Synopsis of CCAA Workshop on Integrated Climate Risk Assessment

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Nairobi, Kenya

Backdrop

The workshop on Integrated Climate Risk Assessment was supported by the IDRC & DFID Climate Change Adaptation in Africa (CCAA) programme, and facilitated by the Intergovernmental Authority on Development (IGAD) Climate Prediction and Applications Centre (ICPAC).

This week-long workshop brought together representatives from the various projects that are running under the CCAA programme, along with other interested participants (journalists, policy-makers and community leaders) from Kenya. Details of CCAA projects are provided on the CCAA website, under the "Addressing the Climate Vulnerabilities of Urban Africa" call (http://www.idrc.ca/ccaa/ev-131052-201-1-DO_TOPIC.html). Among this group are several initiatives that – like URAdapt – touch upon water and sanitation at the urban-rural interface. However, URAdapt appears to be the only one that focuses on these aspects explicitly.

In her opening remarks on the first day, the IDRC Regional Director for East Africa emphasised that the CCAA programme places a particular premium on capacity-building of both project partners and other stakeholders; enrolling and benefitting vulnerable groups; as well as supporting and drawing from the growing African knowledge base on climate change in order to effect changes in policies and practices.

The first three days focused on harmonising participants' understandings of key climate change concepts (such as hazard, adaptation, mitigation, climate variability, climate change, risk and vulnerability). They also covered potential climate change impacts on individual sectors. Day 4 centred on data requirements and methodologies for climate change research. The final day consisted of project presentations (with a focus on the lessons learnt during the workshop).

Each session consisted of short presentations by workshop facilitators, followed by plenary or small group discussions.

Day 1

The opening day of the workshop was dedicated to introducing participants to concepts of climate change risk, climate change science and climate change mitigation. The take-home messages included:

- The multifarious nature of climate risk. This is a product of not only climatic threats, but also socio-economic vulnerabilities and adaptive capacities.
- As a result, climate risk can only be assessed on the basis of data from various sources (meteorological, socio-economic, etc.) and from a long time period. Although there is a growing repository of information at the global level, this remains to be downscaled for

several parts of the word, including Africa. As a result, there is a lack of localised information on the climate. One valuable source of data that is frequently overlooked is indigenous knowledge. Oral histories, community rituals and place names are among the clues to understanding how climate has change in the past.

- There is growing consensus that, as a result of anthropogenic factors, the climate is changing beyond its natural variability. Mitigation measures may moderate the impacts of these structural climate shifts; however, they will not reverse them. Consequently, adaptation has become an imperative – particularly for several developing regions, which have weak basic infrastructure and public services.

- Industrial (and other) pollution is not the only contributor to accelerated climate change. Environmental management has to be a key element of mitigation and adaptation strategies. Africa can contribute to mitigation through changes in land use and agricultural practices including, reforestation of degraded land, agro-forestry, rangeland improvement and dryland rice cultivation.

- Communities across the globe are adapting in innovative ways to the localised manifestations of climate change. These must not be overlooked in the search for macro approaches towards climate change.

- A challenge for climate risk management – be it in the form of mitigation or adaptation – is communication. This must occur between all relevant stakeholders and in a language that is meaningful to all.

Much of the discussion that followed the facilitators' presentations centred on the impacts of climate change mitigation on socio-economic development. Facilitators emphasised that in international climate change negotiations, mitigation was believed to be the responsibility of so-called Annex I (industrialised) countries. According to received wisdom, non-Annex I (industrialising) countries are expected to follow the same trajectory of socio-economic advancement as their Annex I counterparts, implying some (if not a similar) degree of greenhouse gas (GHG) emissions from carbon-heavy industries. The United Nations Framework Convention on Climate Change (UNFCCC) releases non-Annex 1 countries from mandatory mitigation. It allows for a certain level of emissions as part of the industrialisation process.

Participants also queried what the optimum balance is between mitigation and adaptation for developing countries. Facilitators noted that adaptation is the priority. Mitigation strategies that are in support of development may clearly be implemented; but, these cannot be expected to be the starting point.

Facilitators also noted that adaptation is a form of mitigation. Its ultimate goal is a low-carbon growth economy. Mitigation offers a range of benefits, which must not be overlooked. These include near-term health benefits from reduced air pollution; energy security from alternative and domestic energy industries; trade revenue; energy access in rural areas; environmental restoration and protection through sustainable agriculture; along with employment opportunities.

Day 2

Day 2 centred on sector-specific climate change impacts. Although individual sectors provided the organising principles around which to examine climate change, facilitators and participants noted from the outset the interconnected nature of its affects.

The key messages of the presentations included:

- Africa is already under pressure from climate stresses, and highly vulnerable to the impacts of climate change. Africa hosts highly variable climates. This variability is expected to become more severe with climate change.

- The following 'baseline' factors make Africa vulnerable to climate change: widespread poverty, weak institutions, limited infrastructure, a lack of technology and information, poor access to resources, inequitable land distribution, armed conflicts and an overdependence on rain-fed agriculture.

- The anticipated health impacts of climate change include an increased incidence of respiratory and water-borne diseases. In agriculture, crop yields are expected to decrease in areas that will witness less rainfall, and the extent of irrigated agriculture is expected to increase. Forestry is expected to compete with other land use demands, as forests are increasingly set aside as 'carbon sinks'. The geographical range of forest belts is also anticipated to change, along with forest health and productivity. Coastal zones are under threat of erosion and inundation, and the protection of coastal communities will become a (costly) priority. In the water sector, global projections suggest increased water availability in moist tropics and high latitudes, which mid-latitudes and semi-arid low latitudes are expected to experience decreasing water availability. African livelihoods are highly dependent on rainfed agriculture. However, this is vulnerable to even small changes in rainfall pattersns. Water harvesting is expected to be among the adaptation strategies for the water sector.

- In terms of urban development, Africa is experiencing an overcrowding of cities and an increase in the numbers of urban slums. Wetlands, river valleys and coastal zones are popular sites for settlements, and have evolved into centres of government and commerce. These areas are susceptible to damage during extreme climate events. The most vulnerable groups will experience the greatest impacts. The migratory implications of climate change are complex: on the one hand, urbanisation is expected to increase as rural populations head to the cities to compensate for destroyed land-based livelihoods. On the other, sea-level rise may force urban dwellers into rural areas.

- Among the difficulties in preparing for the impacts of climate change is the lack of interaction between individual sectors. However, climate change necessitates joined-up thinking between them.

- As mentioned earlier, climate change is expected to compound existing vulnerabilities. This includes exacerbating existing inequalities between genders, generations, as well as able-bodied and disabled individuals.

- The conclusion of the sector-specific presentations was that climate change will undermine or undo progress made in socio-economic well-being in Africa.

Day 3

Day 3 was dedicated to climate change adaptation and vulnerability. The key lessons included:

- Vulnerability to climate change essentially refers to the risk of occurrence of climate hazards. Vulnerability can be measured through the level of exposure to threats, socio-economic sensitivity and extent of adaptive capacity.

- In assessing vulnerability to climate change, the exercise should have a clear set of questions that it seeks to answer from the outset. These will motivate the choice of models and methods. Assessment exercises must draw on information over various time scales (short and long term).

- There are a range of definitions for adaptation. This is generally taken to refer to adjustments to ameliorate the adverse consequences of climate change. Comprehensive adaptation measures are both responsive and anticipatory.

- 'Risk' and 'vulnerability' assessments are often used interchangeably. Broadly speaking, the former refers to climate risks, while the latter refers to socio-economic risks.

- Adaptation is vital: regardless of mitigation measures that are put in place, climate change is inevitable.

- The impacts of mitigation may not be seen for many decades. However, most adaptation activities tend to take effect almost immediately. Moreover, adaptation is easier to implement on a local scale, and is less dependent on the actions of others. In addition to reducing risks of future climate change, adaptation will also reduce risks of current climate variability.

- Adaptation will vary across spatial scales and temporal scales. It must address complex and uncertain conditions, and draw on multidisciplinary expertise (climatology, ecology, economics, natural resource management, public health, disaster risk management and community development). Adaptation strategies must seek to reduce vulnerabilities in a context-specific manner. There is no one-size-fits-all solution. Responses and measures have to be mainstreamed into development and poverty eradication processes. If vulnerable groups are overlooked, they risk significant deprivation, social disruption and population displacement (even morbidity and mortality).

- The facilitators presented various analytical frameworks for assessing vulnerability (see presentations in folder labelled "Wednesday"). See also the START/ AIACC framework on the Assessment of Impacts and Adaptation to Climate Change (AIACC) website.

- In general, assessments proceed according to following rules of thumb: 'what are the causes of climate change', 'what are the impacts of climate change' and 'what can be done about them'.

- Key questions to consider include ‘what is the starting point for adapting to risks of climate’, ‘is climate given the appropriate ranking as a factor in political decision-making’ and ‘how is it mainstreamed’.

Day 4

The penultimate day focused on climate change scenarios and data sources, as well as downscaling techniques. The central lessons included:

- Socio-economic scenarios consider economic growth, changes in the global population, rate of population growth and population peaks, and technological evolution.

- Scenarios are accounts of the future based on assumptions about the trajectory of the climate and socio-economic life.

- Scenarios take as their starting point a real-life problem. Due to the constraints in accessing data about that problem (which is foreseen to occur in the future), climate change scientists modify it into an ‘ideal problem’. They seek solutions to this ideal, and make adjustments to enhance the comparability of the ‘ideal type’ with the ‘real-life type’. In other words, scientists ground-proof scenarios and the outputs of modelling. Where there is a good match between the ideal type and the real-life type, the information can be used with greater certainty as the basis for planning.

- Scenarios serve multiple purposes: they are communication tools about what is known and not known about climate change; they illustrate future climate change; and can be used for strategic planning.

- There are various sources of climate data. These include the World Meteorological Organisation (WMO), which through the World Weather Watch (WWW) provides global information on the weather and the climate.

- WWW consists of three elements: the Global Observing System (network of observing stations and other facilities), the Global Data Processing System (an integrated system to analyse the data) and the Global Telecommunication System (to collect and distribute data).

- However, there is a data void on the African continent due to a lack of sufficient and functioning observation stations.

- Remote sensing and GIS are also important tools for researching climate change.

- There are several tools available for assessing climate risk. Collectively, these evaluate the nature, location, intensity and probability of threatening events. They also determine the existence and degree of vulnerability and exposure to threats, and can be used to identify the capacities and resources available to respond to and avoid those threats.

- Integrated Climate Risk Management depends upon useable weather and climate information products that can help stakeholders in various socio-economic sectors to proactively manage risks and adapt to climate change. It is a continuous cycle of assessing risks and making adjustments.

- A range of tools are available that facilitate climate change risk assessments. These include CRISTAL, which is a community-based risk screening tool that charts vulnerability and livelihood profiles. However, many of these are still prototypes that must be tested before full implementation. However, they do provide some indication of potential risks and ways of adapting to them.

- Climate models, in turn, are mathematical representations of the climate. They include General Circulation Models (GCMs), which provide global information that must be downscaled to regional and, ideally, local levels.

- Downscaling can be done through statistical means or regional climate models.

- Frequently used tool for downscaling include MAGICC/SCENGEN and PRECIS, both of which are freely available software.

- The regional information that is generated must be validated and verified against both global data and locally observed data.

- Scenario development and modelling are based on assumptions, which may be proved wrong by how event unfold in the future.

Day 5

The final day consisted of project presentations, with a focus not on the contexts and contents of the project, but rather the lessons that participants learnt during the workshop. Participants were also asked to outline project challenges and to make recommendations for future IDRC capacity building activities.