IGES
Institute for Global Environmental Strategies

2013
Annual report

LCS·R Net
International Research Network for Low Carbon Societies LCS-RNet

LoCARNet
Low Carbon Asia Research Network LoCARNet

Forward

In order to stabilise the climate over the long term, it is imperative for us to break away from the current society dependent on high energy consumption. Countries are now in the process of formulating long-term strategies towards the creation of a new post-2020 framework. Communities of researchers who are participating directly in the formation of such policies have been organized through the leadership of Japan and these communities have been engaged in various activities.

One such community is the International Research Network for Low Carbon Societies (LCS-RNet), which furthers knowledge exchanges among developed countries. Another is the Low Carbon Asia Research Network (LoCARNet), in which Asian countries experiencing remarkable growth come together to consider paths leading to low-carbon development. In these two networks, researchers who support the formulation of policies grounded in science that are closely aligned with each country's low-carbon and green economy policies, policymakers, and practitioners, discuss common issues and engage in collaborative activities.

Establishment of the International Research Network for Low Carbon Societies (LCS-RNet) was agreed upon at the G8 Environment Ministers Meeting held in Kobe in May 2008, as one of the "Kobe Initiatives". In April of the following year, the launch of the network was officially approved at the Environment Ministers Meeting held in Italy.

In line with the G8 long-term target to cut in half global greenhouse gas (GHG) emissions by 2050, the objectives of LCS-RNet are to internationally promote research on low-carbon societies based on transmission of research results, and to contribute to international policy processes including the G8. Furthermore, the network aims to promote shared visions and understanding of low-carbon societies on the part of nations and local governments by facilitating dialogue among diverse stakeholders, including researchers, policy-makers, local governments, businesses and civil society.

At its researcher meetings and annual meetings since 2009, LCS-RNet has provided opportunities for information exchange among researchers at the forefront of research on low-carbon societies and low-carbon growth. Deliberations have been carried out on the latest factors for research, and reports and recommendations have been made to policy-makers. At the time of its launch, the network was made up of participants from six countries and ten research institutes, but has now expanded to include seven countries and 16 research institutes.

Low Carbon Asia Research Network (LoCARNet) is an open network of researchers, research organisations, 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 October 2011, at the ASEAN+3 Environmental Ministers' Meeting (EMM) in Cambodia, the Japanese government and the Institute for Global Environmental Strategies (IGES) proposed the launch of the network. LoCARNet was officially launched at the "East Asia Low Carbon Growth Partnership Dialogue" in April 2012, and has reported its progress to the ASEAN+3 EMM every year.

LoCARNet promotes research for policies towards low-carbon growth by enabling dialogue between scientists and policy-makers while also encouraging collaboration amongst researchers in-country whose research capacity and scientific knowledge are firmly grounded in their home countries, and who therefore enjoy full ownership of this capacity and knowledge. LoCARNet also aims to increase its research capacity in this region through knowledge sharing and information exchange in the context of not only north-south cooperation, but also south-south regional cooperation

In this report, we present activities in FY2013 of the two networks as well as their secretariat function (served by the Institute for Global Environmental Strategies: IGES). We would very much welcome any comments and suggestions that you may have on the activities. We also look forward to future collaboration with other relevant stakeholders, who actively work towards realising low-carbon societies and low-carbon development.

March 2014
Secretariat, International Research Network for Low Carbon Societies (LCS-RNet)
Low Carbon Asia Research Network (LoCARNet)

Table of Contents

Activity report in

2013

01 Making use of research capacity in low-carbon policymaking by organising policy dialogues

The United Nations Framework Convention on Climate Change (UNFCCC) is considering a new international framework in which all greenhouse gas (GHG) emitter countries will participate post-2020. In order to stabilise the entire global climate, developed countries must drastically reduce their GHG emissions, but it is predicted that there will be an increase in future emissions from developing countries and it is vital to deal with this situation. Most importantly, Asia is seeing remarkable growth, and it is forecast that if this growth continues to follow a mass energy consumption pattern, then by 2050, half of all GHG emissions will be from Asia, and global warming accelerate. There is concern that this will have a severe impact on the people of the region. On the other hand, if current strong investments can be steered towards the creation of a low-carbon society, then it is possible that Asia can lead the world in low-carbon development. Right now, we are standing at a crossroads.

In keeping with trends in international discussions, the countries of Asia continue to make steady progress in developing low-carbon plans and strategies based on a green economy. The International Research Network for Low Carbon Societies (LCS-RNet) and the Low Carbon Asia Research Network (LoCARNet) for which IGES is the secretariat, have been conducting policy dialogues between researchers and policymakers in selected countries in Asia, together with the Asian-Pacific Integrated Model (AIM) Team which includes Kyoto University, the National Institute for Environmental Studies (NIES), Mizuho Information and Research Institute.

By conducting these policy dialogue sessions, policymakers have gradually recognised the importance of in-country involvement of researchers and research communities in the policy-making process, and, as a consequence, scientific policymaking has been promoted in those countries.

For example, an AIM research team in

Indonesia, working with the National Development Planning Board (BAPPENAS), has conducted economic evaluation comparison of their low-carbon development draft plan; an AIM researcher in Thailand has worked closely with the Thailand Greenhouse Gas Management Organization (TGO), and reflected his analysis into Thailand NAMA development; and, in Iskandar, Malaysia, AIM researchers have been conducting not only low-carbon city planning but also its implementation, in a such way as to promote collaboration with local universities and implementing organisations.

Indonesia

In Indonesia, LCS-RNet/LoCARNet Secretariat worked in collaboration with Dr. Dr. Retno G. Dewi and Dr. Ucok Siagian of the Institut Teknologi Bandung, as well as Dr. Rizaldi Boer and Dr. Toni Bakhtiar of Bogor Agriculture University.

First, the AIM team in Japan, composed of NIES, Kyoto University and the Mizuho Information and Research Institute, supported the Indonesian team as it conducted a survey on GHG emissions from energy generation and consumption and then developed GHG emissions and reduction scenarios. The AIM team also provided capacity-building assistance to the Indonesian team in order to better enable the results of the joint research activities to become firmly rooted in Indonesia and ensure continuity even after the program draws to a close.

Building upon these activities conducted by the AIM team, LoCARNet then held a policy dialogue attended by roughly 60 researchers, policymakers, and others, entitled “Finding Paths for Low Carbon Development in Indonesia” in October 2013 in Jakarta, Indonesia, to introduce the major research outcomes to BAPPENAS and other ministries and organisations concerned.

The Japan and Indonesia joint AIM team introduced their research results as follows. Researchers at Bogor Agriculture University showed their calculations on forestry and land-use indicating that while land-use patterns will change by 2020, the volume of emissions will not change substantially; that emissions from forestry will decrease slightly while emissions from agricultural land will increase; and that the emissions reduction potential is 30% greater under the AIM model than under the national planning model. Researchers from the Institut Teknologi Bandung also indicated their projections that by 2020, overall energy sector emissions will increase to three times their 2005 level, as a result of dramatic increases on the demand side and within the industry sector; and that the target set under the national plan is attainable, according to calculations made using the AIM model.

It is expected that in the future, this research will be utilised both in Indonesia’s 5-year plan currently being formulated by BAPPENAS and in stipulating the content of the Presidential Regulation for a National Action Plan for Reducing GHG Emissions (RAN-GRK) in concrete terms.

Malaysia

The Universiti Technologi Malaysia (UTM), together with Kyoto University, NIES, and others, has been conducting a research project for developing low-carbon development plans in Iskandar, Malaysia, in close collaboration with the Iskandar Regional Development Authority (IRDA) under the Science and Technology Research Partnership for Sustainable Development (SATREPS) scheme.

Based on the outcomes of the above-mentioned activities, UTM launched the "UTM Low Carbon Asia Research Centre" at the university, with the launching and unveiling ceremony in October 2013.

Concurrently with this opening ceremony, LoCARNet organised an international symposium on "An alliance of CoEs (Centres of Excellence) towards realising low-carbon development in Asia – How to lead science-based policymaking".

Participants in this symposium stated a number of views, including that in some Asian countries, there has been an increasing trend towards researchers coming together in research communities, and that these communities are now beginning to deliberate the areas in which they should be engaged; that the opportunity for researchers to come together is vital both for sharing knowledge and also for conducting policy support in more effective and synergistic manners through cooperation with the local community; and that the issues of how to promote collaboration between researchers and policymakers and how to link scientific knowledge and implementation are of great importance.

>> The LoCARNet CoE proposal can be found on page 29 of this report.

Viet Nam

In Viet Nam, the LCS-RNet/LoCARNet Secretariat worked together with Dr. Nguyen Van Tai, Director General of the Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE), and Dr. Nguyen Tung Lam, Head of the Department of Integrated Research, ISPONRE.

First, the AIM team, composed of Kyoto University, NIES and the Mizuho Information and Research Institute, supported the Viet Nam team as it conducted a survey on current GHG emissions mainly from waste and land-use and then developed future scenarios. The AIM team then assisted in forecasting the volume and the reduction potential of GHG emissions based on these scenarios and also worked with the Viet Nam team to develop low-carbon development scenarios. The AIM team also placed importance on capacity-developing activities in order to enhance the local team's research capacities and foster ownership.

Building upon the activities conducted by the AIM team, LCS-RNet/LoCARNet Secretariat held a "Workshop on Low Carbon Study in Viet Nam" in January 2014 in Hanoi, Vietnam. The approximately 45 people participating included policymakers from the Ministry of Natural Resources and Environment (MONRE), the Ministry of Agriculture and Rural Development (MARD), the Ministry of Planning and Investment (MPI) as well as other participants affiliated with research institutes under these ministries, universities in Viet Nam, and so on.

At the symposium, participants inquired about numerous aspects of the modeling results ISPONRE presented, suggesting a high degree of interest among the participants. Although the results of the land-use model were not presented at the Workshop, it could be confirmed that the results derived through the AIM/WASTE model are being seriously evaluated by government institutions.

In doing so, collaboration has been promoted amongst Kyoto University, NIES, Mizuho Information and Research Institute and LCS-RNet/LoCARNet Secretariat, and as a result of enhanced and strengthened human resources in Japan that have engaged in supporting low-carbon development in developing countries, a series of steps has been established for low-carbon development planning including GHG inventory; vision development; quantitative scenario making; economic evaluation; action plan design; road-map formulation.

Also, currently, Kyoto University, NIES, and Mizuho Information and Research Institute, have been drafting a manual on south-south cooperation including these steps. Going forward, it is expected that LCS-RNet/LoCARNet Secretariat will take these outputs from the research community and deliver them to policy training centres, which are planned for ASEAN countries (Thailand and Indonesia).

02 Promoting knowledge sharing on low-carbon society research through annual meetings

In July 2013 in Yokohama, LCS-RNet held its Fifth Annual Meeting on July 22 and 23, and LoCARNet held its Second Annual Meeting on July 24 and 25. There were 81 participants from 18 countries and two international organisations in attendance at the LCS-RNet meeting, while 90 participants from 15 countries and two international organisations attended the LoCARNet meeting. The meetings once again emphasised the importance of networks as fora for sharing knowledge in order to bring about a low-carbon society.

LCS-RNet 5th Annual Meeting

Participants in the LCS-RNet Annual Meeting underlined the important role that science and scientific research have played in the formulation of policies intended to bring about a low-carbon society. In addition, while the ways in which science and scientific research are reflected in the policies of each country differ with each country, policies grounded in science to foster transitions to a low-carbon society are promoted considerably through researchers coming together under one roof and sharing scientific knowledge in their various fields of specialty. Accordingly, the meeting once again emphasised the importance of networks as fora for sharing knowledge in order to bring about a low-carbon society. Moreover, the participants came to hold a common recognition of the importance of sharing best practices and experiences related to low-carbon growth and comparative analyses through such networks.

The meeting recognises that global warming has now moved into the implementation stage for mitigation, where emphasis is put on concrete measures and actions on how to reduce GHG emissions. To convert the society characterised by high energy consumption during into low-carbon coming several decades, efforts should be made across the entire spectrum of fields with all stakeholders concerned. In this regard, it has become popular to come together in “knowledge sharing” and to engage in mutual learning activities. There have been attempts to promote dialogue between researchers and policymakers, taking advantage of the Annual Meetings until now and other opportunities. However, it was pointed out that in the future, it will also be important to extract the core priorities among the persons responsible for policy making, researchers, and specialists. This would be in addition to the dialogues that take place at the outcome stage.

LCS-RNet will complete its first phase in March 2014. It is scheduled to begin its activities under its second phase in April 2014. There was a lively exchange of views regarding the activities to be undertaken during the second phase. Opinions stated that these activities should also address comprehensive responses to climate change that include policies targeting both climate change mitigation and adaptation; that, in light of the urgency of climate change, these activities should strengthen the function of consolidating the wisdom of specialists, focusing on international policies and policies within each country; that the network should include not only developed countries but also incorporate emerging economies and developing countries; that, rather than having Annual Meetings as held currently, small sectional meetings should be formed on the basis of LCS-RNet, in order to deepen discussions within each field; and that the network’s outreach function should be strengthened in order to broaden the reach of its recommendations.

LCS-RNet 5th Annual Meeting Key Findings

Accelerating the transition to low carbon societies - From theory to reality -

The Fifth LCS-RNet Annual Meeting considered how a low carbon society could be achieved against a complex social and economic background. The aftermath of the economic recession, instability in employment, political instability in the Middle East and a widening gap between the rich and the poor pose many challenges. These uncertainties combine with the availability of new sources of energy, such as shale gas, and the impacts of the nuclear accident at Fukushima. At the same time, measures to address climate change have become increasingly urgent as a result of intensifying concerns about extreme weather events and the medium- to long-term impacts of climate change. Discussions at the meeting addressed the lessons learned from past transitions within a wider global context, how to secure adequate investment finance, and how to stimulate structural changes that could precipitate more fundamental social change. The key findings are summarized below.

Towards transitioning to a low carbon society

> Fundamental changes in the way of producing and consuming a large variety of goods are needed to address the global challenge of climate change. Delays in the transition will result in less optimal alternatives becoming locked in, resulting in a society that emits an unnecessarily large amount of carbon.

> Measures to lower carbon emissions levels need to be explored more comprehensively. Such measures include demand management, reduction of resource use, re-use of resources and extending the lifetimes of products and buildings. Improvements in energy supply technologies and a shift to a low carbon energy mix are important, as is a reduction in energy demand. Transitioning to a low carbon society can stimulate the economy and create new industries.

> In order for GHG emissions to decrease significantly, the global consumption of materials must be reduced. Dematerialization (the improvement of resource efficiency) will play a major role in reducing demand, as will improving and disseminating technologies to end-users.

Towards mainstreaming climate policies

The relevance of the peak oil debate to climate change is now called into question due to the emergence of new sources of hydrocarbons such as shale oil and shale gas. The displacement of coal by shale gas may lead to a reduction in emissions in countries that are affected directly, but there is a high risk of carbon leakage. While shifting from coal to shale gas may bring short- to medium-term benefits, such a shift cannot be a long-term solution to climate change. New energy options such as shale gas could result in falling energy prices and discourage reductions in energy demand. Energy issues need to be considered within the context of climate change. Policies that can engage both developed and developing counties are needed. Energy policy needs to be steered at the political level if the climate is to be stabilized and the use of fossil fuels mitigated at the global level.

Cooperation is essential if social and environmental goals are to be achieved, while competition will help to achieve goals in an economically efficient manner. The choice of policy instruments that bridge the competition and cooperation in the energy market is key to the green growth transformation and delivering economic and environmental benefits. The reform of energy markets for low carbon green growth has to go side by side with policies and programs favoring sustainable development. The development of sustainable infrastructure is needed to avoid lock-in. Given the close linkage between GHG mitigation and energy policy, effective international climate policies and carbon markets are necessary if low carbon green growth is to be promoted through reforming markets. There is a need to identify: a) policies that will promote low carbon energy resources and technologies; and b) international mechanisms that promote the effective and affordable transfer of technologies and the development of regional clean energy markets.

Up-scaling investments to realize low carbon societies

The level of investment needed to achieve low-carbon societies has become increasingly clear. Investment from both the public and private sectors will be needed. However, the current economic climate has inhibited investment from the private sector, while public financing will be insufficient by itself. Globally, private investment flows accounted for 74% of total climate finance in 2010-2011. Multilateral banks such as ADB have implemented several pump-priming programmes to attract and scale up private investment. Microfinance has a potentially important role to play in developing countries.

A vision and an appropriate set of policies and measures are necessary to direct investment towards low carbon projects/programs at the global level. The long-term benefits need to be considered when resources are invested. Meeting the challenges will require innovation in terms of both structuring and sourcing finance and technology. The policy environment should be re-designed so that climate change becomes a mainstream consideration in investment decisions.

Integrating local LCS actions into global challenges

While international negotiations and climate change measures have progressed only slowly in most countries, low carbon plans and initiatives at the city level have moved forward significantly. This suggests that a bottom-up approach can accelerate the transition to low carbon societies at a global scale.

Low carbon processes at the city level can lead to a self-organizing process in which a spectrum of new activities emerge and contribute to sustainability transitions. The actors involved can translate their ideas into concrete form within their own networks and organizations. Bottom-up approaches can empower a range of social actors to contribute to common goals, with a common language, outlook and agenda serving as the coordinating mechanism.

Accelerating the transition to low-carbon societies

The transition to a low carbon society will imply fundamental changes in the underlying culture, structure and behaviour of societies. The pursuit of the low carbon agenda continues to be a challenge. In order to make a successful transition, it is essential to have a vision and an appropriate toolbox of mitigation policies whose efficacy and efficiency have been assessed.

Knowledge and innovation are critical when sharing best practices and scaling up successful projects in complex areas such as low carbon societies. As well as helping to realize the transition, knowledge and innovation can develop and create new ideas and practices and also extend to different sectors through their application and utilization in daily life.

LoCARNet 2nd Annual Meeting

At the LoCARNet 2nd Annual Meeting, a number of urgent issues for research common to the Asian region were discussed, including “the need for capacity development towards the framework for 2020”, “comparison of reduction potential of Asian countries towards achieving the two degree target”, “the role of cities as pioneers for LCS”, “low-carbon technologies required in Asia”, “Asian issues: emissions reduction in the agriculture, forestry and land-use sectors”, and “integration of low-carbon issues and climate change adaptation”.

During a session on comparing reduction potential of Asian countries towards achieving two degree target, the participants indicated the necessity of restraining GHG emissions in Asia in the year 2050 to below the current level, in order to reduce emissions in the year 2050 by half compared with the 1990 level, in keeping with the two degree target. Participants from each country then delivered reports on the policies and measures necessary in order to implement the outcomes of analyses conducted using the AIM model, evaluation of national reduction target in each country, and then potentials and technological options. There was also a lively question and answer exchange from the floor, including how to treat forest sinks and each country’s measures in relation to the two degree target.

A session on urgent research issues common throughout the Asian region introduced overviews of and progress reports regarding a number of projects selected by the Low Carbon Initiatives Programme of the Asia-Pacific Network for Global Change Research (APN). The session also indicated the important role played by research in furthering progress on the shift to a low-carbon society in Asia, and the participants shared the view that this Programme was helping to push forward low-carbon research within Asia. At the same time, the session also set forth the issue of how to deliver such research results to policy decision makers.

LoCARNet 2nd Annual Meeting Key Findings

Asia's low carbon future: Can Asia change the world through leapfrogging?

LoCARNet promotes focused and high quality research outcomes which can foster policy making that advances low-carbon growth. It does this by facilitating ample opportunities for dialogue between scientists and policy-makers while also encouraging collaboration among researchers whose scientific knowledge and policy perspectives are firmly grounded in their home countries. The international expert network associated with LoCARNet has expanded the knowledge frontiers and has influenced the policy domains beyond countries and sectors through dialogues and through sharing emerging knowledge on low carbon transformations in Asia. In the process, LoCARNet has made contributions to enhance countries' research capacity. The Second Annual Meeting of LoCARNet discussed the key issues of interpreting and aligning the research findings on low carbon development with practical applications. In the context of the 2020 policy framework, the discussions focused on: a comparison of the reduction potential of Asian countries for achieving the "2oC target," emissions reductions in the agriculture, forestry and land-use sectors, the role of cities as pioneers for low carbon societies (LCS), a roadmap of research, development and demonstration (RD&D) for the low carbon technologies in Asia, and the capacity needs in countries to implement the low carbon roadmap.

Asian countries have the capacity and the potential to mitigate GHG emissions to achieve the global 2°C target

> The global low carbon assessments show that, in order to achieve the 2°C target, global GHG emissions in the year 2050 should be halved compared with the 1990 level. In accordance with the global emissions target, Asian countries must also reduce emissions. Asian countries have developed the capacity to estimate their potential for carbon dioxide reduction and achieve the emissions reduction targets while pursuing a green economy.

> In the process of preparing IPCC AR5, the global emission pathway toward the 2°C target has been the subject of state-of-the-art modeling results. The majority of modeling assessments suggests that global carbon dioxide emissions must peak before 2020. Even though a smaller number of scenarios allow a later peak, such scenarios also indicate that the peaks should be no later than 2025. These results show the importance and the urgency for the low carbon research community in Asia to develop roadmaps for the Asian emission pathway that is consistent with the global emissions pathway for achieving the 2°C target.

Low carbon technology has implications beyond the technological domain

Although technology is a key element for development, it also poses risks and external costs to society. Low carbon development can be achieved through alternate technological pathways. It is vital to ensure that the technology choices for low carbon development are sustainable and enhance social value.

Among the challenges associated with low carbon investments are relatively low return on investment and high initial costs. Multilateral development banks offer financial instruments, e.g., the green bonds offered by the World Bank. Such instruments enhance the return on low carbon investments and encourage technology investment by private sector entities. However, many low carbon technologies are still far from being economically profitable. Thus, there is a need for a new model of financial instruments that incorporate the multiple co-benefits of low carbon technology that will accrue to a country, beyond the direct energy conservation benefits to the consumer and the global benefits of GHG mitigation.

City and local level actions can make cities into pioneers leading to a low carbon Asia

Low carbon development in cities involves a combination of “hard” options such as changes in infrastructure, waste management, energy systems and “soft” options such as raising awareness and behavioural changes. Therefore, sound research and knowledge should form the basis for the planning and development of cities. Community engagement is also important for city planning and decision-making. Scientific evidence derived through research helps in forming consensus among stakeholders. It is essential to supplement national policies and plans with local actions. Therefore, the transition to a low carbon society should begin at the local level. There are numerous community-based activities such as agro-forestry and ecotourism that have the potential to support the formation of a low carbon society. Barriers such as those related to pricing policy, incentives, access to financing, land tenure and access, and knowledge on low carbon farming also hinder the upscaling and the improvement of efforts to build a low carbon society.

Energy conservation on the demand side can be achieved through a multitude of 3R (reduce, recycle, reuse) measures, through dematerialization and through capacity building within local governments. For instance, it is important to enhance local capacity in developing countries to innovate, manufacture, install and maintain low carbon technologies. Effective means of introducing low carbon technologies will be a key issue from both cost and benefit perspectives.

Asian leapfrogging still needs to be catalysed from various aspects

While the concept of "transitioning" is easily understood in developed countries, "leapfrogging" may be a more appropriate concept to be applied by developing countries as they head towards low carbon development through lifestyle and other changes. However, leapfrogging requires leverage from financial, political and social aspects.

Although the path to a low carbon society includes a number of challenges, there are also options to overcome these challenges. It will contribute to meaningful emissions reductions leveraging strong policy support, promoting community-based natural resources management, increasing access to finance through the creation of trust funds via public-private partnerships, expanding joint carbon mechanisms and integrating supporting policies across sectors.

A knowledge platform is an effective way to respond to urgent requests from policymakers

Although greater pressure has come to be exerted on national climate change policies since the Copenhagen climate summit in 2009, policy-research collaboration and research capacity and application have still not been adequately established. In Asian countries, practical activities have been developed and progress has been made on the establishment of a knowledge platform and training center for low carbon development even though research capacity and scientific research have yet to be thoroughly developed. Knowledge sharing across sectors and countries is expected to assist in overcoming existing limitations and delays in low carbon research.

Policy implementation needs an integrated approach to various sectors. Therefore, a knowledge platform such as LoCARNet is effective in catalysing research communities and policymakers across various sectors. In order to address the urgent knowledge and capacity development needs, LoCARNet is facilitating knowledge sharing and enhancement as well as application within the respective areas of the stakeholders.

While progress has been made, a number of research gaps have been identified. These include gaps in the modeling of low carbon development in sectors and the development of integrated policies. In order to accelerate good practices, informed and coordinated programs among governments, civil society groups and other stakeholders are needed. It is also necessary to adopt a synergistic approach while integrating mitigation and adaptation activities towards a sustainable food security system and a low carbon/resilient infrastructure and lifestyle.

Side-events at COP19

LCS-RNet and LoCARNet Secretariat conducted side-events at the 19th session of the Conference of the Parties to the UNFCCC (COP19) held in November 2013. For the LCS-RNet side-event, outcomes of the 5th Annual Meeting were reported, followed by an in-depth discussion on up-coming research agendas for the second phase. For the LoCARNet side-event, research results on GHG reduction potential in Asia were conveyed to the world.

LCS-RNet Side-event

Organisers	Institute for Global Environmental Strategies (IGES) The National Institute for Environmental Studies (NIES)
Title	Transition to Low-Carbon Resilient Societies: From Theory to Reality
Theme	This side-event reported on the results of the International Research Network for Low Carbon Societies (LCS-RNet) Fifth Annual Meeting held in July 2013 in Yokohama, and introduced efforts towards realising low-carbon transition in several countries. In addition, discussions were held on future agendas for LCS-RNet.
Agenda and speakers	**Opening Remarks** ● Mr. Junichi Shiraishi, Japanese Ministry of the Environment (MOEJ) **Report of the LCS-RNet 5th Annual Meeting - Accelerating the Transition to Low Carbon Societies - from Theory to Reality -** ● Dr. Mikiko Kainuma, NIES, Japan, and ● Dr. Sergio La Motta, National Agency for New Technologies Energy and the Environment (ENEA), Italy **[Special Report]** **Triggering Finance for a Low Carbon Transition** ● Dr. Jean-Charles Hourcade, International Research Center on Environment and Development (CIRED), France **[Round Talk]** **"Towards Low-Carbon Transition, What We Can Learn from Different Approaches Taken in Different Countries, What Are Common Agendas to Address?"** ● Dr. Shuzo Nishioka, LCS-RNet Secretairat / IGES, Japan ● Dr. Mikiko Kainuma, NIES, Japan ● Mr. David Warrilow, the UK Department of Energy and Climate Change (DECC) ● Dr. Jean-Charles Hourcade, CIRED, France ● Dr. Antonio Navarra, Euro Mediterranean Centre for Climate Change (CMCC) / Fondazione Eni Enrico Mattei (FEEM), Italy ● Dr. Axel Michaelowa, Perspectives, Switzerland ● Dr. Junichi Fujino, NIES, Japan **Closing**

Outline of presentations and discussions

At the beginning of the side-event, Mr. Junichi Shiraishi, Ministry of the Environment, Japan gave his opening remarks, in which he expressed his expectations for LCS-RNet activities, reflecting the latest scientific findings into policies in an effective manner. He also stressed that the Ministry of the Environment must consider not just mitigation aspects, but also adaptation, on the road towards creating low-carbon societies.

The key messages of LCS-RNet Fifth Annual Meeting were given by Dr. Mikiko Kainuma of NIES and Dr. Sergio La Motta of ENEA, Italy, who stated that the world is entering a huge transition phase historically, and in order for society to break free from and avoid having further lock-in to energy-intensive alternatives, it will be imperative to collect and then mobilise global wisdom. They also stressed that a substantial portion of future emission reductions worldwide must be made in developing countries, so in this context, the activities of this network should be expanded as a means to discuss low-carbon development in both developed and developing countries. In addition, Dr. Jean-Charles Hourcade of CIRED, France, expressed his views that a low-carbon society and green economy can be considered as two kinds of effective leverage that have the potential to induce wider transitions towards a sustainable world.

Next came reports on efforts made by various countries towards achieving low-carbon transition. Mr. David Warrilow began introduced the UK, a country that has mentioned transition for low-carbon societies in its Climate Change Act 2008. In this act, the net UK carbon account for the year 2050 was set at 80% below 1990 levels. The UK has also developed a “Carbon Budget” for four terms, every 5 years from 2008 to 2027. Dr. Antonio Navarra of CMCC/FEEM, Italy, stated that transition to low-carbon societies is accompanied with a major transformation of social structure, and it is difficult to understand this transformation under the context of the current, on-going university system. Therefore, a more interdisciplinary approach is necessary. Dr. Axel Michaelowa from Switzerland emphasised that a co-benefit approach has limitations in evoking such a large transformation in social and energy structures for low-carbon societies, and, it is certainly a challenge for us to build-up long-term low-carbon societies under political change such as regime change. Dr. Junichi Fujino of NIES mentioned about “eye-opening” efforts made by developing countries in Asia and these rapid diffusions. He introduced an example in Iskandar, Malaysia, where a low-carbon blueprint has been developed over the last few years, and .stated that we should pay much more attention to such examples of “leapfrogging”.

For the Q and A session, there was a question on what would be triggers leading to low-carbon development and low-carbon societies. Mr. David Warrilow replied that the UK has put immense credibility on science, and he added that energy security ensures the diversification of energy sources. Dr. Junichi Fujino stated that Iskandar, Malaysia, focuses on quite a few factors such as setting up emissions reduction target in national level, and looking at leadership both at the national and local (municipal) level. Iskandar also emphasises opportunities as a special economic zone, its geographical features as a neighbour to Singapore, and also the partnerships and close ties between local universities and research collaborators.

Looking at potential future agendas for LCS-RNet, Dr. Shuzo Nishioka of LCS-RNet Secretariat raised the following examples:

– How should we deal with mitigation and adaptation in an integrated manner, from a global risk management aspect?
– What roles is played by low-carbon and resilient investment, through green technology, technology innovation and finance, and can they serve as leverage to recover from the economic crisis?
– How should we strengthen climate policies in response to increasing new sources of cheap energy, such as shale gas?
– How should we approach electricity system reform as a common carrier of various types of new energy and demand-side controller?
– Cities are good units to lead the transition. How should we promote a bottom-up approach by cities?
– How can we support and convey our experiences to emerging economies, especially in Asia, towards low-carbon, resilient development?
– How can we create resource efficiency improvements which can contribute to reducing energy on the demand side and reflect them into policies?

The side-event pointed out that agendas should be identified following thorough discussion amongst those concerned.

LoCARNet Side-event

Organisers	Institute for Global Environmental Strategies (IGES) National Institute for Environmental Studies (NIES)
Title	GHG Emissions Reduction Potential in Asia for the Two Degree Target
Theme	To stabilise the global climate, it is vital to tackle the growing increase of GHG emissions from developing countries. In particular, proactive steps should be taken in emerging Asia. This side-event was based on the discussions at the LoCARNet 2nd Annual Meeting in July 2013 in Yokohama, Japan, and aimed to introduce some challenges facing Asia, including presenting analysis on GHG reduction potentials using the AIM model by researchers in Asia; evaluating the reductions target for each country; and suggesting necessary policies to implement efficient reductions. The side-event facilitated discussions how Asia can reduce GHG emissions on the path to attaining the two degree stabilisation target.
Agenda and speakers	**Opening Remarks** ● Mr. Kotaro Kawamata, Ministry of the Environment, Japan **Introduction of the Low Carbon Asia Research Network (LoCARNet)** ● Dr. Shuzo Nishioka, LoCARNet/IGES, Japan **Asia's Low Carbon Future: Can Asia Change the World through Leapfrogging?** ● Dr. Mikiko Kainuma, NIES, Japan **We can go to the Pathway for the 2 degree global target - China's CO_2 emission -** ● Dr. Jiang Kejun, Energy Research Institute (ERI), National Development and Reform Commission, China **Mitigation Potential towards achieving global 2OC Stabilization Target: Assessment for India** ● Prof. Priyadarshi R. Shukla, Indian Institute of Management Ahmedabad (IIMA), India **Developing Malaysia LCS Scenario Vision 2020 and 2030** ● Prof. Ho Chin Siong, Universiti Teknologi Malaysia (UTM), Malaysia **Q and A Session** **Closing**

Outline of presentations and discussions

At the beginning of the side-event, Mr. Kotaro Kawamata, Ministry of the Environment, Japan, stated that the Asian region continues to develop as a result of economic growth. He expressed his strong expectation that Asia can become a world leader as the region moves forward to create low-carbon societies, with its gaze fixed firmly on the future.

Dr. Shuzo Nishioka of the LoCARNet Secretariat stated that global CO_2 emissions are expected to increase substantially, and if current trends continue, GHG emissions from developing countries, especially in the Asian region, are expected to comprise half of all global emissions in 2050. Therefore, he pointed out that Asia has to take necessary countermeasures as early as possible, if our goal continues to be achieving the two degree target. On that basis, Dr. Nishioka introduced the activities of the Low Carbon Asia Research Network (LoCARNet) being conducted in selected countries in Asia. These activities include supporting researchers and research communities in-country develop their research capacities; formulating low-carbon plans and strategies with those in-country researchers for their countries; and facilitating information exchange and knowledge-sharing on the occasion of LoCARNet annual meetings and at other opportunities.

Dr. Mikiko Kainuma of NIES stressed that Asia has to move into action as soon as possible, and a leapfrogging-type development in Asia will lead to achievement of a low-carbon society. She stated that Asia possesses the innate ability to turn challenges into opportunities, and expressed the strong message that the two degree target will be eminently feasible.

Dr. Jiang Kejun of ERI expressed his views that to achieve the two degree target, China will have to deal with some key issues, such as conducting economic structure optimisation policies, improving energy efficiency, introducing renewable energy and nuclear power generation, promoting CCS (carbon dioxide capture and strage), and encouraging low-carbon consumption and lifestyle change. He also mentioned that for China to become a low-carbon society, technological progress will be indispensable.

Prof. P. R. Shukla of IIMA stated that participation in two degree stabilisation will create substantial changes and challenges on both the demand and supply sides. Any altered choices would create additional costs in the short-run, but introducing policies that align CO_2 mitigation and sustainable development can deliver significant co-benefits to off-set any additional costs.

Prof. Ho Chin Siong of UTM indicated that in order to achieve the 40% reduction target for emissions, more intensive implementation is needed especially in the energy sector. In addition, he mentioned that apart from mitigation measures, Malaysia should also focus on adaptation efforts which build resilience against potential impacts.

Finally, the side-event reaffirmed the growing importance of the role that Asia will play towards achieving a global two degree target. The side-event also stressed the significance of LoCARNet activities in this context, and reiterated the expectation that LoCARNet will continue these activities.

03 Improving research capacity of researchers and experts who support low-carbon development Policies in Asia

Since LoCARNet was instituted last year, it has developed smoothly thanks to the cooperation of researchers who support the making of policies on low-carbon development in the Asian region. However, there have been insufficient efforts made to nurture a community of researchers who support the drafting of policies on low-carbon development in Asia. All participants acknowledged that this region has particular importance in the reduction of GHG emissions, so it is vital to nurture and strengthen the research community, in keeping with the special characteristics found in the local area. They also agreed that in light of this, it will be essential for LoCARNet to focus on fostering regional research capacity. Having had this in mind, we have conducted following activities in this fiscal year.

Workshops for nurturing research capacity in this region

In December 2013, LoCARNet assisted in the activities of "IPCC Indonesia", which was organised to nurture and strengthen the research community in Indonesia. In practical terms, LoCARNet helped organise a workshop on "Scenario Development towards Low Carbon and Climate Resilience City", which supports developing an integrated policy on both GHG emissions reduction and climate resilient city planning.

Workshop in Jakarta

Report from Indonesian Workshop: Scenario Developments towards Low Carbon and a Climate Resilient City[1]

Mr. Gito Ginting
Researcher, Center for Climate Risk and Opportunity Management (CCROM), Bogor Agriculture University, 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 Planning Agency of the DKI Jakarta City provincial government, in partnership 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)- organised a Workshop on Scenario Development towards a Low Carbon and Climate Resilient City in Jakarta, Indonesia on 19 December 2013. The workshop brought prominent scientists together from SEA countries (Malaysia, Thailand and India) to share their experiences in bringing science into policy aimed at developing low-carbon and climate resilient cities.

The role of science is very important in helping city governments to design their development pathways for developing low-carbon and climate resilient cities. Japan has established the Low Carbon Asia Research Network, an open

1 Source: "Asian Low Carbon Update", LCS-RNet Newsletter (Vol. 13)

network of researchers and research organisations, as well as like-minded relevant stakeholders, which facilitates the formulation and implementation of science-based policies for low-carbon and climate resilience development in the Asian region.

The United Nations also launched the United Nations Sustainable Development Solutions Network (SDSN) on 9 August 2012. SDSN mobilises scientific and technical expertise from academia, civil society and the private sector to support sustainable development problem-solving. Malaysia and Thailand have also begun to develop their own Centre of Excellence.

In addition, LCS-RNet/LoCARNet gave its support to bring one leading candidate to Kyoto University to facilitate the process of developing scientific low-carbon plans and strategies, and to enable smooth collaboration between research communities and policymakers in Cambodia. In addition, the LCS-RNet/LoCARNEt Secretariat organised a capacity development workshop for Cambodia, Lao PDR and Myanmar in February 2014.

Trilateral Workshop in Cambodia

The LCS-RNet/LoCARNet Secretariat conducted a trilateral workshop for Cambodia, Lao PDR, and Myanmar in February 2014 in Phnom Penh, Cambodia.

This workshop aimed to have Cambodia, Lao PDR and Myanmar each utilising its own capacity to present GHG emission reduction potentials in a quantitative manner; to advance the organisation of research communities in-country, so that they can enhance policymaking in a more effective manner; and to provide a forum for researchers and policymakers to engage in discussion. In addition, because the participating countries share some points in common, including their level of economic development and geographical characteristics, this workshop also provided opportunities for researchers in each country to bring together their research results, carry out “knowledge sharing” and actively promote a system of mutual learning that facilitates south-south cooperation.

This workshop had great success, with more than 70 participants including not only researchers and experts but also policymakers and NGO staff. Policymakers from Cambodia showed a particularly enthusiastic response and indicated their high expectations. It is expected that, by continuing such activities like this, Cambodia will come to enjoy greater possibilities for implementing the low-carbon plans that were discussed in the workshop.

Internship programme

LCS-RNet/LoCARNet Secretariat has endeavored to nurture and strengthen capacities in this region, by conducting internship programme and capacity-building training. This fiscal year, LCS-RNet/LoCARNet Secretariat accepted two researchers from Management Organisation (TGO) as interns. One of the interns took part in the AIM CGE training workshop organised by NIES, as a part of our internship programme.

LoCARNet young researchers' special correspondent programme

For the sake of nurturing young researchers, LCS-RNet/LoCARNet Secretariat has established a "young researchers special correspondent programme", in which the LCS-RNet/LoCARNet Secretariat asks these young researchers to write periodical reports about low-carbon related news in his/her country. The network then uploads the news onto the website. Currently, special correspondents from Cambodia, China, India, Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam are in action.

Low Carbon News written by the LoCARNet special correspondents has been updated onto the following website.

http://lcs-rnet.org/jp/jp/news_from_members/

Contribution to the Thailand Climate Change International Technical and Training Center (CITC)

In addition, LoCARNet Secretariat dispatched a short-term expert to the Thailand Climate Change International Technical and Training Center (CITC), to be established by TGO with support from JICA, as well as accepting TGO trainees at IGES on two occasions. In this regard, LoCARNet Secretariat endeavours to accumulate knowledge within LoCARNet, and thus establish a route to deliver it to policymakers in ASEAN countries.

This is done by developing low-carbon related course curriculums and dispatching LoCARNet researchers as lecturers. As a research network on low-carbon development located at Japan, LoCARNet has also tried to reflect knowledge accumulated by AIM team/NIES into the low-carbon related course at CITC. It has then contributed further by conveying Japan's contribution to Asia, through the promotion of low-carbon development in Asia.

04 Development of Japan 2050 Pathways Calculator as a communication tool with multi-stakeholder

The 2050 Pathways Calculator is a low-carbon scenario simulation tool developed by the UK Department of Energy & Climate Change (DECC) to help policymakers, academia, the business sector and the public, to explore the options on how the UK can best meet energy needs while reducing emissions.

In order to facilitate model development in Japan and link it with policy discussions in Asia, IGES, NIES, and Mizuho have jointly been working on the development of the Japan 2050 Pathways Calculator since the beginning of 2013. This has been done with technical assistance from DECC through the UK Embassy in Tokyo. The proto-type Japan 2050 Calculator will be developed by the middle of February 2014, and then, following a review meeting with experts in Japan, it will be open to the public in July 2014.

Japan 2050 Pathways Calculator

The 2050 Pathways Calculator is a low-carbon scenario simulation tool developed by the UK Department of Energy & Climate Change (DECC) to help policymakers, academia, the business sector and the public to explore the options on how the UK can best meet energy needs while reducing emissions. Being recognised by their contribution, the 2050 Calculator Team won the 2013 Civil Service Award from the UK Cabinet for Analysis and Use of Evidence[2].

As a transparent tool, the 2050 Calculator can answer the fundamental questions of how the energy system can evolve over the coming decades and its impact on emissions, energy security, land-use, electricity systems, energy development and costs, etc.

Commissioned by the Ministry of the Environment of Japan (MOEJ), IGES, NIES and Mizuho Information & Research Institute have jointly been working on the development of the Japan 2050 Pathways Calculator since the beginning of 2013.

The UK 2050 Pathways Calculator was first published in July 2010 by the UK DECC[3]. It was developed as an analytical tool to help communicate among various stakeholders to understand what choices can help the UK achieve domestic commitment of 80% reduction in GHG emissions by 2050 relative to 1990 levels and at what costs.

The 2050 Calculator covers all energy supply and demand sectors and all types of GHG emissions (see Table 1).

Table 1. Calculator sectors

Supply sectors	Demand sectors	Non-energy sectors
• Bioenergy • Nuclear • Coal, biomass, gas and oil-fired without CCS • Fossil fuels with CCS • Onshore wind, offshore wind and small-scale wind • Solar PV and solar thermal • Wave, tidal range and tidal stream • Micro-generation • Geothermal • Hydro power • Fossil fuel production (petroleum refineries and indigenous fossil-fuel production) • H_2 production for transport • Fossil fuel transfers • Electricity distribution, storage and balancing	• Domestic spacing heating and hot water • Commercial spacing heating and hot water • Domestic lighting, appliances and cooking • Commercial lighting, appliances and catering • District heating • Transport (domestic passenger transport, domestic freight, domestic aviation, international aviation and international shipping) • Industrial processes	• Agriculture and land-use • Waste and recycling • Marine algae • Geosequstration • Storage of captured CO_2

2 http://awards.civilserviceworld.com/civil-service-awards/winners
3 https://www.gov.uk/2050-pathways-analysis

Key to the 2050 Calculator is considering the full range of what is possible, not just what it will happen. For each sector, four trajectories have been developed (see Table 2), ranging from little or no effort to reduce emissions (Level 1) to extremely ambitious changes that push towards the physical or technical limits of what can be achieved (Level 4). The Calculator allows the users to make their own choices on the 4 levels. The combination of the choices over all sectors will create the users' own low-carbon pathways together with the resulted impacts on GHG emissions, energy mix for electricity generation, primary energy supply, sectoral energy demand and emissions, technology options and relevant costs, at five-year interval up to 2050.

Table 2. UK 2050 Calculator levels

Levels	Definition	Notes
Level 1	No effort (not business as usual)	Assumes little or no attempt to decarbonise or change or only short run efforts; and that unproven low carbon technologies are not developed or deployed.
Level 2	Effort described by most stakeholders as achievable	Describes what might be achieved by applying a level of effort that is likely to be viewed as ambitious but reasonable by most or all experts. For some sectors this would be similar to the build rate expected with the successful implementation of the programmes or projects currently in progress.
Level 3	Effort needing significant change – hard but deliverable	Describes what might be achieved by applying a very ambitious level of effort that is unlikely to happen without significant change from the current system; it assumes significant technological breakthroughs.
Level 4	The maximum possible due to physical/practical constraints only	Describes a level of change that could be achieved with effort at the extreme upper end of what is thought to be physically plausible by the most optimistic observer. This level pushes towards the physical or technical limits of what can be achieved.

The UK 2050 Calculator is available in three versions to allow a wide range of audiences to explore and communicate easily and transparently on the fundamental question of how the UK can best meet energy needs while reducing emissions (see Fig. 1).

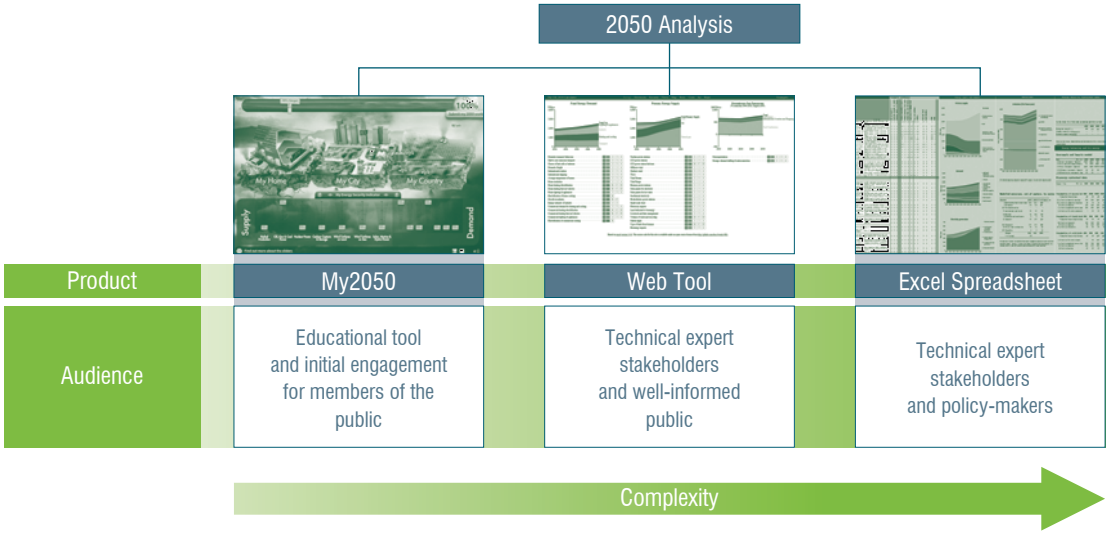

Figure 1. The 2050 Family

- My2050[4] is a visual internet simulation tool developed for the public and for education at school.
- 2050 Webtool[5] is an internet-based scenarios model developed for policy makers. By varying the level of ambition for emissions reduction in over 44 technologies and behaviours, a policy maker is able to get instant results showing information on energy output, demand and emissions out to 2050. It enables a quick comparison of the consequences and trade-offs of different scenarios.
- Excel spreadsheets[6], outlining all the underlying data such as emissions baselines, population and expected economic growth as well as the assumptions used to calculate costs, are used by technicians and experts.

Except for the UK, the 2050 Pathways Calculator has been developed in China's Mainland, Korea, Belgium (Wallonia region) and Taiwan. Including Japan, another 14 countries around the world are in the process of developing their own 2050 Calculator to facilitate stakeholder consultation and support making decisions among various mitigation options.

Since the beginning of 2013, with the technical assistance from DECC through the UK Embassy Tokyo, IGES, NIES and Mizuho Information & Research Institute have jointly been working on the development of the Japan 2050 Pathways Calculator. The prototype of the Japan 2050 Calculator is now ready. A process of review on the scientific basis, the structure of the model and suitability for Japan's situation in terms of energy system, economic structure, resource endowment, technology and behaviour options, etc. will be conducted before it can be publicized in July 2014 (as planned).

After the Fukushima accident, Japan is at the crossroad for making the decision on future energy structure and selection of low-carbon technologies which can best ensure energy security while achieving ambitious mitigation targets by 2050. The timing of the development of the Japan 2050 Calculator is good and its potential application has attracted much attention from the MOEJ. It can help answer the policy questions such as follows:

- What will be the energy mix if there is no nuclear power and Japan still wants to achieve its 80% reduction by 2050? What will be the costs compared with moderately keeping nuclear power in domestic energy mix?
- If other sectors keep the same as their baselines, how much CO_2 reductions can be achieved by the most ambitious renewable energy scenarios? At what costs?
- If all demand sectors keep the same as their baselines, how much CO_2 reductions can be achieved by the most ambitious efforts made by the supply side? At what costs?
- If all supply sectors keep the same as their baselines, how much CO_2 reductions can be achieved by the most ambitious efforts made by the demand side? At what costs?
- What is the full potential of CO_2 reduction in Japan? At what costs? What does the pathway look like?
- What is the full potential for Japan's industry to reduce CO_2 emissions? At what costs? What does the pathway look like?

Data are collected from various resources including national and sectoral statistics, various short-to-medium term national and sectoral plans, official websites and academic papers, etc. Most of data is from the Japan Low Carbon Society 2050 Project, provided by the Mizuho Information & Research Institute.

4 http://my2050.decc.gov.uk/
5 http://2050-calculator-tool.decc.gov.uk/pathways/111111111111111111111111111111111111111111111111111111/primary_energy_chart
6 https://www.gov.uk/government/publications/2050-pathways-calculator-with-costs

05 Outreach and PR activities

This fiscal year, the LCS-RNet/LoCARNet Secretariat renewed the LCS-RNet/LoCARNet website and updated the information on LCS-RNet/LoCARNet activities. This helped reinforce information accumulation and dissemination on low-carbon development policies. In addition, the Secretariat developed a series of reports of workshops and annual meetings, and disseminated these reports.

LCS-RNet/LoCARNet website http://lcs-rnet.org/

06 Other activities

LCS-RNet activities towards COP21 in 2015 in France

In addition to the above-mentioned activities, LCS-RNet has been requested by France to make inputs into the "Positive Agenda with Concrete Actions" proposed by France in hosting the COP21 in 2015. To facilitate the process, LCS-RNet Secretariat plans to hold the Sixth Annual Meeting in Rome, Italy in Autumn 2014, followed by the Seventh Annual Meeting in Paris by March 2015, working in close collaboration with other countries.

LCS-RNet Submission to the UNFCCC towards COP21 in 2015
"International cooperation for development of low carbon societies" in coordination with "Positive Agenda with Concrete Actions" of the French Ministry of Ecology, Sustainable Development and Energy (MEDDE)

The International Research Network for Low Carbon Societies (LCS-RNet) was established at the G8 Environment Ministers Meeting in 2009 and is made up of climate change policy related researchers in Europe and Japan. LCS-RNet is planning to collaborate with the "Positive Agenda with Concrete Actions" proposed by the MEDDE, and will submit a proposal to COP21 on the issue of "international cooperation for the development of low-carbon societies" on the basis of the accumulated five years discussions and activities of LCS-RNet. The secretariat of the process for the submission will be the Institute for Global Environmental Strategies (IGES: Japan).

1 Background

- A meeting was held between MEDDE and LCS-RNet secretariat in November 2013 in Paris, France
- Request for inputs from LCS-RNet to the "Positive Agenda with Concrete Actions" proposed by France in hosting the COP21 in 2015

2 Expected themes (tentative)

- LCS-RNet will conclude its first phase in March 2014 and start its second phase (for five years) from April 2014. During the annual meeting held in July last year in Yokohama, for the course of action over the next five years, it confirmed that LCS-RNet will "identify 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 to disseminate a proposal that is based on the in-depth discussions through policy process"
- LCS-RNet will make a submission to the UNFCCC in line with the course of action. During the meeting with MEDDE, the LCS-RNet secretariat presented **examples** of the key issues to be discussed towards 2020, that include: 1) integration of mitigation/adaptation, 2) response to energy excess period, 3) electricity system reform, 4) resource efficiency in supply chains, 5) low-carbon development policy in developing countries such as Asia, 6) low-carbon finance, 7) low-carbon cities, and 8) citizen behaviour. The secretariat also brought up the importance of consideration for 2020 and beyond

3 LCS-RNet action plan for COP21

- Convene LCS-RNet Sixth Annual Meetng in Autumn 2014 [Rome, Chair: Italy & France], and the Seventh Annual Meeting before March 2015 [Paris, Chair: France & ?] as a sequence of processes to formulate a submission to UNFCCC COP21
- Consider the needs for support and distribution of information not only to research institutions but also to governments [energy, environment and foreign affairs etc] as an overall process

In addition, LoCARNet also plans to deliver the following message to COP21.

LoCARNet Submission towards the COP21 in 2015
"Ten action proposals for Asian low-carbon development"

Low Carbon Asia Research Network (LoCARNet) was established in ASEAN+3 Environment Ministers Meeting in 2011 and is made up of climate policy related researchers in Asia. LoCARNet is planning to collaborate with the governments of Asian countries with a focus on ASEAN, and by mid-2015, will submit "ten action proposals for Asian low-carbon development" to the UNFCCC on the basis of the accumulated two years of discussions and activities of LoCARNet. The secretariat of the process for the submission will be the Institute for Global Environmental Strategies (IGES: Japan).

1 Background

LoCARNet has been organising a network of researchers for the development of science-based climate policies in Asian countries, and has held close dialogue with policy-makers in each country to discuss key issues at the two annual meetings and several workshops that have taken place so far.

2 Expected themes (tentative)

This submission aims to make a proposal from Asia/ASEAN countries to promote the effective progress of the new climate change regime in response to climate change issues for sustainable development of Asia and the world.

- GHG reduction: there is great potential for emissions reduction in Asia
- Needed technologies: in which technology can Asia lead the world?
- Energy: technologies and subsidies for independent and distributed low-carbon energy systems
- Forest: great potential for reductions, initiation of practical early crediting system of REDD+
- Leading from cities: need for collaboration among cities and policy supports
- Transportation: preceding the investment of public transportation infrastructure
- Finance: promotion of the use of financing systems such as microfinance and two step loan
- Green economy: economic policies and incentives
- Capacity development: promoting knowledge dissemination and research capacity development in regional level
- International collaboration: south-south collaboration, voluntary reduction mechanisms

Design plan of international climate change system after 2020

3 LoCARNet activity plan by COP21

- Convene several workshops from January 2014 and discuss the proposals
- Convene LoCARNet Third Annual Meeting in Sept/Oct 2014 [Bogor, Chair: Indonesia] and the Fourth Annual Meeting in May 2015 [TBA] as a sequence of processes to formulate a submission to the UNFCCC COP21
- Consider the need for support and distribution of information not only to research institutions but also to governments [departments of energy, environment and foreign affairs etc] as an overall process

LoCARNet Proposal - to Establish an Alliance of "Centres of Excellence (CoEs)" for Low-Carbon Development in Asia

LoCARNet in particular has started activities to realise its ultimate goal of "being independent in this region, establishing a low-carbon development research group that can contribute to formulating low-carbon development countries and regional policies, as well as examining directions to continue to give policy-making support" In this regard, LoCARNet will encourage each participating organisation to make full use of its research expertise; strengthen low-carbon development research and policy supporting function; and, become a "Centre of Excellence" in the region, leading to low-carbon Asia development. Additionally, a forum composed of respective "Centres of Excellence" will be active automatically. For the CoE vision, Universiti Teknologi Malaysia (UTM) has been working to establish the "Asia Low Carbon Center" (set up in October 2013), as a leading CoE for low-carbon urban research communities. The LoCARNet Secretariat will support CoE formulation related to urgent issues in Asia in and after FY2014.

LoCARNet Proposal - to Establish an Alliance of "Centres of Excellence (CoEs)" for Low-Carbon Development in Asia

There are a number of research institutes and training organisations conducting research and technical training focusing on low-carbon development in Asia, which have participated in LoCARNet activities very proactively. This proposal will strengthen these research institutes and training organisations as CoEs (Centres of Excellence) by making full use of the characteristics of each institute and organisation. Also, this proposal aims to reinforce autonomous skills and capacities in this region in formulating low-carbon development plans and strategies.

1 LoCARNet activities towards establishing an alliance of "CoEs (Centres of Excellence)" for low-carbon development in Asia

In 2011, the Japanese Government made a proposal establishing the Low Carbon Asia Research Network (LoCARNet), which was endorsed at the ASEAN+3 Environmental Ministers' Meeting. LoCARNet is expected to fulfill a role appropriate to timely needs to prevent climate change and work towards realising low-carbon societies. This will be achieved by accelerating knowledge accumulation especially in emerging Asia. To date, LoCARNet has been promoting low-carbon society research, knowledge accumulation and policy application in close collaboration with Universities, research institutes, training centres and government organisations focusing on transition to low-carbon societies in this region.

Countries in this region have fully recognised the importance of promoting science-based low-carbon development policymaking. These countries are pushing ahead with fostering research and training communities in-country, but it is still the case that these countries do not have sufficient research capacities to form policies of which they have full ownership.

Considering the above-mentioned situation, LoCARNet aims to provide support so that each participating organisation can make full use of its unique characteristics to strengthen low-carbon development research and policy supporting function. By becoming one of the Centres of Excellence (CoEs) leading low-carbon development the forum comprised of an alliance of CoEs can go into action independently and autonomously in this region.

At the LoCARNet 2nd Annual Meeting in July 2013, a number of urgent issues for research common to the Asian region were discussed, including "the need for capacity development towards the framework for 2020", "comparison of reduction potential of Asian countries towards achieving the two degree target", "the role of cities as pioneers for LCS", "low-carbon technologies required in Asia", "Asian issues: emissions reduction in the agriculture, forestry and land-use sectors", and "integration of low-carbon issues and climate change adaptation".

For establishing a "CoE forum", an alliance of CoEs, LoCARNet has already started discussions and assessment of possibilities with some candidate institutes and organisations in this region, such as; Universiti Teknologi Malaysia (UTM) on low-carbon urban development; Bogor Agricultural University in Indonesia on agriculture, forestry, land-use, and adaptation; the National Institute for Environmental Studies (NIES) in Japan on inventories and policy application using the AIM (Asia-Pacific Integrated Assessment Model); the Asian Institute of Technology (AIT) on energy technologies, etc.

2 Goal, procedures and schedule

1. Ultimate goal of the alliance as a "CoE forum"

For 3-4 years to come:

- Each CoE shall foster and enrich the ability in respective realms of expertise,
- Each CoE shall become an organisation which strongly supports policymaking by facilitating close discussions between policymakers, and then promote low-carbon development in ASEAN countries by furthering science-based policy-making.
- Following this, by promoting alliance amongst these CoEs in a cross-sectional manner, a sound forum (or alliance, league) of CoEs will be established, for the promotion of low-carbon development research, deployment and capacity development in this region.

- After 3-4 years, this pioneer movement is expected to spread out, and cover other countries in this region, so that low-carbon development policy support research fund will be covered by each country. This forum will then eventually be operated autonomously without support from developed countries such as Japan.

2. Procedures

- Conduct confirmation of the concept; call for participation for candidate institutes and organisations; support each institute and organisation to become a CoE on a specific theme; and support a CoE network operating and managing autonomously, as a hub for low-carbon development in ASEAN region.

3. Schedule

- UTM as a vanguard: In the field of low-carbon urban research, UTM has already been going ahead with low-carbon and green urban research in Iskandar, located in the south of Johor State, Malaysia, under the SATREPS (Science and Technology Research Partnership for Sustainable Development) project. Its research results and policy application are sufficient to lead research in this field in Asia. In October 2013, UTM launched the Low Carbon Asia Research Centre, and declared as a CoE on of low-carbon urban research.
- Promoting formulating of "an alliance of CoEs (Centres of Excellence)" towards realising low-carbon development in Asia", by coordinating each institute/organisation. In this concept, "UTM Low Carbon Asia Research Centre" would form the core, as it is currently the top-runner of this concept.
- Expansion to an alliance of CoEs: LoCARNet is calling for participation in the CoE forum of some major LoCARNet members, such as Bogor Agricultural University in Indonesia, Asian Institute of Technology (AIT), Philippine University, National Institute for Environmental Studies (NIES) in Japan. There also needs to be collaboration with policy training centers to be planned in Thailand and Indonesia, not only for research but also for knowledge dissemination and capacity development.

In the future, LoCARNet intends to be a think-tank on low-carbon development plans and strategies in ASEAN region, by forming an "Alliance of Centres of Excellence (CoEs)", based on south-south regional knowledge sharing.

Plans for
FY 2014

LoCARNet

Low Carbon Asia Research Network [LoCARNet]

As an external factor, it was decided that all countries should pledge their own reduction targets. Also, support for developing countries is gradually taking shape, with support for research in formulating adaptation policies also becoming an urgent issue. In countries in Asia, policymakers have gradually recognised the importance of the involvement of researchers and research communities in-country in the policy-making process, and there are some signs of independence in nurturing researchers who will join the policy-making process, as well as in raising research funds.

A basic foundation was already developed by FY2013 as outlined above, and LoCARNet is now turning to its ultimate goal of "being independent in this region, establishing a low-carbon development research group that can contribute to formulating low-carbon development countries and regional policies, as well as examining directions to continue to give policy-making support", and examining the direction to take for constant policy support. Against such a background, LoCARNet will operate its activities along the following lines.

- Strengthening research capacity towards involvement in scientific policy making, both on mitigation and adaptation in each country, as well as facilitating contribution in policy formulation (to continue as before).
- Supporting the nurturing/development of autonomous and sustainable research capacity by promoting CoE (Centre of Excellence) collaboration and south-south regional collaboration, as well as encouraging organisations to participate in LoCARNet.
- Proposing low-carbon strategies in the ASEAN region by promoting collaboration of CoEs (becoming a think-tank for ASEAN).
- Facilitating collaboration with funds and technical cooperation schemes from Japan.

LCS・R Net

International Research Network for Low Carbon Societies [LCS-RNet]

As mentioned, LCS-RNet will complete its first phase in March 2014. It is scheduled to begin its activities under its second phase in April 2014.

International societies, such as G8, UNFCCC, have set the two degree target as a policy agenda, based on scientific recognition by the IPCC. On the other hand, under the current situation, international societies are deeply concerned as to whether they will attain the target, so it has been recognised that it is vital to promote adaptation to the adverse effects of climate change from the aspect of risk management. To that end, adaptation measures, for example, by using UNFCCC's adaptation funds are currently on-going world-wide.

Until now, climate change mitigation and adaptation measures have been conducted separately. However, it is time for us to consider both mitigation and adaptation measures in an integrated manner, from the viewpoint of climate risk management. While doing as much as possible to promote climate change mitigation measures we have to assume such a risk in case mitigation measures are not enough, and prepare adaptation measures to deal with the risk.

To this end, LCS-RNet will work in its second phase to formulate a network dealing with not only climate change mitigation but also adaptation. On the other hand, at the LCS-RNet Fifth Annual Meeting in July 2013, it was pointed out that we have to strengthen impact generation in line with international trends, and make a substantial input into the UNFCCC process. In addition, at the side-meeting with the French Ministry for Ecology, Sustainable Development and Energy (MEDDE), we were requested to cooperate with the French ministry in their "positive agenda with concrete actions", and so we would like to focus our FY2014 activities as follows:

- Promoting support for research dealing with not only climate change mitigation but also adaptation
- Examining and deepening the urgent agendas raised by LCS-RNet, synthesising them into contributions to the French proposal for COP21 in 2015
- Organising the Sixth Annual meeting in Italy in Autumn 2014, followed by the Seventh Annual Meeting in France by March 2015, as substantial milestones.

These three points will make up the core of our work as we promote our network activities proactively, on the path to low-carbon, climate resilient societies.

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