

BUILDING CAPACITY FOR CLIMATE CHANGE

AS A PRELUDE TO THE POST-KYOTO CLIMATE CHANGE NEGOTIATIONS SCHEDULED TO TAKE PLACE IN COPENHAGEN IN DECEMBER, TWAS AND ITS PARTNERS ORGANIZED A SERIES OF WORKSHOPS EARLIER THIS YEAR TO PROVIDE THE LATEST SCIENTIFIC INFORMATION TO NEGOTIATORS FROM DEVELOPING COUNTRIES.

The Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty that seeks to stabilize greenhouse gas (GHG) concentrations in the atmosphere “at a level that would prevent dangerous anthropogenic interference with the climate system”. Under the protocol, which was adopted in December 1997 in Kyoto, Japan, and entered into force in February 2005, industrialized countries agreed to reduce their collective GHG emissions by 5% from 1990 levels by 2012.



Long-standing efforts to develop a ‘post-Kyoto treaty’ will culminate in a conference to be held in Copenhagen, Denmark, in December. The goal is to work out a ‘Copenhagen protocol’ that will effectively

address the global climate challenge. Representatives from 170 countries are expected to attend.

The climate change challenges that we are currently experiencing, and which we will continue to experience for decades to come, have been caused in large part by the historic emissions of the industrialized countries. However, no consensus has been reached on how to deal with the current and future emissions of such rapidly industrializing countries as India and, especially, China. China, for example, is now the world’s leading producer of GHGs, although its per capita production is still significantly lower than the United States and other developed countries.

Against this backdrop, there are a large number of developing nations that are responsible for very little



of the world's GHG emissions. The 50 least developed countries (LDCs), for instance, contribute only 1% to global carbon emissions. Yet, it is the world's poorest people, often relying on subsistence agriculture to survive, who are most at risk due to the increased prevalence of flooding, drought, and intermittent and unreliable rainy seasons.

In a 2009 report, *Anatomy of a Silent Crisis*, the Global Humanitarian Forum, based in Geneva, Switzerland, states that climate change causes some 300,000 deaths each year and adversely affects the lives of 325 million people. Furthermore, the report estimates that economic losses due to climate change total USD125 billion each year. Such impacts, it adds, are not felt evenly across the globe. Indeed, developing countries bear 99% of deaths and more than 90% of the economic losses linked to climate change.

A key challenge that needs to be addressed in Copenhagen is this: while developing countries are likely to be the most affected by climate change, their negotiating capacity is often weak and their policy-makers often lack a sufficient understanding of the science behind the issue.

THREE WORKSHOPS

To address such capacity-deficit issues – and, more specifically, to brief Copenhagen climate treaty

negotiators from developing countries on the current state of knowledge on climate change and adaptation strategies, TWAS entered into an agreement with the European Climate Foundation (ECF) and the Inter-Academy Panel on International Issues (IAP) to organize three regional workshops in collaboration with local partners:

- for Asia: in Kuala Lumpur, Thailand, on 2–3 July, in association with the Thailand Academy of Sciences and Technology (TAST);

EUROPEAN CLIMATE FOUNDATION

The European Climate Foundation (ECF) aims to promote climate and energy policies to reduce Europe's greenhouse gas emissions and to help Europe play an even stronger international leadership role in mitigating climate change globally.

According to ECF, key elements of a sustainable energy future include:

- a substantial increase in energy efficiency;
- a successful transition from conventional to renewable energy;
- maintenance of the Earth's ecological systems and their life-supporting services; and
- equitable distribution of energy services both internationally and within nations.

To achieve these, ECF has identified four major areas for immediate intervention within Europe:

- energy efficiency in buildings and industry;
- low-carbon power generation;
- transportation; and
- EU climate policies and diplomacy.

ECF is based at The Hague in the Netherlands. It receives funding from a number of national and international foundations.

For additional information, see www.europeanclimate.org.

- for sub-Saharan Africa: in Nairobi, Kenya, on 6–7 July, in association with the African Academy of Sciences (AAS); and
- for Latin America and the Caribbean: in Itaipava, Brazil, on 10–11 July in association with the TWAS Regional Office for Latin America and the Caribbean (TWAS-ROLAC).

Some 80 people, about half of whom were national climate change negotiators, participated. The organizers also invited national and international climate change experts to present the latest scientific information on this complex issue. Large developing countries such as China, India and Mexico, which already have large teams of negotiators, were not invited to the workshops in order to give smaller countries more time to discuss climate change issues relevant to their nations.

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Arctic. In contrast, models in the 2007 report placed this issue front and centre. He added that a ‘tipping point’ had already been reached and that it will be almost impossible to reverse the effects of melting ice on future climate change.

We are approaching other tipping points, too, Nobre cautioned. The 2007 IPCC report does not consider acidification of the oceans, but the seas are

already approaching the limits of the carbon they can safely absorb – a point underscored in a IAP statement on ocean acidification released in June 2009 (see box on facing page).

“The acidity of the sea will increase to levels not seen for tens of millions of years”, Nobre says,

“and that means that 40% of shelled marine organisms will not survive”. The marine ecosystem could collapse, he warned.



Each workshop, which focused on the overarching issue of ‘climate-resilient, low-carbon development’, was divided into four sub-themes: current understanding of climate change, mitigation, adaptation and costs. Presentations by local experts were made on both the primary and sub-themes. In Brazil, for example, Carlos Nobre (TWAS Fellow 2006) gave an introductory talk on ‘climate change and its impacts’.

Nobre highlighted the increasing scientific certainty driving the analysis of the reports prepared by the Intergovernmental Panel on Climate Change (IPCC). He observed that models in the 2001 report did not even consider the potential impact of melting ice in the

And then there is the melting of permafrost – a newly identified tipping point not accounted for in current climate models. Recent studies show that permafrost stores twice the level of carbon than previously thought. If these frozen soils melt and the trapped carbon is released into the atmosphere, another “potential major instability will need to be added to the climate models”, observed Nobre.

WAY FORWARD

The workshops highlighted several issues of critical importance, including the need to:

- Integrate climate-resilient, low-carbon development

IAP STATEMENT ON OCEAN ACIDIFICATION

Ocean acidification, one of the world's most important climate change challenges, may be left off the agenda at the Copenhagen conference. Yet, ocean acidification is expected to cause massive corrosion of our coral reefs and dramatic changes in the make-up of the biodiversity of our oceans and to have significant implications for food production and the livelihoods of millions of people.

The gravity of the situation was made in a joint statement published by the InterAcademy Panel on International Issues (IAP), signed by 70 national science academies.

The statement calls for world leaders to explicitly recognize the direct threats posed by increasing atmospheric CO₂ emissions to the oceans and its profound impact on the environment and society. It emphasizes that ocean acidification is irreversible and suggests that, on current emission trajectories, all coral reefs and polar ecosystems will be severely affected by 2050 or even earlier.

Unless we cut our global CO₂ emissions by at least 50% by 2050, the statement warns fundamental and immutable changes in the make-up of our marine biodiversity could threaten food security and irreparable damage to coastal areas.

The IAP statement was issued during the United Nations Framework Convention on Climate Change (UNFCCC) conference in Bonn, Germany, in June 2009, which has helped shape the Copenhagen negotiations.

For the complete text of the statement, see: www.interacademies.net.

into overall national development plans (leading to climate-compatible growth plans) and make such strategies compatible with poverty reduction efforts in the poorest countries.

- Meld adaptation measures into overall national development plans, examining how effective these measures would be and how much they would cost.
- Better understand the potential impact of climate-change induced changes in forestry, agriculture and land use, and how this could be measured accurately, especially with regard to Reducing Emissions from Deforestation and Forest Degradation (REDD), which will be a key issue in the Copenhagen negotiations.





ONE VOICE

One positive sign of South-South collaboration to emerge after the workshops is the agreement of African Union (AU) member states to speak with one voice at the negotiations in Copenhagen. Following their August meeting in Tripoli, Libya, the AU announced that Ethiopia's Prime Minister Meles Zenawi had been selected as the continent's climate change spokesperson and that he would lead the negotiations in Copenhagen on behalf of African countries.

Likewise, the world's small island developing states (SIDS)

- Examine the full range of options related to technology transfer, including intellectual property rights and the extent to which a lack of appropriate technology limits effective responses to climate change.
- Build capacity for dealing with mitigation and adaptation.
- Increase public awareness and education in matters related to climate change.
- Improve collaboration among developing countries for the purposes of devising effective strategies for mitigation and adaptation to climate change.

Many participants, especially those from the LDCs, cited the promotion of capacity building in science, technology, management and policy-making as crucial. They also emphasized the importance of South-South collaboration in advancing these goals.

have a common negotiating position. They believe that stabilizing global temperatures at 2°C above current or recent levels, as agreed by the G8 in LAquila, Italy, in July, is too high and that subsequent sea-level rises will devastate their nations. "During the meetings it became clear that the urgent adaptation needs of developing countries considered most vulnerable to climate change, including some small island states, do not get the attention and support they deserve", says the ECF's Jos van Renswoude.

"The positions taken by developing countries in the negotiation process vary widely, even though most of these countries demand that industrialized countries take adequate measures to ensure that the 2°C pathway is followed", continues van Renswoude. "This implies that CO₂ emissions by industrialized countries should be 80% lower in 2050 compared to 1990 and



that emission cuts should start immediately and proceed progressively.”

Such an approach, the so-called ‘top-down’ approach, prescribes what needs to be done based on the best available science. The alternative, the so-called ‘bottom-up’ approach – favoured by many industrialized countries – involves reducing emissions depending on what is thought to be economically feasible.

TWAS and its partners would prefer to see the top-down approach be given due weight in any post-Kyoto treaty. In addition, it is clear that most developing countries require appropriate financial assistance from industrialized countries to tackle climate change and its impacts.

Many developing countries lack or cannot afford the analytical expertise necessary for charting the intricacies of the climate-change related problems, and they also lack the capacity for devising adequate action plans.

Nevertheless, there are examples of successful experiences in developing countries that could easily be adapted and replicated in other developing countries. The Assessments of Impacts and Adaptation to Climate Change (AIACC) initiative, which was coordinated by the Global Change System for Analysis, Research and Training (START) in partnership with TWAS and the United Nations Environment Programme, and funded by the Global Environmental Facility (GEF), could serve as a model for such endeavours. Efforts to identify and replicate cases as these would significantly reduce the time-scale and costs of

adaptation and mitigation efforts (see *TWAS Newsletter* 14, Apr–Sept 2002).

RECOMMENDATIONS

Based on such outcomes from the three workshops, the ECF has proposed two main recommendations:

- Existing networks such as TWAS should be empowered to promote dissemination of knowledge on climate change and take additional steps to foster South-South collaboration. Equally important, existing globally operating organizations like the United Nations Environment Programme (UNEP) and the

United Nations Development Programme (UNDP) should reinforce their efforts to disseminate climate change policy-related best practices in developing countries.

- An international workshop for smaller developing countries should be organized focusing on the relationship (both in terms of mitigation

and adaptation) between climate change and agriculture, forestry and land use change. The workshop should aim to develop potential solutions and policies.

Both these issues fall within the remit of TWAS. As a result, the Academy looks forward to developing a fruitful and lasting relationship with ECF as both organizations attempt to highlight the plight of developing nations in responding to the changing climatic conditions the Earth is already experiencing – changes that are predicted to increase in frequency and intensity in the coming years unless a strong and equitable agreement can be reached in Copenhagen this winter.

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