

Asian Low Carbon Update

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Report from Indonesian Workshop: Scenario Developments towards Low Carbon and Climate Resilience City

In order to providing lessons for low carbon city and to enhancing the capacity of stakeholders to move towards low carbon society, LoCARNet and Bogor Agricultural University are organizing a workshop on 19 December 2013 in Jakarta, Indonesia.

DKI Jakarta City, as one of the Metro Cities in Asia, faces various challenges as it transitions to urbanisation. Between 2010 and 2025, the population of Jakarta is expected to increase by 147%. This enormous growth will lead to several challenges and issues that need solutions. Clean water resources, waste management, reliable public transport, and several other infrastructure facilities are still not developing at the same pace as urbanisation. This imbalance between physical infrastructure and the urbanisation rate will create social, economic and environmental challenges. However, it is not possible for the Government of DKI Jakarta City alone to find solutions to all of these problems. National cooperation, market incentives, technology innovation and civil society participation are all crucial to transform DKI Jakarta City into a low-carbon and climate resilient city. The role of science is also important in helping city governments to design their development pathways for developing low-carbon and climate resilient cities. A number of partnership models are already developed and act as an alliance to pursue a low carbon city. Japan has established Low Carbon Asia Research Network (LoCARNet), an open network of researchers, research organizations, as well as like-minded relevant stakeholders that facilitates the formulation and implementation of science-

based policies for low-carbon development in the Asian region. In parallel, the United Nations also launched the United Nations Sustainable Development Solutions Network (SDSN) and its Deep Decarbonization Pathway Project (DPP).

In light of DKI Jakarta towards resilient city, The Planning Agency of the DKI Jakarta City provincial government organized a Workshop on Scenario Development towards a Low Carbon and Climate Resilient City in Jakarta, Indonesia on 19 December 2013. The workshop was conducted in collaboration with Bogor Agricultural University, Bandung Institute of Technology, and The United Nations University and supported by the Asia Pacific Network for Global Change Research (APN) and the Institute for Global Environmental Strategies (IGES). The workshop brought prominent scientists in Low Carbon Asia Research Network (LoCARNet) to share their experiences in bringing science into policy aimed at developing low-carbon and climate resilient cities. Through this workshop DKI Jakarta would like to access wealth of expertise in the network and learn lessons from countries e.g Malaysia which already developed the blue print for Low Carbon Society. This workshop also aimed to get feedback and creates synergy with other CoEs in the region such as Thailand.

History of LCS-RNet

At their meeting in Kobe in May 2008, G8 Environment Ministers recognised the need for countries to develop their own visions towards low-carbon societies, and supported the establishment of the International Research Network for Low Carbon Societies (LCS-RNet). In the G8 Environment Ministers Meeting (G8EMM) held in April 2009 in Siracusa, Italy, high expectations were placed on LCS-RNet, and the network was asked to report back its outcomes periodically. Currently this network is composed of 15 research institutes from seven countries.

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International Research Network for Low-Carbon Societies

- Scientific Research Contributing to Low Carbon Policy-making Process -

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Ensuring comparability of mitigation contributions through robust accounting rules

The UNFCCC has a target of keeping global temperature change to less than 2° C compared to the preindustrial period, requiring a massive reduction of global greenhouse gas emissions in the coming decades. COP15 in Copenhagen 2009 was unable to agree on a long-term international climate policy regime, and since then international climate negotiations have struggled to regain momentum.

The Ad-Hoc Working Group on the Durban Platform for Enhanced Action (ADP) is scheduled and develop a new agreement covering all countries by the end of 2015 which is to be finalized at COP 21 in Paris. There is a growing consensus that this agreement, which should govern mitigation efforts from 2020 onwards, will be a hybrid of a "bottom-up" and "top-down" approach for countries' mitigation commitments. Countries would thus pledge emission reductions, but there would be certain universal rules for reviewing proposed pledges as well as carrying out measurement, reporting and verification. Various government submissions highlight the importance of robust accounting and MRV rules. In addition, an informal note by the ADP co-chairs identifies their joint acknowledgment of the importance of science, equity, flexibility,

effectiveness and participation, as well as the need for transparency in terms of mutual trust, comparability and accountability. COP19 in Warsaw in November 2013 decided that countries should be encouraged to submit their "contributions" (new term for mitigation commitments) by the end of the first quarter of 2015, and that COP20 in December 2014 should define the information that is to accompany these contributions. Hence 2014 will be a decisive year for negotiations on an accounting framework.

A hybrid system runs the risk of having significant loopholes if some countries loosely define mitigation contributions or double count mitigation actions. UNEP's "emissions gap report" stresses the crucial role of accounting rules when determining the level of mitigation contributions. If conditional pledges are assessed, the difference between lenient and strict accounting rules would reach 3 billion t CO2 eq in 2020; for the case of unconditional pledges, it would stand at 1 billion. So to determine the robustness of the 2015 regime, it is vital to have a detailed specification of parameters that need to be part of a contribution, as well as ensuring strict accounting of greenhouse gas units in national inventories and those units created by market mechanisms.

Activities towards 2020

LCS-RNet will complete its first phase in March 2014 and begin its second, 5-year phase from April 2014. As the course of action for the next five years, it has been confirmed that LCS-RNet will "identify the key issues to strengthen the impacts on the UNFCCC process and actual policy process in countries for a transition towards a low-carbon world, and disseminate a proposal that is based on in-depth discussions through the policy process". LCS-RNet is planning to make a submission to the UNFCCC in line with this course of action.

This edition of the LCS-RNet newsletter looks at some of the key issues that will be discussed and highlighted up to 2020 and beyond.

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Palm Oil for Energy and Food Security in Indonesia

The history of the Indonesian palm oil industry started in 1911 with the establishment of commercial oil palm plantations in the Northern Sumatra region. The plantations developed slowly up to the mid-1970s, after which growth became rapid due to governmental support. One of the support schemes was the introduction of nucleus estates in which the big companies take the role of a nucleus, not only for promotional purposes, but also to develop estates belonging to smallholders. Since 2006, Indonesia has surpassed Malaysia as the number one palm oil producer in the world, with a global market share of 47%.

Recently, palm oil has become the most important agricultural commodity in Indonesia and plays a significant role in the country's development. In 2012 the palm oil sector produced 24.4 million tons of Crude Palm Oil (CPO) and 5.3 million tons of Palm Kernel Oil (PKO), employed 5 million people and generated an income, via exports, of USD19.1 billion. Palm oil plantations are owned by smallholders (45%), the private sector (47%) and the state (8%). While palm oil production has a positive impact on employment and income, it is often criticised as a major contributor to deforestation and greenhouse gas (GHG) emissions. The deforestation in Indonesia has mostly been caused by changes in land use from

forest to palm oil plantations. Since 2011, palm oil expansion has become limited due to the forest moratorium policy. In 2013, the government extends the palm oil utilization from food supply only to energy supply in form of biofuel mixture up to 10% nationwide. In this new energy policy, the domestic energy supply is expected to be guaranteed due to palm oil as well as boosting palm oil prices on the global market. Moreover, by the end of 2014, the government will start a mandatory certification scheme (Indonesian Sustainable Palm Oil (ISPO)) to strengthen the sustainability of palm oil development throughout the nation.

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Column: Regional economy and energy supply after the Fukushima Daiichi nuclear accident

As a result of the Fukushima Daiichi nuclear accident caused by the Great East Japan Earthquake, electricity production in the Tohoku region has decreased. The production value of electricity generation in the Tohoku region (which consists of six prefectures including Fukushima prefecture) accounts for 14% of the Japanese electricity industry, which is a large proportion of the economy taking into consideration the size of the region's economy (the Tohoku region accounts for approximately 6% of total GDP in Japan). For instance, in Fukushima prefecture, where the Daiichi nuclear power plant is located, the electricity industry is one of the main parts of the economy. Thus, the economic impact of the accident was a reduction of JPY0.642 trillion in the total GDP of the prefecture in FY2011 compared with that in FY2010. This was a result of the decrease of JPY0.35 trillion in the electricity industry coupled with decreases in other industries, such as the machinery industry and food industry, while the building

industry production increased by JPY0.164 trillion. There are currently several renewable energy projects that have been initiated in the region to provide an alternative to the economic activity provided by the electricity industry. According to a renewable energy potential study conducted by the Ministry of the Environment, Japan, the maximum annual energy production for solar power (non-residential systems) and wind power in the Tohoku region is 14.2 million kW (149.3kW in Japan) and 3.0 billion kW (18.6 billion kW in Japan) per year respectively. Thus, it is hoped that there is great potential for renewable energy to contribute to economic recovery in the region. However there are various challenges, such as the installation of renewable technologies, investment risks, energy market reform and social acceptance as well as other economic, social and environmental issues. Thus, sharing knowledge and discussing the issues, such as electricity market reform, can be useful for exploring optimal solutions.



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Common goals and different approaches towards 2020

Global carbon dioxide emissions need to be reduced to approximately 2 tons per capita by 2050. This means halving GHG emissions by 2050 as a way to prevent an increase of 2 degrees C above pre-industrial levels in global average temperatures. Currently, Japan emits approximately 9 tons per capita of annual carbon dioxide. If we look at other countries, we see that the United States emits 17 tons per capita, Malaysia emits 7 tons, China, 6 tons, Indonesia, 2 tons, and India, just 1 ton of emissions. That means that both developed countries and emerging economies need to achieve significant reductions by 2050. Even developing countries should not produce more than their current level of GHG emissions. This is the reason why the world is in "a transition stage" where we ought to separate energy issues from economic issues. How can Japan reduce its emissions from 10 tons to 2 tons by 2050 (within 35 years)? This means that taking into account its declining population, Japan should achieve a national reduction of more than 80% in 2050.

Such a transition can be implemented by reducing the total energy demands by nearly half and using energy that is less GHG emission-intensive. Developed countries have to stop relying on technologies which require a large amount of energy. It is not easy to break out of such a locked-in society where the existing infrastructure, social system, consumption style and production structure is firmly rooted in the economy. Most developing countries will reach the same level of wealth as current developed countries, and they need to share responsibility for stabilising the climate by 2050. However, under the 2 degree global target, developing countries cannot follow the same development path as developed countries, because it requires the use of technologies with high energy dependence. In fact, developing countries do not need to follow this path at all; they have a free hand to choose any direction. There are opportunities for developing countries to leapfrog this period of high energy

dependent development and become low-carbon societies. This is the same type of society that the world is heading towards in the late 21st century. Emerging economies in Asia have seen remarkable development and have already partially adopted the conventional social system of developed countries. There is a concern that this will be locked-in. However, they can also take the lead in low-carbon development and overtake developed countries by quickly rotating investments in advanced low-carbon technologies. A new international climate change agreement applicable to all countries will come into effect from 2020. The approximate amount of emission allowances for 2030 and 2040 can be calculated by deciding the emission allowance in 2050 (by multiplying the population with 2 tons per capita in each country) and drawing a straight line from the current emission level. We can understand the extent of the challenge we face if we compare the situation with the BaU scenario. The main challenge for the research community and related networks is to understand and identify what should be done to achieve the goal.

In addition to the challenges for each country, cooperation between developed and developing countries should be pursued. We are all in the same boat, ultimately trying to achieve a low-carbon world. Aggregated emissions from developing countries are expected to increase 2-3 times more than developed countries in a BaU scenario by the end of the century, and if this amount cannot be reduced then the boat will sink. Developed countries have funds, technologies and human resources. Developing countries first have to endeavor to develop their human resources. It is time for developing countries to effectively utilise the funds that are available to them from developed countries to create their own low-carbon development path that can overtake developed countries. I hope 2014 will be the year to enhance the collaboration between LCS-RNet and LoCARNet with a common goal to protect common resources and stabilise the climate.

Activities of LCS-RNet towards 2020

For the next five years of activities, the LCS-RNet Secretariat raised eight example themes: 1) integration of mitigation and adaptation; 2) response to an era of excess energy; 3) electricity system reform; 4) resource efficiency improvement in the supply chain; 5) low-carbon

development policy in developing countries in Asia; 6) finance as a leverage for low-carbon development; 7) low-carbon cities; 8) public behaviour/actions towards transition. Out of these, low-carbon cities and citizen behaviour have been discussed at our past annual meetings. The secretariat also brought up the importance of looking forward towards 2020 and beyond.