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UN Agencies and Other Bodies Share Interesting Climate-related Information

Kuala Lumpur, 18 February (Hilary Chiew) – Interesting climate-change-related information was shared by various UN agencies and Convention bodies at the UNFCCC's Structured Expert Dialogue (SED) meeting, held on 8 and 9 February, on the side-line of the Geneva climate talks.

The second part of the fourth session of the SED resumed in Geneva following the adjournment of the first part at the 20th Conference of Parties (COP20) in Lima, in December last year. It continued with Part 3 and Part 4 of the fourth and final session of the SED.

The meeting started with Part 3 of the meeting looking at information from United Nations agencies and international organisations, and from processes under the Convention in the afternoon of 8 February. Part 4, which focused on regional and emerging information, took place in two sessions on 9 February.

Presentations were followed by discussions centred on two themes. Theme 1 was on the adequacy of the long-term global goal in the light of the ultimate objective of the Convention while theme 2 was on the overall progress made towards achieving the long-term global goal, including a consideration of the commitments under the Convention.

(The SED was set up to support the work of the joint contact group of the Subsidiary Body for Implementation (SBI) and the Subsidiary Body for Scientific and Technological Advice (SBSTA), to ensure the scientific integrity of the 2013-2015 Review and to consider the relevant inputs through scientific workshops and expert meetings. The first in-session workshop was held during the SB38 in June 2013 and subsequent sessions during following SBs meetings.)

The meeting was presided over by co-facilitators Zouji (China) and Andreas Fischlin (Switzerland).

In his opening remarks, Chair of the SBSTA Tomasz Chruszczow (Poland) said the review of the adequacy of the long-term global goal calls for a science-based management pathway. He said it is essential for SBSTA and the Intergovernmental Panel on Climate Change (IPCC) to collaborate closely to make sure the assessment of the pathway is carried out.

Noting that the IPCC is also at the turning point in its history and discussing its future work including terms of the next assessment cycle, Chruszczow said the coordination between the two bodies will be of key importance in 2016. (The IPCC has been following a seven-year assessment cycle and there has been talk of it adjusting its cycle period to a shorter period to better assist in formulating the global policy on climate change under the UNFCCC.) He said the coordination will further strengthen the science-policy interface, adding that the 2013-2015 Review has been a step forward in that direction.

Chair of the SBI, Amena Yauvoli (Fiji), said the 2013-2015 Review comes at an extremely timely part in the UNFCCC process and in global climate policy in general. He said Parties were in a critical decade for climate policy-making and 2015 is a key year.

He said the Fifth Assessment Review (AR5) of the IPCC showed that total anthropogenic emissions have continued to increase over 1970 to 2010 with absolute increase towards at the end of the period despite a growing number of global policies. According to the AR5 report, he said, limiting temperature rise to 2°C in the context of a risk management approach as a basis for decision-making is still technically feasible. He said it was imperative to track closely the development and implementation of effects of specific policies and actions that countries undertake in shifting to a low carbon future.

Therefore, transparency in this regard particularly through the Multilateral Assessment process is of particular relevance, said the SBI Chair. Noting that the review of developed countries' actions began in Lima where 17 Annex 1 Parties were assessed and will continue this year, he said assessment of developing countries' mitigation efforts will start this year. He pointed out that such a tracking system is needed but is currently less mature in terms of tracking adaptation actions and the means of implementation and these gaps need to be addressed. He said the Review is a comprehensive process that looks at the climate problem and solutions in an integrated manner.

Highlights of Part 3 – UN agencies and international organisations, and from processes under the Convention

Highlighting the 2013-2015 workplan of the **Adaptation Committee**, its Co-chair Juan Hoffmaister (Bolivia) said there was no specific focus on the long-term global goal per se but the AC would take the opportunity to highlight the Cancun Adaptation Framework in responding to the issue emerging in light of the long-term global goal.

He said the National Adaptation Plans (NAPs) are a coherent, participatory and transparent national adaptation process informed and catalysed by the international climate regime. It helps to reduce vulnerability to the impacts of climate change, by building adaptive capacity and resilience and facilitates the integration of climate change adaptation into new and existing policies, programmes and activities, development planning processes and strategies, within all sectors and levels.

Most countries have already conducted some kind of analysis of observed changes in the climate system, for example on temperature, precipitation and extremes as seen in the NAPs. Such climate scenarios were applied in projections in their national communication and mainstreaming of adaptation into poverty alleviating projects.

He further said that some bilateral organisations have reported that they are receiving very few requests from countries for individual support for the process to formulate and implement NAPs. This, however, stands in contrast to the high number of requests for support under the NAP global support programme.

On how countries are preparing themselves for this challenge, some organisations and agencies reported that they are struggling with the lack of clarity for funding, concerns of funds being voluntary and financing that is inadequate and unpredictable.

'Many Parties have indicated that there is lack of clarity on procedures to apply for funding from the Least Developed Countries Fund and the Special Climate Change Fund for the process to formulate and implement NAPs. Some Parties have also indicated that both funds are based on voluntary contributions, and suffer from inadequate and unpredictable financing, and therefore pose barriers to further scaling up and mainstreaming adaptation into national development planning,' he added.

In terms of monitoring and evaluation (M&E) (of adaptation actions), Hoffmaister said M&E frameworks need to be appropriate, relevant to the needs and tailored to country circumstances. A common set of global indicators is not useful, owing to the context-specific nature of adaptation.

He said it is important for M&E to facilitate a positive learning environment which encourages formal and informal learning, including peer-to-peer learning and which encourages learning from negative as well as positive experiences, adding that planning and allocation of resources, both technical and financial, are keys for effective M&E systems.

Paul Leadley, the coordinator for the **Convention on Biological Diversity's** Global Biodiversity Outlook 4 report, said many organisms and ecosystems are already impacted by recent climate changes; so additional change will exacerbate impacts. Thresholds are often difficult to identify, he warned. He said biodiversity can play an important role in increasing resilience to climate change. Pathways to remain within 1.5 or 2°C will require careful management to conserve biodiversity and ecosystems and optimise their contribution to climate mitigation and adaptation.

On ocean acidification, Leadley said there is strong interaction between acidification and temperature rise. More dissolved CO₂ would lead to lower pH and reduction in carbonate ion. The latter is already showing impacts on oyster, coral, shell and other calcifying organisms. At temperature rise of 1.5 or 2°C, we will see very high calcification of marine organisms, he added.

He stressed further that warm-water coral reefs are already under stress with more than half currently in poor health. Ocean acidification will slow calcification and hence recovery from bleaching. However, when the reef carbonate budget becomes negative, coral reefs would stop building, he said further. Hence protecting coral reefs would require both global (emission mitigation) and local actions (reduction in pollution).

On the link between climate change and biodiversity of forest, Leadley said forests are being negatively impacted by climate change sooner than

had been anticipated with impacts varying substantially across tree species and regions. 'Reinforcing species and genetic diversity of trees can enhance the adaptive capacity of forests to climate change. Reducing deforestation can make a substantial contribution to climate mitigation and biodiversity protection. Restoration using diverse tree species mixes or natural re-growth can contribute to climate mitigation and biodiversity protection,' he added.

Although planted forests could make an important contribution to future bio-energy (systems), he warned that if they replaced primary forest, they would have negative impacts on biodiversity and medium-term carbon balance (from the loss of carbon stocks). He said the most recent Global Biodiversity Outlook states that we are not progressing well in preventing forest loss. However, there are some bright sparks in the massive reduction of deforestation in Brazil resulting in about 120GtCO₂-equivalent protected which is as much as carbon in non-protected areas in Brazil.

Special Adviser of Global Issues of the **UN Convention to Combat Desertification (UNCCD)**, Sergio Zelaya, said much more research needs to be done as we know warming leads to drought and desertification. He said the AR5 of the IPCC showed that dry areas are expected to increase in many parts of the world, increasing the current extent of semi-arid areas and the risk for proper functioning of ecosystems. As the productivity and availability of land resources falls, he said, so does adaptive capacity and resilience.

The UNCCD Land Degradation Neutrality (LDN) approach could contribute to a low carbon world where restoring 12 million ha/year at a cost of US\$1.7 billion would result in sequestration of 6.75GtCO₂eq/year. It has set a target of 180 million ha to be restored by 2030. He said the LDN approach is not a global target which requires a top-down protocol or international agreement and each country may declare its own level of ambition.

Focused action towards achieving LDN, said Zelaya, can be a starting point when reporting on intended nationally-determined contributions (INDCs) implementation, adding that UNCCD could offer support to countries requesting assistance, in the development of land components in the INDCs.

Other presenters included the director of the **Climate Technology Centre and Network (CTCN)** Jukka Ousukainen, who presented the work of CTCN, and SBI chair Yauvoli, who presented on the progress made by the **Durban Forum on Capacity-building**.

During discussion time, referring to the CBD's remark on tree mortality, **Brazil** urged Parties to pay attention to the fact. It said despite efforts at reducing deforestation, if there are no significant efforts on mitigation, the impacts of climate change on forests will continue.

In response to **Switzerland's** question on how long it will take for restoration of coral biodiversity if there is a temperature overshoot, another representative from CBD said some improvements take five to 15 years in marine protected areas, noting that once things are on the downward path, recovery is not going to be easy and would take a long time.

Posing its questions to the CBD and CCD speakers, **the United States** said there were many factors contributing to making many ecosystems vulnerable and it would like them to elaborate on those non-climate stressors and the success stories.

Zelaya said climate change exacerbates land degradation in both dry land and non-dry land areas. He said to be successful, CCD's Land Degradation Neutrality framework needs to be part of the climate actions, stressing that while the land component is an option for INDCs, the means of implementation needs to be clearly defined, suggesting that perhaps the Green Climate Fund can take this on board.

Guy Midgley, the IPCC representative, said some non-climatic stressors that interact with climate change are invasive species particularly with island ecosystems, noting that New Zealand has done a good job of controlling the introduction of invasive species.

Responding to the US, **Leonard Nerve of the Caribbean Community Climate Change Centre (CCCCC)** said as a co-lead author for the island chapter in Working Group II of the AR5, he would acknowledge that while non-climate stressors pose risks, it will take a long period of time and study to separate them out on how they conflict with climatic factors. He said there are studies showing that where there was intense sea temperature elevation, disregarding pollution level, mass bleaching occurred. The only conclusion, he maintained, is that thermal stress remains the key driver based on evidence.

India said it will be good to look at who owned the climate technologies and linked them to incentives that could build confidence of investors as a long-term vision to deploy a wide range of those technologies.

In response, Ousukainen said the CTCN tried to give neutral advice on technologies, presenting both risks and possibilities. He said CTCN did ask Parties to establish a library of technologies and their providers.

Highlights of Part 4 – Regional and emerging information

Chair of the CCCCC, Leonard Nurse, said observed temperature changes between 1950 and 2000 in the Caribbean reflect the global trend of more warm days and nights and less cool days and nights. The observed sea level rise in the small island states region (SIDS), including in the Caribbean, is also higher than the global average. He said impacts of climate change range from water stress, salinity intrusion to loss of coral reef and livelihood.

In terms of human health, Nurse said there is a higher incidence of vector-borne diseases since the 1970s, increase in mortality from hydro-meteorological events since the 1950s, sanitation and hygiene-related problems from water scarcity from the 1960s and a higher incidence of ciguatera fish poisoning in the last four decades. He also presented on a range of renewable energy and energy-efficiency initiatives in the Caribbean and South Pacific as the SIDS contribution to achievement of the long-term global goal. In conclusion, he said delaying 'aggressive' mitigation will frustrate the achievement of the long-term goal and impose further limits on adaptation.

Diane McFadzien of the **Secretariat of the Pacific Regional Environmental Programme** said Pacific small islands rank high in relative exposure to tropical cyclones with losses amounting from 15% to 25% of the islands' GDP, hampering economic development. The Pacific, she said, has a substantial economic dependency on climate sensitive sectors such as ecosystem services and tourism, with limited opportunities for economic diversification.

She also pointed out that for many of the observed impacts of climate change – limited fresh water availability, sea level rise, extreme events, ocean acidification and coral reef degradation – adaptation potential is limited. If it is available, it comes at very high costs in relation to countries' national budgets.

Lars-Otto Reiersen of the **Arctic Monitoring and Assessment Programme** said ice-sheets in the North Pole region are getting younger and thinner. A lot of older and thicker ice north of Alaska is melting away during summer. He said more polar bears are aggregating in the north of Canada and disappearing elsewhere in the region. Thawing of permafrost is a big issue and Arctic marine waters are experiencing widespread and rapid ocean acidification as cold water absorbs more CO₂, he revealed, adding that new diseases and parasites are surfacing from animals that indigenous communities hunt for food.

Sonja Vermeulen, head of research of the **Consultative Group on International Agriculture Research**, said recent results reconfirmed the IPCC's AR5 findings of climate change impacts on crops, livestock and marine fisheries at global and regional levels. She said wheat shows a 6% yield loss for each degree Celsius rise, equivalent to 42 metric tonnes or ¼ of global trade. Cash crops such as coffee are also facing major impacts and shifts in growing areas. Negative impacts are due in this generation with a likelihood of a 10% yield loss in the next 20 years corresponding with an increase of demand for food, turning small changes into major concerns.

She said there is less information on livestock and marine fisheries, noting that output from livestock is dependent on complex factors particularly availability of feed. Southeast Asia, Sri Lanka, Angola and Namibia will likely see yield losses in the marine fisheries sector while yield gains are expected for Iceland and the southern coast of West Africa, she added.

Clifford Polycarp, representing the **Green Climate Fund**, provided an update on the resource capitalisation. He said 50% of GCF resources will be allocated for adaptation in Least Developed Countries and SIDS but Parties will need to build or strengthen capacity to access the fund. He said GCF will provide support in this area (of capacity building) by accrediting the national entities and develop guidelines for proposal-making.

Following the presentations, **Saudi Arabia** pointed out that some adaptation measures have co-benefits for example reusing water will reduce dependency on water desalination that is energy-intensive. It said there is a need to be careful in dealing with emerging data, noting that new data will have to be evaluated on the same level of robustness as data used in producing the IPCC AR5.

China asked if there were any adaptation plans for the Caribbean and whether there is analysis for the financial needs for mitigation and adaptation. Nurse replied that the mitigation efforts are being implemented as part of larger adaptation and mitigation measures, all with the goal of achieving sustainable development in the region, noting the co-benefits derived from savings on foreign exchange where nearly 95% of electricity is generated from fuel oil.

India wondered if scientific knowledge of climate impacts is accompanied by quantification of losses. It asked what the adaptation costs are for the Caribbean and other regions of the SIDS and the availability of technologies and their costs, including for capacity building.

To this, Nurse said there was a national-level study related to costs but he was not in a position to provide a comprehensive cost structure, adding that the figures are highly variable. He said insurance and re-insurance are important in the Caribbean. Although expensive, it is part of the suite of measures, he added.

Trinidad and Tobago asked the GCF what the priority areas are that have been identified to ensure the limited resources are channelled to areas with high impact potential. **India** asked how much of the US\$10.5 billion pledged has been received and if the GCF will rejuvenate the Adaptation Fund that is starved of liquidity due to the low carbon price.

Polycarp replied that GCF has identified four areas within its results-based framework i.e. energy, transportation, forests and land-use, and building and cities. He said given the significance of the energy sector, he expected a lot of demand from that sector. To India, he said the process of realising the pledges into agreement is underway and the goal is to reach 50% of the pledges made by 30 April. He also said there is no decision from the GCF Board or the COP as regards the Adaptation Fund.

World Meteorological Organisation (WMO) director of research Deon Terblanche said everything we learnt about the state of the greenhouse gases in the global atmosphere is based on the high quality long-term globally harmonised observation. He said the complexity of the carbon cycle is such that tracking the adequacy of aggregate measures to achieve the Convention global goal will require monitoring system enhancements, stressing that emission reduction approaches require independent, scientific monitoring to support verification and policy decisions.

Among the gaps in the current integrated observing system are insufficient density of the observations over the ground, sea and in the free atmosphere; insufficient measurements of isotopes and co-emitted gases for source attribution; incompatible observations on different scales and in different media; and insufficient complexity and performance of transport models on global/regional and local scales.

He said there is a strong need for the development of the observing system in all domains; development of the modelling tools to deliver products on the temporal and spatial scales relevant

to decision-making; collaboration between the 'spheres'; and inter-agency coordination. Terblanche said to some extent we have been lucky that about half of the emissions have been absorbed by the oceans and terrestrial spheres but warned that there is no complete understanding of how the sinks work and there is a need to consider that the sinks are changing over time.

Trinidad and Tobago noted the importance of this segment on emerging information as many are dealing with post-AR5 findings. Referring to several studies pointing to the instability of ice-sheets in eastern Antarctica, it asked for the views of WMO and also IPCC's Thomas Stocker on the implications on sea level rise.

Stocker, who was the Co-chair of Working Group I of the AR5 dealing with the physical science, said WGI is looking at new, comprehensive assessment of sea level rise and that a proposed dedicated chapter on the matter has been approved by the panel. He noted that sea-level rise estimates and projections varied in the scientific literature during the time the fifth assessment was carried out, reasons being the use of different models that are based on physical processes and semi-empirical models.

He acknowledged that closer to the cut-off date of March 2013, alarming projections such as thermal expansion, melting of larger ice-sheets were provided, adding that ice-sheet instability can lead to a very large increase of sea level rise of up to 7 metres by 2300 if the Greenland ice-sheet is sent on a path of meltdown. AR5 revised downward the threshold for the melting of Greenland reported in AR4. Stocker further said the science emerging in the past two years with new insights is limited to observation, noting that the interaction between ocean warming and the ice sheet is crucial to understand the process.

'This is a relatively young science but we are confident we will see important results in the short term,' he concluded.

In closing the meeting, co-facilitator Zouji said he and his co-facilitator Fischlin will work on the two reports mandated by the Lima COP where the full report of the SED will be submitted by 20 March and the final technical report including technical summary will be made available by 4 April. He also said a special presentation will be made at the June session in Bonn this year.