



Seminar Report

Title: Climate Risk Impacts and Adaptation in Southern Africa

Place: ISS Conference Room

Date: Monday 22 June 2009

Presenter: Dr. Emma Archer, Climate Change, CSIR Natural Resources and Environment

Respondent: Dr. Jakkie Cilliers, ISS Executive Director

Chair: Dr. David Zounmenou, Senior Researcher, ISS African Security Analysis Programme

On 22 June 2009, the ISS had the privilege of hosting Dr Emma Archer from the Council for Scientific and Industrial Research (CSIR, Climate Change), at a public seminar in Pretoria. Dr. David Zounmenou, Senior Researcher, ISS African Security Analysis Programme, chaired the seminar and Dr. Jakkie Cilliers, ISS Executive Director was a discussant. The aim of the seminar was to discuss climate risk impacts and adaptation in Southern Africa. In particular, it aimed at discussing how climate change is affecting Southern Africa and what the future may look like for the region. In addition, it also sought to map out some possible response mechanisms.

The African continent, Sub-Saharan Africa in particular, is faced by a number of weather and climate-related challenges, particularly small-scale cyclones, floods and droughts. Available evidence suggests that the negative impacts of climate change are greater and expected to grow more rapidly in the developing world, especially in sub-Saharan Africa. The adverse impacts and losses resulting from these events are relatively high. As if this is not enough, abject poverty and non-existent and/or weak governance institutions make populations very vulnerable, with little capacity to prepare for and recover from these calamities.

What has become a major concern for environmental conservationists/scientists, academics, advocacy groups and to a minimal extent, government officials, has been an increase in the frequency and intensity of these climate-related challenges. Unfortunately, as many experts reports and/or studies (such as the Oxfam report) have found, this is expected to continue to varying degrees under different climate scenarios for the future, based on the extent of greenhouse gas emissions.

The need to respond to these changes is urgent as the climate change-related impacts are starting to emerge more rapidly than before. Therefore, an urgent need to ascertain and determine how best to respond to these climate stresses becomes imperative.

Presentations

In introducing the topic, the main speaker (Dr. Archer) began her presentation by quoting from the 2009 Environmental budget vote speech made by Mrs Buyelwa Sonjica, the South African Minister of Water and Environmental Affairs. According to the minister, ‘...climate change is a threat to the stability of our country and, if left unattended, can cause serious damage not only to the environment, but to the entire ecosystem and our ability to meet the Millennium Development Goals (MDGs). There is a great need to demystify the climate change debate ...”

Dr Archer went on to outline five focus areas of her presentation. The first area was a commentary on climate change, looking at recent explanations and observations of this phenomenon. The second part of her presentation looked at the projections for Southern Africa. The third part focused on selected sectors vulnerable to climate risk in southern Africa. In her fourth area she talked about the thinking around adaptation and response. The last part of her presentation focused on the way forward, the road to Copenhagen, and strategies in South Africa and SADC; Nairobi Declaration (May-June 2009)

According to the speaker, many people often talk of climate change as a global warming. She argued that this is both right and wrong. She told the participants that climate change is not new, the earth has been experiencing significant variations in climate during an estimated five billion years of life (e.g. Ice ages; parts of earth under glaciers). Participants were told that, what is of particular concern today is the warming of the earth's climate, occurring more rapidly than any previous climate changes that earth has experienced. In stressing the link between climate change and global warming, it was argued that, unlike previous climate changes – the current global warming has a clear man-made component.

Dr Archer further explained the concept of climate change by talking about global warming and greenhouse effect. The greenhouse effect is actually a vital atmospheric process, without which the planet couldn't sustain life. According to her observation, human activity has begun to alter the composition of the earth's atmosphere and to her, nothing like this was ever experienced before.

She also noted that the enhanced greenhouse effect and global warming are by-products of industrialization. For instance, the CO₂ from fossil fuel combustion (coal, oil etc) have augmented the amount of greenhouse gases in the atmosphere. Increase in greenhouse gases traps additional heat energy within the atmosphere and this is predicted to have range of effects on the planet's climate. According to the speaker, a collective picture of a warming world indicates that global average surface temperature has increased over 20th century by about 0.6 Celsius and climate change is already occurring (e.g. temperature raises in parts of SADC).

The Southern African projections provided by Dr Archer indicates that all of Africa is likely to warm during this century. The participants were told that warming is likely as demonstrated by the global annual mean warming throughout the continent and in all seasons. Drier subtropical regions in the continent are warming more than moister tropics.

In addition, Dr Archer went on to talk about selected sectors vulnerable to climate risk in Southern Africa. These sectors include agriculture, water, health and urban areas/settlements. Around agriculture she talked about; (1) first order-change in temperature (e.g. heat stress effects on maize and livestock); (2) second order- change in frost or heat units; (3) third order-shifts in yields, geographical production areas, pest/diseases for agricultural, horticultural, pasture, timber crops, for livestock, fisheries impacts and lastly; (4) fourth order- food security, livelihoods, international trade.

She pointed out that the water sector is also faced with profound challenges. These include; (1) Increased temperatures - catchment run-off and groundwater recharge, (even in event that rainfall remains unchanged); (2) Higher average water temperatures - poorer water quality due to more algal blooms (amongst other reasons); (3) Floods and storms- which threatens infrastructure, increase soil erosion, affect water borne diseases; (4) Droughts—which reduce the amount and quality of water in rivers and dams; (5) Greater variability of rainfall year-to-year and lastly; (5) Disaster management and dam infrastructure implications. According to Dr Archer, Southern Africa has been experiencing decrease in winter rainfall. Western Cape is the first province to come up with strategy to address the problem of climate change.

More to this, the speaker said that, unlike other sectors, the health sector has tended to be a somewhat neglected sector; yet there is range of exciting works in the science and science-policy arena. She mentioned the recent Oxfam report that highlighted range of potential health problems sensitive to climate risk. These problems include, heat stress, air pollution, disasters related to climatic extremes, vector borne diseases (e.g. malaria, dengue, schistosomiasis & tick-borne diseases), water borne & food-borne diseases (e.g. diarrhoeal diseases), food security and water security

The urban areas/settlements will equally experience adverse ramifications. Admittedly, cities are not only agents of climate change but they are also impacted by it. A question then is, what would a more resilient city look like under conditions of climate risk? And what should be put in place – where are the gaps?

In mapping out the way forward, Dr Archer said that there is a need to acknowledge the flaws of a sectoral approach. Governments need to move towards multi-sector strategies (e.g. intra-departmental coordination on water-health-livelihoods link in both causation and adaptation strategies). According to her some adaptation mechanisms include; acknowledging the challenge of complex emergencies/multiple stressors (e.g. cholera outbreak – summer 2008/9); win-win strategies (e.g. corridor and landscape planning as an adaptation strategy)-link to overall thinking on policy on climate change and environment in Africa – multiple synergies and lastly; root adaptation in what is currently done to cope with climate variability (from the communal farmer to the mining house).

In concluding, the speaker also talked about the domestic, regional and continental adaptation and coping mechanisms. She said that South Africa and SADC are tackling the climate change problem by moving beyond communication and dissemination of climate risk science to real sectoral and multi-sectoral impact. Other adaptation mechanisms adopted by South Africa include; Second National Communication on Climate Change; Global Change Grand Challenge; including Risk & Vulnerability Atlas; Adaptation and other climate change units at Department of Water and Environment and lastly; Units at Department of Water and Environment – with key focus on concrete strategies across departments, including water, health, disaster management, agriculture (planning commission in Office of the Presidency)

The work in the SADC region include, coupling climate change capacity building to existing SADC early warning and disaster management processes. At a continental level, developments around adaptation mechanisms include Nairobi Declaration on African Process for Combating Climate Change (May-June 2009).

She concluded by saying that there are some hopes in international climate negotiation that a new, international climate change agreement for the post-2012 period will be agreed in Copenhagen in 2009.

In response, Dr. Jakkie Cilliers, started his presentation by arguing that, though Africa is the continent the least responsible for greenhouse gas emissions is almost universally seen as most at risk of climate-induced conflict—a function of the continent's reliance on climate-dependent sectors (such as rain-fed agriculture) and its history of resource, ethnic and political conflict. With its tremendous natural resources and remarkable social and ecological diversity, the continent reflects a close dependency of people on natural resources. According to him, it is this dependency and its fragile governance capacities that may present Africa with potentially severe problems in adapting to the challenges of climate change.

Dr Cilliers then highlighted the relationship between population trends and climate change as key driver that will impact upon climate change trends through impact upon water, energy usage, food consumption/agriculture, garbage, pressure on ocean.

Part of his presentation also looked at the causes and effects of climate change, physical changes associated with it and human impact. He argued that one of the causes of climate change is increased emissions. Dr. Cilliers pointed out that Africa plays an important global role in climate change since its equatorial forests serve as a giant carbon sink.

The climate change effects mentioned in his presentation include; rising surface temperatures, rising sea levels, more acidic oceans, change in local rainfall and river run-off patterns, accelerated species extinction rates and loss of biodiversity and ecosystem services. The physical changes mentioned include gradual environmental degradation as evidenced by melting glaciers, shore retreat, water pressure, salinisation and desertification; extreme events such as floods, droughts, storms, heat waves and cyclones and lastly; risk of large scale tipping events.

Dr. Cilliers pointed out that the human impact associated with climate change relates to food security (reduction in crop yield and hunger), health (malnutrition, diarrhea, malaria and

cardiovascular), poverty (income loss in agriculture, fisheries and tourism), water (scarcity of fresh water, quantity and quality of it) and displacement (voluntary and involuntary displacement).

It was argued that, climate change in itself probably not a direct cause of conflict but a threat multiplier that will make existing problems worse. According to Dr. Cilliers, recent research broadly agrees that four main climate links to conflict in Africa may emerge. These links include (1) reduced water supply and growing demand will, in some places, lead to increasing competition between different sectors of society, different communities and different countries; (2) Reductions in crop yields and increasingly unpredictable weather patterns around the world may lead to higher prices for food, greater food insecurity and increase the stakes for control over productive agricultural land; (3) Changes in sea level, increased natural disasters and the reduced viability of agricultural land may cause large-scale and destabilising population movements and lastly; (4) Cumulative impact of all these challenges on the prevalence of poverty and the ability of governments to provide services to their citizens could be a factor that tips fragile states towards socio-economic and political collapse.

Moreover, Dr. Cilliers stressed that Africa's rapid urbanisation will partly offset some of the worst impacts of climate change. Rural subsistence farming is most likely to be the hardest hit. According to him, while worldwide, agriculture represents about 70 per cent of water withdrawal in sub-Saharan Africa the figure is 87 per cent. Since Africa will experience the highest population growth in the world, it will face the greatest demand for food production or imports in a region experiencing a declining ability to meet these demands.

Towards conclusion he identified the following two possible future scenarios; firstly, resumption of commodities boom and continued improvements in quality of African governance and economic conditions and secondly, poor global growth and increased instability, poor governance and low levels of economic growth.

In concluding, he asked a question as to, why is Africa so particularly vulnerable? According to him, in answering these questions what should be taken into account is Africa's global position and the fact that many African economies dependent upon sectors susceptible to climate changes, e.g. agriculture, fisheries, forestry, tourism. The lack of good governance, persistent and widespread poverty, poor economic and social infrastructure and limited human, institutional and financial capacities to adapt are all important contributing factors.

According to Dr. Cilliers, the key considerations moving forward include; protection of African equatorial forests, management of urban growth, restoration of African subsistence and commercial farming, improved governance - to allow for the better utilization of African energy, water and management of urban spaces and lastly, improving Africa's ability to monitor climatic developments

Discussions

During the discussions the role of urban areas/cities in augmenting and/or mitigating climate change was discussed. Some participants argued that cities used to be the hub of development but now they seem more of a threat to human security in Sub-Saharan Africa. The participants were of the view that cities need to be viewed as effective tools for responding to the problem, not as a threat. Although they are agents of climate change, cities also provide some good opportunities of responding to climate change. It

There was a consensus that climate change is a cross cutting issue and response mechanisms to it need to be as such as well. African governments need to develop a comprehensive framework and synergised climate change programmes. It was argued that cities are going to be one of the major coping mechanisms – the management of urban spaces will therefore present Africa with a major challenge in the years that lie ahead.

One of the challenges highlighted during the discussions is that government/city contact desks or focal points on climate change tend to be the departments of environment, with no synergy and/or coordination.

It was observed that, the debates on climate change are taken seriously in South Africa and the government is taking a progressive steps but this is not the same in many other African countries. It was also pointed out that, improving African governance and state capacity is very important if Africa is to effectively respond to climate change. Africa doesn't have water shortage or energy shortage but rather, it has a governance shortage. The general consensus was that there is a need to continue raising awareness on climate change in Africa. Robust engagement on climate change need not to be only limited at policy level but it needs to be directed at citizenry/grass root level as well.