Year 2011
Annual Report
The Project for Development of Low Carbon Society Scenarios for Asian Regions
In line with Malaysia’s commitment to reduce greenhouse gas emissions by up to 40% by 2020, Universiti Teknologi Malaysia (UTM)’s involvement in championing this international Low Carbon research project to promote Iskandar Malaysia as a model Low Carbon Society is highly applauded. The project gathers experts and researchers from multidisciplinary backgrounds to put forward innovative and creative solutions for creating a sustainable low carbon society in Iskandar Malaysia. This is one of the flagship projects reflecting UTM’s vision and mission through its tagline: innovative•entrepreneurial•global.

In the quest for UTM to become a top-notch university by 2020, UTM is committed towards strengthening its research and development (R&D) capacity through international capacity building and strategic partnerships. One of the key approaches is to create more high-performance Centres of Excellence (known as Hi-CoE in Malaysia) to accelerate world-class research in UTM in time to come. This current project involves capacity building of experts from Japan’s renowned institutions including Kyoto University (KU), National Institute for Environmental Studies of Japan (NIES) and Okayama University (OU), together with researchers from UTM. Such cooperation provides opportunities to form a Regional Hi-CoE capable of harnessing expertise and consultation for the creation of Low Carbon Societies within the Asian Region. As a research university strategically located within the Iskandar Malaysia region, UTM continuously plays its leading role in providing science and technology based research, studies, planning and innovative activities that support the development of Iskandar Malaysia as a sustainable metropolis of international standing.

I am very pleased to see this international project entitled “Project for Development of Low Carbon Society Scenarios for Asian Regions” positioned in UTM and supported by Japan International Cooperation Agency (JICA) in collaboration with Japan Science and Technology Agency (JST) under the “Science and Technology Research Partnership for Sustainable Development (SATREPS)”. Importantly, this project also involves the active participation of Iskandar Region Development Authority (IRDA) to formulate cooperation mechanisms among stakeholders for practical research activities and policy measures around Asian regions. Finally, congratulations on the successful progression of the first fiscal year of the project and looking forward to seeing more fruitful outcomes in the near future!
Message
From The Project Manager

“Model building and capacity building are important milestones in this project; however the key success factor of development of Low carbon society lies in the effective consensus building of the major stakeholders such as policy makers, public at large and business community”

Prof. Ho Chin Siong
Project Manager
Universiti Teknologi Malaysia

On behalf of the research members from the project for "Development of Low Carbon Society Scenarios for Asian Regions", it is my pleasure to present our annual report for the first fiscal year (June 2011 - March 2012). This progress report describes how we are meeting our research objectives outlined in our Record of discussion (ROD).

The research teams are divided into five (5) main research groups i.e. Scenario Integration and Land use Planning, Consensus Building and Education, Energy system, Solid Waste management, Air Quality and Transportation. Although, the research team members are from various faculties, different universities and cross country, the close rapport and collaborative effort of the team have minimized many of these "distance" barriers and obstacles in carrying out the research work. We have also managed to organize two major international symposiums on Low carbon Asian research project cum greenhouse gas emissions modeling training workshops in Malaysia. In addition, the team has also carried out exhibition and presentation at Side event at the 17th Conference of the Parties to the UNFCC (COP17). These symposiums and workshops allowed knowledge exchange, dialogues, and networking among the Low Carbon Asia researchers and policy makers in the global arena. Apart from the above, many researchers are also involved in technical tours of best practice projects and field works in Iskandar Malaysia and abroad. Being researchers and academicians, we have been actively involved in the publication of journal papers, reports and brochures. Overall we have made good progress in meeting our targets to outline the methodology to formulate LCS scenarios which is appropriate for Malaysian context and also setting up the research framework, research team, preparation of Low carbon actions, preliminary data collection and modeling work. We acknowledge there are still areas where we must improve the way in which we manage the budget and disseminate our research output, seeking to maximize results to the research community and implementation agencies.

I would like to record my gratitude to Corporate Service and International Division of Economic Planning Unit Prime Minister’s Department, Ministry of Higher Education, Department of Town and Country Planning Peninsular Malaysia, Iskandar Regional Development Authority, Universiti Teknologi Malaysia and all researchers of Low Carbon Society scenarios of SATREPS project and Japan International Cooperation Agency (JICA) for the strong and solid support that has been extended throughout the fiscal year. Model building and capacity building are important milestones in this project; however the key success factor of development of Low carbon society lies in the effective consensus building of the major stakeholders such as policy makers, public at large and business community. Consensus building empowers the public involvement in ensuring the social inclusiveness and pragmatic proposals.
The project for "Development of Low Carbon Society Scenarios for Asian Regions" was started from the 2nd June 2011, when the signing of the Record of Discussion was done between Japan International Cooperation Agency (JICA), Japan and Ministry of Higher Education (MOHE), Malaysia. This project is a joint activity between Japanese and Malaysia groups, comprised of Kyoto University (KU), National Institute for Environmental Studies (NIES), Okayama University (OU), Japan and Universiti Teknologi Malaysia (UTM), Iskandar Regional Development Authority (IRDA), Federal Town & Country Planning Department (JPBD) , Malaysia Green Technology Corporation (MGTC) , Malaysia, sponsored by Japan International Cooperation Agency (JICA) and Japan Science and Technology Agency (JST) under a research program called Science and Technology Research Partnership for Sustainable Development (SATREPS). This is a Japanese government program that promotes international joint research targeting global issues, and we are expected to lead to outcomes with potential for practical utilization, and to enhance research capacity in the target country.

In this project, a methodology to create Low Carbon Society (LCS) scenarios which is appropriate for Malaysia will be developed through a case study of LCS scenario development in Iskandar Malaysia. The overall aim of the project will result in and benefit not only on Iskandar Malaysia but also the whole Malaysia as well as the other Asian regions by providing the LCS scenario development methodology for Asian regions.

Starting from the last July, we have had intensive research meetings, field surveys, and held two international symposium and two training workshops to demonstrate the activity and also stimulate the movement to Low carbon societies in Asian region. Now the project is on the later stage of data collection for improvement of LCS scenario development model, while carrying out capacity development of Malaysian researchers and policy makers as well as activities for networking and information sharing with researchers and policy makers in other Asian countries at the same time. Also, as an output in the first phase, the project is now preparing a proposal named “A dozen actions towards low carbon society in Iskandar Malaysia” by March 2012, which will be incorporated into “Low Carbon Society Blueprint” to be newly issued by IRDA.

During the accomplishment of this project, we received the support from many people other than just the team members. I am very grateful to these supports and also expecting the continuation, hoping the activities of this project will support the realizing of sustainable and comfortable Asian Low Carbon Societies.

Message
From The Project Leader

"The overall aim of the project will result in and benefit not only the on Iskandar Malaysia but also the whole Malaysia as well as the other Asian regions”

Prof. Yuzuru Matsuoka
Project Leader
Kyoto University
Acknowledgements

Economic Planning Unit, Prime Minister’s Department, Malaysia
Ministry of Higher Education, Malaysia
Ministry of Science, Innovation and Technology, Malaysia
Ministry of Natural Resources and Environment, Malaysia
Ministry of Energy, Green Technology and Water, Malaysia
Ministry of Housing and Local Government, Malaysia
Department of Town and Country Planning Peninsular Malaysia, Malaysia
Iskandar Regional Development Authority, Malaysia
Johor State Government, Malaysia
Malaysia Green Technology Corporation, Malaysia
Embassy of Japan, Malaysia
Universiti Teknologi Malaysia, Malaysia

Ministry of the Environment, Japan
Japan International Cooperation Agency, Japan
Japan Science and Technology Agency, Japan
Kyoto University, Japan
Okayama University, Japan
National Institute for Environmental Studies, Japan
Institute for Global Environmental Strategies, Japan

We wish to acknowledge and thank to all individuals, departments, agencies and ministries mentioned here in giving their supports on The Project for Development of Low Carbon Society Scenarios for Asian Regions.
Our Core Values

Teamwork
We work together as a team based on mutual respect and dignity to achieve a common goal and synergic result.

Integrity
We are adherence to the moral, professional and ethical.

Growth
We are passionate about constant improvement and innovation in respond to our ever changing environment.

Excellence & Efficiency
We are committed to delivering outstanding performance and superior result.

Courageous
We move forward into the unknown and beyond the past, with perseverance in the face of adversity and confidence in achieving target.

Sincerity
We work with the quality or condition of being sincere; the intention is genuine, honest, and free from deception.

Relationship Building
We continuously build long-term and mutually beneficial partnerships.
Iskandar Malaysia (IM) is a visionary economic region in Johor that was established in 2005 as one of the catalyst development corridors to spur growth of the Malaysian economy. Covering an area of 221,634 hectares (2,216.3 km²), IM is the largest single development project ever to be undertaken within the Southeast Asia region. Strategically located at the southernmost tip of Mainland Asia to tap on a vast market of about 1 billion people within a 6-hour flight radius, IM is set to become an integrated global node that synergies with growth of the global City-state of Singapore and Indonesia. To that end, it has been projected that population in IM will double from 1.5 million in 2005 to over 3 million by 2025, supported by a stable 7-8% annual GDP growth that is primarily driven by services and manufacturing. It is vital that the targeted strong growth is achieved while keeping IM’s carbon emission level at bay, inline with IM’s vision to be “A strong sustainable metropolis of international standing”.

Iskandar Malaysia at a Glance
Low Carbon Society Scenarios in Asian Regions
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RM7.8j kaji LCS di Iskandar Malaysia
Jepun tawar UTG geran RM7.8 juga

JORNAL BAHAS 5 Julai - Ke-
nakan jepun pertenagaan geran po-
nduktiviti berjaya RM7.8 juta ke-
pong Universiti Teknologi Mal-
aysia (UTM) bagi mengajak pen-
nerapan dan menangkuri masyarakat rendah karbon di Is-
kanar Malaysia dan rantau lain.
Rumahip Hip Hop yaitu, Dr. Ho Choo Seong berhata-
ikan kepada UTM dalam upaya tersebut dengan kerjasama pendahuluan alih dan dana dari Universiti Kyoto, Jepun Pe-
tagon, Ahun Selberan Jepun (NIES), dan Universiti Okebyo selain pe-
gunan Iwaikko Beratah Desa Rantau Kanga (BDK).

Berita Harian, 6 July 2011

Checking pollution
Iskandar Malaysia hopes to become a low-carbon-emission society by 2025 says its’ Regional Development Authority Federal Commissioner Benjamin Hishie.

Reducing gas emission
Iskandar Malaysia to check on excessive carbon emission

Berita Harian, 6 July 2011

China Press, 5 July 2011

Nanyang Siang Pau, 4 July 2011

Sin Chew Jit Poh, 4 July 2011

Chunichi Shimbun, 6 October 2011
NNA.ASIA, 5 July 2011

The Star Online, 8 July 2011

Eye Asia, Issue 65, August 2011

Green Purchasing Asia, Issue 7, December 2011

Green Purchasing Asia, Issue 10, March 2012
2011 Overview

June 2011 – March 2012

Year 2011

JUNE

Signing of record of discussion on the project

First stakeholders focus group discussion in Iskandar Regional Development Authority, IRDA

LOW CARBON SOCIETY SCENARIOS FOR ASIAN REGIONS

JULY

First Science and Technology Research Partnership for Sustainable Development (SATREPS) Project Progress Meeting

AUGUST

Second International Symposium on Low Carbon Asia Research Project cum second International Training Workshop on Extended Snapshot Tool (ExSS)

SEPTEMBER

First International Symposium on Low Carbon Asia Research Project cum first International Training Workshop on Extended Snapshot Tool (ExSS)

OCTOBER

Low carbon society development technical tour
Second Science and Technology Research Partnership for Sustainable Development (SATREPS) Project Progress Meeting

Technical Tour on Town Service Department, Putrajaya Corporation

Second stakeholders focus group discussion in Iskandar Regional Development Authority, IRDA

Seminar on Future City Initiative

Year 2012

Exhibition in 17th Conference of the Parties (COP17) to the United Nations Framework Convention on Climate Change (UNFCCC)

Side Event in 17th Conference of the Parties (COP17) to the United Nations Framework Convention on Climate Change (UNFCCC)
Project Background

Being a region that encompasses half the humanity and is poised to double its world GDP share to 52% by 2050, Asia is witnessing transformative economic growth and socio-political change, and putting on forever greater global economic and strategic weight. In a world of increasing climatic uncertainty and resource constraint, a growing global footprint demands greater global responsibilities among Asian economies, particularly in promoting regional cooperation and taking ownership of the global economic and environmental agenda.

It is in this light that the project of Development of Low Carbon Society Scenarios for Asian Regions is initiated under the auspices of SATREPS. A joint effort between Japan and Malaysia, the 5-year research program that commenced in July 2011 brings together a team of multidisciplinary researchers from Kyoto University, the National Institute for Environmental Studies (NIES), Okayama University and Universiti Teknologi Malaysia (UTM) with a view to defining Low Carbon Society (LCS) visions and crafting a road map towards LCS at the national and city-regional levels, in line with Malaysia’s voluntary commitment to reduce the country’s carbon intensity by 40% by year 2020 (based on 2005 levels).

The research project begins with a pilot study of Iskandar Malaysia (IM), a “special economic region” located at the southernmost tip of Mainland Asia, that is poised to become a regional economic powerhouse by 2025. The project will showcase best practice in LCS for the Asian Regions and will therefore benefit not only IM and Malaysia, but also the Asian Regions. It will be a hands-on project where researchers and government officials of Asian countries work together in implementing research outputs within the cities or regions involved, leading to the eventual establishment of an Asian Low Carbon Society network.
The Development of Low Carbon Society Scenarios for Asian Regions Project necessarily involves a multiplicity of closely intertwined socio-economic, environmental, energy system, waste management, land use, transportation, and consensus building aspects. The pilot project in Iskandar Malaysia therefore comprises four major research groups that jointly and severally cover the above aspects, plus one scenario integration group that serves to synthesise the other groups’ research outcomes into a coherent LCS vision and holistic roadmap for IM, which will be fed into the IM’s LCS Blueprint.

Scenario Integration and Land Use Planning
(Group I)

Consensus Building and Education
(Group C)

Energy System
(Group E)

Solid Waste Management
(Group W)

Air Quality and Transport
(Group A)

Scenario Integration and Land Use Planning

Scenario Integration and Land Use Planning Group studies the overall vision and roadmap towards low-carbon society. The research output is to develop socio-economic scenario based on future development goals. This needs to integrate outputs from other research groups by using integrated models.
Introduction

Our Research Groups

Consensus Building and Education

Consensus Building Group examines the implementation during/after the scenario studies. Public participation or consensus building is required when the policy-makers, researchers and stakeholders discuss and make the policies and actions. This group will develop the consensus building approach for LCS in Asian region.

Solid Waste Management

Solid Waste Management Group conducts an empirical study on waste generation in Iskandar Malaysia, developing a model which simulates best solution for waste management in terms of 3R and GHG emission reduction.

Energy System

Energy System Group investigates the energy system models based on the idea of dispersed power generation system, which assesses the potential of renewable energy and supply and demand management system such as smart grid.

Air Quality and Transport

Air Quality & Transportation Group examines assessment of co-benefit of low-carbon measures, improvement of air quality. The research output will develop a detailed transport model as road transport is one of major sources of air pollutants and is expected to grow rapidly.
Introduction

Organisation Structure

Joint Coordinating Committee

Federal Department of Town and Country Planning; Malaysia Green Technology Corporation; Iskandar Regional Development Authority; Ministry of Higher Education; Universiti Teknologi Malaysia; Japan International Cooperation Agency

Observers

Johor State Government; Economic Planning Unit; Japan Science and Technology Agency; Embassy of Japan in Malaysia

Malaysia Counterparts

Universiti Teknologi Malaysia
Project Director
Prof. Ir. Dr. Mohd Azraai Kassim
Project Manager
Prof. Dr. Ho Chin Siong
Project Advisor
Prof. Dato’ Dr. Marzuki Khalid

Japan Counterparts

Kyoto University
Prof. Dr. Yuzuru Matsuoka
Okayama University
Prof. Dr. Takeshi Fujwara
National Institute for Environmental Studies
Dr. Junsichi Fujino; Dr. Mikiko Kainuma

Project Coordinator
Mr. Okabe Koichi

Scenario Integration and Land Use Planning

Assoc. Prof. Dr. Ahmad Nazni Muhammad Ludin
Prof. Dr. Mohd Hamdan Ahmad
Assoc. Prof. Dr. Mohd Ismail Abd Aziz
Assoc. Prof. Dr. Ibrahim Ngah
Assoc. Prof. Dr. Mohamad Rafiee Majid
Assoc. Prof. Dr. Feziah Johar
Dr. Kasturi Devi Sinniah
Mr. Chau Loon Wai
Asst. Prof. Reina Kawase
Dr. Kei Gomi
Dr. Janice Jeavamalar Simon

Consensus Building and Education

Dr. Fatin Aalha Phang
Assoc. Prof. Dr. Zaleha Ismail
Assoc. Prof. Dr. Muhammad Sukri Saud
Dr. Noraffandy Yahya
Dr. Lokman Mohd Tahir
Dr. Johari Suri
Ms. Nur Husna Abd Wahid
Dr. Genku Kayo
Ms. Maiko Suda

Energy System

Dr. Haslenda Hashim
Prof. Dr. Zainuddin Abd Manan
Dr. Sharifah Rafidah Wan Ali
Assoc. Prof. Dr. Ghulamreza Zahedi
Dr. Choong Weng Wai
Dr. Shuichi Ashina

Solid Waste Management

Dr. Zainura Zainon Noor
Assoc. Prof. Dr. Lee Chew Tin
Prof. Dr. Mohd Razman Salim

Air Quality and Transport

Prof. Dr. Mohd Rashid Mohd Yusof
Dr. Muhammad Zaly Shah Muhammad Hussein
Mr. Gobi Krishna Sinniah
Ms. Nabilah Abdul Ghani
Ms. Saltanznin Moktar
Assoc. Prof. Gakuji Kurata

Research Assistants

Mr. Abdul Rahim Raml
Ms. Aishah Mohamed Aki
Mr. Teh-Bor Tiong
Ms. Tan Sue Ting
Ms. Choo Hui Hiong
Ms. Siti Nadirah Othman
Ms. Wong Wai Yoke
Ms. Ann Syahirah Zulkifli
Mr. Ho Wai Shin
Ms. Afsaneh Afzali

Project Director
Prof. Ir. Dr. Mohd Azraai Kassim

Project Manager
Prof. Dr. Ho Chin Siong

Project Advisor
Prof. Dato’ Dr. Marzuki Khalid

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Prof. Dr. Mohd Hamdan Ahmad
Assoc. Prof. Dr. Mohd Ismail Abd Aziz
Assoc. Prof. Dr. Ibrahim Ngah
Assoc. Prof. Dr. Mohamad Rafiee Majid
Assoc. Prof. Dr. Feziah Johar
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Mr. Chau Loon Wai
Asst. Prof. Reina Kawase
Dr. Kei Gomi
Dr. Janice Jeavamalar Simon

Dr. Fatin Aalha Phang
Assoc. Prof. Dr. Zaleha Ismail
Assoc. Prof. Dr. Muhammad Sukri Saud
Dr. Noraffandy Yahya
Dr. Lokman Mohd Tahir
Dr. Johari Suri
Ms. Nur Husna Abd Wahid
Dr. Genku Kayo
Ms. Maiko Suda

Dr. Haslenda Hashim
Prof. Dr. Zainuddin Abd Manan
Dr. Sharifah Rafidah Wan Ali
Assoc. Prof. Dr. Ghulamreza Zahedi
Dr. Choong Weng Wai
Dr. Shuichi Ashina

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Prof. Dr. Mohd Razman Salim

Prof. Dr. Mohd Rashid Mohd Yusof
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Mr. Gobi Krishna Sinniah
Ms. Nabilah Abdul Ghani
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Ms. Choo Hui Hiong
Ms. Siti Nadirah Othman
Ms. Wong Wai Yoke
Ms. Ann Syahirah Zulkifli
Mr. Ho Wai Shin
Ms. Afsaneh Afzali
## Project Output

### 1.0 Methodology to create LCS scenarios which is appropriate for Malaysia is developed

1.1 Document the mission, function and role of LCS Research Centre in UTM and prepare its staffing and budget plan

1.2 Describe desirable socio-economic visions of Malaysia (and IM) in the future target year

1.3 Collect data on current socio-economic and environmental load emission and management information of Malaysia (and IM)

1.4 Develop a back-casting model to prepare policy roadmaps

1.5 Develop a technical manual to create LCS scenarios

1.6 Develop LCS scenario methodology with higher applicability and reality based on Output 2 ~ 3

1.7 Outline of LCS vision in Malaysia by adopting the developed methodology (tools and technical manual)

### 2.0 LCS scenarios are created and utilized for policy development in IM

2.1 Carry out training workshop on LCS scenario creation for IRDA and JPBD staff in Japan and Malaysia

2.2 Create the LCS vision for IM by adopting the integrated model of socio-economic, disparity and GHG emission assessment

2.3 Develop detailed system of policies to implement LCS measures identified in Activity 2-2 and establish technical and socio-political quantitative information of each policy

2.4 Discuss the importance and necessity of low-carbon development of IM during the process of revising IM Comprehensive Development Plan

2.5 Set up an arrangement for discussion among concerned groups, private sector and civil society to undertake the policies based on the LCS scenario

2.6 Formulate Iskandar Malaysia LCS action plan to be implemented by IRDA

2.7 Revise IM blueprints of relevant areas on the basis of the IM LCS action plan formulated in activity 2-6

### 3.0 Co-benefit of LCS policies on air pollution and on recycling-based society is quantified in IM

3.1.1 Conduct the observation of air quality to clarify the current condition in IM

3.1.2 Estimate current air pollutant emissions in IM

3.1.3 Develop methodology to quantify impact on health by air pollutant in IM

3.1.4 Estimate the mitigation effect of impact on health of air pollution by LCS measures in IM

3.2.1 Conduct survey of current solid waste generation in residential and industrial sectors

3.2.2 Estimate future waste generation and GHG emissions from waste management in IM

3.2.3 Propose solid waste management strategy which is appropriate in a low-carbon city in IM

3.3 Develop manual to quantify co-benefit of LCS measures

### 4.0 Organizational arrangement of UTM to conduct trainings on LCS scenarios for Malaysia and Asian countries is consolidated, and a network for LCS in Asia is established

4.1 Prepare UTM as a coordinating body, for capacity building of some researchers involved in the Project as trainers on LCS scenarios, through the activities from 1-1 to 3-3

4.2 Carry out trainings continuously on LCS scenarios for researchers and government officers of Malaysia and Asian countries in LCS Research Centre in UTM as well as in Japan

4.3 Transmit and share information of research and trainings on LCS scenarios among researchers and government officers in Asian countries
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### The Exhibition

<table>
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<tr>
<th>Date</th>
<th>28th November 2011 – 9th December 2011</th>
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<tr>
<td>Venue</td>
<td>Booth No. 116, Durban Exhibition Center, South Africa</td>
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| Delegates  | Prof. Dr. Ho Chin Siong  
Prof. Ir. Dr. Mohd Azraai Kasim  
Mr. Mohamad Sa’elal  
Mr. Haji Hassan Husin  
Ms. Kazumi Sato |
| Visitors   | 40 - 50 persons per day |

### Background

In this conference, UTM was the only university from Malaysia to register as a member of observers and civil societies of UNFCCC. UTM participation in this event provides opportunity for UTM as premier university in research on sustainability and environmental engineering showcasing the research work on Low carbon society scenarios and climate change initiatives. The research team, Project for Development of Low Carbon Society Scenarios for Asian Regions, had carry up exhibition on the research work, organization movement and activities related to climate change. In the exhibition, UTM showcased researches on Low carbon society scenarios studies in Iskandar Malaysia, Putrajaya and Cyberjaya.

These three research activities illustrated how researches and scientific quantification of carbon emission by modeling can assist the policy makers to make more rationale and pragmatic decisions. These studies involved strong collaboration between UTM and implementing agencies such as Iskandar Regional Development Authority, Putrajaya Corporation, Federal Town and Country Planning Department and Malaysian Green Technology Corporation. The research team with multidisciplinary researchers aims to prepare a roadmap toward low carbon scenarios at city-regional levels, in line with Malaysia’s voluntary commitment to reduce the country’s carbon emission intensity by 40% by the year 2020 based on the 2005 level.
**The Side Event**

**Date**  
2nd December 2011

**Time**  
16:45 - 18:15

**Venue**  
River Hex Hall, Durban Exhibition Center, South Africa

**Chairperson**  
Dr. Junichi Fujino

**Speakers**  
Prof. Dr. Ho Chin Siong  
Dr. Mikiko Kainuma  
Mr. Mohamad Sa’elal  
Dr. Jiang Kejun  
Dr. Shuzo Nishioka  
Prof. P.R. Shukla

**Participants**  
170 - 180 persons

**Background**

In addition to the exhibition, UTM together with NIES, Japan jointly organized a side event entitled “Low Carbon Society in Asia -From Planning to Implementation” on 2nd December 2011 at River Rex Hall, COP17 Event hall. Approximately 100 participants from more than 10 countries attended this event.

In this event, Prof. Ir. Dr. Mohd Azraai Kassim, Deputy Vice Chancellor UTM and Dr. Hideaki Nakane, Director of NIES gave the opening remarks and followed by two keynotes presentation on how the research can contribute to Low Carbon Asia. Dr. Kanuma Mikiko of NIES overviewed the Pathway towards Low Carbon Asia in Japan, China, India and ASEAN countries. Prof. Dr. Ho Chin Siong of UTM discussed on the UTM collaborative research work with Japan counterparts and Iskandar Malaysia Development Authority (IRDA) can contribute to Low Carbon regional development in Malaysia. This 90-minute session of side event ended with panel discussion on the roles of implementing agencies and policy makers and also challenges of Low Carbon Society development in Asia.
International Symposium on Low Carbon Asia Research Project

The 1st International Symposium

Date: 4th July 2011
Time: 0800 - 1730
Venue: Puteri Pacific Hotel, Johor Bahru, Malaysia
Opening by: Y.A.B. Dato’ Haji Abdul Ghani Othman
Participants: 120 - 130 persons

Background

The one day symposium on “Low-carbon Asia Research Project” was held on 4th July 2011 in Iskandar Malaysia, Johor Bahru. It was jointly organized by Universiti Teknologi Malaysia (UTM), Iskandar Regional Development Authority (IRDA) and Japanese counterparts namely Kyoto University (KU), Okayama University (OU), National Institute for Environmental Studies (NIES), Japan International Cooperation Agency (JICA), Japan Science and Technology Agency (JST) and Ministry of the Environment (MoE), Japan in conjunction with the launching of Iskandar Malaysia Low Carbon Society Project to be officiated by Chief Minister of Johor State. This event was sponsored by Low Carbon Society Regional-net (LCS-R net) and JICA-JST under the Science and Technology Research Partnership for Sustainable Development (SATREPS). The aims of the symposium and workshop on LCS were to initiate the development of a research network in Asia on LCS; to conduct outreach and promote Asia LCS-RNet activities; building capacity with Asian governmental agencies; and establishing dialogues between policy-makers and researchers.

Objectives

1. To promote knowledge sharing and enhance knowledge on LCS studies among researchers in Asia.
2. To encourage dialogues between researchers and policy makers.
3. To exchange views on feasibility of establishing an independent, autonomous, and long-lasting research network in Asia.
International Symposium on Low Carbon Asia Research Project

The 2\textsuperscript{nd} International Symposium

Date 31\textsuperscript{st} October 2011

Time 0800 - 1700

Venue Universiti Teknologi Malaysia, Johor Bahru, Malaysia

Opening by Prof. Datuk Dr. Marzuki Khalid

Participants 100 - 110 persons

Background

The Second International Symposium on Low Carbon Asia Research Project was a follow-up to the previous first symposium held in July 2011. The event was held on 31\textsuperscript{st} October – 2\textsuperscript{nd} November 2011 at the Senate Hall, Universiti Teknologi Malaysia, Johor Bahru. The second symposium remarked an important beginning of the major joint research project between two countries, namely; Japan and Malaysia. Universiti Teknologi Malaysia (UTM) as one of the research universities (RUs) will be leading Malaysian researchers to work with a team of top Japanese environmental engineers and researchers from Kyoto University, the National Institute for Environmental Studies (NIES) and Okayama University. This project will be closely coordinated with IRDA and the local authorities within Iskandar Malaysia as the main implementing agencies as well as other government policy-makers such as the Ministry of Housing and Local Government, Ministry of Energy, Green Technology and Water (KeTTHA) and Ministry of Natural Resources and Environment (NRE).

Objectives

1. To promote knowledge sharing and enhance knowledge on LCS studies among researchers in Asia.
2. To encourage dialogues between researchers and policy makers.
3. To exchange views on feasibility of establishing an independent, autonomous, and long-lasting research network in Asia.
The Review of the Year 2011

International Training Workshop on Greenhouse Gas Emission Modeling

The 1\textsuperscript{st} and 2\textsuperscript{nd} Modeling Training Workshop

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<th>Date</th>
<th>5\textsuperscript{th} July 2011 ; 2\textsuperscript{nd} November 2011</th>
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<td>Time</td>
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<td>Johor Bahru, Malaysia</td>
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<td>Conducting by</td>
<td>Dr. Kei Gomi</td>
</tr>
<tr>
<td>Participants</td>
<td>60 - 70 persons per workshop</td>
</tr>
</tbody>
</table>

Background

In conjunction with the 5 years research on Low Carbon Society (LCS) for Iskandar Malaysia, which aims to quantify the greenhouse gas emission in Iskandar Malaysia and rationalise the policies recommendation that can be taken to reduce the emission, a series of workshops of Extended Snapshot Tool (ExSS) had been held together with international symposium on Low Carbon Asia research project. Basically, ExSS is a system of simultaneous equations to compute the greenhouse gas emission from the energy consumption of a target area. This ExSS tool and back casting model will be used for low carbon society scenarios development. In order to contribute on the decision making towards low carbon future, it set low carbon society as a future goal. It is a static, accounting type model which describes consistent future state of demography, economy, transport, energy use, low carbon measures and carbon emissions.

Objectives

1. To demonstrate the low carbon society scenario approach of ExSS model to participants.
2. To increase the awareness of participants on the important of quantitative model forecasting in enhancing the policies making.
3. To widen the knowledge of participants on the relationship of driving forces in urban development and climate change.
The Review of the Year 2011

SATREPS Progress Meeting

The 1st SATREPS Progress Meeting

Date 14th August 2011
Time 0830 - 1700
Venue Impiana Hotel, Kuala Lumpur, Malaysia
Chairperson Prof. Dr. Ho Chin Siong
Prof. Dr. Yuzuru Matsuoka
Participants 23 research members

Background

The Science and Technology Research Partnership for Sustainable Development Program (SATREPS) progress meeting is the joint discussion between Malaysia and Japan counterparts on a common platform for the project for Development of Low Carbon Society Scenarios for Asian Regions. These SATREPS meetings aim to create greater synergies between both parties for a fruitful result. The first SATREPS progress meeting took place on 14th August 2011. The purpose of this meeting was to kick start the research project. The items that have been discussed were the research areas, research groups, research frameworks, research plans, research task forces, scenario integrations in cross cutting the various research themes, the creation Low Carbon Society Blueprint for Iskandar Malaysia and the coming events of symposium, workshop, COP17 program and the next SATREPS progress meeting.

Objective

1. To review the research themes and methodology in further consolidation on the development of low carbon society scenarios in Iskandar Malaysia.
2. To identify the links between individual low carbon society research with the Low Carbon Society Blueprint of Iskandar Malaysia.
3. To revisit the project schedule in assessing the position of current research progress.
The 2nd SATREPS Progress Meeting

**Date**  
1st November 2011 & 2nd November 2011

**Time**  
1400 - 1800 ; 0900 - 1300

**Venue**  
Universiti Teknologi Malaysia, Johor Bahru, Malaysia

**Chairperson**  
Prof. Dr. Ho Chin Siong  
Prof. Dr. Yuzuru Matsuoka

**Participants**  
30 research members

**Background**

The second SATREPS progress meeting was held in 1st November 2011, in conjunction with the second International Symposium cum Workshop on Low Carbon Asia Research Project. The main purpose of this meeting was to report the individual research activities on the development of low carbon society scenarios in Iskandar Malaysia. A total of five research groups, namely scenario integration and land use planning group, consensus building and education group, solid waste management group, energy system group and air quality and transport group were involved in the meeting. It consisted of 10 members from Japan and 20 members from Malaysia. The first session of meeting was the research presentation by each research group on their research outcomes for the preliminary study on Iskandar Malaysia as well as the structure and agenda of their research design. The second session was an open discussion on calibration, research integration and future planning.

**Objectives**

1. To examine the research milestone and progress of research groups
2. To define the research scopes of Malaysia and Japan Counterparts.
3. To plan the future programs and activities in moving the research forward.
Scenario Integration and Land Use Planning M1

Date 19th October 2011
Time 1430 - 1630
Venue Universiti Teknologi Malaysia, Johor Bahru, Malaysia
Chairperson Prof. Dr. Ho Chin Siong
Participants Assoc. Prof. Dr. Ibrahim Ngah
Assoc. Prof. Dr. Mohammad Rafee Majid
Ms. Anis Syahira Zulkifli

Agenda

The purpose of this meeting is to evaluate the research proposals of scenario integration and land use planning group on the low carbon society scenarios development in Iskandar Malaysia. The discussion highlighted the importance of integrating sub group research with the research scope of lifestyle, land use zoning and planning standards, green neighborhood, local governance, green transport, green building and construction, resource consumption and waste treatment.

Outcome

Apart from urban area, these research topics above will be include rural area of Iskandar Malaysia as well. This is to attain a fair and equitable development towards the communities in Iskandar Malaysia. Every point of discussions will be taken into the consideration by every sub group research and development of low carbon society blueprint for Iskandar Malaysia.
Scenario Integration and Land Use Planning M2

Date 27th October 2011
Time 1430 - 1700
Venue Universiti Teknologi Malaysia, Johor Bahru, Malaysia
Chairperson Prof. Dr. Ho Chin Siong
Participants Mr. Chau Loon Wai
Mr. Teh Bor Tsong
Ms. Choo Hui Hong

Agenda

The purpose of this meeting was to discuss the detailed content for the land use planning group progress report. The progress report will be used as discussion material for the coming second SATREPS progress meeting on 1st November 2011. Several aspects were discussed, they were introduction, research methodology, literature review / preliminary findings and conclusion / the way forward. The detailed discussion had focused more on the literature review / preliminary findings, which covers the goal, environmental themes, actions and measures for Iskandar Malaysia.

Outcome

Detailed measures were formed to achieve the vision of Iskandar Malaysia to become a strong sustainable metropolis of international standing. Besides, five environmental themes were established under this vision, namely Low Carbon Iskandar Malaysia, Green Growth Cluster, Sustainable Solid Waste Management, Green Energy, and Green Transport. These five environmental themes contain eight actions of Livable and Walkable / Cycleable, Green and Blue Network / Infrastructure, Low Carbon Lifestyle, Green Economy, Integrated Transportation, Energy-efficient Building, Land Use Planning, and Efficient Energy System and Renewable Energy.
Research Meeting

Scenario Integration and Land Use Planning M3

Date 5th December 2011
Time 1000 - 1230 ; 1330 - 1530
Venue Kyoto University, Kyoto, Japan
Chairperson Prof. Dr. Yuzuru Matsuoka
Participants 3 researchers
2 research assistants

Agenda

The main objective of this one day intensive research meeting in Kyoto University working visit is to discuss in detail on how the project team (Malaysia and Japan counterparts) to proceed towards producing recommendations for the Low Carbon Society Blueprint for Iskandar Malaysia. Through an intensive review, a refined list of actions and measures was produced. The list may potentially provide a framework for the establishment of a Low Carbon Society Blueprint draft for Iskandar Malaysia. Last but not least, the detailed research plan of December 2011 - March 2012 was highlighted in this meeting.

Outcome

The key considerations underlying these actions and measures are the need to link and integrate subprojects into a coherent IM LCS scenario and the empirical and quantified data and findings to support Iskandar Malaysia Low Carbon Society Blueprint Actions and lastly feeding back into ExSS. The task for the Malaysia counterpart is to focus on formulating detailed LCS actions and measures while the Japan counterpart is to focus on quantification of the actions and measures. UTM’s Land Use Planning Group and Kyoto University’s team will be the main authors of the draft LCS Blueprint for IM up to March 2012, after which the other research groups will be brought in according to their respective area of expertise.
Scenario Integration and Land Use Planning M4

Date 7th December 2011
Time 1430 - 1700
Venue Kyoto University, Kyoto, Japan
Chairperson Prof. Dr. Yuzuru Matsuoka
Participants 3 researchers
2 research assistants

Agenda

This was the discussion after the one day intensive research meeting on the 5th December 2011. The purpose of this meeting was to revise and refine the actions, quantification parameters, sub-actions, measures and programs for Low Carbon Society Blueprint in Iskandar Malaysia.

Outcome

Two additional actions of ‘Sustainable Solid Waste Management’ and ‘Community Engagement and Consensus Building’ were introduced into the current eight actions. The feedbacks suggested that each action and measure should be remarked in terms of priority for implementation, “quantifiability” (e.g. reduction of carbon), and relationship with Blueprint Actions. Columns to be added to the existing table of actions and measures for ‘priority’, ‘quantification’ and ‘LCS BPAs’. There is a need to identify direct quantification of actions/measures (carbon reduction) or indirect quantification (e.g. volume or modal shift of car, cycling and pedestrians) as opposed to supportive actions/measures that do not contribute to direct carbon reduction. The feasibility of proposed actions and measures should be taken into consideration. The result of the meeting will be finalized into a framework for draft Low Carbon Society Blueprint for Iskandar Malaysia.
Research Meeting

Scenario Integration and Land Use Planning M5

Date 2\textsuperscript{nd} February 2012 - 17\textsuperscript{th} February 2012

Time 0900 - 1700

Venue Universiti Teknologi Malaysia,
Johor Bahru, Malaysia

Chairperson Assoc. Prof. Dr. Mohammad Rafee Majid

Participants 8 research students

Agenda

The continuous two weeks research meetings were held for the purpose of cleaning, updating and adding values to existing geography information system (GIS) database provided by Iskandar Regional Development Authority (IRDA). The preparation was part of initial work in quantifying and characterizing various features of existing urban development within Iskandar Malaysia such as housing density, road connectivity, mixed-use diversity, etc. This database will be used in further analysis of the urban area in connection with low carbon physical planning.

Outcome

Information collected from all local authorities were updated into IRDA GIS database with a new complete dataset on housing areas generated for use by other groups (e.g. Transportation). Information on neighborhoods characteristics which include road systems, development year, unit of houses, facilities provided, density, etc. were also ready for use in the next stage of the study.
Research Meeting

Scenario Integration and Land Use Planning M6

Date 20th February 2012
Time 1000 - 1200
Venue Universiti Teknologi Malaysia, Johor Bahru, Malaysia
Chairperson Mr. Teh Bor Tsong
Participants 1 researcher
1 project coordinator
9 research assistants

Agenda

The purpose of this meeting was to kick start the write up for Low Carbon Society Blueprint for Iskandar Malaysia. The discussion of the meeting include the information on Low Carbon Society Blueprint, the content and format of blueprint, the task force and work distribution between Malaysia and Japan counterparts and the timeline for this write up.

Outcome

In the process of preparing Low Carbon Society Blueprint for Iskandar Malaysia, the role of Malaysia counterparts (UTM) is to provide technical inputs/comments with respect to actions/sub actions/ measures/ programs. This includes the identification and provision of concrete justification/explanation for actions, sub-actions, measures and programs suited to Iskandar Malaysia context. The task has been assigned to all research assistants according to sub-actions. The sub-actions that were under Keep In View (KIV) status will be brought forward to the next meeting on 29th February 2012 for the further action.
Research Meeting

Scenario Integration and Land Use Planning M7

Date 29th February 2012
Time 1000 - 1100
Venue Universiti Teknologi Malaysia, Johor Bahru, Malaysia
Chairperson Ms. Choo Hui Hong
Participants 1 project coordinator 7 research assistants

Agenda

This meeting was about the collection of feedbacks on blueprint dozen actions and the progress monitoring on the Low Carbon Society Blueprint write up. The topic of discussion included the issues, problems and challenges faced by research assistants in Low Carbon Society Blueprint write up.

Outcome

The current progress of research assistants on their Low Carbon Society Blueprint write up are in the stage of literature review, framework structuring and drafting the content. Several issues that have been raised up including information overlapping, inexperience in the new research area, the standard approach of write up and the depth of writing. The meeting concluded that each research assistant should refer to the existing local or foreign countries’ blueprint as a general guide. Anyhow, no matter in what situation the work needs to be done and it can be improved in the later stage. For those blueprint actions which has no one looking into will be brought to the researcher meeting. The first draft of Low Carbon Society Blueprint write up will be submitted by 14th March 2012.
Consensus Building and Education M1

Date 20th June 2011
Time 1000 - 1130
Venue Universiti Teknologi Malaysia, Johor Bahru, Malaysia
Chairperson Dr. Fatin Aliah Phang
Participants Prof. Dr. Ho Chin Siong
Ms. Wong Wai Yoke

Agenda

The purpose of this meeting was to discuss about Low Carbon Society questionnaire items for school students. This was for the survey on the level of knowledge of local communities particularly the secondary school students in Iskandar Malaysia on the subject of low carbon society.

Outcome

In constructing the low carbon society questionnaires to measure the knowledge of students, more items should be added. These items needed to cross checked with established information (facts and frequent asked questions about low carbon society components such as climate change, sustainable development, energy and water conservation, and waste recycling).
Consensus Building and Education M2

Date 8th September 2011
Time 1000 - 1200
Venue Universiti Teknologi Malaysia,
Johor Bahru, Malaysia
Chairperson Dr. Fatin Aliah Phang
Participants 7 researchers
2 research assistants

Agenda

This meeting was about the background and updates on the project for the Development of Low Carbon Society Scenarios for Asian Regions on the research members of consensus building and education group. Items discussed in the meeting included the education policies in Iskandar Malaysia blueprint and primary data for education group research in Iskandar Malaysia. The conclusion of this meeting has drawn a clear future direction of consensus building and education research group.

Outcome

All research members of consensus building and education group will need to study on the various blueprints of Iskandar Malaysia particularly on ‘Integrated Solid Waste Management Blueprint’ and ‘Human Capital Blueprint’. Apart from reviewing the blueprint, the research members were required to get preliminary data of education development in Iskandar Malaysia (examples: how many schools in the area of Iskandar Malaysia, what are the current environmental/ 3R programmes organised for schools) for drawing up future action plans, to set target and to suggest/ recommend activities. Finally, it was concluded that a workshop for school administrators (management) and teachers to be held to help gather information about the current activities and programmes in school.
Consensus Building and Education M3

Date 21st September 2011
Time 0900 - 1200
Venue Universiti Teknologi Malaysia, Johor Bahru, Malaysia
Chairperson Dr. Fatin Aliah Phang
Participants 1 Iskandar Regional Development Authority officer
8 research members
2 research assistants
4 research students

Agenda

The purpose of this meeting was to introduce the concepts of low carbon society and 3R (Reduce, Reuse and Recycling) waste management to the officer from Iskandar Regional Development Authority, research members, research assistants and research students. Besides, the officer from Iskandar Regional Development Authority had given the participants some input on the background of Iskandar Malaysia, various blueprints of Iskandar Malaysia, low carbon society and 3R initiatives carried out by Iskandar Regional Development Authority.

Outcome

The meeting resulted in a formation of draft action steps towards low carbon society development in Iskandar Malaysia from the perspective of education. The action steps include LCS and 3R campaigns and competition at the residential areas and schools in Iskandar Malaysia. These campaigns and competitions will be planned and sponsors and schools for 3R and LCS campaigns and competitions will be identified.
Consensus Building and Education M4

Date 23\textsuperscript{rd} November 2011
Time 1430 - 1630
Venue Universiti Teknologi Malaysia, Johor Bahru, Malaysia
Chairperson Dr. Fatin Aliah Phang
Participants Ms. Wong Wai Yoke
Ms. Azilah Mohd Akil

Agenda

This meeting was about the construction of questionnaire items for 3R (Reduce, Reuse, Recycle) practices and school recycling facilities and programs. The discussion also included preparation for focus group discussion with secondary school principals and teachers in Iskandar Malaysia.

Outcome

It was concluded that the questionnaires should be in bi-languages of English and Malay. Some demographic items will be added to gather more information about current 3R programs of secondary schools in Iskandar Malaysia. The details and arrangement of the coming focus group discussion were finalized.
**Consensus Building and Education M5**

**Date** 8th December 2011  
**Time** 1000 - 1130  
**Venue** Universiti Teknologi Malaysia, Johor Bahru, Malaysia  
**Chairperson** Dr. Fatin Aliah Phang  
**Participants** Ms. Wong Wai Yoke  
Ms. Azilah Mohd Akil

**Agenda**

The main objective of this meeting was to discuss on the outcomes of questionnaires and analysis of data on the result of the focus group discussion in the past 1st December 2011. Besides, a discussion on Singapore’s green program at schools were held. The success of green program in Singapore schools was recommended by Japan counterparts to be the case study for consensus building and education group.

**Outcome**

The reliability of 3R questionnaire and preliminary outcomes of LCS questionnaire on the focus group discussion (on last 1st December 2011) was analysed. The questionnaire will be improved and combine both aspects of LCS and 3R for the survey of school administrators and publics. A list of green program in Singapore schools and an institutional framework will be created. Attention should be paid on the development of such approach (into the current scale) and the measuring of program effectiveness. The implementation of such approach in Malaysian context can be explored. A summary of school electricity usage needs to be tabulated in terms of monetary (Ringgit Malaysia) and power (kiloWatt-hour).
Research Meeting

Solid Waste Management M1

Date 25th July 2011
Time 1000 - 1200
Venue Universiti Teknologi Malaysia, Johor Bahru, Malaysia
Chairperson Dr. Zainura Zainon Noor Prof. Dr. Ho Chin Siong
Participants 4 researchers
4 research assistants
3 research students

Agenda

The purpose of this meeting was to review the Integrated Solid Waste Management Blueprint for Iskandar Malaysia. A presentation was made by research assistants about the content analysis of the blueprints to have further understanding on the current solid waste management proposals for Iskandar Malaysia and identifying the gaps particularly in the aspect of developing solid waste management for low carbon society development in Iskandar Malaysia.

Outcome

All research members found that there were many questions and issues in the existing integrated solid waste management blueprint. These items includes the budget for the new infrastructure and facilities, the enforcement of legislation, agricultural waste management, relationship between Iskandar Regional Development Authority (IRDA), Southen Waste Management (SWM), National Solid Waste Management Department (JPSPN), and Solid Waste Management and Public Cleasing Corporation (PPSPPA). To get these answer, a meeting with IRDA regarding on these questions had been set on 2nd August 2011.
Research Meeting

Solid Waste Management M2

Date 2nd August 2011
Time 1500 - 1630
Venue Iskandar Regional Development Authority Office, Johor Bahru, Malaysia
Chairperson Dr. Zainura Zainon Noor
Participants 1 Iskandar Regional Development Authority officer
2 researchers
4 research assistants
2 research students

Agenda

The main objective of this meeting was to clarify the issues, problems and questions raised on the integrated solid waste management blueprint and facilitation on waste data from Iskandar Regional Development Authority. Besides, this meeting was also a dialogue between the two parties (UTM and IRDA) to achieve their expected outcome. The solid waste management research group will ensure that their ideas can be accepted and implemented by the Iskandar Regional Development Authority.

Outcome

After the discussion, the research members gain a clear understanding on the solid waste management system in Iskandar Malaysia. Many issues need to addressed particularly the role of solid waste management in climate mitigation, which was not highlighted. Although Iskandar Regional Development Authority was not the main agency in the context of enforcing solid waste management, they had agreed to support the research group in realizing sustainable solid waste management for low carbon society development in Iskandar Malaysia.
Solid Waste Management M3

Date 17th August 2011
Time 1130 - 1300
Venue Menara Cyberport, Johor Bahru, Malaysia
Chairperson Dr. Zainura Zainon Noor
Participants 2 Solid Waste Management and Public Cleansing Corporation officers
2 researchers
2 research assistants

Agenda

This meeting was a kind of interview session with Solid Waste Management and Public Cleansing Corporation (PPSPPA) of Johor state. PPSPPA and National Solid Waste Management Department (JPSPN) are the main governmental agencies responsible on the planning, development, monitoring and educational program of the solid waste management in Malaysia. The meeting enabled the research members to have collaboration and facilitation from PPSPPA in the future.

Outcome

Research members obtained up-to-date knowledge on the solid waste management institutional frameworks, legislation and policy direction of solid waste management in Malaysia. In addition to that, research members also received information on various successful 3R campaigns run by the PPSPPA in schools of Iskandar Malaysia. Unfortunately, detailed data such as the recent waste generation rates, waste composition and waste facilities were not available.
The Review of the Year 2011  

Research Meeting

Solid Waste Management M 4

Date  
25th August 2011

Time  
0900 - 1300

Venue  
Universiti Teknologi Malaysia, 
Johor Bahru, Malaysia

Chairperson  
Prof. Dr. Takeshi Fujiwara 
Prof. Dr. Ho Chin Siong

Participants  
3 researchers 
5 research assistants 
1 research student

Agenda

This meeting was an intensive discussion on the solid waste management research in the project for the development of low carbon society scenarios for Iskandar Malaysia. Several subject matters were discussed, they were solid waste management research work, research scope and research plan of municipal waste, industrial waste, agriculture waste, 3R education and material flow.

Outcome

A clear common direction of solid waste management research works was formed and was agreed between UTM researchers and OU researchers. The methodology and data collection of research works were standardized to fit into the comprehensive structure of waste generation system later. The survey of industrial waste and waste composition study were proposed to be in the mid year of 2012. In order to monitor the solid waste management progress, a teleconference between UTM researchers and OU researchers was decided on 27th September 2011.
Solid Waste Management M5

Date 27th September 2011
Time 1430 - 1730
Venue Universiti Teknologi Malaysia, Johor Bahru, Malaysia
Chairperson Prof. Dr. Takeshi Fujiwara
Participants 3 researchers
1 project coordinator
3 research assistants
4 research students

Agenda

This research meeting was a teleconference between UTM researchers and OU researchers. The meeting was about the updates on the preliminary findings of municipal waste, agriculture waste and industrial waste research in Iskandar Malaysia. During the meeting, various issues, problems and challenges was highlighted. Besides, the preparation of solid waste management group for the coming second SATREPS progress meeting in the 1st and 2nd November 2011 was discussed in this meeting as well.

Outcome

A collaboration between scenario integration and land use planning group and energy system group will be needed for the data of demography, land use and waste to energy. A progress report by solid waste management research group will be prepared for the coming second SATREPS progress meeting in 1st and 2nd November 2011. The content of the progress report covers the research framework, preliminary findings, and future plan. Issues, problems and challenges from solid waste management research group will be brought to the second SATREPS progress meeting.
The Review of the Year 2011

Research Meeting

Solid Waste Management M6

Date 20\textsuperscript{th} March 2012

Time 1100 - 1300

Venue Universiti Teknologi Malaysia, Johor Bahru, Malaysia

Chairperson Prof. Dr. Ho Chin Siong
Prof. Dr. Takeshi Fujiwara

Participants 3 researchers
1 project coordinator
5 research assistants

Agenda

This was an intensive meeting regarding the blueprint report. The discussion between UTM researchers and OU researchers consist of updates and degree of completeness of the blueprint to be presented in next 3\textsuperscript{rd} SATREPS meeting in Japan. During the meeting, various issues, problems and challenges were highlighted. In addition, the preparation of model sheet that content data collected for solid waste management group was explained well so that all members will be able to develop ones that cover household waste, agriculture and also industrial waste.

Outcome

The model data sheet was expected to be developed and compiled in the next meeting. A progress report by solid waste management research group will be prepared for the coming 3\textsuperscript{rd} SATREPS progress meeting in April 2012. The content of the progress report should cover the research framework, concept, method, preliminary findings, and future development. The issues, problems and challenges from solid waste management research group should be able to be discussed from time to time.
The Review of the Year 2011

Research Meeting

Energy System M1

Date 26th October 2011
Time 1000 - 1100
Venue Universiti Teknologi Malaysia, Johor Bahru, Malaysia
Chairperson Prof. Dr. Zainuddin Abdul Manan
Participants Dr. Haslenda Hashim
Dr. Sharifah Rafidah Wan Alwi
Assoc. Prof. Dr. Gholamreza Zahedi
Mr. Aqeel Bazmi

Agenda

This meeting was about the write up on research progress that need to be submitted in 28th October 2011 prior to the meeting on 2nd November 2011. In this meeting, issues, problems and challenges faced by the energy system group was raised and discussed. The importance of energy efficiency (EE) and renewable energy (RE) was highlighted in addition to Decentralized Electricity Generation (DEG)

Outcome

The energy system group agreed to expand the research scope to include energy efficiency and renewable energy. The main reason behind is to be in line with the existing comprehensive Iskandar Malaysia blueprint which caters for not only the supply side but also the demand side. As the Malaysian government is going aggressively towards energy efficiency through energy managers program and performance contracting, our research group can spearhead this initiative in Iskandar Malaysia. Universiti Teknologi Malaysia (UTM) has just been acknowledged as the showcase energy management organisation and this research will allowed UTM to display IM as the best practice. The component of energy efficient education will be moved into consensus building and education group.
Air Pollution and Transport M1

Date 26th October 2011
Time 1000 - 1200
Venue Universiti Teknologi Malaysia
        International Campus, Kuala Lumpur, Malaysia
Chairperson Prof. Dr. Mohd Rashid Mohd Yusof
Participants Ms. Afsaneh Afzali

Agenda

The purpose of this meeting was to discuss the detailed content for the air quality group progress report. The progress report will be presented in the coming 2nd SATREPS progress meeting on 1st November 2011 as the proposal. Different aspects of the proposal was discussed including introduction, research methodology, literature review/ preliminary findings and expected results / the way forward. The detailed discussion had focused more on the literature review and the proposed methodology.

Outcome

The detail of different steps in achieving air quality management in Iskandar Malaysia was discussed. Based on the literature review and proposed methods, a comprehensive proposal was prepared as a way forward in doing research. Based on the reliable methods presented by United States Environmental Protection Agency (EPA), American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) dispersion model was selected to be applied in predicting the ground level concentration of the criteria pollutants emitted from main industrial sources along with Community Multiscale Air Quality Model (CMAQ) photo chemical model. The detailed input requirements of the model were investigated and considered in the report.
Research Meeting

Air Pollution and Transport M2

Date 22nd February 2012
Time 0930 - 1130
Venue Universiti Teknologi Malaysia
International Campus, Kuala Lumpur, Malaysia
Chairperson Prof. Dr. Mohd Rashid Mohd Yusof
Participants Ms. Afsaneh Afzali

Agenda

This was a discussion about data collection process after the one week intensive activities of cooperating with Mr. Phubalan regarding his internship from Kyoto University. The data collection activities were followed by meeting with Department of Environment (DOE) officers in Putrajaya and meeting with Malaysian Meteorological Department (MMD) officers in Petaling jaya, Kuala Lumpur.

Outcome

Based on the requirements of American Meteorological Society/Environmental Regulatory Model (AERMOD) and Community Multiscale Air Quality Model (CMAQ) air quality model decided to be used in our research group, the need for the required collected data is discussed. The Physical characteristics of the emission sources as well as the pollutants emissions are among the emission data needed by the models. The collected data so far was released to Dr. Kurata and Mr. Phubalan. Based on the appointment set by Prof. Rashid, Afsaneh and Phubalan are going to have a meeting with DOE officers in Putrajaya. Further more the discussion is done regarding the required meteorological data as input for air quality modelling. The appointment with MMD officers was set by Prof. Rashid.
Research Meeting

Air Pollution and Transport M3

Date: 23rd February 2012
Time: 1000 - 1200
Venue: Universiti Teknologi Malaysia International Campus, Kuala Lumpur, Malaysia
Chairperson: Prof. Dr. Mohd Rashid Mohd Yusof
Participants: Ms. Afsaneh Afzali

Agenda

This was a discussion regarding the blueprint in response to the meeting (among research assistants) on the 20th February 2012. The purpose of this meeting was on the detailed revision and refined on Action 11, quantification parameters, sub-action 11.1, measures and programs for low carbon society blueprint in Iskandar Malaysia.

Outcome

The task of preparing low carbon society blueprint for Iskandar Malaysia was discussed. Our group will focus on action 11.1 and the measure “Quantification of co-benefit s of LCS CM”. With respect to this measure, the programs of “Quantitatively evaluate the reduction of pollutant emission for each LCS CM” and “Evaluate /predict the improvement of local air quality by model simulation” were clarified and were presented in some steps.
Research Meeting

Air Pollution and Transport M4

Date  
21st March 2012

Time  
1400 - 1800

Venue  
Universiti Teknologi Malaysia, Johor Bahru, Malaysia

Chairperson  
Prof. Dr. Ho Chin Siong
Prof. Dr. Mohd Rashid Mohd Yusof

Participants  
3 researchers
2 research assistants

Agenda

The purpose of this meeting was to share information among researchers and research assistants about pollutants particularly particulate matter (PM) and their health impact. Following this discussion, a brief training was given by the monitoring equipment supplier. Last but not least, the meeting ended with the review on the air pollution action in low carbon society blueprint for Iskandar Malaysia.

Outcome

The discussion was about the availability of required data regarding the relationship between pollutants and their impacts on human health. Based on the expertise of researcher from Malaysia side, the exchange of data and information can be done to fulfill the requirements of the research. Furthermore, the discussion was continued about the required data to be collected for the simulation of air quality. After that, a brief introduction and training of the monitoring equipment instruction was given by the supplier. Lastly, in the review process with respect to the air pollution action, sub-action, measure and programs, the prepared blueprint can be presented with little revision in some parts.
Focus Group Discussion

**Low Carbon Society Scenarios Development FGD 1**

- **Date**: 21st June 2011
- **Time**: 0830 - 1300
- **Venue**: Iskandar Regional Development Authority, Johor Bahru, Malaysia
- **Chairperson**: Prof. Dr. Ho Chin Siong  
  Mr. Boyd Dionysius Joeman
- **Participants**: 25 stakeholders  
  4 facilitators  
  6 observers

**Background**

In ensuring the successful implementation of low carbon society scenarios in Iskandar Malaysia, engagement on local communities in policies making is vital. The focus group discussion (FGD) on low carbon society scenarios development has been conducted and will be continuously carry out for the purpose above. For the first focus group discussion, stakeholders from various public and private agencies were invited. One of the main objective of this discussion is to create the awareness among the stakeholders through the introduction of issues on sustainability and climate change today and the need of low carbon society development concept in addressing the challenges above. Besides, a dialogue between policy makers and stakeholders was established in a sharing session on the ideas of the current draft eight actions for low carbon society developments in Iskandar Malaysia.

**Outcome**

Comments and suggestions from the stakeholders on the existing proposed draft (of eight actions) for the development of low carbon society in Iskandar Malaysia were shared through their presentations. Their ideas were recorded and they will be considered into the revision of these draft eight policy actions.
Focus Group Discussion

Low Carbon Society Scenarios Development FGD 2

Date 25th November 2011
Time 0830 - 1300
Venue Iskandar Regional Development Authority, Johor Bahru, Malaysia
Chairperson Prof. Dr. Ho Chin Siong
Participants 8 stakeholders
4 facilitators
3 observers

Background

The second focus group discussion on low carbon society development was held four months after the first focus group discussion back in June 2011. The purpose of this second discussion was to review the improved eight proposed actions and measures for low carbon society development in Iskandar Malaysia. Similar to the first discussion, the local communities of Iskandar Malaysia were invited for the discussion on the proposed eight actions for low carbon society development for Iskandar Malaysia. Yet, the invited stakeholders in the second discussion were different from the first discussion. This is to engage a wider range of community in the policy making process to ensure a fair and inclusive society development in Iskandar Malaysia. A diverse point of views can be consider and this will ensure that the low carbon society blueprint is integrated and comprehensive enough to address the challenges and in the development of Iskandar Malaysia.

Outcome

The outcome of this workshop was the refined actions and measures based on the comments by the participants. These finalized output will be used to develop low carbon blueprint for Iskandar Malaysia.
Focus Group Discussion

**Low Carbon Eco Village FGD 1**

**Date**
30\textsuperscript{th} October 2011

**Time**
0900 - 1300

**Venue**
Felda Taib Andak, Kulai, Malaysia

**Chairperson**
Assoc. Prof. Dr. Ibrahim Ngah
Mr. Ismail Samingin

**Participants**
46 residents
5 facilitators

**Background**

To ensure the equitable low carbon society development across the region, the implementation of low carbon society development in Iskandar Malaysia needed to be socially inclusive in taking account into the consideration on not only urban communities but rural communities as well. Felda Taib Andak, a village in Iskandar Malaysia will be a case for the low carbon eco village development. During the earlier stage of this study, our experts had conducted the first consensus building with the villagers. In this first focus group discussion, a lecture input on low carbon society development was introduced to the residents and the importance of rural communities to take part into such development as highlighted. The discussion was followed by a dialogue to obtain consensus on the future goals and measures for the implementation of the idea of low carbon eco village in Felda Taib Andak.

**Outcome**

The communities from the Felda Taib Andak were feeling excited, proud and had actively participated in the discussion in creating their village a model village for the rural communities that are environmentally friendly and low carbon. The outcome of this workshop was the formation of vision, objectives and dozen actions from the context of participants.
Low Carbon Eco Village FGD 2

Date  
11th December 2011

Time  
0900 - 1300

Venue  
Felda Taib Andak, Kulai, Malaysia

Chairperson  
Assoc. Prof. Dr. Ibrahim Ngah  
Mr. Rosli Maarof

Participants  
44 residents  
2 facilitators

Background

After the formulation of low carbon eco village framework during the first focus group discussion on October 2011, this second focus group discussion emphasis on the improvement and further strengthen the proposed dozen actions through detail measure and program. During the second focus group discussion, the participants (communities from Felda Taib Andak) were divided into four sub groups to discuss about every single action in the proposed “A Dozen Action” for low carbon eco village. Each sub groups came out with detailed steps and measures to achieve each action. In addition, project budget, methodology in getting financial support, monitoring committee, number of participating residents, project paper and progress were discussed by every small groups as well. Every sub-group presented their outcomes. Comments and suggestions will be taken into consideration and a proposed timeframe (accordingly to month/ annual) for each action was created.

Outcome

The dozen actions formulation for realizing low carbon eco village case in Felda Taib Andak was completed. Besides, a committee was established in managing and coordinating the implementation of dozen actions in Felda Taib Andak.
## Green Education System FGD 1

<table>
<thead>
<tr>
<th>Date</th>
<th>1(^{st}) December 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>0900 - 1300</td>
</tr>
<tr>
<td>Venue</td>
<td>Universiti Teknologi Malaysia, Johor Bahru, Malaysia</td>
</tr>
<tr>
<td>Chairperson</td>
<td>Dr. Fatin Aliah Phang Mr. Mohamad Azam Anuar</td>
</tr>
<tr>
<td>Participants</td>
<td>33 teachers 6 facilitators 6 observers</td>
</tr>
</tbody>
</table>

### Background

Education system plays an important in the development of low carbon society scenarios in Iskandar Malaysia. Shifting current Iskandar Malaysia society towards low carbon society in the future required a green education system to spread low carbon/ climate change knowledge and to raise awareness among students and communities. Teachers were therefore vital to posses such knowledge and awareness prior to spreading it to students. The first focus group discussion on low carbon education system had called for teachers in Iskandar Malaysia to learn and share their experience in low carbon/ climate change/ environmental friendly educational program in schools of Iskandar Malaysia.

### Outcome

The teachers gave good response towards the discussion on the low carbon society action steps in schools. Several feasible programs (campaigns and competitions) were listed to introduce low carbon lifestyle among students and to increase the awareness of general public on low carbon society Iskandar Malaysia.
Technical Tour

Low Carbon Society Development in Japan

Date 3rd October 2011 – 8th October 2011
Time 0900 - 1700
Venue Kyoto, Japan ; Tokyo, Japan
Participants 3 government officers
9 researchers
3 research assistants

Background

This six days intensive technical tour with fifteen participants was aimed to discover and experience the success case of implementation strategies in realizing low carbon society in Japan. The tour included visits to ten agencies of non-governmental organization (NGO), nonprofit organization (NPO), research institutes, local government and federal government. They are Kiko Network, KES Environment Organization, Kyoto City Government, Lake Biwa Environmental Research Institute, Yasu City Hall, Higashi Ohmi City, Ministry of the Environment Japan, Tokyo Metropolitan Government, Institute for Global Environment Strategies and Institute for Building Environment and Energy Conservation. Presentations and dialogues were taken place in every visit. This knowledge sharing session enabled us to understand the key success in developing low carbon society which will be applicable to Iskandar Malaysia.

Outcome

In diffusing policy actions of low carbon society, a strong framework is needed to ensure every organization has good coordination with each other and play their effective role in delivering their program. It is important to engage public and private stakeholders in implementing and delivering various policy measures. Community participation during the development process is vital for the effective promotion of environmental friendly lifestyle in the society; hence, ensuring the realization of a low carbon society.
A Typical Rural Village in Malaysia

Date  2nd November 2011
Time  1440 - 1700
Venue  Felda Taib Andak, Kulai, Malaysia
Participants  42 residents
13 researchers
1 project coordinator
13 research assistants

Background

The technical tour to Felda Taib Andak was the continuous program after the second international symposium cum workshop on low carbon Asian research project and second SATREPS meeting. Felda Taib Andak is a typical village in Iskandar Malaysia which has been chosen as the model of low carbon society development in rural community. During the visit, our twenty seven research members got a warm welcome from these polite villagers. A dialogue session with the villagers was the first agenda. Presentations on the background and the idea of low carbon eco village in Felda Taib Andak were introduced by the head of village. After the dialogue session, research members were brought to the palm oil mill and palm oil farm of Felda Taib Andak. The main source of income of these villagers from Felda Taib Andak is generated from palm oil related activities.

Outcome

The research members and villagers got to know to each other via this technical tour. It allowed research members to have better understanding on the socioeconomic and culture of rural communities in Iskandar Malaysia. For the villagers, they were motivated and clear about the development of low carbon society in Iskandar Malaysia. With the above, the development of low carbon eco village in Felda Taib Andak has been moved a step forward.
Putrajaya Green City

**Date**
9th March 2012

**Time**
1030 - 1730

**Venue**
Putrajaya, Malaysia

**Participants**
4 government officers
1 researcher
4 research assistants
6 research students

**Background**

Sustainable solid waste management is one of the important components in low carbon society development of Iskandar Malaysia. In view on getting more information on the case study on Malaysian local best practice in sustainable solid waste management, a one day trip was organized to visit Putrajaya. During the visit, the research group first received an informative brief from city cleanliness control division of Putrajaya Corporation. They gave a talk about the approach of solid waste management, cleansing services and recycling and composting program in Putrajaya. After the brief from Putrajaya Corporation, the tour continued with a visit to an organic waste composting plant and a recycling center in the residential area of Putrajaya. From these facilities, specific data were obtained.

**Outcome**

To be successful in the development of sustainable solid waste management, both facilities and participation from the local communities are important. They should come together in parallel without neglecting each other. In the case of Putrajaya, the facilities provide composting and recycling technological solution in solid waste reduction while local residents were the players in adopting the new environmental friendly lifestyle of composting and recycling their waste which enable the effective use of facilities. These composting and recycling practice of communities can be promoted through an incentive of reward system.
Malaysian Nuclear Agency

Date: 3rd November 2011
Time: 1000 - 1100
Venue: Bangi, Kajang, Malaysia
Participants: Dr. Zainura Zainon Noor, Ms. Siti Nadzirah Othman

Background

The visit to Malaysia Nuclear Agency (MINT) for data collection was the suggestion from Solid Waste Management and Public Cleansing Corporation (PPSPPA) of Johor state in the meeting on last August 2011. This national research institute does not limit their research to the field of energy, radiation and medical and industry technology but also includes solid waste particularly in the aspect of waste as the source for renewable energy. They were kind and cooperative in sharing their information with us.

Outcome

During the data collection process, in certain cases some of the information were not available and mostly were on recycling rate. However, data will be available after the August 2012 and our research group is allowed to access it. This is because the MINT has been collaborating with National Solid Waste Management Department (JPSPN) in developing a comprehensive database on waste management in Malaysia. In return of gathering data from them, the agency requested our research group to credit or acknowledge them in every paper or publication that we produce.
Background

Generally, solid waste management can be categorized into three typologies namely municipal solid waste management, agriculture solid waste management and industrial solid waste management. To establish a sustainable industrial waste management for low carbon society development in Iskandar Malaysia, the existing solid waste management information in the industrial sectors like generation volume, generation rate, composition, facilities, technology, transportation, policy and regulation are important. These information will enable the research group to understand the current practices and foresee the future scenarios, and more concrete and feasible measures can be proposed in cutting down the industrial solid waste into landfill. Yet, at the moment, there is not much information available on industrial waste management. In view on that, an industrial waste pilot survey was conducted on the Pasir Gudang Industrial Park of Iskandar Malaysia as a preliminary study. The survey targets seventy samples from the total fourteen types of industries.

Outcome

The pilot survey was incomplete. Getting permission and making appointment has been time consuming and difficult. Therefore, the survey is still on going. At present, only seven interviews were done and most of these information were insufficient. Many enterprises keep such information confidentially and not accessible to the public.
**Field Work**

**Department of Environment**

Date  
8th February 2012 – 17th February 2012

Time  
1000 - 1100

Venue  
Johor Bahru, Malaysia; Putrajaya, Malaysia

Participants  
Mr. Phubalan Karunakaran  
Ms. Afsaneh Afzali

**Background**

Air quality is one of the co-benefit of measures for low carbon society development in Iskandar Malaysia. In examining the air quality in Iskandar Malaysia, several days field work have been carried out at the Department of Environment (DOE) in Johor Bahru and Putrajaya to collect air pollution and industries related secondary information in Iskandar Malaysia. Besides, the other objective of the visit included the searching for physical characteristics of sources and the pollutants emission in an arranged file containing all the emission sources in Johor State.

**Outcome**

DOE is still in the preliminary process of completing the inventory for different states of Malaysia. In addition, the release of the available data under the industry names and also the pollutants emissions based on the sectors is not allowed. Yet, the officers were trying to assist and they will tried to get the permission from their superior. Other various air pollution related data were obtained. These were the list of industry, production capacity, fuel consumption, volume, composition and the control system.
Field Work

**Tanjung Langsat Sanitary Landfill**

*Date*  
13th March 2012

*Time*  
1000 - 1300

*Venue*  
Tanjung Langsat, Johor Bahru, Malaysia

*Participants*  
3 research assistants  
2 research students

**Background**

After the Seelong sanitary landfill, Tanjung Langsat sanitary landfill is the second and the only sanitary landfill in Iskandar Malaysia. This waste disposal facility serves for Pasir Gudang Municipality. The purpose of the visit to Tanjung Langsat sanitary landfill was to have an insight on management, operating system and technology of the facility as well as the solid waste management in Pasir Gudang and Iskandar Malaysia. The officers from Pasir Gudang municipal shared informative data with the research group and they were willing to assist the research group in realizing sustainable solid waste management in Iskandar Malaysia.

**Outcome**

Much background information of Tanjung Langsat and solid waste management in Pasir Gudang were obtained. These include the size, layout plan, lifespan, operating cost, profit, volume of the waste received annually, waste composition, waste water treatment and future expansion of the Tanjung Langsat sanitary landfill. Nevertheless, some of the detailed information for instance of methane, were not informed. The research group were told that these data are under revision.
Book and Journal

Janice Jeevamalar Simson, Ho Chin Siong, Matsuoka Yuzuru and Gomi Kei (2011) A Sustainable Low-carbon Development in Iskandar Malaysia in Special Issue in Carbon Management, IGERT Program on Sustainable Urban Infrastructure Center for Sustainable Infrastructure Systems (CSIS) University of Colorado Denver. (www.cudenver.edu/IGERT)


Conference, Forum and Symposium


Publication


Ho Chin Siong (2011) The Application of ExSS (Extended Snapshot Model) - The Case of Malaysia at Low carbon Asia Research workshop at Universiti Teknologi Malaysia on 5 July 2011.

Sabeen Qureshi and Ho Chin Siong (2011) Towards Putrajaya Green City 2025 Implementing Neighbourhood Walkability in Putrajaya presented at Asian Planning School Association at University of Tokyo, Hongo Campus Japan on 19 - 21 September 2011.

Janice Jeevamalar Simson, Ho Chin Siong, Yuzuru Matsuoka and Kei Gomi (2011) Planning Sustainable Development by Incorporating Low Carbon Society presented at Asian Planning School Association at University of Tokyo, Hongo Campus Japan on 19 - 21 September 2011.

Ho Chin Siong (2011) Planning Cyberjaya as Low Carbon Green City, Program Information on Green technology (IGREET) organised by Cyberview Sdn Bhd, Cyberjaya on 29 September 2011.


Publication


Report, Brochure and Booklet

Development of Low Carbon Society Scenarios for Asian Regions: Information Booklet

Cyberjaya Digital Green City: Feasibility Study Preliminary Report

Low Carbon City 2025 Sustainable Iskandar Malaysia

Putrajaya Green City 2025: Baseline and Preliminary Study

Towards Putrajaya Green City 2025: Feasibility Study

3D Children Book Series for 3R (Reduce, Reuse and Recycle) Practices for Children
Our Future Plan

Calendar of Events in Fiscal Year 2012

3rd SATREPS Progress Meeting
Research Group: All research groups are involved
Date: 10 April 2012 – 11 April 2012
Location: Japan

Technical Tour to Okayama
Research Group: All research groups are involved
Date: 11 April 2012 – 12 April 2012
Location: Japan

Consensus Building with Stakeholders on Low Carbon Society Blueprint
Research Group: Education and consensus building, scenario integration and land use planning
Date: April 2012 + June 2012
Location: Iskandar Malaysia, Malaysia

Survey and Field Work
Research Group: All research groups are involved
Date: > June 2012
Location: Iskandar Malaysia, Malaysia

3rd International Symposium cum Workshop
Research Group: All research groups are involved
Date: June 2012 – July 2012
Location: Malaysia

4th SATREPS Progress Meeting
Research Group: All research groups are involved
Date: October 2012 – November 2012
Location: Malaysia

Joint Coordinating Committee Meeting
Research Group: Core members
Date: November 2012
Location: Malaysia

18th Conference of the Parties to the UNFCCC
Research Group: Core members
Date: November 2012 – December 2012
Location: Qatar
Appendix

Year 2011 Annual Report

Acronyms and Abbreviations

3R                Reduce, Reuse and Recycle
AERMOD            American Meteorological Society/Environmental Protection Agency Regulatory Model
AFOLU             Agriculture, Forestry and Land Use
BPAs              Blueprint Actions
CM                Counter Measure
CMAQ              Community Multiscale Air Quality Model
COP17             17th Conference of the Parties
DEG                Decentralized Electricity Generation
DOE               Department of Environment
EE                Energy Efficiency
EPA               United States Environmental Protection Agency
ExSS               Extended Snapshot Tool
Felda             Federal Land Development Authority
FGD               Focus Group Discussion
GDP               Gross Domestic Product
GHG               Greenhouse Gas
GIS               Geography Information System
IM                Iskandar Malaysia
IRDA              Iskandar Regional Development Authority
JICA              Japan International Cooperation Agency
JPBD              Federal Town and Country Planning Department
JPSPN             National Solid Waste Management Department
JST               Japan Science and Technology Agency
KeTTHA            Ministry of Energy, Green Technology and Water
KIV               Keep in View
KU                Kyoto University
LCS               Low Carbon Society
LCS-RNet          Low Carbon Society Regional-net
MINT              Malaysian Nuclear Agency
MGTC              Malaysia Green Technology Corporation
MMD               Malaysian Meteorological Department
MoE               Ministry of the Environment, Japan
NIES              National Institute for Environmental Studies
NGO               Non-Governmental Organization
NPO               Nonprofit Organization
NRE               Ministry of Natural Resources and Environment
OU                Okayama University
PM                Particular Matter
PPSSPA            Solid Waste Management and Public Cleansing Corporation
RE                Renewable Energy
RJs               Research Universities
SATREPS           Science and Technology Research Partnership for Sustainable Development
SWM               Southern Waste Management
UNFCCC            United Nations Framework Convention on Climate Change
UTM               Universiti Teknologi Malaysia
Appendix

Year 2011 Annual Report

Record of Discussion

RECORD OF DISCUSSIONS
BETWEEN
THE GOVERNMENT OF MALAYSIA
AND
JAPAN INTERNATIONAL COOPERATION AGENCY
ON
JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT FOR DEVELOPMENT OF LOW CARBON SOCIETY
SCENARIOS FOR ASIAN REGIONS

Japan International Cooperation Agency (hereinafter referred to as “JICA”) had exchanged views and held a series of discussion through JICA Malaysia Office with the authorities concerned of Malaysia with respect to the details of “the Project for Development of Low Carbon Society Scenarios for Asian Regions” (hereinafter referred to as “the Project”) and measures to be undertaken by JICA and the Ministry of Higher Education of Malaysia (“Ministry of Higher Education”) for the successful implementation of the above-mentioned Project. This Record of Discussions is made pursuant to the agreement between the Government of Malaysia and the Government of Japan in the Note Verbales of the two countries No.E.J.2010/178 and BA100/10 respectively, which amongst others, provide JICA and a competent agency of the Government of Malaysia to agree on separate arrangements which govern the details and procedures of the technical cooperation.

As a result of the discussions, JICA and the Malaysian authorities concerned agreed on the matters referred to in the document attached hereto.

Kuala Lumpur, June 02, 2011

Tsutomu Nagae
Chief Representative
Malaysia Office
Japan International Cooperation Agency
JAPAN

Datuk Ab. Rahim bin Md. Noor
Secretary General
Ministry of Higher Education
MALAYSIA
THE ATTACHED DOCUMENT

The Government of Malaysia ("the Government") and the Japan International Cooperation Agency ("JICA") shall individually be referred to as “the Party” or collectively as “the Parties.

ARTICLE I
OBJECTIVE

The Parties, subject to the terms of this Record of Discussions and the laws, rules, regulations and national policies from time to time in force in each country, agree to implement the Project for Development of Low Carbon Society Scenarios for Asian Regions ("hereinafter referred to as “the Project”).

ARTICLE II
AREAS OF CO-OPERATION

Each Party will, subject to the laws, rules, regulations, procedures and national policies from time to time in force governing the subject matter in their respective countries, endeavour to take necessary steps to implement the Project. The Project will be implemented in accordance with the Master Plan as specified in Annex I.

ARTICLE III
OBLIGATIONS OF THE PARTIES
1. JICA shall provide to the Government:
   
   (i) the services of the JICA experts as listed in Annex II;

   (ii) such machinery, equipment and other materials (hereinafter referred to as “the Equipment”) necessary for the implementation of the Project as listed in Annex III. JICA further agree that the Equipment shall become the property of the Government upon being delivered to the Malaysian Authorities concerned at the ports and/or airports of disembarkation;

   (iii) necessary technical guidance and advice to the Malaysian counterpart personnel on technical matters pertaining to the implementation of the Project; and

   (iv) technical training in Japan to the Malaysian personnel connected with the Project.

2. The Government shall:

   (i) take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the duration of this Record of Discussions as stipulated in ARTICLE XI, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions;
(ii) ensure that the technologies and knowledge acquired by the Malaysian nationals as result of the Japanese technical cooperation will contribute to the economic and social development of Malaysia;

(iii) grant privileges, exemptions and benefits to the JICA experts as listed in Annex II which are no less favourable than those accorded to experts working in Malaysia under the Colombo Plan and their families as specified in Privileges and Facilities Accorded to Colombo Plan Experts by The Colombo Plan Bureau; 

(iv) take necessary measures to receive and use the Equipment provided by JICA under ARTICLE III 1(ii) above and equipment, machinery and materials carried in by the JICA experts as listed in Annex II;

(v) take necessary measures to ensure that the knowledge and experience acquired by the Malaysian personnel from technical training in Japan will be utilized effectively in the implementation of the Project;

(vi) take appropriate measures to make the Project widely known to the people of Malaysia;

(vii) take necessary measures to provide:

a) services of the Malaysian Counterpart personnel and administrative personnel as listed in Annex IV;
b) office space and its facilities provided for the Project as listed in Annex V; and

c) supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided by JICA under ARTICLE III1(ii) above; and

(viii) take necessary measures to meet:

a) expenses necessary for transportation of the Equipment within Malaysia from the port of disembarkation referred to in ARTICLE III1(ii) above as well as for the installation, operation and maintenance thereof;

b) customs duties, internal taxes and any other charges, imposed in Malaysia on the Equipment referred to in ARTICLE III1(ii) above; and

c) running expenses necessary for the implementation of the Project.

ARTICLE IV
DESIGNATED AUTHORITY

1. The designated authority responsible for the implementation of this Record of Discussions on behalf of the Government shall be
Universiti Teknologi Malaysia ("UTM"), Iskandar Regional Development Authority ("IRDA"), Federal Development of Town and Country Planning Malaysia (JPBD) and Malaysian Green Technology Corporation ("MGTC").

2. Evaluation of the Project will be conducted jointly by JICA and the designated authorities of Malaysia, at the middle if necessary, and during the last six months of the cooperation term in order to examine the achievements.

ARTICLE V
SETTLEMENT OF DISPUTE

Any difference or dispute between the Parties concerning the interpretation and/or implementation or and/or application of any of the provisions of this Record of Discussions shall be settled amicably through mutual consultation or negotiations between the Parties, without reference to any third party or international tribunal.

ARTICLE VI
JOINT COORDINATING COMMITTEE

1. The Parties shall establish a Joint Coordinating Committee to review the implementation of this Project.

2. The functions and composition of the Joint Coordinating Committee are as described in Annex VI.
3. The decisions and other conclusions of the Joint Coordinating Committee shall be reflected in the Agreed Minutes of the Meeting and the Parties shall take appropriate steps to implement these decisions and conclusions.

ARTICLE VII
FINANCIAL ARRANGEMENTS

1. All costs with respect to the obligations mentioned in ARTICLE III 1 shall be borne by JICA.

2. All costs with respect to the obligations mentioned in ARTICLE III 2 shall be borne by the Government.

3. Claims, if any arises, against the JICA experts as listed in Annex II resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in Malaysia except for those arising from the wilful misconduct or gross negligence of the JICA experts, shall be borne by the Government.

4. Notwithstanding anything in paragraph 1 and 2 above, expenses for organising the meetings of the Joint Coordinating Committee shall be borne by the Party hosting the meetings. The Party which is sending its representatives for participation in the meetings of the Joint Coordinating Committee, if any, shall bear their own travel and living expenses.
ARTICLE VIII
IMPLEMENTATION

In implementing this Record of Discussions, the Parties shall cause their respective Designated Authorities to conclude under this Record of Discussions implementing arrangements which shall, inter alia, specify the issues related to “Intellectual Property”.

ARTICLE IX
CONFIDENTIALITY

1. Each Party shall undertake to observe the confidentiality and secrecy of the documents, information and other data received or supplied to the other Party during the period of the implementation of this technical cooperation.

2. All data relating to this project concerns both public domain data and confidential data. However UTM, IRDA, JPBD and MGTC should obtain consent from the Malaysian Government Agencies for the usage of confidential data.

3. Both Parties agree that the provision of this ARTICLE shall continue to be binding between the Parties notwithstanding the termination of this Record of Discussions.

ARTICLE X
SUSPENSION
Record of Discussion

Each Party reserves the rights for reasons of national security, national interest, public order or public health, to suspend temporarily, either in whole or in part; the implementation of this Project which suspension shall take effect immediately after written notification has been given to the other Party.

ARTICLE XI
ENTRY INTO FORCE AND DURATION

This Record of Discussions shall come into force on the date of signing and shall remain in force for a period of five (5) years.

ANNEX I MASTER PLAN
ANNEX II LIST OF JICA EXPERTS
ANNEX III LIST OF MACHINERY AND EQUIPMENT
ANNEX IV LIST OF MALAYSIAN COUNTERPARTS AND ADMINISTRATIVE PERSONNELS
ANNEX V LIST OF LAND, BUILDINGS AND FACILITIES
ANNEX VI JOINT COORDINATING COMMITTEE
## ANNEX I  MASTER PLAN

### Project Purpose:
Methodology to create Low Carbon Society (LCS) scenarios is developed and applied in Malaysia, and the research findings are disseminated to Asian countries.

### Outputs
1. Methodology to create LCS scenarios which is appropriate for Malaysia is developed.
2. LCS scenarios are created and utilized for policy development in IM (Iskandar Malaysia).
3. Co-benefit of LCS policies on air pollution and on recycling-based society is quantified in IM.
4. Organizational arrangement of UTM to conduct trainings on LCS scenarios for Malaysia and Asian countries is prepared, and a network for LCS in Asia is established.

### Activities
1-1 Document the mission, function and role of LCS Research Centre in UTM and prepare its staffing and budget plan
1-2 Describe desirable socio-economic visions of Malaysia in the future target year.
1-3 Collect data on socio-economic, environmental loads, energy and technology, then develop an integrated model of socio-economic, disparity and GHG emission assessment to create LCS visions.
1-4 Develop a back-casting model to prepare policy roadmaps.
1-5 Develop a technical manual to create LCS scenarios.
1-6 Improve reality and applicability of the above tools to create LCS scenarios, based on Output 2～3, then revise the technical manual.
1-7 Outline the LCS scenario for Malaysia by adopting the developed methodology (tools and the technical manual).
2-1 Carry out training workshop on LCS scenario creation for IRDA and JPBD staff in Japan and Malaysia.
2-2 Create the LCS vision for IM by adopting the integrated model of socio-economic, disparity and GHG emission assessment.
2-3 Prepare the policy roadmap for IM by adopting the back-casting model.
2-4 Discuss among IRDA, JPBD and UTM detailed and concrete policies for IRDA to realize the LCS scenarios.
2-5 Set up an arrangement for discussion among concerned groups, private sector and civil society to undertake the policies based on the LCS scenarios
2-6 Formulate the IM LCS action plan to be implemented by IRDA.
### Record of Discussion

<table>
<thead>
<tr>
<th></th>
<th>revise IM blueprints of relevant areas on the basis of the IM LCS action plan formulated in activity 2-6.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-1-</td>
<td>Conduct the observation of air quality to clarify the current condition in IM.</td>
</tr>
<tr>
<td>1</td>
<td>Estimate current air pollutant emissions in IM.</td>
</tr>
<tr>
<td>2</td>
<td>Develop methodology to quantify impact on health by air pollutant in IM.</td>
</tr>
<tr>
<td>3</td>
<td>Estimate the mitigation effect of impact on health of air pollution by LCS measures in IM.</td>
</tr>
<tr>
<td>3-2-</td>
<td>Conduct survey of current solid waste generation in residential and industrial sectors.</td>
</tr>
<tr>
<td>1</td>
<td>Estimate future waste generation and GHG emissions from waste management in IM.</td>
</tr>
<tr>
<td>3</td>
<td>Propose solid waste strategy which is appropriate in a low-carbon city in IM.</td>
</tr>
<tr>
<td>3-3-</td>
<td>Develop a manual to quantify co-benefit of LCS measures.</td>
</tr>
<tr>
<td>4-1</td>
<td>Prepare UTM as a coordinating body, for capacity building of some researchers involved in the Project as trainers on LCS scenarios, through the activities from 1-1 to 3-3</td>
</tr>
<tr>
<td>4-2</td>
<td>Carry out trainings continuously on LCS scenarios for researchers and government officers of Malaysia and Asian countries in LCS Research Centre as well as in Japan.</td>
</tr>
<tr>
<td>4-3</td>
<td>Transmit and share information of research and trainings on LCS scenarios among researchers and government officers in Asian countries.</td>
</tr>
</tbody>
</table>

**Notes**

1) *LCS vision* is a vision of LCS described quantitatively for the future target year by adopting the integrated model of socio-economic, disparity and GHG emission assessment.

2) *Policy roadmap* is a long-term schedule (up to 20 years or above) prepared by adopting the back-casting model for implementing LCS-related policies as well as for actions of concerned stakeholders in order to achieve the LCS Vision.

3) *LCS scenario* indicates the set of *LCS vision* and *policy roadmap*.

4) *LCS action plan* is a short-term plan (up to about 5 years) of policy set and measures to implement the policy roadmap.
ANNEX II LIST OF JICA EXPERTS

1. Long-term expert
The long-term expert, who will be in charge of the following field, will be dispatched;

1) Project Coordinator

2. Short-term experts
The short-term experts, who will take part in the Project as listed below, will be dispatched several times a year during the project period.

At the beginning of each Japanese fiscal year (JFY) which starts in April and ends in March, JICA will provide the plan of dispatching short-term experts for the coming JFY.

1) Dr. Yuzuru Matsuoka, Kyoto University (Project Leader)
2) Dr. Gakuji Kurata, Kyoto University (Air pollution)
3) Ms. Reina Kawase, Kyoto University (Low Carbon Scenario Modeling)
4) Dr. Kei Gomi, Kyoto University (Model/Tool Development)
5) Dr. Takeshi Fujiwara, Okayama University (Waste Management Analysis)
6) Dr. Junichi Fujino, National Institute for Environmental Studies (Developing Asian LCS Network)
7) Dr. Mikiko Kainuma, National Institute for Environmental Studies (Developing LCS Scenarios at National Scale)
8) Dr. Shuichi Ashina, National Institute for Environmental Studies (Developing Policy Roadmap by Backcasting)
9) Dr. Genku Kayo, National Institute for Environmental Studies (Diffusing LCS Scenarios in Building Sector)
10) Ms. Maiko Suda, National Institute for Environmental Studies (Reviewing Capacity Development in Social Implement)
ANNEX III  LIST OF MACHINERY AND EQUIPMENT

1. General
   • Communication server
   • Communication terminal
   • Statistical information in Malaysia and IM such as:
     ➢ Population and housing data – Statistics Department
     ➢ Traffic volume data – Highway Planning Unit
     ➢ Development plan/ Master plan – Local Authorities
     ➢ Property and market report
     ➢ Macro economic data – EPU/SEPU
     ➢ Geospatial information (maps and plans) – Land Surveying and Mapping (JUPEM)
   • Video projector
   • High performance personal computers and their peripheral equipment
   • GIS software (Arc GIS)

2. Development of models for LCS scenarios in Malaysia and in IM
   • High-performance personal computers for integrated model simulations
   • Programming and simulation software (GAMS and its solvers)
   • Energy system optimization software

3. Air quality research for maximizing co-benefit of LCS measures
   • Air quality monitoring system
   • Metrological monitoring system
   • High performance computer (air quality modeling)
   • Personal computers

4. Development of solid waste management system for maximizing co-benefit of LCS measures
   • Weight scale and other materials
   • Dryer instrument
   • Calorie measurement instrument
   • LCA software and database

Note:
1) The above-mentioned Equipments are limited to those which are indispensable for the transfer of technology by the Japanese Experts.
2) Specifications and quantity of the equipment will be decided through mutual consultations.
## Record of Discussion

### ANNEX IV LIST OF MALAYSIAN COUNTERPARTS AND ADMINISTRATIVE PERSONNELS

<table>
<thead>
<tr>
<th>No</th>
<th>Project Position</th>
<th>Name</th>
<th>Organization</th>
<th>Related Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Director</td>
<td>Prof. Dr. Marzuki bin Khalid</td>
<td>UTM</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td>2</td>
<td>Project Manager</td>
<td>Prof. Dr. Ho Chin Siong</td>
<td>UTM</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td>3</td>
<td>Counterpart (C/P)</td>
<td>Dr. Dahlia Rosly</td>
<td>JPBD</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>C/P</td>
<td>Mr. Boyd Dionysius Joeman</td>
<td>IRDA</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>C/P</td>
<td>Mr. Azman Zainal Abidin</td>
<td>MGTC</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>C/P</td>
<td>Prof. Mohd Rashid Mohd Yusof</td>
<td>UTM</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>C/P</td>
<td>Prof. Dr. Mohd Razman Salim</td>
<td>UTM</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>C/P</td>
<td>Prof. Zainuddin Abd Manan</td>
<td>UTM</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>C/P</td>
<td>Assoc. Prof. Dr. Ahmad Nazri Muhammad Ludin</td>
<td>UTM</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>C/P</td>
<td>Assoc. Prof. Dr. Ibrahim Ngah</td>
<td>UTM</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>C/P</td>
<td>Assoc. Prof. Dr. Mohd Ismail Abd Aziz</td>
<td>UTM</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>C/P</td>
<td>Assoc. Prof. Dr. Lee Chew Tin</td>
<td>UTM</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>C/P</td>
<td>Dr. Fatin Aliah Phang</td>
<td>UTM</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>C/P</td>
<td>Dr. Mohammad Rafee Majid</td>
<td>UTM</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>C/P</td>
<td>Dr. Zainura Zainon Noor</td>
<td>UTM</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>C/P</td>
<td>Dr. Muhamamd Zal Shal Muhammad Hussein</td>
<td>UTM</td>
<td>4</td>
</tr>
<tr>
<td>17</td>
<td>C/P</td>
<td>Mr. Chau Loon Wai</td>
<td>UTM</td>
<td>1,4</td>
</tr>
<tr>
<td>18</td>
<td>C/P</td>
<td>Mr. Gobi Krishna a/l Sinnah</td>
<td>UTM</td>
<td>4</td>
</tr>
<tr>
<td>19</td>
<td>C/P</td>
<td>Assoc. Prof. Mohd Ariffin Abu Hassan</td>
<td>UTM</td>
<td>3</td>
</tr>
</tbody>
</table>
ANNEX V LIST OF LAND, BUILDING AND FACILITIES

1. The building and facilities necessary for the performance of duties by the Japanese Experts including head office space in UTM Johor Bahru campus, and office space in Faculty of Built Environment, UTM, Johor Bahru campus.
2. Facilities such as electricity, gas, water, sewerage system, telephones and furniture necessary for the Project activities and operational expenses for utilities.
3. Other facilities mutually agreed upon as necessary.
Record of Discussion

ANNEX VI JOINT COORDINATING COMMITTEE

1. FUNCTION
Joint Coordinating Committee (hereinafter referred to as “JCC”), composed of members listed in 2 below, will meet at least once a year and whenever the necessity arises. The main functions of JCC shall be as follows;

(1) To approve the annual work plan of the Project
(2) To review the overall progress and achievements of the Project
(3) To examine major issues arising from or in connection with the Project
(4) To work out the modification of activities depending on the necessity
(5) To discuss any other issue(s) pertinent to the smooth implementation of the Project

2. COMMITTEE COMPOSITION

Chairperson: Dato Mohd Fadzil bin Hj Mohd Khir, JPBD
Project Director: Prof. Dr. Marzuki bin Khalid, UTM
Project Manager: Prof. Dr. Ho Chin Siong, UTM

Malaysian side: Representative(s) of Ministry of Higher Education (MOHE), IRDA, MGTC, JPBD, and UTM

Japanese side: Project Leader, JICA Experts, JICA Malaysia Office and other personnel concerned to be decided and/or dispatched by JICA, if necessary

Observers: Representative(s) of the Embassy of Japan in Malaysia, JST, Economic Planning Unit (EPU) and Johor State Government, and other official(s) appointed by the Chairperson.
Member Directory

Senior Management I Malaysia

**Project Director**  
Prof. Ir. Dr. Mohd Azraai Kassim

The Deputy Vice Chancellor of Research and Innovation and Chairman for Senate Committee, Universiti Teknologi Malaysia. His area of expertise is waste water management. He is also a member of the International Water Association, Environmental Management and Research Association of Malaysia, Environmental Professionals Register of Malaysia, and Institute of Engineers Malaysia.

**Project Manager**  
Prof. Dr. Ho Chin Siong

A Senate Member and Deputy Director of the Office of International Affairs, Universiti Teknologi Malaysia. His area of expertise includes Town Planning and Low Carbon City. He is currently the project leader of the SATREPS project on Development of Low Carbon Society for Asian Region.

**Project Advisor**  
Prof. Dato’ Dr. Marzuki Khalid

He was formerly our project director for the period of June 2011 - February 2012. He has been a Professor in Intelligent Control at the Faculty of Electrical Engineering, Universiti Teknologi Malaysia. He is also the Director for the Centre of Artificial Intelligence and Robotics (CAIRO) in the same Faculty. His current research interest is in the field of artificial intelligence, control systems and image processing.

**Project Coordinator**  
Mr. Koichi Okabe

Specialized in the field of project management and organizational management with more than 10 years overseas experiences. Playing central role in this Project in managing administrative functions including purchasing equipment, budget control, human resource management and liaison with stakeholders.
Senior Management | Japan

**Project Leader**
**Prof. Dr. Yuzuru Matsuoka**
A Professor at The Graduate School of Engineering, Kyoto University. He specializes in Environmental Engineering. He started researching on global environmental issues since the late 1980’s. He has developed various kinds of integrated models including bottom-up and top-down type models. Of recently, he leads research projects on developing Asian low carbon societies.

**Representative**
**Prof. Dr. Takeshi Fujiwara**
A professor at the Graduate School of Environment Science and Vice-Director of Research Center for Waste Management, Okayama University. His areas of expertise are Environmental Systems Engineering, Solid Waste Engineering and Waste Management Analysis.

**Representative**
**Dr. Junichi Fujino**
He has been involved in the development of the Asia-Pacific Integrated Model (AIM) to estimate climate change impact and to assess policy options for stabilizing global climate since 2000. Recently he is actively involved in “Low-Carbon Asia Scenario Projects”.

**Representative**
**Dr. Mikiko Kainuma**
A fellow at the Centre for Social and Environmental Systems Research of the National Institute for Environmental Studies (NIES). Her areas of expertise are Environmental System Engineering and Scenario Analysis.
Member Directory

Scenario Integration and Land Use Planning

Dr. Ahmad Nazri Muhammad Ludin
Dean/ Associate Professor
Faculty of Built Environment, UTM
Expertise: Remote Sensing and Information Technology

Ms. Reina Kawase
Assistant Professor
Graduate School of Engineering, KU
Expertise: Environmental modeling / Material cycle

Dr. Mohd. Hamdan Ahmad
Director/ Professor
Institute Sultan Iskandar
Faculty of Built Environment, UTM
Expertise: Green Building and Construction

Dr. Kei Gomi
Researcher
Graduate School of Engineering, KU
Expertise: Integrated Modelling Development for socio-economic activity, energy demand and GHG emissions

Dr. Mohd Ismail Abd Aziz
Director/ Associate Professor
Office of International Affairs, UTM
Expertise: Optimal Control Theory and Application

Dr. Ibrahim Ngah
Associate Professor
Faculty of Built Environment, UTM
Expertise: Rural planning and development

Dr. Mohammad Rafee Majid
Associate Professor
Faculty of Built Environment, UTM
Expertise: Geographic Information System and Environmental Planning

Dr. Foziah Johar
Associate Professor
Faculty of Built Environment, UTM
Expertise: Law and Public Awareness

Dr. Kasturi Devi Kanniah
Senior lecturer
Faculty of Geoinformation and Real Estate, UTM
Expertise: Remote Sensing and Forest Sequestration

Mr. Chau Loon Wai
Lecturer
Faculty of Built Environment, UTM
Expertise: Land Use Planning and Space Syntax
Appendix

Year 2011 Annual Report

Member Directory

Consensus Building and Education

Dr. Fatin Aliah Phang
Senior Lecturer
Department of Science & Mathematics Education
Faculty of Education, UTM
Expertise: Education Sciences & Social Sciences

Dr. Zaleha Ismail
Associate Professor
Faculty of Education, UTM
Expertise: E-Education

Dr. Genku Kayo
Research Associate
Sustainable Society System Section
Center for Social and Environmental System Research, NIES
Expertise: Engineering of architecture

Ms. Maiko Suda
Junior Research Associate
Sustainable Society System Section
Center for Social and Environmental System Research, NIES
Expertise: Environmental International Cooperation

Dr. Muhammad Sukri Saud
Associate Professor
Faculty of Education, UTM
Expertise: Technical and Vocational Education

Dr. Noraffandy Yahya
Senior Lecturer
Faculty of Education, UTM
Expertise: E-Education

Dr. Lokman Mohd Tahir
Senior Lecturer
Faculty of Education, UTM
Expertise: Education Policy

Dr. Johari Surif
Senior Lecturer
Faculty of Education, UTM
Expertise: Chemistry Education

Ms. Nur Husna Abd Wahid
Lecturer
Faculty of Education, UTM
Expertise: Technical and Vocational Education (Agriculture)
Appendix

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Member Directory

Energy System

Dr. Haslenda Hashim
Lecturer
Faculty of Chemical Engineering, UTM
Expertise: Renewable Energy and Carbon Mitigation

Dr. Shuichi Ashina
Researcher
Center for Social and Environmental Systems Research, NIES
Expertise: Developing Policy Roadmap by Backcasting

Dr. Zainuddin Abd Manan
Dean/ Professor
Faculty of Chemical & Natural Resources Engineering, UTM
Expertise: Decentralised Electricity Generation

Dr. Sharifah Rafidah Wan Aiwi
Lecturer
Faculty of Chemical Engineering, UTM
Expertise: Waste to Energy

Dr. Gholamreza Zahedi
Associate Professor
Faculty of Chemical Engineering, UTM

Dr. Choong Weng Wai
Senior Lecturer
Faculty of Geoinformation and Real Estate, UTM
Expertise: Public Awareness and Energy Management

Solid Waste Management

Dr. Zainura Zainoor
Senior Lecturer
Faculty of Chemical Engineering, UTM
Expertise: Waste Management and Life Cycle Analysis

Dr. Mohd Razman Salim
Head of Department/ Professor
Faculty of Civil Engineering, UTM
Expertise: Waste Management and Life Cycle Analysis

Dr. Lee Chew Tin
Regional Manager/ Associate Professor
Office of International Affairs, UTM
Expertise: Agrowaste Management
Appendix

Member Directory

Air Quality and Transport

Dr. Mohd Rashid Mohd Yusof
Professor
Faculty of Chemical Engineering, UTM
Expertise: Air Pollution

Dr. Gakuji Kurata
Associate Professor
Graduate School of Engineering, KU
Expertise: Air Pollution

Dr. Muhammad Zaly Shah Muhammad Hussein
Senior Lecturer
Faculty of Built Environment, UTM
Expertise: Transportation and Logistics

Mr. Gobi Krishna Sinniah
Tutor
Faculty of Built Environment, UTM
Expertise: Environmental Planning

Ms. Nabila Abdul Ghani
Tutor
Faculty of Built Environment, UTM
Expertise: Transportation

Ms. Safizahanin Moktar
Tutor
Faculty of Built Environment, UTM
Expertise: Transportation
Appendix

Member Directory

Research Assistants

Mr. Abdul Rahim Bin Ramli
Teaching Assistant
Faculty of Built Environment, UTM
Expertise: Rural Planning and Development
Research group: Scenario Integration and Land Use Planning

Ms. Janice Jeevamalar Simson
PhD Student
Graduate School of Engineering, KU
Expertise: Implementation of LCS in Regions and Cities
Research group: Scenario Integration and Land Use Planning

Ms. Azilah Binti Mohamed Akil
PhD Student
Faculty of Built Environment, UTM
Expertise: City Planning and Recycling
Research group: Scenario Integration and Land Use Planning/Consensus Building and Education

Mr. Phubalan Karunakaran
PhD Student
Graduate School of Engineering, KU
Expertise: Energy Modeling
Research group: Air Pollution and Transportation

Ms. Teh Bor Tsong
Master Student
Faculty of Built Environment, UTM
Expertise: City Planning and Urban Design
Research group: Scenario Integration and Land Use Planning/Solid Waste Management

Ms. Yuri Hayashi
Master Student
Graduate School of Engineering, KU
Expertise: Implementation of LCS in Regions and Cities
Research group: Scenario Integration and Land Use Planning

Ms. Tan Sie Ting
PhD Student
Faculty of Chemical Engineering, UTM
Expertise: Environmental Engineering and Bioprocess
Research group: Solid Waste Management

Ms. Siti Norbaizura Rejab
PhD Student
Graduate School of Environmental Science, OU
Expertise: Waste Management Analysis
Research group: Solid Waste Management

Ms. Choo Hui Hong
Research Assistant
Faculty of Built Environment, UTM
Expertise: City Planning and Transportation
Research group: Scenario Integration and Land Use Planning

Mr. Tomohito Hamada
Master Student
Graduate School of Environmental Science, OU
Expertise: Waste Management Analysis
Research group: Solid Waste Management
Appendix

Year 2011 Annual Report

Member Directory

Research Assistants

Ms. Siti Nadzirah Binti Othman
Master Student
Faculty of Chemical Engineering, UTM
Expertise: Municipal Solid Waste
Research group: Solid Waste Management

Mr. Hiroaki Obayashi
Undergraduate Student
Faculty of Environmental Science and Technology, OU
Expertise: Waste Management Analysis
Research group: Solid Waste Management

Ms. Wong Wai Yoke
Master Student
Faculty of Education, UTM
Expertise: Science Education
Research group: Consensus Building and Education

Mr. Ho Wai Shin
PhD Student
Faculty of Chemical Engineering, UTM
Expertise: Decentralized Energy System
Research group: Energy System

Ms. Anis Syahira Binti Zulkifli
Research Assistant
Faculty of Built Environment, UTM
Expertise: Rural Planning and Development
Research group: Scenario Integration and Land Use Planning

Ms. Afsaneh Afzali
PhD Student
Faculty of Chemical Engineering, UTM
Expertise: Air Pollution
Research group: Air Quality and Transport
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Photo Gallery

17th Conference of the Parties to the UNFCCC
28th November 2011 - 9th December 2011
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Photo Gallery

1st International Symposium on Low Carbon Asia Research Project
4th July 2011
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Photo Gallery

2nd International Symposium on Low Carbon Asia Research Project
31st October 2011
Photo Gallery

1st and 2nd International Training Workshop on GHG Emission Modeling
5th July 2011 ; 2nd November 2011
1st and 2nd SATREPS Progress Meeting
14th August 2011 ; 1st November 2011 ; 2nd November 2011

Photo Gallery
Photo Gallery

1\textsuperscript{st} and 2\textsuperscript{nd} Low Carbon Society Scenarios Focus Group Discussion
21\textsuperscript{st} June 2011 ; 25\textsuperscript{th} November 2011
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Photo Gallery

1st and 2nd Low Carbon Eco Village Focus Group Discussion
30th October 2011 ; 11th December 2011
Photo Gallery

School Management Team Focus Group Discussion
1st December 2011
Photo Gallery

Technical Tour to Tanjung Piai
6th July 2011
Technical Tour to Japan
2nd October 2011 - 9th October 2011
Photo Gallery

Technical Tour to Felda Taib Andak
2nd November 2011
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Photo Gallery

Technical Tour to Putrajaya Green City
9th March 2012
Low Carbon Asia Research Center
Room 317, Block B-11,
Faculty of Built Environment,
Universiti Teknologi Malaysia,
81310 UTM Skudai, Johor, Malaysia.

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