclear is just an option. The nuclear route is a question for a country – you, as a country, have to evaluate your own policy and needs.

DAY CLOSURE:

- **Maesela Kekana, Chief Director, International Climate Change, DEA**
- **Bob Scholes (CSIR) CLA AR5 WGII Chapter 4**

GALA DINNER (organised by DEA)

DAY 2

CAPACITY BUILDING FOR LOCAL SCIENCE AND RESEARCH COMMUNITY

Welcome

Programme Director

Nosipho Ngcaba - DG Department of Environmental Affairs

Speakers:

- **Hon Thulas Nxese Minister Public Works, South Africa**
- **Judy Beaumont DDG DEA: Climate Change and Air Quality**
- **Vali Moosa, Chair of the Board WWF**
- **Tasneem Essop, National Planning Commission and WWF**
- **Rashmi Mistry, Economic Justice Campaign Manager, OXFAM**
- **Joanne Yarwitch, Chief Executive Officer, NBI**

Session Summary:

South African is heavily reliant on fossil fuels as an energy source to sustain its economy and growing urban population. The government has recognised the consequences to this and has realised that it needs to cut back on emissions. However, the transition to a low carbon economy/society is fraught with challenges, such as dealing with the high levels of poverty and inequality experienced in the country. Measures, like the National Development Plan (NDP), have been put in place, but processes are often delayed due to bureaucratic processes and government departments working as independent "silos". Questions have also been raised about the quality of the NDP, given the numerous contradictions found in it (e.g. still talks about heavy usage of fossil fuels up to 2030). Some already view it as being out of date even though it is only a few years old. That being said, the government has made great strides in trying to become an efficient energy user, particularly when it comes to energy efficient buildings. The question remains if it will be enough? Bearing in mind any decisions government makes will depend on global agreements made at meetings such as COP21. Questions of global versus national interests could potentially become problematic in future.

Key Points:

1. The legacy of South Africa politics and energy production has resulted in the country being completely dependent on coal as an energy source.
2. The South African government has put steps in place, such as the National Development Programme, to transition to a low carbon economy. However, there is some criticism that the NDP does not really tackle the problem at all.
3. There are numerous challenges in the way during the transition, such as addressing poverty and inequality in the country.
4. There are also opportunities in transitioning to a low carbon society. Government cannot do it alone and requires the collaboration between businesses to achieve this. It will also have to source finances for investing in this transition.
5. Government acknowledges that it has a duty to lead and explore all alternatives when it comes to the transition to a low carbon society.

BREAKAWAY SESSION 1

Capacity Building for local science and research community (IPCC)

MC: Professor Bruce Hewitson (Climate System Analysis Group - UCT, LA Ch 21 WG2

Speakers:

- **Jean-Pascal van Ypersele (Professor of Climatology and Environmental Sciences at UCL Belgium) Vice-Chair of the IPCC**
- **Mark New (ACDI, UCT)**

Introduction

Prof Hewitson gave an overview of the session's proceedings – first the context would be set, followed by group work based on World Café methodology, report back and a question and answer session.

Improving participation of developing countries in the IPCC

Jean-Pascal van Ypersele looked beyond AR5 and at the prospects for improving Africa's contribution to future assessments. Recommendations included:

- Setting up communication and outreach activities. Enhance the awareness of the Focal Points regarding IPCC activities and possible funding for scientists from these countries to attend the events. Focal Points and Bureau to nominate more experts/scientists from developing countries (over 3000 were nominated for AR5, but only just over 800 were selected).
- Ensure that the selection of authors and reviewers are conceived in a way that facilitates the identification and selection of suitable experts from developing countries. Basically more attention needs to be placed on selecting the authors and reviews.
- Consider ways to increase funding for participation for the attendance of more experts from developing countries to IPCC meetings. History shows that increase in funding does not mean an increase in participation. One suggestion is to hire research assistants to help with all the communication required as an IPCC author.
- Organise more regional meetings in developing regions. However, there are costs involved.
- Encourage the participation of experts from developing countries in the outreach events/process.
- IPCC Bureau in general should encourage more involvement of young experts from developing countries in the IPCC process.
- Allow for the participation of developing countries scientists in the scenario development (get a developing countries perspective)

How and why can emerging scientists become IPCC authors?

Mark New gave an overview of the different genres of IPCC authors, looked at why scientists should consider taking on the role (costs and benefits) and ways , both formal and informal of becoming an author.

Formal ways include:

- Getting on the list of potential authors complied by each Working Group Task Force which is nominated by national governments and identified by the IPCC Secretariat – criteria for selection includes
    - Range of expertise
    - Geographical representation
    - Mix of experts, with and without previous experience in IPCC
    - Gender balance
    - Mix of academics and non-academics (experience is equally valued).

Informal ways include:

- Make sure you have a strong CV
- Build a reputation for reliability and delivery
- Make yourself known in IPCC and related circles
- Put your own name forward.

World Café / Carousel Session:

Topics/Questions

1. Building a community of interface scientists
2. Informing local research agenda
3. Becoming an IPCC author
4. Addressing lack of climate data in Africa

5. Prospects to Improve Africa's Contribution to Future assessments

Group Work at the break away session

1. Science – Policy interface - Building a community of interface scientists

What Works	Barriers	Solutions
Academic institutes working with local communities	Terminology and communication	Co-exploration between governments and researchers
Govt. initiatives setting up institutions at rural universities	The lack of documents in a local language	Embedding researchers within policy institutes (and vice versa)
	Making the report more accessible	

2. Informing the local research agenda

What Works	Barriers	Solutions
Local funding agencies are working in South Africa	Level of funding and silos of institutions working alone	forum to discuss what is required from the IPCC
	Focal Points not touching base with the researchers	too physical and should start looking at the social component
	The lack of good training places in some parts of Africa	tailoring the research agenda to the needs of the poor communities
	Non-academic members working within rural communities is often discontinued	

3. Becoming an IPCC author

What Works	Barriers	Solutions
The outreach programs are working well	Focal Points not in touch with what researchers are doing outside of Meteorological work	Embedding young scientists with IPCC authors
	Expats battle to gain entry into the system	
	Experts are sitting in consultancies	

4. Addressing the shortage of climate data

What Works	Barriers	Solutions
Met services are available and have the expertise	What is classified as climate data?	Learn from SA approach SAWS sponsors students to sponsor
There is data there, it is just not available	Funding of met. services	Maintain and share data
	Data accessibility	Make data publicly available
	Lack of infrastructure (e.g. computers, internet)	Need more funding

5. Prospect to improve Africa's contribution to IPCC process

What Works	Barriers	Solutions
There is an IPCC trust fund which supports developing countries	Lack of expertise	Advertising IPCC call in national papers
A lot of expertise in Africa, particular adaptation	Focal Points are not aware of expertise in own countries	Make IPCC work part of their KPI
Making data available in some countries	Lack of remuneration – people don't want to work for review	If an author is not active, they should be removed and replaced
	Lack of data to do research	Open the review process to postgrad students
	Brain drain - researchers migrate to developed countries	Lobby governments to support authors in IPCC process
	Inactive authors – accepted nomination, but did nothing.	

Key Points:

1. There are numerous obstacles for African researchers in becoming IPCC authors. These issues range from the lack of local expertise through to poor communication between IPCC Focal Points and the research community.
2. A common scenario within Africa is that many qualified people work within consultancies, thus will not work on IPCC reports due to the lack of remuneration. This problem is not limited to consultancies, but can also be found in academic/research institutions.
3. Although it is hard work, time consuming and no financial reward, there are many advantages of being an IPCC author. These include the networking opportunities, intellectually stimulating conversations and one can experience life at the science-policy interface.
4. In terms of building scientific capacity on the continent, major limitations include the lack of financial support and the lack of data to perform research.

Session Summary:

Africa remains one of the least represented continents when it comes to contribution authors of the latest IPCC report. It appears that one of the main limitations is that Focal Points are not well connected to research communities / institutions and thus, they cannot recommend suitable candidates. The Focal Points are predominantly from Meteorological agencies which often do not have links with other departments to ensure that they are aware of what researchers doing - for example researching social issues not directly linked to Meteorological work. The IPCC will not get involved in this matter and will only invite/suggest/mention people that potentially could be included. This is something that warrants further attention, but ultimately it is up to the country to decide on whom to nominate. Other factors that limit the number of authors include the fact that often their work does not appear in peer- reviewed publications thus they can't be nominated - and that the authors do not get remunerated for their time. The latter is of particular importance given that being an IPCC author is "bloody hard work".

BREAKAWAY SESSION 2

SCIENCE-POLICY INTERFACE (ADAPTATION AND MITIGATION)

I. ADAPTATION

Theme: POLICY IMPLICATIONS AND PRIORITY ACTIONS IN AFRICA

Facilitator: Dr. Chris Moseki (Dept. Water and Sanitation, South Africa)

Keynote speaker: Dr Christopher Field (Director, Department of Global Ecology, Carnegie Institution) Co-Chair of WG II

Speakers:

- **Professor Colleen Vogel (Department of Geography, Meteorology and Geo-informatics, University of Pretoria, South Africa) LA of AR5 WG II Chapter 12 on Human Security**
- **Penny Urquhart (independent climate change adaptation and sustainable development analyst, South Africa, LA Ch 22 WG II)**

Introduction: Dr Moseki

Identifying the gaps from the IPCC AR5 report on Adaptation: what are the policy implications from Africa?

Dr Field emphasised the need to adapt and mitigate. Climate change impacts over the next decades are already baked into the system therefore it is very important to continue investing in decreasing vulnerability in basic economic development; investments that work

in a suite of hazards are most effective. Currently it is hard to tell what works and what doesn't in investments in adaptation.

Building resilience and reduce exposure and vulnerability in Africa

Professor Vogel presented the enabling factors for adaptation which include: effective institutions and governance; innovation and investments in environmentally sound technologies; sustainable development. What is lacking is social learning so that adaptation can become sustainable.

Climate change, livelihood and poverty

Penny Urquhart underlined the need for proactive adaptation and strong efforts to reduce poverty, vulnerability and inequality – opportunities for increased resilience building include insurance programmes, social protection, disaster risk management and support for community-based adaptation.

Session summary

We are in an era of climate change responsibility and need to position adaptation on a continuum informed by a research agenda. We need to understand what works and what does not, this requires cyclical, social learning in order for the implementation of anticipatory adaptation in high poverty and vulnerability contexts. Multidimensional vulnerability is driven by intersecting dimensions of inequality, socioeconomic pathways and climate change and climate change responses.

Key Points

1. We need to adapt *and* mitigate.
2. We have to make investments now; climate change impacts are already baked into the system.
3. Importance of basic economic development
4. Researchers have a good sense of vulnerability, but what is lacking is monitoring and social learning. Thus, it is difficult to determine what works and what doesn't. Long term follow up on adaptation investments is important– we need sophisticated statistical analysis and a research agenda.
5. Successful, sustainable adaptation calls for strong efforts to reduce poverty, vulnerability and inequality, effective institutions and governance, innovation and investments in environmentally sound technologies.
6. Research and sophisticated analysis will facilitate the transition from reactive to proactive, anticipatory adaptation investments.
7. Temperature anomalies don't diverge for the next few decades between the different emissions scenarios because of inertia in the climate system and inertia in the social and economic system. But it will be an error in responsibility if we do not

take action now because decisions made in the next few decades will play out until the end of the century.

8. Adaptation investment – how do we think of investments in adaptation? Bearing in mind that investments in decreasing in vulnerability now have the highest impact later on (access to water, health, electricity, etc.).
9. Adaption would be more effective if the underlying causes of poverty and inequality are addressed. Questions still remain whether current adaptation options really ameliorate livelihoods and poverty and if they are decreasing vulnerability.
10. There need to be methodologies/frameworks in place for cyclical learning and decision-making support to enable proactive adaptation in high poverty and vulnerability contexts.

Q&A:

Q. What practical actions would you suggest to address poverty and reduce inequality?

A. Participatory idea is key; policies need to evolve, including feedback loops; involve a wide range of stakeholders in a vulnerability assessment and make extra effort to include the marginalised. PU

Q. What kind of key research messages/ actions would you like to see being up taken and implemented?

A. There is an abundance of scientific information that needs to be implemented. This knowledge needs to be transferred. A conversation needs to take place between scientists who have the information and the policy makers that need that info. A co-production of knowledge. There are many stakeholders involved and they all need to be brought into the process. Co-production of knowledge and the transfer of this knowledge. CF

Q. Adaptation policy should focus on poverty and inequality. And the science – policy interface – what is your view for having a particular institute to getting the ball rolling to be the interface between science and policy?

A. We are really needing action on both side. When we develop our adaptations options we need to make sure they tackle the root cause of vulnerability, which is poverty and inequality. Proper vulnerability assessments are needed.

The IPCC contains a lot of information that needs to be disseminated. PU

4. Co-production of knowledge (social learning) – are we in a position to use such knowledge form AR5 in the next cycle of the IPCC report? Please elaborate on urban growth and food security?

Yes we are. The research community has not included this in the IPCC report, we still have to figure out how to do it. An example being the southern Africa Risk and Vulnerability Atlas (www.sarua.org), which maps risk and vulnerabilities across 12 southern Africa countries. (The Southern Africa Regional Universities Association (SARUA) looks at what climate change research is being done in Southern Africa and who is doing the research). PU

Yes, the increased urban growth and food security issues appear counterintuitive. With rising food costs, it results in a new vulnerability. The food is there but can they afford it? PU

5. Co-production and transfer of knowledge – the lack of resources hinders following up on projects. How are we going to take this information back to the communities?

This is the classic problem for adaptation research. We should make sure that there are funds available for the follow up. This is what needs to be communicated to the funding agencies.

6. What would you say are the greatest gaps in knowledge on climate change science if explored further will fill these gaps? How do we rope in the different sectors? How do we bring in the social/formal media? What is the role in education to disseminate the info? Would it be possible for people across our continent to bring info/experience to share what works and what doesn't?

There is a wide range of material that has become available in the latest IPCC report. But there is a need for a conversation to take it further. Not just one conversation but many about smart ways to tackle the problem to decrease the impacts of climate change. CF

Knowledge and institutional gaps – we have knowledge and capacity gaps, but we need to start somewhere and keep moving forward. PU

7. How do we utilise this platform here to take the information to a broader scale? How do we best use the people here in the room?

The move from discussion to action involves taking the message forward to the groups/communities that need it. It all comes back to the conversations that need to happen and continue to happen. The core challenge is communication the messages to multiple stakeholders – there is no magic bullet but there are smart issues that can be done now – this conversation needs to start a thousand conversations which start a million conversations. CF

SCIENCE-POLICY INTERFACE

MITIGATION

Facilitator**: Harald Winkler (Dir Energy Research Centre UCT, South Africa) LA AR5 WG III Chapter 13**

Speakers**:**

- **Yacob Mulugetta (Professor of Energy and Development Policy, and Director of the MPA programme at the Department of Science, Technology, Engineering & Public Policy (STEaPP) at University College London) CLA AR5 WG III Chapter 7**
- **Diana Ürge-Vorsatz (Center for Climate Change and Sustainable Energy Policy, Central European University) Coordinating Lead Author, WGIII, AR5, WG III Chapter 9**

Introduction: Harald Winkler

Challenges for Africa

Yacob Mulugetta gave an overview of growth and development on the African continent – future emissions are expected to rise with development; equity, justice, fairness and co-benefits strengthen the basis for taking climate action; Africa is urbanising fast – there are opportunities for secondary cities and for regional power pools; also huge renewable energy potential; policy instruments that need to be looked at include feed-in tariffs; RE targets; soft loans for rural areas, market mechanisms and unlocking domestic resources.

Science and policy interface: policy implications from mitigation in buildings in an African context

Diana Ürge-Vorsatz presented the following key messages:

- While demand for building energy services will increase by orders of magnitude in Africa, there are many opportunities to keep it driving the total energy demand (and emissions up)
- Most energy efficiency opportunities are at a net profit
- But there are numerous barriers that warrant policy intervention

- A broad portfolio of policy instruments exist that facilitate the adoption of energy efficiency opportunities
    - ❑ Mostly related to technology adoption, some related to behaviour
- Many of them have scored among the most cost-efficient mitigation measures/policies so far, and are applicable/appropriate for Africa

Mark New during the group work session

Session Summary:

Africa, in general, has little responsibility for historical emissions, yet is projected to be one of the regions hardest hit by climate change. Coincidently, the continent is expected to be one that contains high growth, with current figures revealing that 6 of the top 10 fastest growing countries around the world are within Africa. Given the need to cut down on emissions, how is it possible to decouple this growth with greenhouse gases emissions?

This does provide opportunities to explore and trial low carbon measures in the region. Careful consideration of infrastructure developments and long-lived products need to be made, given that they can lock societies into an intensive future emission pathway and will be costly to change if required. Both the private and public sector need to play a role in this. In some countries the private sector is not strong enough, which implies the public sector needs to play a more considerable role. The key will be to establish clear, consistent and achievable targets for clean energy development.

World Café / Carousel Session:

Topics/Questions

1. Should South Africa devalue coal, reduce fossil fuel subsidies or take other measures in relation to fossil fuels?
2. What are the implications for limited future global carbon budgets for action at the global, national and community level?
3. What is economically viable – a transition to a low carbon economy or delayed action on mitigation?
4. Do greenhouse gas emissions need to go to zero?

1. Should South Africa devalue coal, reduce fossil fuel subsidies or take other measures in relation to fossil fuels?

Challenges	Solutions
Storing energy	Remove some of the subsidies for fossil fuels
Carbon subsidies	Cleaner coal technologies
Labour, politics, jobs attached to coal	Phased approach for reducing reliance on carbon and progressive implementation of renewables
	Good planning, education, re-skilling
	Energy mix
	Allocate portion of subsidy savings to poor
	Harvest regional hydropower
	National Development Plan

2. What are the implications for limited future global carbon budgets for action at the global, national and community level?

Challenges	Solutions
Perpetuation of climate change related disasters	International community to fund adaptation and mitigation
Strain on economies in trying to address impacts of climate change	Building resilience
Poverty exacerbation	Global co-operation
Increased risk	National institutional cooperation and coordination
	Promote easy access to gridded renewable energy

3. **What is economically viable – a transition to a low carbon economy or delayed action on mitigation?**

Challenges	Solutions
Costs	Early action is required
Abrupt transition - stagnation	Cost of not doing anything vs the cost of doing something has to include impacts on socio economic issues such as health
Nuclear option – waste issue	Global transition - more cost-effective
Job losses	Technical transfers, capacity building
Need training and education	Financing by multilaterals
SA is a dual economy with policies focused on the formal economy	Funding needs to be made available in order to transition
How do you balance environmentally integration and economic viability?	Need to look at both the long and short term
Rural versus urban areas – rural areas more dependent on the environment	Regional cooperation
Off grid renewable energy	
Cannot use renewable energy as base load is not high enough	

4. **Do greenhouse gas emissions need to go to zero?**

   Answer: Yes – by 2050!

Challenges	Solutions
SA is coal reliant	SA take a lead in Africa
High GHG/capita	Solar, wind, hydro (SAPP), nuclear (?)
2020 -2030 stabilise GHG – decline in absolute terms	Technologies
Zero emissions without compromising development	Efficiency
	Net zero local scale e.g. buildings
	Low carbon transport
	Regional net sinks
	Regulations
	Watershed; carbon farming
	Markets?

Close and thanks

- **Jonathan Lynn, IPCC Head of Communications**
- **Jean-Pascal van Ypersele, (Professor of Climatology and Environmental Sciences at UCL Belgium) Vice-Chair of the IPCC**

- **Simbisai Zhanje, Project Manager, Climate and Development Knowledge Network**
- **Maesela Kekana, Chief Director, International Climate Change, DEA**

IPCC CONFERENCE REVIEW – OPINION

Dr Mark Nyandoro - University of Zimbabwe
Water, Energy, Land, Climate Change & Environmental Researcher and Senior Research Associate in the Research Niche for the Cultural Dynamics of Water (CuDyWat), North West University (Vaal Triangle Campus), South Africa

This submission represents my views or opinion on the just concluded **Intergovernmental Panel on Climate Change** (IPCC). The IPCC held the event from the 10th - 11th November, 2014 at the Gallagher Convention Centre in Midrand, South Africa, on the theme: **"Think globally, Act locally".** It was a milestone achievement in the IPCC's quest to include diverse stakeholders (ranging from researchers, academics, government policy makers and legislators, ambassadorial or diplomatic representatives, municipal authorities, civic society, labour, the business community to the media fraternity) in influencing climate change policy and public awareness through scientific research. The conference, which underscored the significance of understanding climate change in our era, provided a highly interactive forum to exchange knowledge on key issues bedevilling South Africa and other nations in both the global South and North. The conference attracted a very good audience from various sectors and from a number of countries in the southern African region, Europe, the US and beyond.

The structure of the conference revealed the enormous amount of planning that had gone into the preparations for this resoundingly successful conference in terms of output (deliverables) and participation. The structuring of the deliberations was expertly and professionally done. The messages delivered by the presenters, who are experts in the field, the well-organised panel discussions and the opportunity available for questions and answers was commendable, though more time could be allotted for this purpose in future. Indeed, the discourse on climate change was a scholarly, scintillating and stimulating spectacle, emphasising **action now** and **not later**. It was good for the conference to emphasise the dire consequences of climate change (i.e. destruction to infrastructure, environmental and socio-economic well-being) and to remind us that as nations we cannot afford to ignore climate science. Hence, the need to design appropriate adaptation and mitigation strategies on a country, regional specific and systemic basis.

Having said this, it is imperative to reflect on the future. Suggestions that may be incorporated into future programmes to suit the objectives of the IPCC include:

(a) Intensifying aspects such as climate change education, training, public awareness raising and information dissemination (publicity and communication) among different population strata so that the understanding of global warming and its deleterious impact on society cascades downwards and upwards (top-down and

bottom-up approaches). This would be deliberately promoted by the IPCC to enable its outreach programmes to be extended to influence, *inter alia*, urban (cities) and rural communities (villages), the rich, vulnerable populations (i.e. the poor, women and children), the technocrats, practitioners, governments, government agencies and all the relevant institutions (participatory approaches to climate change and development).

(b) Researchers or paper presenters could integrate policy recommendations into their discussion. Such recommendations would need to be followed up by the IPCC to ensure implementation, or assistance with the expertise (pre-requisite knowledge) required for implementation; most government officials (policy-makers) are not experts on climate change and need expert guidance. This approach would then address how the IPCC makes the general populace and the governments aware, listen and act (enforcement) in response to the suggestions made at the IPCC forum, without being policy prescriptive. This is in view of the fact that, because the IPCC seeks to be policy relevant, there must therefore be an intensified way of expeditiously supplying feedback on such conferences' findings (outcomes) to governments (decision-makers) about the major issues which emerged, especially on major findings and how these can be implemented or recommended at the policy level. This will ensure that the IPCC does not become a mere 'talk shop', as has happened with other global initiatives.

(c) The IPCC should encourage and further strengthen institutional coordination on climate change issues among various sectors and stakeholders.

(d) Enhancing or augmenting the state of climate change preparedness in light of droughts and floods which have become endemic in the world. Whilst parliamentary caucuses exist in different countries, these could be urged to desist from being reactive and become more proactive in their general state of preparedness to the adverse impacts of climate change. The state of preparedness is important and states and regions should be encouraged to pursue alternative options vigorously.

(e) The question and answer sessions could be allocated more space in order for the conference to eke out maximum benefit from participating international delegates' input and insight on climate change.

(f) Last but not least, climate change communication could be facilitated through various types of media, i.e. the formal (print media, radio) and the informal media (social media) et cetera.

Dr Mark Nyandoro (University of Zimbabwe)

This document is an output from a project funded by the UK Department for International Development (DFID) and the Netherlands Directorate-General for International Cooperation (DGIS) for the benefit of developing countries. However, the views expressed and information contained in it are not necessarily those of or endorsed by DFID, DGIS or the entities managing the delivery of the Climate and Development Knowledge Network, which can accept no responsibility or liability for such views, completeness or accuracy of the information or for any reliance placed on them.*

The Climate and Development Knowledge Network ("CDKN") is a project funded by the UK Department for International Development and the Netherlands Directorate-General for International Cooperation (DGIS) and is led and administered by PricewaterhouseCoopers LLP. Management of the delivery of CDKN is undertaken by PricewaterhouseCoopers LLP, and an alliance of organisations including Fundación Futuro Latinoamericano, INTRAC, LEAD International, the Overseas Development Institute, and SouthSouthNorth.