IGES
Institute for Global Environmental Strategies

2014
Annual report

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

LoCARNet
Low Carbon Asia Research Network LoCARNet

Introduction

The activities of the International Research Network for Low Carbon Societies (LCS-RNet) and Low Carbon Asia Research Network (LoCARNet) during this fiscal year are reported herein.

The LCS-RNet, composed of researchers and experts in G8 and other countries and aimed at the promotion of dialogues between science and policy towards developing science-based policymaking, transitioned into its 2nd Phase this year, aiming at the formation of networks focused not only on mitigation measures, but also adaptation measures.

In the final stage of the first phase of the LCS-RNet, in which knowledge sharing was promoted, a proposal was made that more effort be focused on impact formation for both domestic and international policies. In response, the network established a goal to make a proposal to the 21st Session of the Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC). Specifically, with the Sixth Annual Meeting in October 2014 in Rome as the starting line, and following COP20 held in December, a concrete process leading up to COP21 is being advanced, continuing with the Seventh Annual Meeting to be held in Paris in June 2015. During the next fiscal year, management work for the network will be carried out to make the proposal more substantial while utilising the variety of opportunities leading up to COP21 and beyond as a link to impact formation.

An abundance of research reveals that more synergistic effects can be obtained with the integrated implementation of climate change mitigation measures and adaptation measures. However, in most cases to date mitigation and adaptation measures have been discussed separately, and research on effective methods of integration of the two may as yet be insufficient. Accordingly, this fiscal year empirical research was initiated in the Philippines and Indonesia with land-use as an approach, covering both mitigation and adaptation measures.

Meanwhile, for the activities of the LoCARNet, which was initiated with the same objectives as the LCS-RNet, the Annual Meeting, individual meetings and workshops within the LoCARNet served as opportunities to advance ongoing capacity building for researchers and research institutes in Asia, knowledge sharing within the region and policy dialogue between researchers and policymakers. One point of this fiscal year's activities worthy of special mention is the LoCARNet Bogor Declaration, made at the LoCARNet Third Annual Meeting held in November 2014, which announced to the world that "Asia Is Ready to Stabilise Climate".

As shown in the LoCARNet Bogor Declaration, a number of outstanding initiatives toward realising a low-carbon Asia were evident this fiscal year. For instance, support provided to the Universiti Teknologi Malaysia and Bogor Agricultural University (Indonesia) in fiscal year 2013 led to consistency in policy formulation support in the fields of low-carbon cities and adaptation respectively, as both move in the direction of autonomy. Likewise, the Joint Graduate School of Energy and Environment (Thailand) is engaged in the creation of joint curriculum in cooperation with other universities. Also, the Climate Change International Technical and Training Center (Thailand) has undertaken creation of curriculum for Thailand's central government, and Viet Nam's Institute of Strategy and Policy on Natural Resources and Environment has launched a variety of information exchange and public education campaigns targeted at the country's local governments and industries and aimed at greater promotion of low-carbon policy. The LoCARNet is in position to continue its gentle support for such budding activities scattered throughout Asia that they make take root and branch out into autonomous activities.

The activities of the LCS-RNet and the LoCARNet are described below. We would very much welcome any suggestions concerning these activities. We also look forward to future collaboration with other relevant stakeholders actively working to realise low-carbon societies and low-carbon development.

March 2015
International Research Network for Low Carbon Societies (LCS-RNet)
Low Carbon Asia Research Network (LoCARNet)

Table of Contents

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

LCS-RNet

01 What is the International Research Network for Low Carbon Societies (LCS-RNet)?

For long-term climate stabilisation, it is vital for societies to break away from their current, highly energy-dependent state. All countries are now working on developing long-term strategies towards the creation of a new framework after 2020. Japan proposed the formation of a researchers' community, composed of researchers who are deeply and directly engaged in the policymaking process. This is the International Research Network for Low Carbon Societies (LCS-RNet).

Researchers in this network give their support to scientific policymaking by being deeply engaged in low-carbon, green growth policymaking in their respective countries. The network also includes policymakers, practitioners and other like-minded stakeholders who all work together, conducting in-depth discussions on crucial issues for creating low-carbon societies. In this way, knowledge is shared and reflected into policy.

Established Based on a Proposal from Japan:

As the chair of the G8 in 2008, Japan advocated the need for activities linking research and policies, and G8 countries agreed to this proposal to form LCS-RNet. Activities began in 2009, with the Secretariat located in Japan (Institute for Global Environmental Strategies: IGES)

A Platform for Dialogue between Research and Policy:

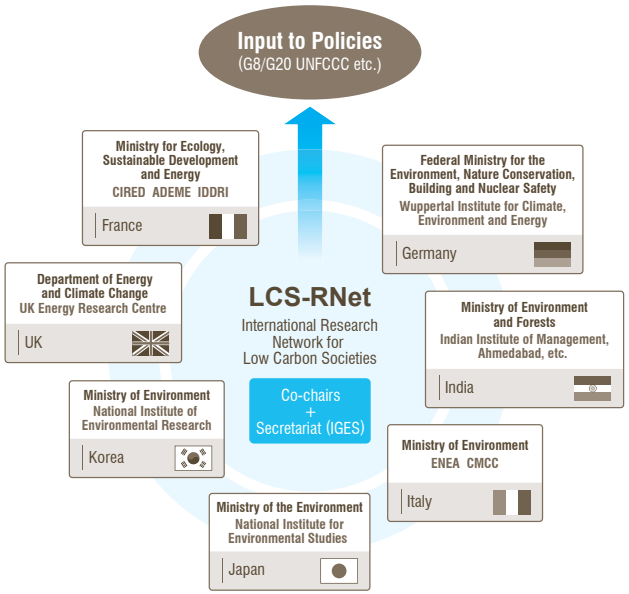
This has been established between nations so that the scientific knowledge needed to create low-carbon societies can be shared and new ideas for this purpose can be created. At the same time, it provides an opportunity for researchers and policymakers to converse with each other, by supporting timely policy implementation directly linking research and policy.

Directly Connected to the Policy Decision-Making Process in G8 and Other Countries:

The G8 Environmental Ministers Meeting held in Syracuse, Italy in April 2009 "requested the LCS-RNet to report back its outcomes periodically", so knowledge from the network will be reflected at the very top level in environmental policies worldwide. The results have been delivered to the United Nations Framework Convention on Climate Change and other related international institutions. Researchers use results from the network to contribute proactively to drafting low-carbon and green-growth strategies in their respective countries.

Participation of Leading Research Institutes in the Area of Low-Carbon Research:

This advances disciplinary cooperation between domestic research institutions. At the same time, it strengthens cooperation in research and policy worldwide, by having leading research institutions in each country serving as hubs of their respective countries. Among G8 members, the United Kingdom, Germany, Italy, France and Japan already have designated their central institutions. In addition, hubs have been formed in the Republic of Korea and India. So the network is composed of 16 institutions from 7 countries as of March 2015. Other countries such as China and Indonesia also are making progress towards participation.



Integration of Mitigation and Adaptation:

International societies 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.

From the perspective of risk management, it has been recognised that it is vital to promote adaptation to the adverse effects of climate change. To that end, global adaptation measures are currently being put in place, for example by using UNFCCC's adaptation funds.

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. Even as we strive to promote climate change mitigation measures, we must also assume some risk in case mitigation measures are not enough, and prepare adaptation measures to cover the risk.

To this end, LCS-RNet will work on formulating a network to deal with not only climate change mitigation but also adaptation.

02 Support for Scientific Policymaking

LCS-RNet Sixth Annual Meeting

The LCS-RNet Sixth Annual Meeting was held from Oct 1 to 2 in Rome, Italy, organised by the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Italian Ministry of the Environment and Protection of Land and Sea (MATTM), the City of Rome, the Ministry of the Environment, Japan, and the Institute for Global Environmental Strategies (IGES). Approximately 90 participants from 11 countries and three international organisations were in attendance.

At this meeting, both researchers and policymakers shared a recognition of the growing importance of active utilisation of practical, concrete and comprehensive proposals based on scientific evidence from the research community in climate policymaking processes both at the domestic and international levels directed at the transition to low-carbon societies.

Discussion at the LCS-RNet Sixth Annual Meeting

In order to stabilise the climate, emissions of greenhouse gases must ultimately be brought to zero, and we must adapt to the societal changes in line with this ultimatum. The materialisation of low-carbon societies demands not only an energy supply system, but also calls for structural changes and reforms to the existing socio-economic system as a whole. The present is a time of great upheaval that demands a more comprehensive approach in order to advance reforms toward low-carbon societies, including energy security and energy affordability at an appropriate price, pursuit of improved resource efficiency, promotion of low-carbon initiatives by cities and expanded private sector investment in low-carbon green growth. Moreover, examples of urgent issues include the use of green investments as leverage in the realisation of new economic systems aimed at low-carbon societies, and how to achieve low-carbon development resilient to climate change in developing countries, particularly in emerging economies in Asia.

Based on recognition of the above within the LCS-RNet, meeting preparation and execution was carried out based on the strong leadership of steering committee members from the two countries of Italy and France that acted as joint chairs for this meeting. Major points of discussion at the meeting are as follows.

Discussion at the LCS-RNet Sixth Annual Meeting

As researchers from various countries gathered under one roof to share knowledge on their respective areas of expertise, the importance of networks such as the LCS-RNet to the realisation of low carbon societies was once again revealed. Further, the need for such contributions is expected to continue to rise in the future. A common recognition was also evident on the need to share information on best practices, experience and comparative analysis related to low-carbon growth through the activities of the LCS-RNet.

At the Fifth Annual Meeting held in July 2013, a proposal was made that the network should focus more effort on impact formation for both domestic and international policies. In response, the network set a goal to make a proposal to the 21st Session of the Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC). This annual meeting in Rome was a forum for discussion on this proposal. It was reaffirmed that following COP20, the Seventh Annual Meeting will be held in Paris in early 2015 to work out a concrete process for advancing this goal.

In the session on energy policy, discussions took place on the shift to low carbon societies, and the gap between the choice by the energy provider of nuclear power or fossil fuels, as perceived from the perspective of energy security and affordability at an appropriate price. A definitive answer on this issue did not arise, rather the opinion was expressed that every possible effort should be made, including innovation of energy systems and responses on the energy demand side, such as individual behavior changes and consensus-building.

Efforts directed at energy supply and demand only are insufficient to significantly reduce carbon dioxide emissions—efforts must be cut deep into the supply chain. This includes efficient use of raw materials, recycling and reuse of raw materials and products, and efficient product support. These areas should not only be directly linked to conservation of energy, but also conceivably become the base for low-carbon societies and green economies. At the meeting, examples were cited of proposals directed at the industrial sector and city administration in times of transition, and the importance of policy proposals for improved resource efficiency was pointed out.

In the session on low-carbon investment, discussions took place on the potential contribution of fiscal policy and monetary policy on the formation of a new paradigm for the shift to low carbon societies. The importance of putting forth policy to drive investments in low-carbon societies on the part of all stakeholders was indicated.

In order to stabilise the climate, the policies of rapidly-growing major developing countries must be turned in the low-carbon direction at an early stage. In order to avoid becoming locked in to high carbon emissions due to the tremendous infrastructure investments currently being carried out, it is necessary to quickly and as far as possible integrate climate policies into the development policies of developing countries. Specific examples were given at the annual meeting, including not only short-term technological support, but also support for development and enhancement of research communities on climate policy by the developing countries themselves and support for knowledge transfer on policy examination tools, in order to promote autonomous policy formation. Accordingly it was proposed that this type of cooperation between developed and developing nations be advanced aimed at low carbon development.

In two panel discussions at the annual meeting, policymakers from each country indicated their expectations for the network, including the enactment of practical, concrete and comprehensive proposals based on scientific evidence and implementation of policy assessment. In the final panel, reflecting on two days of discussion, emphasis was again placed on focusing efforts on impact formation on both domestic and international policies. Furthermore, considering assertions in the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC), that the climate is undergoing change that is virtually unmistakably due to human emissions of greenhouse gases and that the impacts of this change are already evident around the world, mention was made that this network, parallel to promoting policy on climate change mitigation, should also promote policy on adaptation to the impacts of climate change.

LCS-RNet has held six annual meetings up to now, where researchers and policymakers have discussed issues to be tackled on the road to a low-carbon society. So far, we have discussed the following topics:

- Transition to a low-carbon society: We have yet to find a common path that we can share. It is going to take time to synthesise knowledge as we have much action research to still carry out.
- Energy policies: It is not easy to establish a common energy policy, as energy is deeply tied to national security. All we can do is respect each country's decision based on national situations.
- Investment for climate stabilisation: Investment for climate stabilisation is not particularly big, but may well hold the leverage needed to overcome the sense of frustration about the prolonged recession.
- Low-carbon cities: Future populations will be concentrated in large cities. Improving and managing infrastructures to secure citizens' well-being will be vital, while integrating mitigation and adaptation measures.
- To reduce energy and GHG emissions, we have to consider not only demand and supply-sides management, but also cut-into value-chain and supply-chain managements. This will yield co-benefits with resource efficiency improvement.
- Low-carbon development in developing countries: The key to reducing future GHG emissions lies in developing countries following a leap-frogging development path. To do this, they must develop long-term policies by themselves with full ownership and also foster/strengthen research community in-country.

As we look towards 2020, one urgent issue is to develop effective domestic policies and to build-up implementing mechanisms in both developed and developing countries. LCS-RNet has been conducting cross-sectoral, far-sighted, open dialogues between research community and policymakers, all the while keeping a proper distance from negotiations. This serves as a driving force to promote policies in each country from policymakers to the research community, as we find common issues to tackle, exchange good practices, promote mutual learning, and reflect emerging issues.

03 Impact Formation

Inputs to ADP Workstream 2

As United Nations Framework Convention on Climate Change (UNFCCC) negotiations on the creation of a new framework proceed full-scale, inputs of knowledge and expertise from researchers, NGOs and industry are called for more than ever. In May 2014, the LCS-RNet submitted the "Technical Inputs on the Technical Expert Meeting on Urban Environment", and the "Technical Inputs on the Technical Expert Meeting on Land Use" as inputs related to urban environments and land use respectively, targeted at the Workstream 2 (WS2) and Technical Expert Meetings (TEM) of the Ad hoc Working Group on the Durban Platform for Enhanced Action (ADP).

Related to the ADP's WS2 and TEM, at the "Forum on Experiences and Best Practices of Cities and Subnational Authorities in Relation to Adaptation and Mitigation", held in June 2014 in Bonn, Professor Ho Chin Siong of the University of Technology Malaysia (UTM), a past participant in LCS-RNet meetings, introduced the case of Iskandar, Malaysia.

LCS-RNet Sixth Annual Meeting and Subsequent Developments

At the Fifth Annual Meeting held in July 2013, a proposal was made that the network focus more effort on impact formation for both domestic and international policies. In response, the network set a goal to make a proposal to COP21, and discussions on COP21 were commenced at the Sixth Annual Meeting in June 2014. Following COP20, it was reaffirmed that a concrete process for advancing this goal toward COP21 would be carried out at the Seventh Annual Meeting to be held in Paris, France, in June 2015 (expected date).

The outcomes of the annual meeting were compiled into a synthesis report, which was released at a side event held at the EU Pavilion on 12 December during COP20 held in Lima, Peru.

The synthesis report on the LCS-RNet Sixth Annual Meeting can be downloaded at the following URLs.

English:

http://lcs-rnet.org/pdf/publications/2014_6th_Annual_Meeting_of_the_LCS-RNet_in_Rome.pdf

Japanese (translation from English)

http://lcs-rnet.org/pdf/publications/2014_6th_Annual_Meeting_of_LCS-Rnet_in_Rome_JP.pdf

Parallel to compilation of the synthesis report of the Sixth Annual Meeting, a summary of the proceedings of this meeting were compiled for a special edition of the "Energia, Ambiente e Innovazione" journal published by ENEA, the LCS-RNet core organisation from Italy (participating organisation), as input for the Seventh Annual Meeting, as well as COP21.

On 12 December 2014, in the EU Pavilion at the 20th Session of the Conference of the Parties (COP20) to the United Nations Framework Convention on Climate Change held in Lima, Peru, a side event entitled, "Transition and Global Challenges towards Low Carbon Societies—Message from the International Research Network for Low Carbon Societies (LCS-RNet)", was held by the Institute for Global Environmental Strategies (IGES) and the Italian Agency for New Technologies, Energy and Sustainable Economic Development (ENEA).

Reports were made at this side event on the outcomes of the LCS-RNet Sixth Annual Meeting held in October 2014 in Rome, Italy, as well as on topics related to discussions at the Annual Meeting.

After COP21, countries will begin to put into place domestic policies toward post-2020 implementation. Under these circumstances, the need to concentrate knowledge will become more urgent. Based on this recognition, debate within the panel discussion took place on the role of the research community, mechanisms required for the research community to work more effectively with policymakers, as well as on the major issues which the research community should address in the future.

Report on LCS-RNet COP20 Side Event

Dr. Sergio La Motta of Italy's ENEA, who served as joint chair of the LCS-RNet Sixth Annual Meeting, held on 1-2 October 2014 in Rome, Italy, gave a report on this meeting. Dr. La Motta asserted that structural changes and reforms in existing socio-economic systems are required to realise low carbon societies, and that more comprehensive approaches are indispensable to advancing this transformation. These approaches include energy policy that gives consideration to energy security and energy affordability at an appropriate price, further pursuit of resource efficiency, promotion of low-carbon resilient initiatives by cities, and expanded private sector investment in low-carbon green growth. Additionally, he stated that examples of urgent issues include green investment as leverage in the realisation of new economic systems aimed at low-carbon societies, and how to realise low-carbon resilient development transformation pathways in developing countries.

Next, the other joint chair of the same meeting, Dr. Jean-Charles Hourcade of France's Centre International de Recherche sur l'Environnement et le Developpement (CIRED), based on the presentations at the Rome meeting, explained how a transition in economic system toward low-carbon societies can be achieved under the present circumstances of economic crisis, national budget deficits and the slowing pace of climate change negotiations related to future climate change agreements. Dr. Hourcade asserted that the shift to low-carbon societies cannot be put into effect only by carbon pricing. With the creation of a new financing mechanism for investment and lending directed at low-carbon projects as an example solution, he stated that such institutional changes must be integrated as part of a series of comprehensive financing system reforms.

Further, Dr. Ho Chin Siong of the Universiti Teknologi Malaysia (UTM) introduced the action plan and road map, equivalent to a low-carbon scenario and blueprint, formulated utilising the AIM model in a cooperation project with Japan in Iskandar, Malaysia. He asserted the importance of not only linking science and policy, but also linking these to implementation of low carbon societies based on the creation of implementation plans and specification of concrete activities.

Mr. David Warrilow of the UK's Department of Energy & Climate Change (DECC) introduced the fact that the transition to low-carbon societies was stipulated in the 2008 Climate Change Act which requires an 80% reduction in greenhouse gas emissions by 2050, compared to 1990, and the formulation of the "carbon budget" and its four terms of five years each from 2008 to 2027. Further, he stated that initiatives are placing focus not only on mitigation, but also on adaptation.

Content of panel discussions
Regarding the role of the research community, in the formulation of INDC, for example, involvement of the research community of each country is indispensable. Developing countries in particular face the issue of immature domestic research communities. While taking into account that support for information sharing based on capacity building support and South-South cooperation, such as the Low Carbon Asia Research Network (LoCARNet) developed by Japan for Asia, has produced a certain amount of results, remarks were made on the need for further promotion of similar initiatives in the future. Remarks also noted the essentiality of developing a variety of tools to support the creation of INDC and the establishment of MRV methods.
Further, remarks were made concerning consensus among the people of a country being essential to reforming existing paradigms toward the realisation of low carbon resilient societies. Moreover, the importance of actively speaking out on scientific opinions, such as those of the IPCC AR5, to foster awareness among the people of a country, and the need for more dialogue with society on the part of research communities, were noted.
Regarding a mechanism for further cooperation between research communities and policymakers in the future, a statement was made on the need for a platform-like mechanism to enable dialogue with a more diverse range of stakeholders, not limited to dialogue between the research community and policymakers, particularly considering the increasingly cross-sectoral and interdisciplinary aspects of low-carbon issues.
Regarding major issues to be addressed by research communities in the future, an opinion was voiced that while “radical” societal reforms are essential for the shift to low-carbon societies, analysis is yet insufficient on what can be done to facilitate a society accepting such changes. Therefore, future analysis by research communities is awaited.
On the whole, transformation of existing paradigms are called for right now. The pressing need for more comprehensive and all-encompassing responses to this call, and for research communities to strengthen relationships with society, was highlighted.

04 Making Land-Use Climate-Sensitive: A Pilot Project on Integration of Climate Change Adaptation and Mitigation

A number of synergies have been identified among various policies for climate change adaptation and mitigation (CCA&M). However, little common understanding has been established on how to effectively integrate these CCA&M policies. One potential approach for integrating policies is to improve land-use with consideration of CCA&M. In this research, we conducted a pilot project to examine the necessary conditions for integrating climate change measures—adaptation and mitigation—by improving land-use planning with a focus on the river basin including multiple cities in the Philippines. In addition, we conducted data collection for Indonesia to consider applicability of the findings from this study to other countries.

Philippines

Study area

The study area is Silang-Santa Rosa subwatershed, Philippines (Fig.1). The subwatershed is located about 40km south of Manila, covering the following four local governments with a total population of about 570,000 people: the Municipality of Silang, Cavite (upriver) and the Cities of Binan, Santa Rosa, and Cabuyao (downriver). Due to rapid urbanisation and industrialisation, increase in population and changes in land-use, and combined with the progression of climate change, water resources in the river basin have been altered. As a result, serious negative impacts on drinking water, public health, and food security are evident; moreover, large weather-related natural disasters such as floods and landslides have been induced (Fig. 2).

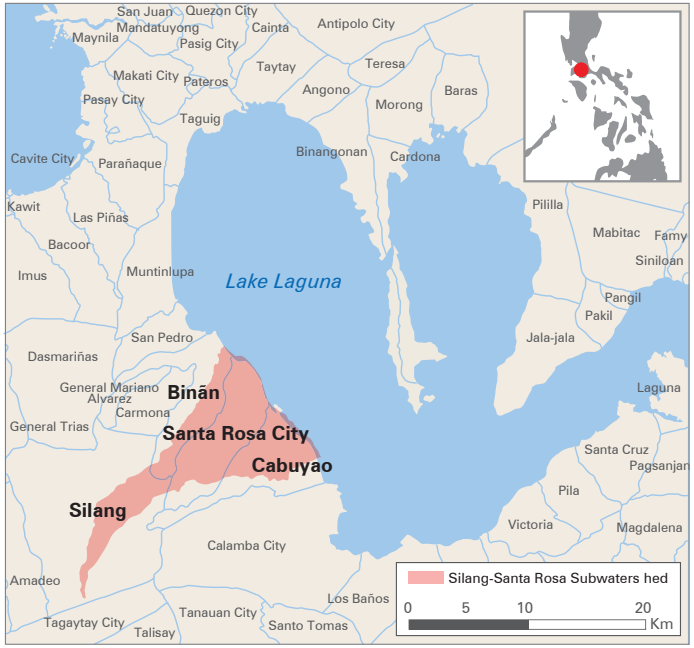


Fig. 1. Study area: Silang-Santa Rosa subwatershed, Philippines (area shaded in red).

Fig. 2. Flood damage in the Silang-Santa Rosa subwatershed
(Santa Rosa; September 2006 when Typhoon Milenyo hit; courtesy of E.C. Creencia)

Methodology

The methodology used in this research consists of the following four steps: (i) scenario analysis, (ii) risk assessment, (iii) development of CCA&M measures, and (iv) land-use plan improvement. The first step is to understand not only the problems that local governments face in terms of addressing natural disasters and other impacts of climate change, but also the future development and land-use planned by local governments (scenario analysis). The second step is to identify the area affected by floods due to typhoons and long rain, as well as the population and structures, such as infrastructure, buildings and facilities, and to estimate associated economic damage (risk analysis). Then, the third step is to devise possible climate actions for both adaptation and mitigation in consultation with local governments and to prioritise the measures according to their feasibility and urgency (development of CCA&M measures). Lastly, the final step is to provide, through dialogue with relevant parties, recommendations based on the knowledge and findings generated from the previous three steps for local governments to improve their land-use plans as well as their development plans that are closely linked to land-use plans (land-use plan improvement).

Results

By revealing current and future land-use in the study area, early findings not only identify the area and population likely to be affected by flooding, but also examine plausible impacts as further development and climate change materialise. According to Fig. 3 (a) that shows the land-use of the Silang-Santa Rosa subwatershed in 2014 with flood-prone zones indicated, most of the upstream region is either agricultural land or green space. Agricultural and idle land remain in parts of downstream areas as well, although the majority of land is already developed. In stark contrast, land-use in 2025 (Fig. 3 (b)) illustrates that about 80-90% of the land in the subwatershed will be converted for residential and commercial use in the next decade or so. As a result, the remaining farm land and forests will disappear except those in midstream and downstream areas. It is expected that flood damage—observed already in approximately half of the subwatershed (the area encompassed by a red line in Fig. 3 (a)) with about 100,000 affected people—will be aggravated in the future due to an increased runoff coefficient (the percentage of rainfall that appears as stormwater run-off from a surface) with the planned massive land conversion.

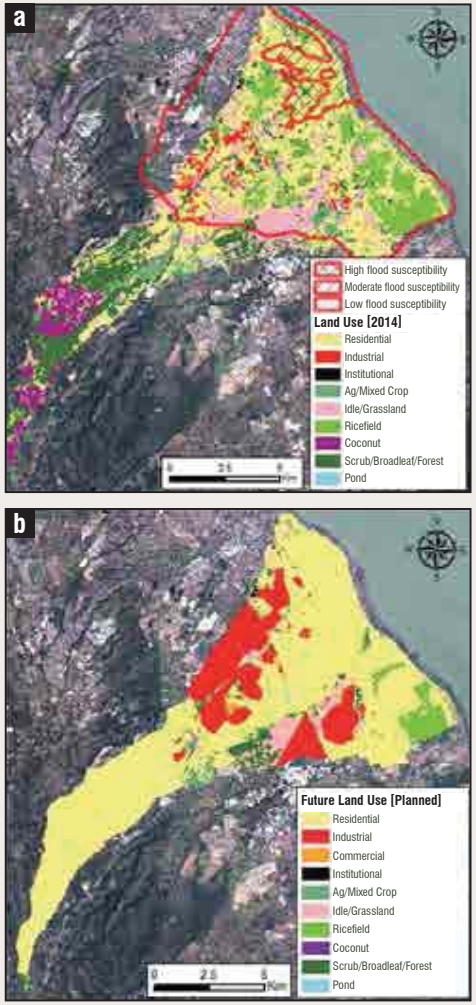


Fig. 3. Land-use in the Silang-Santa Rosa subwatershed:
(a) As of 2014; (b) 2025 based on information from relevant local governments.

Given the aforementioned projected increase in flood damage resulting from proposed land conversion, concerned local governments have started devising climate change measures. Considering the necessity and feasibility of each measure based on available data and information at the moment, local governments have created a preliminary list of measures, including the following:

- Strengthened zoning, development control, and building codes;
- Riverbank reinforcement, dredging, and river cleaning;
- Information dissemination, public awareness;
- Run-off mitigation development; and
- Introduction of green space, green buildings, and urban agriculture.

To improve the accuracy of development of CCA&M measures, and to make specific and practical proposals to contribute to enhancing land-use planning, it is hoped that assistance to local governments in developing countries will continue in cooperation with relevant organisations domestically and internationally.

Indonesia

Based on the Philippines pilot project, we conducted data collection as follows, targeting Jakarta, Indonesia and the Ciliwung River Basin (Fig. 4).

- Data collection of censuses, land-use maps and land-cover maps to develop a GIS map that shows the current situation (as of 2014) of the Ciliwung River Basin with the following information:
  - Population and its distribution;
  - Infrastructure, facilities, and buildings, including houses, shops, and factories; and
  - Land-use/land-cover.
- Data collection of historical data on floods caused by past extreme weather events, such as typhoons, to identify flood-affected areas under the current situation including identification of people and assets affected by floods.
- Data collection of development plans and land-use plans to develop a GIS map that shows the future situation (as of 2050) of the Ciliwung River Basin.

Fig. 4. Target area: Jakarta (area surrounded by bold line) and the Ciliwung River Basin (area surrounded by red line)

05 Implementation of Programmes for Young Researchers

In an effort to foster researchers in all countries, low carbon related news is reported periodically by young researchers from various countries and posted on our website via the "Low carbon related news special correspondent scheme" which was continued from last fiscal year into this year.

As of January 2015, 36 news items have been sent in from correspondents in India, Indonesia, Lao PDR, Malaysia, Philippines and Vietnam.

News selection [1] (January 2015, India)

Climate change: Government to focus on solar & other green sources of energy, says PM Narendra Modi

At the first meeting of the reconstituted Prime Minister's Council on Climate Change held on Monday, Prime Minister Narendra Modi reiterated his government's intent to focus on solar and other "green" sources of energy. The prime minister suggested the idea of creating a consortium of nations with the greatest solar energy potential. Additionally, the meeting also laid the ground work for a mission mode for harnessing wind energy and aggressively moving forward on waste to energy.

Prime Minister Modi's stress on green energy was clear, when he suggested that the focus on tackling climate change should not be limited to emissions and reductions in the amount of carbon alone. Instead, he suggested that more needs to be done to focus on clean energy generation, energy conservation and energy efficiency.

http://economictimes.indiatimes.com/news/politics-and-nation/climate-change-government-to-focus-on-solar-other-green-sources-of-energy-says-pm-narendra-modi/articleshow/45947827.cms

News selection [2] (December 2014, Lao PDR)

Hongsa power plant to start generation next year

Construction of the Hongsa Lignite Power Plant is now 93 percent complete according to a Hongsa Power Company report. The project is expected to produce 1,878 MW of capacity, of which 1,473 MW will be sold to the Electricity Generating Authority of Thailand and 100 MW to Electricite du Laos. The Lao government has granted 25 years of concession to the Hongsa Power Company for electricity generation from 2016 to 2041.

This is the first lignite thermal power plant in Laos requiring a total investment of US$3.7 billion, jointly provided by Banpu Power Limited, Ratchabury Electricity Generating Holding Public Company Limited and Lao Holding State Enterprise.

Low Carbon Asia Research Network
[LoCARNet]

LoCARNet

01 What is the 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.

IGES, since around 2010, together with the National Institute for Environmental Studies (NIES) in Japan, has been conducting workshops that promote dialogues between policy-makers and researchers in Indonesia, Thailand, Cambodia and Malaysia, as well as networking among researchers in this region, to encourage low-carbon development in Asia. During the course of these workshops, the growing importance of low-carbon development in Asia was strongly recognised.

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 Low Carbon Asia Research Network (LoCARNet).

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 Activities:

To date, the LoCARNet has facilitated dialogue among researchers, policymakers and related stakeholders. Further, focusing particularly on ASEAN countries, the network has supported the drafting of plans and strategies for low-carbon growth led by the researchers and research communities of each country based on research capacity and knowledge firmly grounded (with ownership) in each country. Additionally, the network aims to further enhance research capacity and regional cooperation in the Asian region through the provision of opportunities for knowledge sharing and information exchange within the region.

02 Support for Scientific Policymaking

Policy Dialogue

As mentioned earlier, IGES together with the Asia-Pacific Integrated Assessment Model (AIM) team, comprised of the National Institute for Environmental Studies (NIES), Kyoto University and the Mizuho Information and Research Institute, has conducted policy dialogue between researchers and policymakers in a number of Asian countries. Through this policy dialogue, policymakers in each country have come to recognise the necessity of the involvement of researchers from their own countries in policy. Accordingly, scientific policy formation is beginning to progress in these countries.

For instance, support for policy dialogue was provided to a team from the Bandung Institute of Technology, supported by the Asia-Pacific Integrated Assessment Model (AIM) team, and Indonesia's National Energy Council (Dewan Energi Nasional, or DEN). Lively opinion exchange ensued on the Bandung Institute of Technology team's research findings based on the AIM end-use model. Further, DEN commented that the model's research findings would be useful in the drafting of plans for formulation of the National Energy Plan and its intent to continue cooperation with the team.

Further, AIM researchers from Thailand are cooperating with Thailand's Office of Natural Resources and Environmental Policy and Planning (ONEP) to examine Thailand's INDC (Intended Nationally Determined Contributions) targets using the AIM end-use model. Additionally, the AIM team is collaborating with diverse stakeholders from the areas of Iskandar and Putrajaya in Malaysia and is involved in not only formulation of low-carbon urban planning policies but also in their implementation.

Parallel to these activities, cooperation amongst NIES, Kyoto University, the Mizuho Information and Research Institute and IGES has progressed, expanding human resources to support low-carbon development on the Japan side as well. As a result, firm footing has been established on the series of steps involved in formulation of a low-carbon development plan, namely GHG inventories, vision formulation, quantitative development scenarios, economic assessment, action plans and road map creation.

Policy dialogue in Iskandar, Malaysia (February 2015)

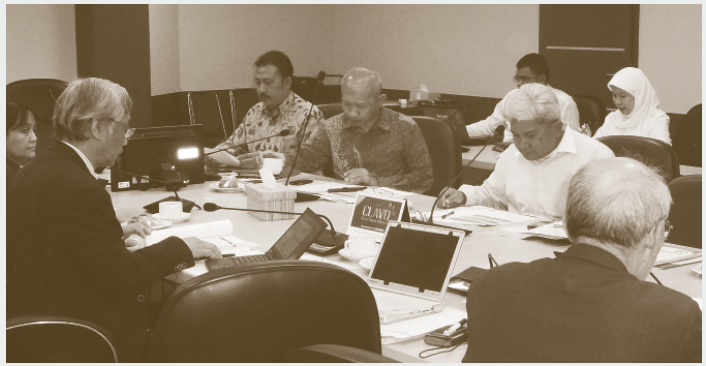
Policy dialogue meeting in Indonesia

On 27 November 2014, at Indonesia's National Energy Council (Dewan Energi Nasional, or DEN), a policy dialogue meeting was held between a team from Indonesia's Bandung Institute of Technology and DEN.

First, research findings of the Bandung Institute of Technology based on the AIM end-use model revealed that for final energy demand predictions, the share of petroleum in energy demand was large, thus overcoming dependence on petroleum is an issue. Likewise, results revealed that for primary energy supply and greenhouse gas emissions, if nuclear power and CCS are introduced in a high mitigation scenario (CM2), nuclear power (16 percent) and coal CCS (42 percent) would make substantial contributions to greenhouse gas reduction in the electricity sector. Further, a comparison of findings for BaU and mitigation scenarios in each sector were shown along with the cost of countermeasures for each.

Subsequently, a lively session of question and answer and opinion exchange ensued with DEN council members. For example, questions were posed on how technological innovation is embedded in the model, how shifts in energy prices are manifested in the model, how shifts in energy demand are predicted, as well as on what stage CCS is introduced.

Further, DEN commented that the model's research findings would be useful in the drafting of plans for formulation of the National Energy Plan and revealed its intent to continue cooperation with the team.



Moreover, an explanation from the Japan side was made concerning collaboration between Japan and Indonesia teams. As analytical work based on the end-use model has progressed, following this policy dialogue, cooperation will be continued in the implementation of a training course on the 28th on the CGE model. Hence, as this policy dialogue session was chiefly based on research findings for the end-use model, a proposal was made that another policy dialogue session be held when the findings of the CGE model study become available.

Knowledge Sharing

From 24-26 November 2014, the LoCARNet Third Annual Meeting was held in Bogor, Indonesia. Participants in the meeting totaled 171 persons on the 24th (plenary meeting), 120 persons on the 25th (breakout sessions), and 84 persons on the 26th (breakout sessions and wrap-up session).

At this year's annual meeting, lively debate and discussion took place among participants on urgent issues for the realisation of a low-carbon Asia, as well as issues characteristic to Asia. These included: blanket research issues in the Asian region and mechanisms to share the fruits of this research in the region; the nature of involvement of the research community, in particular universities in the concerned area, in the formulation of regional reduction plans within Indonesia; innovative monitoring systems for low-carbon campuses, cities and regions; introduction of a regional research foundation based on co-financing aimed at the development and enhancement of research communities in the region; mid-term report on research outcomes selected in the APN's Low Carbon Initiatives; introduction of good practices in low-carbon cities; REDD+ and community-based forest management; integration of mitigation and adaptation policy in the Philippines and Indonesia; potential for greenhouse gas reduction in Asia and the role of the research community; and, remote sensing and sustainable forestry management.

On the final day of the Annual Meeting, the LoCARNet Bogor Declaration, "Asia Is Ready to Stabilise Climate" was adopted. If present trends in high energy consumption development continue in the rapidly developing Asian region, roughly half of global GHG emissions are predicted to be emitted in Asia by 2050. This would lead to severe impacts on the people of the region. On the other hand, if the powerful development of today could be steered in the direction of low-carbon societies, Asia could lead the world in low-carbon development. The LoCARNet Bogor Declaration is intended to show the forward-looking development and latent potential of Asia. A variety of preparation has been carried out toward low-carbon development in many countries in Asia. Examples include: policy formation

using integrative assessment models that quantitatively show GHG reduction potential and tools for GHG monitoring using satellites; low-carbon technologies required for GHG monitoring, such as eco-houses and green buildings; regional research foundation; financial mechanisms to facilitate the introduction of low-carbon technologies and infrastructure; proposals on a common curriculum for multiple universities and graduate schools in the region; and, human resource development in the region based on establishment of training centers.

The synthesis report of the LoCARNet Third Annual Meeting can be downloaded at the following URL.
(English only)

http://lcs-rnet.org/pdf/publications/2014_3rd_Annual_Meeting_of_LoCARNet%20in%20Bogor.pdf

Capacity Building Programmes

Following launch of the LoCARNet in 2012, these programmes have gradually developed with the support of researchers on low-carbon development policy in the Asian region.

Meanwhile, the issue remains that a research community to support scientific low-carbon policymaking in the Asian region, is not yet fully developed. The LoCARNet, in view of the region's importance for greenhouse gas reduction, has focused on capacity building programmes in the region in order to develop and enhance research communities in consideration of the region's distinguishing characteristics.

Organisation of LoCARNet Session at the 4th Green Economy and Green Growth (GEGG) Forum

(February 2015, Nay Phi Taw, Myanmar)

LoCARNet organised a session aimed at capacity development in the LLDCs such as Cambodia, Lao PDR and Myanmar, on the occasion of the 4th Green Economy and Green Growth (GEGG) Forum, on 4 February 2015 in Nay Phi Taw, Myanmar.

Because LoCARNet is relatively unknown in Myanmar, the Secretariat began the session by briefly explaining its activities. Then, two LoCARNet experts, Dr. Sirintornthep Towprayoon of the Joint Graduate School of Energy and Environment (JGSEE), Thailand and Prof. Rizaldi Boer of the Bogor Agricultural University, Indonesia, gave their respective presentations. They highlighted that in both Thailand and Indonesia, research communities have already been established to support science-based policymaking. Introducing their concrete activities, they explained that scientific knowledge is being reflected onto policies through opportunities such as policy dialogue sessions between researchers and policymakers.

This was followed by two presentations from Myanmar. In the presentations, speakers raised issues on how Myanmar should "leapfrog" in its development immediately and directly, to avoid locked-in high-carbon development and to build a low-carbon society accompanied by rapid economic growth. They also mentioned how Myanmar can foster and cultivate human resources that support low-carbon development and highlighted this as an urgent challenge. In this regard, strong expectations were shown regarding support for capacity development from developed countries including Japan, as well as for knowledge sharing and mutual learning amongst countries in the region, for example, through training sessions/lectures provided by the Climate Change International Technical and Training Centre (CITC), Thailand.

The session was a great success, with many participants from Myanmar.

Workshop on Capacity Building and Enhancement for Cambodia, Lao PDR and Myanmar

On 26 February 2015, the LoCARNet held a workshop entitled, "The Advancement and Enhancement of Low Carbon Development Research and Policies among Cambodia, Lao PDR, and Myanmar" in Phnom Penh, Cambodia.

This workshop was held exactly one year following a workshop held last February entitled, "Feasibility Study of the Low Carbon Development Policy for Cambodia, Lao PDR and Myanmar", and was based on progress made during this period. Numerous presentations were prepared for this workshop, showing that research on low-carbon development has already been initiated by many researchers in a variety of fields. Further, it was evident that courses of study on the global environment are being established in universities. On the other hand, there is need to further raise standards and organise researchers domestically who can contribute to scientific policymaking. Accordingly, establishment of the "Cambodian LoCARNet" was proposed as a Cambodian domestic research community.

Moreover, over 90 percent of greenhouse gas emissions from Cambodia at present arise from the agriculture, forestry and other land use (AFOLU) sector. As measures in this sector are essential, expectations are high for the future enhancement of research and its linkage to policy and implementation.

On the following day, members of the LoCARNet Secretariat visited Cambodian Environment Minister Say Samal, where they had the opportunity to introduce the present activities of the LoCARNet both in Cambodia and other parts of Asia. The minister expressed his gratitude for support to date and his expectations for future cooperation.

Contribution of the LoCARNet to the Second APN South Asia Science-Policy Dialogue

On 19-21 January 2015, the LoCARNet co-organised the "Second APN South Asia Science-Policy Dialogue" held in Thimphu, Bhutan by the Asia-Pacific Network for Global Change Research (APN), inviting Professor Ho Chin Siong of the Universiti Teknologi Malaysia (UTM), and Professor P. R. Shukla of the Indian Institute of Management.

At this policy dialogue session, the LoCARNet was in charge of a session on "Low Carbon Society and Sustainable Pathways", which introduced the latent potential of Asia directed at low-carbon development and the importance of low-carbon development policymaking based on science (research). Further, as the activities of the LoCARNet are not yet well known in South Asia, efforts were made to publicise the network's activities among participants in the policy dialogue meeting.

In addition, the LoCARNet engages in the dispatch of experts to the Climate Change International Technical and Training Center (CITC) established with support of JICA by the Thailand Greenhouse Gas Management Organization (TGO). The network is working to establish a route to deliver the knowledge of the LoCARNet to policymakers and practitioners in Thailand and other ASEAN nations through curriculum design of a course on low-carbon societies set up at CITC, development of educational materials and provision of guest lecturers. Further, the as a research network on low-carbon development with its Secretariat in Japan, the network is working to reflect the knowledge accumulated in Japan's related institutions and organisations, including the National Institute for Environmental Studies (NIES) and the Institute for Global Environmental Strategies (IGES), onto the CITC's course on low-carbon societies, and to contribute to informing others of the role Japan has played in Asia's low-carbon development.

Opening Ceremony of the Climate Change International Technical and Training Center (CITC) in the Thailand Greenhouse Gas Management Organization (TGO)

(May 2014, Pattaya, Thailand)

The Thailand Greenhouse Gas Management Organisation (TGO) inaugurated the said international technical and training centre on 14 May 2014. More than 70 participants took part in the opening ceremony, including some LoCARNet researchers and practitioners, namely, Dr. Shuzo Nishioka (IGES, Japan), Prof. Ho Chin Siong (Universiti Teknologi Malaysia: UTM), Dr. Sirintornthep Towprayoon (Joint Graduate School of Energy and Environment: JGSEE, Thailand), Prof. Rizaldi Boer (Bogor Agricultural University, Indonesia), Dr. Nguyen Tung Lam (Institute of Strategy and Policy on natural Resources and Environment: ISPONRE, Viet Nam), and Mr. Hak Mao (Kyoto University and Ministry of Environment, Cambodia).

At the commemorative seminar and training needs assessment workshop following the opening ceremony, participants from ASEAN countries shared current obstacles and bottlenecks based on their concrete experiences. Then, they actively exchanged views on the necessity of capacity development on low-carbon development in Asia, expressing great expectations for CITC.

In the near future, CITC is expected to become a one-stop technical and training centre on climate change mitigation and adaptation in the region, and an open network for multi-stakeholders, especially policymakers and practitioners. In this regard, further collaboration between CITC and LoCARNet must be pursued to link research with policies and actions, by reflecting our research results into CITC contents.

03 Impact Formation

On 24-26 November 2014, the LoCARNet held its Third Annual Meeting in Bogor, Indonesia. In order to widely inform the world of the outcomes of the past three years of activities including this meeting, as well as the LoCARNet Bogor Declaration adopted on the final day of the annual meeting, two side events were held at COP20 in December 2014 in Lima, Peru.

Moreover, similarly to the LCS-RNet, the LoCARNet is advancing activities targeted at COP21. At present, in order to widely inform the world of the latent and considerably large potential of Asia to contribute to GHG reduction, writing of the "Enabling Asia to Stabilise Climate" is being carried out together with leading researchers of the LoCARNet. This volume will be unveiled at COP21.

[LoCARNet] COP 20 Side-event

Achieving a Low-Carbon Asia—Japan's Collaboration with Asia in Developing INDCs with Asia's Full Ownership

On Monday, 8 December 2014, in the Japan Pavilion set up within the COP20 venue in Lima, Peru, the LoCARNet co-organised a side event entitled, "Achieving a low-carbon Asia—Japan's collaboration with Asia in developing INDCs with Asia's full ownership", with Kyoto University, the National Institute for Environmental Studies (NIES), and the Mizuho Information and Research Institute.

All countries will be called up on to submit Intended Nationally Determined Contributions (INDC). Japan has been encouraging examination of policies using the Asia-Pacific Integrated Assessment Model (AIM), as well as promoting the development of inventories and the formulation of NAMA in Asian countries. Further, the Low Carbon Asia Research Network (LoCARNet) has fostered and enhanced research communities in the region, and has conducted policy dialogues between researchers and policymakers. Furthermore, the network has supported initiatives by other Asian countries aimed at creating low-carbon societies through information exchange and knowledge sharing at annual meetings. The integration of this knowledge and experience will be effective in INDC preparation.

The objective of this side event was to receive frank opinions from panelists and participants in the side event on Japan's collaboration with other Asian countries to date, as well as on expectations for future support from Japan in the preparation of INDC from the perspective of Asian developing countries.

The side event included a report from Japan, as well as participation as panelists from Malaysia, Cambodia, Indonesia, Viet Nam and Thailand. The Malaysian panelist stressed the importance of not only linking science and policy for low-carbon development in Asia, but also linking these to implementation via the creation of implementation plans and specification of concrete activities. Further, citing examples of personal involvement, this panelist addressed the importance of strong initiatives by the heads of government (top-down), and fostering of low-carbon mindsets via public campaigns and environmental education (bottom-up), as well as outreach by the media. Furthermore, the Cambodian panelist expressed understanding of the importance of science-based policymaking and the urgent need to engage in capacity building and enhancement of researchers and the creation of a mechanism for reflecting research outcomes on policy. Likewise, this panelist noted the essentiality of creating reliable GHG inventories.

Shuzo Nishioka, IGES Senior Research Advisor and Secretary General of the LoCARNet Secretariat, acting as moderator and recapping the side event, pointed out that Japan has supported a series of processes from creation of inventories to the creation of low-carbon society scenarios and implementation towards realisation. He noted that a characteristic of Japan's support has been its high regard for ownership by the concerned nation in these processes. Further, through the Workshop on Greenhouse Gas Inventories in Asia (WGIA), AIM International Workshops, and meetings of the LoCARNet, Asian nations have learned from each other and advanced knowledge sharing. Meanwhile, a presenter commented that even further support from Japan (developed countries) is ideal for the foundation to support low-carbon development, such as capacity building and creation of inventories.

GHG Emissions Reduction Potential in Asia

On 10 December 2014, in the Indonesia Pavilion set up within the COP20 venue in Lima, Peru, the LoCARNet held a side event entitled "GHG Emissions Reduction Potential in Asia—Message from Low Carbon Asia Research Network (LoCARNet)". This side event was based on discussions carried out at the LoCARNet Third Annual Meeting held in Bogor, Indonesia in November 2014. This event intended to send a forward-looking message from Asia to the world, including analysis results by Asian researchers using AIM models, assessment of the reduction targets of each country and the measures required to carry out reductions.

At the side event, Shuzo Nishioka, IGES Senior Research Advisor and Secretary General of the LoCARNet Secretariat, introduced the LoCARNet Bogor Declaration, "Asia Is Ready to Stabilise Climate", adopted on the final day of the LoCARNet Third Annual Meeting held in Bogor, Indonesia in late November. Further, he introduced the forward-looking development and latent potential of Asia citing specific examples of the events and matters in the background of this declaration, including the research community that conducts support for scientific policy formulation in Asia, the actual execution of studies using integrated assessment models to quantitatively show greenhouse gas reduction potential, as well as the maximum 69% GHG reduction compared to BaU based on implementation of actions covered in the "Ten Actions towards Low Carbon Asia" of NIES.

In the panel discussion, Dr. Junichi Fujino of NIES introduced the ongoing capacity building activities carried out by NIES in Asia toward scientific policy formulation in the form of training workshops on AIM models. Further, Professor Ho Chin Siong of Universiti Technologi Malaysia (UTM), in his introduction of the cooperation project with the AIM team in Iskandar, Malaysia, stressed the need not only for research and policy to realise low-carbon societies, but also for linking these to implementation, as well as the essentiality of establishing networks and forums such as the LoCARNet, to enable information sharing among developing nations.

Further, in question and answer sessions, comments were made on the role demanded of the research community: "Models are tools for scientifically understanding society that should not just be created and finished. It is the process by which the research community and policymakers both engage in dialogue in continued communication with policymakers that is important." Also, related to the question, "Is a maximum 69% reduction possible?", a comment was made on "the required role of the research community to translate model results into actual actions, such as the ten actions".

04 Enhancement of Research Capacity

LoCARNet: Progress on the Centre of Excellence (CoE) Concept

The governments of Asian nations fully recognise the importance of promoting scientific low-carbon development policies and are hurrying to form relevant research and training communities in their respective countries. On the whole, while the human resources needed to carry out policy formation with ownership by the concerned country are not yet sufficient, specialised support for low-carbon development research and policy has been carried out and positive developments are evident in the appearance of research organisations to become Centres of Excellence (CoE) in their respective fields.

Based on this situation, the LoCARNet provides support for participating organisations to capitalise on their respective characteristics and build capacity to support low-carbon development research and policy. Likewise, the network has supported organisations by further strengthening the capacities of organisations that already conduct support for low-carbon research and policy in their respective specialised fields and have become CoE in these fields, to form a group of Centres of Excellence (CoEs) to promote collaboration

amongst research institutes in Asia and lead the region in low-carbon development with the intent to initiate autonomous activities in the ASEAN region on the part of a forum made up of these CoEs.

Examples of institutions already engaged in support for low-carbon policy in their respective specialised areas include the Universiti Teknologi Malaysia (UTM) in the field of low-carbon urban development, Indonesia's Bogor Agricultural University in the field of agriculture, forestry, other land-use and adaptation, the National Institute for Environmental Studies (NIES) in the field of inventories and application of integrated assessment models to policy, and the Asian Institute of Technology (AIT) in the field of energy technology. In this context, over the past year support was provided for workshops carried out by UTM and the Bogor Agricultural University.

Further, in order to enhance the CoEs, it is also necessary to raise the standards of institutions engaging in or aiming to engage in low-carbon policy support. Hence, support was provided this year for the activities of Thailand's Joint Graduate School on Energy and Environment (JGSEE) and Viet Nam's Center for Information, Consultancy and Training (CENICT) established in the Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE).

Workshop in Viet Nam

On 30 October, the LoCARNet co-organised in Hanoi, Viet Nam, the LoCARNet Viet Nam Workshop with Viet Nam's Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE).

According to records on the Viet Nam side, this workshop is the fifth in a series of workshops sponsored by Japan and ISPONRE. Meanwhile, the past four workshops were conducted as policy dialogue where the AIM team presented the outputs of activities in the waste and AFOLU sectors targeted at ISPONRE. However, in addition to the introduction of AIM activities, this workshop included an introduction of the Climate Change International Technical and Training Center (CITC) of the Thailand Greenhouse Gas Management Organization (TGO) targeted at ASEAN, the outcomes of the preparatory country study on Viet Nam of the Climate Technology Centre and Network (CTCN) carried out by IGES, as well as introduction of the JICA international cooperation framework (aid scheme) and JCM. Accordingly, this workshop took more full advantage of the LoCARNet's function as a network for information sharing and match-making.

CENICT, newly established within ISPONRE of late, includes low-carbon technology as one of its specialised areas. This centre intends to lead in making policy recommendations and to take a central role in scientific policy formation and technological information to engage in activities as a training and education centre for industry and society. For the time being, this centre will endeavor to engage in a variety of information and knowledge exchange and awareness building to promote low-carbon policy targeted at local governments and industry in Viet Nam, and its future development will be the subject of attention.

Special session at the 5th International Conference on Sustainable Energy and Environment: SEE 2014

The LoCARNet co-organised the 5th International Conference on Sustainable Energy and Environment sponsored by the Joint Graduate School of Energy and Environment (JGSEE, Thailand) on 20 November 2014 in Bangkok, Thailand. Specifically, co-organisation involved a special session at the conference organised by the LoCARNet. Dr. Shuzo Nishioka, IGES Senior Research Advisor and Secretary General of the LoCARNet Secretariat, Prof. Ho Chin Siong of the Universiti Teknologi Malaysia (UTM), Dr. Nguyen Tung Lam of the Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE), and Dr. Sirintornthep Towprayoon of JGSEE spoke on the following issues and future expectations for formation of Centres of Excellence (CoEs), while touching on their respective activities.

- While the candidate CoEs are already making remarkable contributions in their respective fields, there is a need to strengthen integrated policy support at various levels in line with the post-2015 framework.
- In order for policies to be effective, a supply of human resources through education will be necessary. In particular, in Asia, it is effective to promote capacity development for young people who will be responsible for the next generation, as Asia's demographic composition is young.
- To facilitate/enable leap-frog development in Asia, capacity development is key. In particular, it is not enough for Asia to merely learn from the past experiences of developed countries. Rather it is important to promote information exchange and knowledge sharing, and to set-up opportunities for mutual learning by sharing good practices, etc.
- In terms of low-carbon development, it is vital for Asia to bridge research results with implementation and investment. Leveraging by the CoE coalition will also be critical in terms of making proposals to industrial circles and the business community and in promoting technological transfer in concrete terms.
- Responding to the needs of this era, the LoCARNet special session made a proposal that the CoE coalition will newly establish a joint curriculum to cultivate researchers and facilitators for making policy proposals and cooperating with other stakeholders concerned with actual implementation, based on each CoE's innovative research capacity in its own area of specialisation.

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