



# The 7<sup>th</sup> ASIA PACIFIC RCE MEETING AND INTERNATIONAL SYMPOSIUM

**A Decade of Regional Centres of Expertise on ESD:  
Reflections and Advances In Asia-Pacific**

**26-28 AUGUST 2014**  
**UNIVERSITI SAINS MALAYSIA**

In collaboration with:



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**First day : 26 August 2014, Tuesday**  
**Program : 7th Asia-Pacific RCE Meeting**  
**Venue : Dewan Persidangan Universiti**

TIME	PROGRAMME												
8.15am	Bus Depart to USM from hotel lobby												
8.30am	Arrival and registration of participants												
9.00am	<b>Opening Ceremony</b> <ul style="list-style-type: none"> <li>National Anthem 'Negaraku' and 'Menara Ilmu'</li> <li>Doa Recital</li> <li>Opening remarks by Prof. Dato' Dr. Omar Osman (Vice Chancellor, USM)</li> <li>Opening remarks by Prof. Mario Tabucanon (Visiting Professor, UNU-IAS)</li> <li>Opening remarks by Prof. Anthony Capon (Director, UNU-IGH)</li> </ul>												
9.35am	<b>Photography Session- Chancellory Foyer</b>												
9.50am	<b>Session 1: Plenary Session</b> <b>Moderator: Won J. Byun (RCE Tongyeong)</b> <ul style="list-style-type: none"> <li>Review of the previous RCE AP meeting and confirmation of the agenda</li> <li>Progress of the global RCE movement and introduction of new RCEs</li> </ul>												
10.30am	Tea break												
10.45am	<b>Session 2: Thematic Discussion – Breakout Sessions</b> <b>Moderator: Won J. Byun (RCE Tongyeong)</b> <ul style="list-style-type: none"> <li>Thematic discussion on Youth, Community, Schools, Biodiversity and Disaster Risk Management</li> </ul> <table border="1"> <thead> <tr> <th>Thematic Sessions</th> <th>Venue</th> </tr> </thead> <tbody> <tr> <td>Youth</td> <td>DPU</td> </tr> <tr> <td>Community</td> <td>DPU's Foyer</td> </tr> <tr> <td>Schools</td> <td>Seminar Room</td> </tr> <tr> <td>Biodiversity</td> <td>PRO Meeting Room</td> </tr> <tr> <td>Disaster Risk Management</td> <td>CCR Meeting Room</td> </tr> </tbody> </table>	Thematic Sessions	Venue	Youth	DPU	Community	DPU's Foyer	Schools	Seminar Room	Biodiversity	PRO Meeting Room	Disaster Risk Management	CCR Meeting Room
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Youth	DPU												
Community	DPU's Foyer												
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Biodiversity	PRO Meeting Room												
Disaster Risk Management	CCR Meeting Room												
11.30am	<b>Session 3: Report back to the plenary -DPU</b> <b>Moderator: Won J. Byun (RCE Tongyeong)</b> <ul style="list-style-type: none"> <li>Reporting back the outcome of the thematic discussions</li> </ul>												
12.00pm	<b>Session 4: Presentation on collaborative projects by RCEs</b> <b>Moderators: Won J. Byun (RCE Tongyeong) &amp; Prof.</b>												

TIME	PROGRAMME
	<b>Munirah Ghazali (RCE Penang)</b> <ul style="list-style-type: none"> <li>• Updates on the Sejahtera Initiative (led by RCE Tongyeong)</li> <li>• Other collaborative projects (TBC)</li> </ul>
1.00pm	Lunch
2.00pm	<b>Session 5: Discussion on RCEs beyond 2014</b> <b>Moderators: Mario Tabucanon and Sachiko Yasuda (UNU-IAS)</b> <ul style="list-style-type: none"> <li>• Updates on the ESD Week 2014</li> <li>• Discussion on the future direction of the Asia-Pacific RCEs: Contributions to the Global Action Programme on ESD (GAP)</li> </ul>
3.45pm	<b>Session 6: Closing</b> <b>Moderator: Prof. Munirah Ghazali (RCE Penang) and Won J. Byun (RCE Tongyeong)</b> <ul style="list-style-type: none"> <li>• Summary of the meeting (recap the major action points)</li> <li>• Closing Remarks</li> </ul>
4.15pm	Tea Break
4.30 pm	Depart to Queensbay Beach
7.00 pm	Depart to USM for dinner at Dataran Merah
8.00pm	<b>Welcome Reception &amp; Dinner</b> <ul style="list-style-type: none"> <li>• Welcome remarks</li> <li>• Dinner &amp; cultural performances</li> </ul>
9.30pm	Return to hotel

**Second day** : 27<sup>th</sup> August 2014, Wednesday- Morning Session  
**Program** : International Symposium “A Decade of Regional Centres of Expertise on ESD: Reflections and Advances in Asia-Pacific”

**Venue** : Dewan Budaya, USM

TIME	PROGRAMME
8.15am	Bus Depart to USM from hotel lobby
8.30 am	Arrival and registration of participants
9.00am	<p><b>Opening Ceremony of the International Symposium</b></p> <ul style="list-style-type: none"> <li>• National Anthem (Negaraku) and Menara Ilmu</li> <li>• Doa recital</li> <li>• Welcoming Remarks by Prof. Dr. Munirah Ghazali (RCE Penang)</li> <li>• Multimedia presentation</li> <li>• Opening Remarks by Prof. Mario Tabucanon (Visiting Professor, UNU-IAS)</li> <li>• Opening Remarks by Ms. Yuko Kimura (Deputy Director, Office of Environmental Education, Environmental Policy Bureau, Ministry of the Environment, Japan)</li> <li>• Officiated by Prof. Dato' Dr. Omar Osman (Vice-Chancellor, USM)</li> </ul>
9.30am	<p><b>Session 1: Keynote Address</b></p> <p>Prof. Dato' Dr. Omar Osman, USM Vice-Chancellor  <i>10 years of ESD: Best Practises, Reflections and Future Sejahtera Endeavours</i></p>
10.00am	<b>Tea Break and Press Conference</b>
10.15am	<p><b>Session 2: Panel Discussions on “A Decade of Regional Centres of Expertise on ESD: Reflections and Advances in Asia-Pacific”</b></p> <p>Moderator: Prof. Mario Tabucanon</p> <p>Panelist 1: Tn Hj Juhaimi Hj Jusoh, UNESCO-IHP Malaysia  <i>Policy support in mobilizing education and learning for sustainable development and the scaling up of ESD action</i></p> <p>Panelist 2: Prof. Tan Sri Dato' Dzulkifli Abdul Razak, President of the International Association of Universities (IAU).  <i>Promote whole-institution approaches to ESD at all levels and in all settings</i></p> <p>Panelist 3: Dr.Masnah binti Ali Muda, Director of</p>

	<p>Curriculum Development Division Ministry of Education, Malaysia <i>Strengthen the capacity of educators and trainers</i></p> <p>Panelist 4: Ms. Ragini Kumar, RCE New Dehli <i>Support youth in their role as change agents for sustainable development through ESD</i></p> <p>Panelist 5: Mdm. Maimunah Mohd Sharif, President of Seberang Perai Municipal Council, Penang <i>Accelerate the search for sustainable development solutions at the local level through ESD</i></p>
11.15am	Cultural Performance
11.30pm	<p><b>Session 3: ESD Good Case Presentation</b></p> <p>Parallel Sessions focusing on the five priority action areas identified in the GAP</p> <ul style="list-style-type: none"> <li>- Parallel Session 1 - Empowering and Mobilizing Youth (Dewan Budaya) <i>Moderator: Pn. Junita Md Ali @ Naim</i> <i>Rapp: Prof. Dr. Ismail Abustan</i></li> <li>- Parallel Session 2 – Whole-Institution Approach (Lecture Room 151) <i>Moderator: Pn. Jeyaletchumi Muthiah</i> <i>Rapp: Miss Fera Fizani Ahmad Fizri</i></li> <li>- Parallel Session 3 - Increasing the Capacity of Educators and Trainers (Lecture Room 152) <i>Moderator: Pn. Clarina Anne Anthony</i> <i>Rapp: Dr. Ingrid Mula</i></li> <li>- Parallel Session 4a - Encouraging Local Communities to develop community-based ESD programmes (Lecture Room 156) <i>Moderator: Pn. Santi A/P Sinnakaudan</i> <i>Rapp: Assoc. Prof. Dr. Nabsiah Abdul Wahid</i></li> <li>- Parallel Session 4b - Encouraging Local Communities to develop community-based ESD programmes (Lecture Room 157) <i>Moderator 2: Pn. Jamilah Harun</i> <i>Rapp: Dr. Asyirah Abdul Rahim</i></li> </ul>
1:00pm	Lunch at Dataran Merah

**Second day : 27 August 2014, Wednesday – Afternoon Session**  
**Programme : Community Session**  
**Venue : Minden Height Primary School**

TIME	PROGRAMME
2.00pm	Arrival and registration of participants
2.30-pm	<p><b>Session 4 Interactive Workshops</b></p> <p>The workshops will be conducted with reference to the following themes:</p> <ol style="list-style-type: none"> <li>1) ESD in formal curriculum (primary, secondary, tertiary);</li> <li>2) Teacher education/training;</li> <li>3) Whole school approach;</li> <li>4) Sustainable campus; and</li> <li>5) Engaging with non-formal/informal education sectors in addressing ESD.</li> </ol>
4.00pm	<b>Tea Break</b>
4.30pm	<p><b>Recap and Closing</b></p> <p><b>En. Ilias Tajuddin</b>, The Principal of Minden Height Primary School.  <b>Prof. Munirah Ghazali</b>, Director of RCE Penang..</p>
5.00pm	<b>Session 5: School Tour (Only for RCE participants)</b>
5.30pm	<b>Return to the Hotel</b>
8.00pm	<b>Dinner at SEAMEO RECSAM Hall</b>

**Third day** : 28 August 2014, Thursday  
**Programme** : Excursion  
**Location** : SEAMEO Regional Centre for Education in Science and Mathematics (RESCAM), George Town City & USM

TIME	PROGRAMME
7.50 am	Registration (at the respective hotels – Seri Malaysia & Vistana)
8.00 am	Travel to George Town World tour site
8.30 am	<b>Community Session I</b> - Guided walking tour around George Town World Heritage Site
10.00 am	- Bus tour around George Town places of interest - Travel to RESCAM
11.00 am	- Visit to RESCAM, Penang
12.30pm	Lunch
1.15 pm	Travel to USM (through George Town and Penang scenic sites)
2.00 pm 2.40pm	<b>Community Session II</b> - Visit to USM Museum - Archeology Gallery
3.00 pm	<b>Community Session III</b> - Eco-Hub USM walkabout (USM forest and orchard)
4.30 pm	Afternoon tea
5.00 pm	Return to hotel

**GOOD CASE PRESENTATIONS SCHEDULE**  
**Head Rapp : Dr. Asyirah Abdul Rahim**

- The first speakers for each session are the invited speakers for that particular session.

**Parallel Session 1**

**Support youth in their role as change agents for sustainable development through ESD**

*Moderator 1: Pn. Junita Md Ali @ Naim*  
*Rapp: Prof. Dr. Ismail Abustan*

<b>Time</b>	<b>Name of the presenters</b>	<b>Title of the presentation</b>
11.30-11.45am	Encik Mohamad Shafiq bin Abdul Aziz	Kampus Sejahtera
11.45-12.00pm	RCE: Delhi Ragini Kumar	Mobilizing youth for a sustainable future through YUVA Meet (Youth Unite for Voluntary Action)
12.00-12.15pm	RCE Western Sydney Helen Angelakis	Global initiative call Youth Leading the World (YLTW) OZGREEN
12.15-12.30pm	RCE Goa Shabana Kazi	Project STARS: Sustainability tracking, action and reporting in schools (2013-2016)
12.30-13.45pm	RCE Yokohama Osamu Koike	Introduction of the Youth League of RCE Yokohama
12.45-1.00pm	Questions and answers and wrap up	

**Parallel Session 2**

**Promote whole-institution approaches to ESD at all levels and in all settings**

*Moderator 2: Pn. Jeyaletchumi Muthiah*  
*Rapp: Miss Fera Fizani Ahmad Fizi*

<b>Time</b>	<b>Name of presenter</b>	<b>Title</b>
11.30-11.45am	Prof. Dr. Kamarulazizi Ibrahim, Prof. KanayathuKoshy, Mrs. Nor Arizabt Azizian	Promoting whole-institution approaches to ESDat all levels and all settings in USM
11.45-12.00pm	RCE Southern	Integrating sustainability into syllabus of

	Vietnam Pham Thi Hoa	undergraduate programs: Starting activity of RCE Southern Vietnam.
12.00-12.15pm	RCE University of Waikato Associate Dean Sandra L. Morrison, Dr. Betsan Martin and Dr Timote Vaoieti	He piko, he taniwha, Waikato Taniwharau. Waikato of a hundred chiefs.
12.15-12.30pm	RCE Yogyakarta Puji Astuti and ESD team University Gadjah Mada	Step towards sustainability oriented university: actions and challenges.
12.30-1.00pm	Questions and answers and wrap up	

**Parallel Session 3**  
**Increasing the Capacity of Education and trainers**

*Moderator 3: Pn. Clarina Anne Anthony*

*Rapp: Dr. Ingrid Mula*

<b>Time</b>	<b>Name of the presenters</b>	<b>Title</b>
11.30-11.45am	Tn. Hj. Osman Bin Hussain, Penang State Education Department	
11.45-12.00pm	Jamaludin bin Yaacob, Tan Khan Aun, and Tun Syed Sheh Shahabudin, Science Secondary School Penang, Malaysia	Enculturation of education for sustainable development through co-curricular activities in a Boarding School.
12.00-12.15pm	Anita Suganthi a/p Kolandasamy	Go green project in Raja Perempuan School, Ipoh.
12.15-12.30pm	RCE Cebu Ms. Annie A. Manzano, RGC	Psychological first aid education for disaster victims: Sharing RCE-Cebu's training program.
12.30-12.45pm	RCE Tongyeong Melissa Leung Hiu Tuen	Collaborative Teachers' Training Projects of RCE Tongyeong Eco-park & Sejahtera Centre
12.45-1.00pm	Questions and answers and wrap up	

**Parallel Session 4a**  
**Accelerate the search for sustainable development solutions at the local level through ESD**

*Moderator 4a: Pn. Santi A/P Sinnakaudan*  
*Rapp: Assoc. Prof. Dr. Nabsiah Abdul Wahid*

<b>Time</b>	<b>Name of the presenters</b>	<b>Title</b>
11.30-11.45am	RCE Okayama (Japan) Mr. Masaaki Nagareo	The Decade of ESD of RCE Okayama and its new project concept and plan for post-2014.
11.45-12.00pm	RCE- Bohol Dr. Quilicot Gordiano	Empowering local community for climate change adaptation: The green village program in Sitio Lagiwiw.
12.00-12.15pm	Chie Kosuga	Sabah, Malaysia: Potential for a new RCE
12.15-12.30pm	Sheila Shanmuganathan Chang Fui Seng	Green Chemistry experiences in the Matriculation College as an approach to address ESD
12.30-12.45pm	RCE Tongyeong KANG Bunae	Civil Education Committee ESD projects
12.45-1.00pm	Questions and answers and wrap up	

**Parallel Session 4b**

**Accelerate the search for sustainable development solutions at the local level through ESD**

*Moderator 4b: Pn. Jamilah Harun*  
*Rapp: Dr. Asyirah Abdul Rahim*

<b>Time</b>	<b>Name of presenter</b>	<b>Title</b>
11.30-11.45am	Mr. Wong Chow Jeng	Sustainable Healthy Community
11.45-12.00pm	RCE Cha-am Areeporn Sittiyarpaiboon	Promotion of Thai Local Wisdom on Community-based ESD: A collaborative project between RCE Cha-am, Local Community, and Government Agency (DEQP of Thailand)
12.00-12.15pm	RCE Greater Dhaka Prof Mohd Ataur Rahman	Traditional Practices for solid waste recycling in rural homes- A lesson for education for sustainable development.
12.15-12.30pm	RCE Chubu Mr. Reita Furusawa	The Bio-region based ESD Model in Ise-Mikawa in Chubu Area, Japan
12.30 -1.00pm	Questions and answers and wrap up	



## ABSTRACTS OF GOOD CASE PRESENTATION

### PARALLEL SESSION 1

#### Support youth in their role as change agents for sustainable development through ESD

##### Kampus sejahtera

Encik Mohamad Shafiq bin Abdul Aziz

Sejahtera Campus is a unique Universiti Sains Malaysia(USM) innovation towards sustainability by using eco-sphere framework to support “sejahtera” community. All elements in eco-sphere such as air, water, soil, energy, human-being, humans’ attitude, emotional and “qalbu” are closely linked to each other to ensure the campus sustainability and to be realized for a long-term. “Sejahtera” means peace, harmony and pleasure of life. Thus, “Sejahtera” Campus will give guidance to USM community in terms of their commitment and responsibility toward the campus sustainability development through self-initiative, proactive team work and volunteerism.

#### Mobilizing youth for a Sustainable Future through *YUVA Meet* (Youth Unite for Voluntary Action)

RCE: Delhi

Ragini Kumar

Youth comprise nearly 30 per cent of the world's population. The involvement of today's youth is imperative in environment and development decision-making and in the implementation of programmes. Recognizing the importance as well as the role of youth in the direction of sustainable development, TERI has been organizing **YUVA (Youth Unite for Voluntary Action) Meet** annually since 2009 by bringing together young people from various parts of the world. YUVA Meet is a two daylong event, held a day prior to TERI's **annual international event**, Delhi Sustainable Development Summit (**DSDS**). This ensures that the voice of the young can be heard at this major international forum. The meet enables youth to discuss and deliberate on key sustainability concerns and collectively voice their views, exchange ideas, and form a common network thereby reaching out to many more like-minded people. In the last five years YUVA Meet has received support from Government of India, Delhi Government, British Council, RCE Network, United Nations University IAS, Tetra Pak India Pvt. Ltd. and Dell Global Giving. Youth are important stakeholders in initiatives towards sustainable development of any region. At a time when unsustainable use of resources and environmental degradation along with the need to uplift the quality of life of people have emerged as the greatest challenge that the society faces at the global, regional and local level, it's time to understand and use the existing knowledge to frame innovative solutions and action plans. Keeping the above background as the base, this year YUVA Meet's theme was, ***“Innovations for a Sustainable Future - Transforming Learning into Action”***. The International Meet, which was organized from 3-

4 February 2014 at New Delhi witnessed participation from **200 participants** from **9 nations**. The participants of the YUVA Meet 2014 comprised of youth between 18-24 years of age. Undergraduate and postgraduate students from a recognized educational institutions and young professionals below 30 years of age. Members of National Service Scheme (NSS), Nehru Yuvak Kendra Sangathan (NYKS) and other youth organizations from different parts of India were also involved in the meet as participants and also as volunteers.

The participants were exposed to the **innovative tools** to broadcast sustainable development used by eminent people, from different walks of life such as Social entrepreneurs, Media, environment experts and students. This meet provided a unique platform for all the participants to discuss, deliberate and engage in various hands on activities. The participants came out with Innovation Action plans and recommendations for **ESD in the fields of water, food, energy and knowledge systems**. As a build-up to YUVA Meet 2014, a series of State Level Youth Seminars under the theme '**New Ideas for a New Tomorrow – Promoting Innovation and Youth Participation**' were organized across **7 states** of the country namely Assam (Guwahati), Maharashtra (Nagpur), Uttar Pradesh (Aligarh), Odisha (Bhubaneswar), Jammu and Kashmir (Jammu), Kerala (Cochin) and Gujarat (Ahmedabad). Around 150 youth from colleges/ Universities; NGOs, NSS, NYKS and youth groups from the respective states participated in each of these two-day seminars. These seminars provided an opportunity for youth to enhance their understanding on issues concerning innovation, youth engagement and sustainable development. Each youth seminar focused on a pertinent and pressing environmental challenge in the state/region. From each Youth seminar 10 most active participants were selected for the YUVA Meet 2014.

### **Global initiative call Youth Leading the World (YLTW) OZGREEN**

RCE Western Sydney  
Mrs. Helen Angelakis

My case presentation is on a global initiative call Youth Leading the World (YLTW)..OZGREEN, an Australian organisation piloted YLTW in 7 locations in 2009, in collaboration with over 100 local and regional organisations. In 2013 over 70 regions participated, and it is expected to grow to 150 regions in 2014. Participate rate is increasing with every session and there has been over 5000 students involved to date.YLTW is a 3 day event that encourages our students to become change agents in their own communities. They learn about living within the limits of one planet and it empowers the students to make the necessary decisions for a positive change. The program helps to reconnect students to their communities and assists with giving them the skills to begin the journey to solve and prevent the world's environmental problems. YLTW helps to change attitudes by equipping the students with knowledge to be able to work with their communities and schools to develop an action plan to work on important sustainable issues. During the 3 days the students listen to inspirational speakers and watch films on the global issues affecting the planet. The students also have access to a network of experts and resources within our RCE networks. At the end of day 3 the students will put a presentation together to present to community partners to pitch their

ideas to create change. The University of Western Sydney has offered a small amount of funding to assist the students to implement their initiatives. This encourages the students to work with their peers on a project that can make a difference. The learning outcomes of this initiative are invaluable. The students learn to be leaders and to think and act in ways that will benefit the future of our planet. One of the major challenges of this program is to inspire our community partners to attend the community forum on the final day of the event. We are teaching our students to feel real worth and that everything they do to help the wellbeing of the planet, even in a small way is positive. Encouraging our community partners to be inspired and to assist our students in their projects is always a challenge. What we have found from running the programs is the students get an authentic learning experience that enhances their capacity to create a culture of change. They build unity and teamwork to drive change around social, economic and environmental sustainability.

**Project STARS: Sustainability tracking, action and reporting in schools  
(2013-2016)**

RCE Goa  
Ms. Shabana Kazi

The state of Goa is facing some major environmental challenges stemming from its key economic drivers, which further get exacerbated in light of the anticipated climate change impacts. There is an urgent need for a more balanced approach - the need for a development path that is economically viable, socially equitable, and ecologically bearable. In 2002, the United Nations declared the decade (2005-2014) as the Decade of Education for Sustainable Development (DESD) aiming to promote education as a basis for a more sustainable society by integrating sustainability into the education process at all levels, and also, into all areas of life including local communities and human society in general. Schools as educational centres can champion the cause of sustainable development to positively impact communities and their environment. STARS - thus seeks to inspire and encourage schools to practice the principles of sustainability by focusing on its environmental and social performance – both tied together with a strong local cultural thread. The project works with 10 schools, and some of the major activities being conducted include baseline assessments, putting the identified hardware interventions in place, sensitization sessions & site visits, community engagement, resource material development, end line impact assessments, and, the development of a documentary that will encapsulate the work undertaken at the various project schools. The school community will be the direct beneficiary (approximately 10,000) of the resources created under the project, as it will reach out to a large section of the school, including teachers, support staff, parents and the local community. A major outcome of this project would be the creation of replicable school models. Other schools can draw inspiration and motivation to follow suit and promote the cause of sustainable development in letter and spirit by establishing themselves as vibrant, dynamic and sustainable educational institutes.

**Introduction of the Youth League of RCE Yokohama**  
RCE Yokohama  
Prof. Osamu Koike

On the outskirts of Tokyo, Yokohama city has developed in harmony with environment. Thousands of citizen voluntary groups engage in the environmental activities to conserve nature and landscape of Yokohama city. It also attracts a lot of higher education institutions. Yokohama RCE Network Council founded in 2006 to promote ESD (Education for Sustainable Development) in Yokohama area. From the beginning, Yokohama RCE Network has supported university students groups that engage in various environmental activities such as campus cleaning and recycling of waste. The first meeting of students groups called 'Eco-Networking Café' was held at JICA Yokohama International Center in October, 2007. In the meeting, a hundred of participants from eight universities exhibited their environmental actions such as recycling and the separation of garbage and participated in the workshops to discuss future lessons. It was followed by the 2<sup>nd</sup> 'Eco-Networking Café' and the 'Step-up Seminar' in 2008. In 2009, university students organized the 3<sup>rd</sup> 'Eco-Networking Café' and participated in the exhibition at the Yokohama Port Opening 150 Anniversary Exhibition." Based on these activities, the 'Wakamono Renmei' (Youth League) of RCE Yokohama was established in 2010. One of the highlights of the Wakamono Renmei is the HAMACON, a youth project competition among students who engage in environmental conservation activities. The projects are assessed by a committee consisting of members from Yokohama City Council, educational institutions, and NGOs based in Yokohama. Prominent companies such as Nissan and NTT are also partners in the event. In the first HAMACON of 2011, more than forty students from six universities presented their environment-related projects, discussing them with more senior and experienced participants. Since then, the Wakamono Renmei organizes HAMACON every year. Through the event, a variety of local projects for sustainable society are created by Yokohama university students.

## PARALLEL SESSION 2

### Promote whole-institution approaches to ESD at all levels and in all settings

#### Promoting whole-institution approaches to ESD at all levels and all settings in USM

Centre for Global Sustainability Studies, USM  
Prof. Dr. Kamarulazizi Ibrahim  
Prof. KanayathuKoshy  
Mrs. Nor Arizabt Azizian

USM has made strong commitments to promote whole-institution approaches to Education for Sustainable Development (ESD) through a host of on-going activities such as Kampus Sejahtera Programme, 2000, Regional Centre of Expertise for ESD (RCE-Penang), 2005, University in a Garden, 2006, Research University Award, 2007, and the Award of Malaysia's Accelerated Programme for Excellence (APEX), 2008. USM has embarked on a range of sustainability initiatives such as the establishment of a *Centre for Global Sustainability Studies* (CGSS), the *University Sustainability Council* (USC), and a *South-east Asia Sustainability Network* (SEASN) to promote sustainability in USM and the region. In order to create an enabling environment within which different sections of the university could implement sustainability depending on the demands of their discipline and special circumstances and to monitor progress; USM has developed a new 'sustainability integration model', an innovative 'sustainability assessment methodology' and a new 'Policy on Sustainable Development 2013'.

**Keywords:** Education for Sustainable Development, Sustainability Integration Model, Sustainability Policy, Sustainability Initiatives

#### Integrating sustainability into syllabus of undergraduate programs: Starting activity of RCE Southern Vietnam.

RCE Southern Vietnam  
Dr. Pham Thi Hoa

Education for sustainable development (EDS) cover many aspects, which include not only environment and natural resources management, but much broader topics such as poverty alleviation, gender inequality, peace and dispute settlement, inter-cultural understanding etc. As a center for regional of expertise, RCE can help to promote the role of EDS in the region it located. However, in some regions, limited resources will make the RCE hard to develop multiple arrays simultaneously. Therefore, appropriate starting activities should depend on the specific conditions. In the context of RCE Southern Vietnam, the integration of sustainable development into the course syllabus being taught at the university will be one of starting activities. The reason we start with the university programs because of the current unfeasibility for the integration into the official programs at secondary levels. The curriculum as well as syllabus in secondary schools must strictly follow the state regulations. Therefore, the initial implementation in the

undergraduate programs is most feasible, because the universities/colleges have the some flexibility to adjust the syllabus as well as the curriculum. However, the problems arise how to ensure its effectiveness, the usefulness for each different courses, as well as the throughout within the curriculum. RCE Southern VN planned to start with some subjects within the three departments: Biotechnology, Civil Engineering, and Business Administration. Based on the successes and shortcomings of the pilot courses, we will extend the integration of the SD disciplines into other courses within the university (International University (IU) will be the typical case), and aims to disseminate the case information to other university members of Ho Chi Minh City National University (HCM-VNU). This short communication will present a specific case of the Aquatic Resources Management Curriculum at IU. The advantage of integrating SD into this curriculum is the presence of a number of sustainable development related subjects, such as Water Quality Management, Monitoring of aquatic resources and Environment, Environmental Impact Assessment, Aquatic Ecology, Environmental Science, and Global Climate Change. Hence the concept and principles of sustainable development have been provided. However, there are still some chances in other major courses for integration of SD, such as Immunology, Marine Biotechnology, Aquaculture System Design, Technology Hatchery, Fish Nutrition and Feed Formulation, Modeling in Natural Resources Management, Fisheries Management, Integrated Coastal Zone Management, Project Management, or Business Communication.

After some initial efforts of RCE VN in promotions of ESD into this specific curriculum, we found several chances as well as challenges to achieve to goal. One of the main difficulties is the collaboration of program coordinators as well as lecturers. In the case of IU, we have got the well supports from the Rectors board. That enables the process starting smoothly. However, we are just in the communication stage for getting understanding and collaboration of program coeditors and lecturers. The difficulties we are facing now are how to monitor the effectiveness and giving periodically support to ensure the continuously implementation. Collaboration of experts with different expertise through RCE Global network would help us to overcome this difficulty through experience and know-how exchange.

**He piko, he taniwha, Waikato Taniwharau.**

**Waikato of a hundred chiefs.**

RCE University of Waikato

Associate Dean Sandra L. Morrison

Dr. Betsan Martin

Dr. Timote Vaoletti

In this paper we interrogate and introduce the unique approaches by the University of Waikato RCE to ESD due to its socio-political, geographical, historical, economic and its demographic population which comprises a significant Māori (indigenous people of New Zealand) population, Pacific people, British and emerging migrant peoples. Such a demographic introduces a range of different knowledges, values, epistemologies and other characteristics in the sharing of our resource rich land base. For indigenous

people ESD is closely related to cultural survival and continuity therefore policy statements that support indigenous knowledge, language and culture are critical to ensuring its ongoing development and practise. In NZ, settlement was confirmed by the signing of the Treaty of Waitangi in 1840 between the Crown and Māori Chiefs. As can be found in other settler countries, the indigenous peoples were marginalized from access to important resources due to the impact of colonization. A post settlement period however is creating a revitalization movement in which Māori are being innovative in addressing growing disparities and mainstream institutions are being forced to redesign their policies to be more socially and culturally inclusive. The title of the presentation draws on a local Māori proverb acknowledging the chieftainship of the area whose role it was to maintain the collective wellbeing of the people culturally, spiritually and physically. In this presentation, we provide an overview of the University of Waikato's whole of institution approach to the incorporation of indigenous values and practises at every level- policy, practice, organizational structures, curriculum, research and learning theories and pedagogies. Such an infusion of a Māori worldview supports the academic achievement and retention of Māori students and builds Māori capacity individually and for their tribal communities so that they can continue to practice kaitiakitanga (guardianship) over their significant natural resources. Addressing issues of indigeneity also opens the way for alternative knowledges and practices to leverage their place in our community but these all require negotiation without diminishing the place of Māori. Having said that there is strong policy support around Pacific issues as well. Three presenters from the long established groups that make up the cultures of Aotearoa, will share how the Waikato RCE negotiates a whole institution approach to ESD and the challenges of working beyond institutional boundaries if we are to have real, positive and lasting impact on ESD.

### **Step towards sustainability oriented university: actions and challenges.**

RCE Yogyakarta  
Dr. Puji Astuti and ESD team  
University Gadjah Mada

As educational institution which produces graduates and future leaders, Universitas Gadjah Mada has responsibility to promote development towards sustainable future through teaching, research as well as disseminating knowledge and concept of sustainable development towards students and community. Education is key point towards sustainable development. It combines knowledge and experience to create future leaders and decision makers. The challenge is that UGM is not only producing students with degree title but how to produce strong characters among students who play a role in developing better future. This case of presentation highlights commitments which have been made by UGM to promote sustainable societies categorized into education, research, community services and the academic environment within the campus. Despite efforts made by individuals in promoting ESD through teaching materials and methods, University coordinates program of integrating ESD into HE curricula. Started in 2009 through workshops, implementations were initiated in 2011 by

providing incentives to lecturers who creates models of ESD based learning programs and implement it into their HE subjects. Example of this program is integration of ESD into "City Management" subject in Faculty of Geography. Atmospheres are created to support sustainable development oriented research with one vital action is including environmentally oriented research into university operational strategic plan. Key topics related to sustainable development issues such as energy, food security, disaster management and environment among others are pointed to be university research priorities. Electricity and biogas production from fruit waste of traditional markets is one of successful research finding from Chemical Engineering Faculty which has been implemented in Sleman district Yogyakarta. Student Community Services-Community Empowerment Learning (SCS-CEL) locally known as KKN-PPM, is one form of community empowerment based learning conducted by final year university students. This compulsory subject is created as media to transform knowledge and technology obtained during the study towards community; media of multidisciplinary approaches are combined to solve problems within society, implementing three pillars of tertiary education for the benefit of society. Since 2007 SCS-CEL program are gradually developed to focus on sustainable development issues. Solar Water Pumping Systems for clean water distribution developed by staffs in Physical Engineering Faculty are implemented in Gunungkidul district Yogyakarta and chosen as one of ESD based SCS-CEL theme. Besides integrating ESD into three pillars of tertiary education, environments which support development of green campus are made. Despite the establishment of research centers which specifically focus on environmental issues, sustainable development oriented infrastructures, student's extracurricular activities, networks and field laboratories are developed to support university commitments. Some examples are given during presentation. The challenges remained to be addressed is how to institutionalized these approaches so that these programs together will creates graduates with not only have specialized knowledge and skills but also have strong characters and attitudes of sustainable development oriented future leaders.

**PARALLEL SESSION 3**  
**Increasing the Capacity of Education and trainers**

**Enculturation of education for sustainable development through co-curricular activities in a Boarding School**

Jamaludin bin Yaacob  
Tan Khan Aun,  
Tun Syed Sheh Shahabudin,  
Science Secondary School Penang, Malaysia

Tun Syed School has been embarking on Green School Projects since 2010. Along the way, the school received numerous awards including the Penang State Excellent Green School Award in 2013. It has been visited by delegates from various international organizations including World Bank, United Nation Environmental Program (UNEP) and Regional Centre of Expertise (RCE). The school sets up ECO Rangers in 2014 to rope in all its 107 grade 8 students as part of their co-curricular activities. They are divided into 4 groups and take turn to maintain all the environmental projects in the school, which includes (a) Collection of Recyclables (b) Management of Food Waste (c) Preservation of Nature (d) Conservation of Water and Energy. Each group has to launch a school-wide environmental program as part of their assignment. They also need to carry out a community project outside their school. The ECO Rangers carry out their duty on every Wednesday afternoon for 2 hours. They need to keep a record of their activities in order that they will finally be awarded a certificate by the municipal council. Its future agenda is to focus more on collaboration with the experts from local and international organization to carry out research and developmental projects in school.

**Go green project in Raja Perempuan School, Ipoh.**

Anita Suganthi a/p Kolandasamy

Raja Perempuan School (RPS) has been recognized as a Cluster School of Excellence with its niche area in Science. Various programs and activities have been implemented in line with the aspiration to make RPS as a school that will develop the potential of students to the maximum level through a variety of exposure and experience and at the same time to share with the local school community and the surrounding community. The first Go Green project was initiated by the school, the Rotary Club of Ipoh and CIMB Bank through Organic Farming Program in 2010. Projections of the program, various Go Green projects have been implemented by the students of this school such as Organic Composting, Rain Water Harvesting, Vermicomposting, Treatment using Organic Enzymes, Recycling, Solar Lighting and Microscale application. A platform for sharing of best practices Raja Perempuan School was done through a national program of Students Go-Green Conference towards Green School and Green Hostel which was held in 2011. Subsequently, an international program of GO GREEN STUDENTS CAMP (GGSC) was held in 2013. It was aimed at boosting the local network aspects and linkages and cooperation towards educating the next generation through the sharing of ideas, practices, values, problem solving related to issues Going Green in an effort to make our world more sustainable to live in.

**Psychological first aid education for disaster victims: Sharing RCE-Cebu's training program.**

RCE Cebu

Ms. Annie A. Manzano, RGC

The global scenarios on disaster preparedness and response of communities are not on the same stage or level. Other countries are already resilient on disaster response while others are still struggling to become prepared in responding to threats of disasters and calamities. There is also still no assurance of a safe place when we talk about critical events like storm surges, flashfloods, tornadoes, earthquakes and acts of terrorism. With continuing climate change, these events are now considered as the *'New Normal'* and these events are most likely to produce critical incident stress. The question that everyone should be able to answer now is *"are we ready for 'the new normal'?"* Systems, processes, structures, and competencies for emergency and disaster preparedness and responses need to be strengthened if we are to ensure sustainable and resilient communities in a constantly changing and unpredictable climate. Northern Cebu, Philippines, which is one of the badly hit areas of Typhoon Haiyan, has indeed faced much challenge in rehabilitation and recovery of its constituents. Yet, many kind, good hearted individuals and organizations have generously shared their time and money to help the survivors. While much work has already been done in rebuilding of physical infrastructures and helping people recover by themselves, including restoring their homes and livelihood, not much have been done on psychosocial interventions.

It is for this reason that the Voluntary Service Overseas Bahaginan or VSO Bahaginan, which is the Philippine partner of VSO in the Asia Pacific, has decided to conduct an intervention psychosocial program that is focused on the needs of Persons with Disability (PWDs). Often times, the PWDs are the ones who are most neglected, and seldom given priority in the provision of services that would alleviate their present conditions. Thus, an engagement with the case presenter was formed. The case presenter from the University of the Philippines Cebu (UP-Cebu) and the Regional Center of Expertise on Education for Sustainable Development (RCE-Cebu) was tasked to design a training program in order to equip the selected national volunteers of VSO with knowledge and skills on Psychological First Aid (PFA), a crisis intervention that focuses on steps in helping people overcome trauma and promote positive mental health. The PFA process will enable those who are being attended to become resilient, to help them to develop the capacity to recover after a disturbance or critical incident and to learn to manage one's self in getting back to the normal situation. The case presenter also created a manual for VSO which intends to help the national volunteers in echoing the knowledge and skills they have learned and gained from the training-workshop.

The trained volunteers were then deployed to the different target communities in the northern part of Cebu, particularly, Bogo, Daanbantayan, and Bantayan Island. Their objective was to train community-based helpers who will take on the work of providing psychosocial support to the survivors of typhoon

Haiyan. The significant goal is for the psychological first aid training to be transmitted to wider audiences on a sustainable basis to strengthen resilience especially among vulnerable groups like PWDs, women, children, the elderly, and the poor, among others. The national volunteers conducted trainings, facilitated listening, supervised, monitored and assessed the performance of the community-based helpers. What the volunteers did in the community they were assigned ensured the sustainability of the provision of services even after they will be gone.

**Collaborative Teachers' Training Projects of RCE Tongyeong Eco-park  
& Sejahtera Centre**

Melissa Leung Hiu Tuen  
(Programme designer of RCE Tongyeong)

Teachers' training courses of RCE Tongyeong that raise understanding of ESD and share good cases had been organized since 2007. RCE Tongyeong provides not only short-term workshops and lectures but also 30-hours official training course designated by provincial education office during the vacation. In 2013-14, the training course collaborated with RCE Inje Korea and lecturer from RCE Denmark has been invited. With the previous fruitful experience, and grand opening of Sejahtera Centre in 2015; we expected our ESD teachers and trainers development strengthened by the network of AP RCEs.

**PARALLEL SESSION 4a**  
**Accelerate the search for sustainable development solutions at the local level through ESD**

**The Decade of ESD of RCE Okayama and its new project concept and plan for post-2014.**

RCE Okayama (Japan)

Mr. Masaaki Nagareo

RCE Okayama has reviewed the Decade of ESD and is building up New Project Concept & Project Plan for promoting ESD for post-2014. The result of review of the decade is summarized as "ESD Okayama Model." The features are the followings;

1. Diversity; Diverse organizations and individuals have opportunities to engage in ESD.
  - 208 organizations participate in Okayama ESD Project to be members of RCE Okayama.
2. Management of Local Government; Governmental organizations promote ESD proactively and continuously.
  - Okayama City hall (municipality) has played a role as secretariat of RCE Okayama.
3. Professional Coordinators; Professional coordinators, as secretariat, support organizations and individuals.
  - Coordinator of the secretariat has kept working to connect various organizations and empower players in/around communities.
4. Kominkan (Community Learning Centre); Kominkans/ Community Learning Centres promote ESD as central hub of Non-formal Education in communities.
  - Kominkan staffs have built networks among citizens' activities and local governmental activities to promote ESD.
5. University support; Universities, professors and students lead and support communities to empower them.
  - Universities cooperate and support local/ community's ESD activities with their special perspectives.
6. ASPnet School activities; ASPnet Schools play main role to promote ESD as main actor of Formal Education in communities.
  - Okayama City municipal schools promote ESD in their curriculum

**Empowering local community for climate change adaptation: The green village program in Sitio Lagiwliv.**

RCE Bohol

Dr. Quillicot Gordiano

Climate Change has ceased to become the concern only of scientists and environmentalists. Even ordinary people could no longer ignore this phenomenon as it is now starting to affect patterns of real lifestyles. Prolonged rain and dry seasons for instance have brought disruptions in planting cycles for farmers while erratic weather conditions render unstable the fishing occupation. As these have been observed to take place, mitigations measures have to be adopted to sustain life and make it more

viable. *Sitio* Lagiwiw in the Municipality of Bilar in Bohol province is a farming community. Like any other farming community, people have now been affected by the onset of climate change so that the need to plan and participate in the realization of a more resilient mitigation measures are called for. It is for this concern that the community people in collaboration with Bohol Island State University (BISU), together with other RCE-Bohol member institutions such as the Provincial Agriculturist Office and the Department of Environment and Natural Resources implemented the Green Village Program. Green Village is an expression of Bohol Island State University's commitment to implement sustainable development in the community. As a member of RCE-Bohol, BISU adheres to the tenets of Education for Sustainable Development that fosters the ability to plan and participate in the realization of a sustainable society. Green Village Program's entry point is the community-based gardening where *Bahay-kubo* (Nipa Hut) concept is adopted putting into effect genetic conservation of traditional plants and vegetables as well as underutilized rootcrops for climate change adaptation. Traditional veggies include *lagway* (string beans), *malunggay* (horseradish) and *ganas* (camote tops) while underutilized rootcrops include *camote* (sweet potato), *pao* (taro), *araro* (arrow root) and *pungapong*. These plants are as much nutritious as those which are commonly cultivated but are more resilient to climate change. At present, the community garden is maintained by the people. They have not only harvested the veggies and rootcrops for consumption but also earned additional income from their sale. One upscaling of this program is the replication of the garden in each of the households in the community. As this is done, the greening of *Sitio Lagiwiw* will not be a reality that is far to reach. By then, they will in turn become a model for the replication of the whole program to other communities in the municipality and eventually in the whole province. For its part, BISU is well underway in its research for commercial products using the underutilized rootcrops as the main ingredient. As such research is polished, technology transfer to the community will then follow for mass commercialization. It is a valid expectation of the local people that with the collaborative efforts of the RCE-Bohol member institution, a greener pasture for a holistic human development can be materialized in the near future where wholesome living environment is attained with residents enjoying prosperity, abundance and improved well-being.

### **Sabah, Malaysia: Potential for a new RCE**

Ms. Chie Kosuga

Rakuno Gakuen University, Japan

The state of Sabah, Malaysia, has high potential as a platform for ESD. Although no institutions have yet been registered as an RCE, there are many governmental and non-governmental bodies experienced in environmental education. Batu Puteh Tourism Cooperative (KOPEL Bhd.) is a community-based organization established in 1997, to offer eco-tourism for mainly foreign visitors. The biodiversity and wilderness environment of Sabah attracts many students' groups from high schools and universities all over the world, including UK, U.S., Australia, Japan, among others. KOPEL Bhd.

already has tree planting program as well as river cruise and jungle walk, all of which leaves unforgettable impression on the students. From August 2012, KOPEL Bhd. launched a JICA grass-root technical cooperation project, with Rakuno Gakuen University, Japan: 'Biodiversity Conservation through Community-based Rural Development around the Lower Kinabatangan River'. This project aims at developing environmental database and establishing education programs at KOPEL, and spreading such initiatives to elsewhere. Monitoring schemes including wildlife, water quality, and the growth of planted trees, have been introduced to among KOPEL staff. Such activities raise their interest in and knowledge on the local environment. Based on the local information gathered in the monitoring, environmental database and education programs are expected to be formulated. Meanwhile, the state government of Sabah is also gathering more emphasis on environmental education in recent years. Japan International Cooperation Agency (JICA) has been working closely with the Natural Resource Office (NRO) in Bornean Biodiversity & Ecosystems Conservation (BBEC) Programme, and the successively the Sustainable Development on Biodiversity and Ecosystems Conservation in Sabah (SDBEC) Programme. These are cross-dimensional initiative to make a governance system for the conservation and sustainability of the nature in Sabah, by connecting all concerned departments in the state government. In practice, they have been implementing River Environmental Education Programme (REEP) throughout Sabah, and working with Tudan village, Sabah, as a pilot site for developing sustainable living with proper understanding for the adjacent protected areas. Universiti Malaysia Sabah (UMS), especially the Institute for Tropical Biology and Conservation (ITBC), is an important partner for Rakuno Gakuen University and JICA-SDBEC. They have many research fields throughout Sabah, and has strong connection with government offices, public and private education or conservation organizations, private sectors, and also with secondary schools. Many students as well as lecturers are interested in environmental and social education. Other important bodies in environmental education includes Rainforest Discovery Centre (RDC) under Sabah Forestry Department, and a government-linked NGO Environment Action Centre (EAC). They also have collaboration with Rakuno Gakuen University and JICA, such that they learn and gain opportunity from each other. As such, Sabah has a high potential to be a new RCE for the propagation of ESD. We would like to document the various activities we are providing in collaboration with other sectors, and by presenting such experience, would like to learn new perspectives. Being a developing destination for eco-tourism and school trips, ESD in Sabah would have a significant impact to the future generations in Sabah and around the world.

## **Green Chemistry experiences in the Matriculation College as an approach to address ESD**

Sheila Shanmuganathan<sup>1</sup> and Chang Fui Seng<sup>2</sup>

1. Penang Matriculation College
2. School of Educational Studies, Universiti Sains Malaysia

Green chemistry reflects on environmentally responsible way of teaching and learning chemistry. As an initial initiative to address ESD at the matriculation level attempt has been made to introduce green chemistry in the chemistry curriculum. Following this integration at the matriculation we intend to improve the students' attitude towards learning chemistry. Attitude in chemistry have been the subject of many studies in recent years. It has been a general belief that positive attitudes towards learning chemistry play an important role in student's decision in pursuing science courses in future undertakings. As the number of science students declining over the years, this study attempts to investigate the attitude towards learning chemistry using Cheung's instrument of attitude towards Chemistry Lessons Scale (ATCLS). Thus instrument focused on four dimension: liking for chemistry, theory lessons, liking for chemistry laboratory work, belief about science chemistry and behavioural tendencies to learn chemistry. The outcome revealed that there is a significant drop in attitudes towards learning chemistry among the pre-university students. The interview also supports that learning chemistry is not fun as chemistry activities are presented in series of facts than explanation of the natural world. In this study we will describe the integration of green chemistry in the matriculation curriculum and the effectiveness of green chemistry in changing students' attitude.

### **Civil Education Committee ESD projects RCE Tongyeong**

KANG Bunae (CEO of Mindeulre Nuby Incorporate)

Civil education committee is a network of governmental and non-governmental institutions working on informal education. It is composed of 38 diverse institutes that are dedicated in reorienting existing programmes and building a creative network for educating the citizens for SD since 2006. Members hold meetings monthly to plans for programmes that emphasizes on sustainability and build network within the committee. In order to further promote SD in citizen level, at 2014, the committee established a new constitution, a Task Force team (TF Team) has been set out.

**PARALLEL SESSION 4b**  
**Accelerate the search for sustainable development solutions at the local level through ESD**

**Sustainable Healthy Community**

Mr. Wong Chow Jeng  
Universiti Sains Malaysia

We are faced with many challenges today. The government spends a lot of money for health care. It is a wise idea to prevent the attack of diseases before it becomes fatal. Our community is very lucky to have a group of proactive residents who have come together and have successfully carried out many programs for the benefit of all residents. Prevention is better than cure. The whole neighbourhood is our extended family. Maintaining a conducive environment and sustaining a healthy and happy community can increase productivity. With full support from the various NGOs and the local Health Department, the Taman Sri Nibong Residents' Association has been chosen as an example Community Corp in the state. With the convenient and efficient Internet network we are able to keep our residents informed of our activities as well as to alert them for any emergencies. Our success is attributed to the responsible attitude as well as the sincere love for humanity.

**Promotion of Thai Local Wisdom on Community-based ESD: A collaborative project between RCE Cha-am, Local Community, and Government Agency (DEQP of Thailand)**

RCE Cha-am  
Ms. Areeporn Sittiyapaiboon

**RCE Cha-am** was acknowledged by the United Nations University on 28<sup>th</sup> March 2008. The Sirindhorn International Environmental Park (SIEP), located in Rama VI Camp, Cha-am District, Phetchaburi Province of Thailand, is coordinator and the Headquarter of the RCE Cha-am. **RCE Cha-am** covers two important provinces of southwest coastal Thailand – Phetchaburi Province and Prachuap Khirikhan Province where comprised outstanding old cultural heritage and well-known Thai local wisdoms. **ESD activities of RCE Cha-am** include environmental and natural resources conservation, ecotourism, agriculture, fisheries, reforestation, community uniqueness and indigenous knowledge, and general understanding of sustainability by following “Sufficiency Economy Philosophy” of HM King Bhumibol. **The network of RCE Cha-am** composes of educational institutions, royal projects in Phetchaburi Province and Prachuab Kirikhan Province, governmental agencies, NGOs, local communities, private companies, public enterprises, and other organizations from within Thailand and foreign and international organizations. They provide support in terms of collaboration, source of funds, human resources, knowledge exchange, and ideas for the development of future plan. Royal projects and many communities located in Phetchaburi Province and Prachuap Khirikhan Province have learning centers where involved the **promotion of ESD and Thai local wisdom** that help conserve environment and natural resources by following “**Sufficiency Economy Philosophy**”. In 2014, RCE Cha-am in collaboration with Department of Environmental Quality Promotion (DEQP), Ministry of Natural

Resources and Environment, Thailand **launch a community-based project on promoting Thai local wisdom on ESD, in Phetchaburi Province.** This project has been supported by a 5 month-study carried out through interview, field survey for data collection and group discussion by Suan Sunandha Rajabhat University, Bangkok with great collaboration of local community. The promoted local wisdom on ESD of this project can be divided into 5 groups as follows;

- 1 Local Wisdom on **Soil Conservation : Planting Vetiver grass in Compacted Hard-pan Soil**
- 2 Local Wisdom on **Marine Animals Conservation : Community Blue Swimmer Crab Bank**
- 3 Local Wisdom on **Rehabilitation of Forest : Check Dam installed by Community**
- 4 Local Wisdom on **Agriculture/ the Conservation of Environment : Herbal Pesticide :**
- 5 Local Wisdom on **Energy/ the Conservation of Natural Resources : Biomass Stove**

The output of this project is **Curriculum on the Promotion of Thai Local Wisdom on ESD** disseminated and organized by Sirindhorn International Environmental Park **with demonstration conducted by local communities themselves.** The targeted groups are students, youths and general public, from not only RCE Cha-am region but also throughout Thailand and abroad.

#### **Traditional Practices for solid waste recycling in rural homes- A lesson for education for sustainable development**

RCE Greater Dhaka  
Prof. Mohd Ataur Rahman

Solid wastes are important components for recycling biomass to return the nutrients to their origin. Traditionally, the people of the Ganges and the Brahmaputra basins have been recycling solid wastes for centuries. The practices which are followed here have scientific values but in most of the cases, the people are ignorant about those facts. The present study was conducted in 90 rural homes of Ishwarganj and Nandail Upazillas under the district of Mymensingh. The objectives of the work were to find out the scientific explanations of the recycling practices. The study showed that the traditional procedures which are being applied on trial-and-error basis got the effective result of supplementing organic materials to the soils. Although these effective practices have been used generation after generation, yet in-depth studies were not carried out. This study uncovered the scientific reasons behind the traditional practices of solid waste management. Chemical analyses revealed that most of the macro-nutrients, namely potassium, phosphorus, nitrogen, calcium, sulphur, magnesium and iron, and total organic matter contents were not depleted; rather, the total organic matter contents increased significantly after the recycling. This kind of rural home-based and short-cycled solid waste management ensures zero depletion of organic matters of the soil is a learning tool for resource management and waste recycling for ESD activists.

## **The Bio-region based ESD Model in Ise-Mikawa in Chubu Area, Japan**

RCE Chubu

Mr. Reita Furusawa

The case presentation focuses on the Bio-region based ESD model which is developed by RCE Chubu in Japan. Instead of dealing with regional challenges based on administrative boundary units, RCE Chubu adopted the concept of bio-region or eco-region which is geographically distinct assemblages of natural communities and species. The targeted area of promoting ESD for RCE Chubu is the Ise-Mikawa Bay watershed (bio-region) which covers Aichi, Gifu and Mie prefectures. RCE Chubu has been conducting the project called "RCE Chubu 2014 Project" initiated in 2012 to develop an ESD Model called "Chubu Model", applying the concept of bio-region and watershed. One of the activities in the 2014 project is the Ise-Mikawa Watershed ESD Lecture Series. In this project, lectures are designed through a collaboration with schools, private companies, or NGOs located around the water basin of the 12 major rivers in the targeted area. In each river basin, lectures are held at three points; upper stream, middle stream, and lower stream. One of our roles is to support the lectures in which participants can learn particular social challenges and how to solve the problems with the stakeholders in the community. In 2014, the number of lectures will be more than 100, and at the same time, the materials of these lectures will be a database of regional social challenges in the Ise-Mikawa Bay Watershed. Furthermore, in order to widen a network on ESD in the watershed, RCE Chubu established a series of subcommittees. These subcommittees are formed according to the difference in the actors involved, and developing ESD activities. They are the stakeholders of 1) Corporations and NPOs; 2) School Education; 3) Higher Education. Moreover, aiming to pursue synergies of the aforementioned three subcommittees, we made another series of subcommittees based on crosscutting themes. They are 1) International Cooperation and 2) Traditional Culture (Traditional Knowledge). For International Cooperation, we deal with issues such as multicultural education, education for international understanding, and development education. For Traditional Culture, we are seeking the methods to apply traditional knowledge into ESD programs through several workshops on traditional foods, clothes, and festivals. Thus, RCE Chubu has been developing the bio-region based ESD Model called Chubu Model by means of mutual learning among different actors. We are currently making action plans of ESD targeting UNESCO's post Decade of ESD program, the Global Action Program.

## **ABSTRACTS OF WORKSHOP PRESENTATIONS**

### **Session 1: 2.30-3.15pm**

#### **Recycling and Go Green Projects**

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Sekolah Menengah Kebangsaan Seri Nibong is among the schools that practices Go Green. This school focuses on food-waste management from the school canteen and dining hall. This resource is used in several projects such as Compost Fertiliser, Waste Enzyme and compost from dried leaves/green plants waste by using rice waste known as MOL. The compost fertilizer project involved a biology process where the microorganisms will compost the organic waste to humus which is rich with carbon and nitrogen elements. Meanwhile the waste enzyme project involved a fermentation process. This enzyme acts as natural detergent, to get rid of bad odour. It also acts as an insecticide and organic fertiliser, and can be used to prevent clogging of pipes. MOL also involves a fermentation process, in which waste rice is mixed with dried/green leaves to produce compost. In addition, the school also undergoes the Mud Ball project which acts as an agent to improve water quality. All projects were supported by Universiti Sains Malaysia, Majlis Perbandaran Pulau Pinang, Pejabat Pertanian and Persatuan Pengguna Pulau Pinang.

#### **Whole-school Approach**

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Commitment to change is required from all stakeholders, from grassroots activists to educators to policymakers. The Whole School Approach advocates a holistic and integrated approach to practice Education for Sustainable Development (ESD) in the formal Education system. The workshop would necessarily highlight the importance of calling for the entire school, including students, educators and administrators, to be actively engaged in working towards a sustainable school with ESD fully integrated into the curriculum as the driving factor.

## **Incorporating Multiple Intelligence Theory into Informal Science Learning**

Maznah Ali, Nooraida Yakob and Mohd. Ali Samsudin,  
School of Educational Studies  
Universiti Sains Malaysia

Informal science learning is defined as learning that takes place not in the classroom and is not coordinated by a particular teacher. According to FriedHoffer (2007), this type of learning takes place after school hours and not in a school area. It can happen everywhere such as in home, garden, museum or etc. In addition, informal science learning includes experience-based learning, inquiry and "hands-on" activities. Informal science learning is a way that can improve the scientific literacy among children. This informal learning provides self-experiences and may influence children's attitudes and behavior change (Crane, 1994) towards science. Thus, it will complement formal science curriculum in school. On the other hand. . It is proposed that the potential of informal science learning can be explicitly upgrade to various dimensions of learning by analyzing the various potentials of students owned when studying science. Thus, this study is driven by the Multiple Intelligence theory which proposed to incorporate the different types of intelligences as a basis to design the informal science learning activities. Gardner (1987) who is the proponent of the Multiple Intelligence theory, looks at learning through his model of multiple intelligences. Gardner takes a pluralistic view of learning by recognizing that everyone has different cognitive strengths. For learning to occur, focusing on the strengths and skills of the child gives the child motivation and opportunity to learn in the ways that the child learns best. Three activities which incorporate Multiple Intelligence Theory into Informal Science Learning will be introduced, namely "Carrot Pam", "Red Cabbage Indicator" and "Iron in Cereal".

**Domestic Water Management Workshop: Creating Change Agents for Households and Community**

Assoc. Prof. Nabsiah Abdul Wahid

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This workshop is specifically designed to expose, teach and train participants on simple and doable methods on how they can manage domestic water. In the workshop, participants will be taught on how to save and manage water by avoiding wastage caused by dripping pipes and leakage at home. Participants will be made aware of their potential as 'change agents' within their household and community through the dissemination of specific knowledge learned to other members of their household and community and implementing them. The content is based on previous workshops carried out by the 'River for All' team on Domestic Water Management as part of World Water Day Celebration for 2011 and 2012 organised by UNESCO-IHP Malaysia.

**Keywords:** domestic water management, change agent, method, household, community

**Session 2: 3.15-4.00pm**

**Vermicomposting: Ecological Thinking**

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Students are becoming a part of the increasing waste generation. The amount of waste material from papers and canteen waste such as fruit skin and green vegetables in school is increasing and it's alarming the school administrators. This could be due to lack of ecological thinking among students nowadays. To solve the problem Raja Perempuan School teachers had taken action to introduce vermicomposting and setting up theme gardens to inculcate ecological thinking among students. This project was started in collaboration with Universiti Sains Malaysia, Pulau Pinang. They have contributed the main materials needed for vermicomposting such as cow dung, worms (*Eudrilus euginea sp.*), containers and gloves. The students had undergone a workshop of vermicomposting conducted by USM post graduates. The students monitored their vermireactor (container for cowdung and worms) from time to time. At the same time, they collected vermicast (worm casts) frequently. The vermicast is used as fertiliser for the students' theme gardens. Each garden was maintained by groups of six to seven students. There are 11 plots of 11 different themes. The students grew plants according to the theme of their garden. By providing experiences in vermicomposting and gardening, the school has achieved its objectives to inculcate ecological thinking that leads to environmental sustainability. Further investigation is ongoing by the students to produce vermicast using papers and canteen waste.

**Integration of Microscience Activities in Schools to Promote Science and Technology for Future Generations**

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The workshop will begin with a presentation on the latest development of microscale chemistry activities (implementation in schools) in Malaysia and throughout the world. This will be followed by a hands-on lab session where the participants will perform experiments in pairs/individually using the microscale approach. This approach will encourage and facilitate students to conduct many experiments apart from other benefits such as reduction in chemical wastes produced, chemical costs, time spent and greater safety. A questionnaire will be given to the participants to gather their feedback on microscale chemistry experiments and also on their experience in conducting chemistry experiments in schools.

**Using Recycled Material to Teach the Concept of 'Earth as a Sphere'**

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Students have problem learning the concepts of latitudes and longitudes. The main concern is their inability to imagine the 2 dimensional figures of the Earth as illustrated in the textbooks or exam papers. Thus, students should be taught the concept of the Earth with the help of 3-D models. Even though many types of model are available from the suppliers, they are rather difficult to handle due to its rigidity and weight. In this workshop, participants will use recycle materials to create customised model of Earth for classroom learning. It is a 'Learning by Doing' (LBD) workshop where teachers and students can work together in creating the model and at the same time engage in interactive teaching and learning process. The model created is simple and flexible which enable meaningful learning. Further exploration of the knowledge pertaining to the concept of Earth as a sphere can be enhanced by using the same model.

### **Traditional Composting**

Loh Poh Chen  
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13400 Butterworth,  
Pulau Pinang.

She had 10 years of experience in doing composting using kitchen wastes. She has shared her experiences more than 100 times with community, schools, factories and radio station such as Ai- FM. The method of making compost kitchen wastes is based on the guidance of Socio- Economic and Environmental Research Institute Penang. This method is appropriate and composting materials are readily available such as food residue and dried grass. The method that has been introduced is "Aerobic composting system". Through this method, organic matters can be decomposed by the microorganism in the presence of oxygen. According to Madam Loh Poh Chen, she has been involved in composting food residual since 2002 until today. There is a mini kitchen wastes recycling center. All the kitchen wastes have been used to make compost for crop. Compost is sold for RM 2/kg.

### **How to Start Composting at Home**

*Don Theseira & Mylene Ooi*  
*Green Crusaders*

<http://greencrusaders.com/how-to-composting-at-home/>

**t**

GreenCrusaders.com belongs to two recycling enthusiasts, Don Theseira and Mylene Ooi, who started their household waste recycling project in 1996. This retired couple are based in Bukit Mertajam, Penang but have travelled across Malaysia to educate various organisations, corporations and residents' associations on the need to recycle household waste. They also teach **the art of composting household scraps**, using a method which Don has perfected over the years. They have been awarded the title "**Everyday Heroes**" by **Readers' Digest in 2002** for their tireless efforts in helping the environment.

## **Practicing Sustainability among Students in SMK Dato Onn: Recycle**

### **Shoes**

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Sustainable practices among students at SMK DATO ONN have evolved over the years and is at an average level although many approaches and interesting activities are embedded in the curriculum and co-curriculum implemented by the school. One of the activities related to the sustainability that the school has implemented planting plants in recycle shoes. Recycle shoes is good as a pot replacement as it has the characteristic of good absorption. The objective of this study and activities is to create school environments that emphasize preservation and conservation of the environment in the school management, curriculum, co-curriculum and greening.

## **ABSTRACTS OF POSTER PRESENTATIONS**

### **ESD ACTIVITIES AT KAMPUNG PERMATANG NIBONG, SEBERANG PERAI TENGAH, PULAU PINANG**

In response to the “1 Village, 1 Product” campaign, the villagers of Kampung Permatang Nibong has actively participated in various item production using waste materials. Under the name of “Koperasi Lestari”, the emphasis is on generating income for products (such as recycle beg, necklace, bracelet and many more) from banner supplied by Seberang Perai unicipal Council (MPSP). In line with MPSP’s motto “Sustainability Is Our Commitment”, this collaboration has enabled Kampung Permatang Nibong to come up with several creative ideas based on compose material. Among the very first production is organic fertilizer from compose material. The organic fertilizer has been used in their own vegetable and the product are sold. Apart from that, they also produce soap from herbal leaves which can effectively treat itchiness and many more. Not only health product, they also diligently manufactured their very own biogas from food waste provided by MPSP.

#### **The objectives of this program:**

- 1) To recycle waste materials to produce valuable products.
- 2) To generate income throughout sustainability practice in daily life.
- 3)

### **ESD ACTIVITIES AT KOPERASI IBU TUNGGAL & WANITA**

Koperasi Ibu Tunggal dan Wanita was initiated by Hajah Che Wa Cik Harun has come up with her own initiative to help single mothers and women in Bukit Mertajam to generate income through several activities that focused on producing items from waste materials. This organization is known for their services to design and sell clothes, besides accepting orders from customers around this area and outside of their neighbourhood. In addition, they produce accessories such as egg casing from curtain laces sample. This co-op has also produced *Limau Kasturi* flavor of cordial and a versatile from the left over *Limau Kasturi* skin from cordial production. However, this co-op is still growing and need support from society to expand their business. They have many products but lack support to market their items locally and to generate a bigger sale.

#### **The objectives of this program:**

- 1) To generate income for women especially single mothers form services and productions.
- 2) Re-use waste materials to make products for sale.

## ESD ACTIVITIES AT SJK (C) TRUE LIGHT

Sustainability of environment is important among students to enhance their knowledge to protect the environment from pollution. SJK (C) True Light is a school that practices green program in school. This school emphasizes on recycling the waste materials such as plastic bags, papers, cans and used oil. The recycling program was conducted once a month. Recently, the school held a fashion show of clothes made from plastic bags and papers. In addition, used oil from home was provided by supportive parents to make detergents. Interestingly, parents are always actively involved in every program in the school. Besides that, this school also provides a water tank for water storage to water trees. To enhance students understanding about recycling, the school encourages students to bring to school the waste materials which can be recycled. For every one kilogram, students will get 40 cent. As encouragement, poster competition has become an annual event as it provides students cheerful moments to share their views about loving mother earth. This school has won the Green School Award in 2011.

### **The objectives of this program:**

- 1) To inculcate love for nature among the students.
- 2) To train the students to appreciate wastes to safeguard environmental sustainability

## ESD ACTIVITIES AT SMK RAJA PEREMPUAN IPOH, PERAK

Through continuous collaboration with University Science Malaysia (USM), this school is committed to implement green practice in the school. Emphasising on student volunteerism, SMK Raja Perempuan Ipoh has actually actively participated in green activities such as producing vermicomposting and using it to grow several types of plants and. USM has contributed the materials needed for vermicomposting such as cow dung, worms (*Endrilus euginea sp @ Africaan Night Crawler*), containers and gloves. This project has given benefit to 100 students who participated as students learn about producing fertilizer from organic waste and to use it to develop Jam Garden, Skin Care Garden, Herbs Garden, Coloured Garden and Fragrance Garden. Using this project as their success leap, "Vermicomposting Project" represented by three students has secured the first place in Go Green Student's Camp at the international level. Furthermore, they also obtained an opportunity to share the Best Practices of Cluster School in KWSP Institute (ESSET), Bangi. This school also had been invited to share their knowledge in vermicomposting at SMK Dato' Ahmad Maher, Kota Bharu and to SM Agama (ATAS) Sultan Zainal Abidin, Batu Buruk, Kuala Terengganu to participate in Best Booth Competition. This school has always tried to go green in various perspectives and dimensions as they think of ways to save mother earth, students can also get inspirations

and understand the fundamentals of sustainability learning apart from developing knowledge in science and its impact on society.

**Objectives of this program:**

- 1) To cultivate and inculcate Ecological Thinking among students.
- 2) To enhance the knowledge of sustainability of environment among students.
- 3) To give experience to students on vermicomposting and gardening.
- 4) To increase the biological on ecosystem.
- 5) To achieve quality asses (higher grades) in the Public Exam (SPM) for Biology subject.

**ESD ACTIVITIES AT TAMAN PANDAN BUTTERWORTH, SEBERANG PERAI UTARA**

Composting is a technique that used to accelerate the natural decay process. The technique converts organic wastes to mulch which is used to fertilize and condition soil. Madam Loh Poh Chen from Taman Pandan, Butterworth, Pulau Pinang is a pioneer in composting. She had 10 years of experience in doing composting kitchen wastes. She has shared her experiences more than 100 times to community, schools, factories and radio station such as Ai- FM. The method of making compost kitchen wastes is refers to the guidance of Socio- Economic and Environmental Research Institute Penang. This method is appropriate and composting materials are readily available such as food residue and dried grass. The method that has been introduced is "Aerobic composting system". Through this method, organic matters can be decomposed by the microorganism in the presence of oxygen. According to Madam Loh Poh Chen, she has been involved in composting food residual since 2002 until today. There is a mini kitchen wastes recycling center. All the kitchen wastes have been used to make compost for crop. Compost is sold for each 1 kilogram is RM 2. In 2008, she started produce dried grass compost. Besides composting, she also actively participated in recycling.

**The objectives of this program:**

- 1) To reduce organic wastes to landfill.
- 2) To encourage people to adopt the methods of composting food waste to turn it into fertilizer.

## **USM: KAMPUS SEJAHTERA**

Sejahtera Campus is a unique Universiti Sains Malaysia(USM) innovation towards sustainability by using eco-sphere framework to support “sejahtera” community. All elements in eco-sphere such as air, water, soil, energy, human-being, humans’ attitude, emotional and “qalbu” are closely linked to each other to ensure the campus sustainability and to be realized for a long-term. “Sejahtera” means peace, harmony and pleasure of life. Thus, “Sejahtera” Campus will give guidance to USM community in terms of their commitment and responsibility toward the campus sustainability development through self-initiative, proactive team work and volunteerism.

### **BJIM PPIP – UMOJA**

Dr. Fadzilah Amzah  
Mohd Zulkeffli Zainuddin  
Mohammad Faiz Samsuddin

Community service programs - UMOJA was conducted by undergraduate students from School of Educational Studies(SES) on the 9th to 12th April 2014 in Kg. Tambak Sebelong Alai, Melaka. UMOJA programme is a name taken from a woman village in Northern Kenya. This program takes the spirit of UMOJA that means united. Thus, through this program, students from SES did various activities with rural community which involved pre-school children, school children, teenagers and elderly people through collaboration with various stakeholders. All activities in UMOJA support the sustainability concept and knowledge transfer, as was intended by the Universiti Sains Malaysia(USM). Under this programme, several activities were carried out such as *I-Think* Workshop, Modern Agricultural Practices, Biodiesel, sport, and field trip to the Sek. Men. Henry Gurney. The success of this program is shown by the unity in collaboration with various stakeholders such as JKKK Kampung Tambak Sebelong, SMK Padang Temu Melaka, Jabatan Pertanian Melaka, Perbadanan Teknologi Hijau Melaka, KEMAS (Melaka), dan Jabatan Agama Islam Melaka (JAIM)

### **ESD ACTIVITIES AT SEKOLAH MENENGAH KEBANGSAAN CONVENT BUKIT MERTAJAM**

Since 2010, SMK Bukit Mertajam practiced “Go Green” activity involving all students. As the school has to generate income regularly, “Go Green” activities were planned to help generate income while educating student about sustainable learning through their daily routine. Interestingly, they do not just involve students, but staff and parents also take part annually in the events that they organised together. Among the activities in their calendar are recycle activities, producing home-made enzyme, compost fertiliser and energy efficiency usage. Based on the school mission which is to practice and integrate green practice in co-curriculum, curriculum and administrative

section, this school has a systematic organization formed for students under the name of Go Green Club. Not only does it manage its own activities, this club also pioneered collaboration with other clubs at school to launch various green activities such as car-boot used item sell at Juru, design innovative science products such as solar water distillation and also launch a campaign to reduce use of electricity and water in their daily lives. It is with pride that we report the club also expanded their expertise to other schools such as mentoring SK Permatang Rawa to launch a Ride a Bicycle Campaign. Actively engaged in environment competitions at district level, this school has won many prizes such as securing third place in Generating Model Residence in 2014 organized by Seberang Perai Municipal Council.

The objectives of this program:

- 1) To educate students about sustainability through the process of teaching and learning.
- 2) To engage school and community through green practices.
- 3) To enhance student skills such as entrepreneurship, responsibility, appreciate god nature, preserve flora and fauna and create innovative products for better a future.

## **ESD ACTIVITIES AT SEKOLAH MENENGAH KEBANGSAAN DATO' ONN**

The existence of Green School Projects has started in 2010 and continuous until today. The commitment of all members of the school community is one of the factors that have contributed to the success of the green projects. To ensure the smooth running of, teachers are divided into several units such as units to handle the organic fertilisers, plants and recycle program. There are different types of recycle boxes provided in every class. One of the efforts by the school administration to ensure the students experience the sustainability in their environment is requiring students to bring their own food container when they want to buy food in the canteen. The canteen does not provide plastic bag or polystyrene containers to the school community. There is a Butterfly Conservation Centre which not only houses the habitat for threatened butterfly such as Yellow Bird Wing species, but also serves as a science learning station where students can access related information about science. In addition, the school also carries out oil filtration project using oil that is mainly sourced from the canteen or dining hall. Beneficial Indigenous Microorganism (BIM) produced from acidic fruit skin such as lemon or orange was also used to make mud balls that are beneficial in cleaning bodies of water. Furthermore, this school has participated in several competitions related with the Green Projects. One of the competitions is Green Residential Model Competition organized by Seberang Perai Municipal Council. During that competition, the school was awarded first place.

**The objectives of this program:**

- 1) To preserve and conserve the environment.
- 2) To increase awareness and interest in the sustainability of life among students.

**BJIM PPIP : Instilling Scientific Skills Through Informal Science Learning by Using Everyday and Recycled Materials.**

Mohd Ali Samsudin

Maznah Ali

Nooraida Yakob

Rizuan Ibrahim

Nowadays, it is argued that every citizen should have an understanding of scientific concepts and vocabulary at the layman level. This is due to the reason that everyday technology is changing so quickly and dramatically that there would be a great demand for technological understanding by the lay people. It is proposed that science teaching and learning can no longer be confined to the classroom but must include the resources of the students' environment and the community. Numerous amount of research had proved that informal science learning could increase the student's interest in the field of science and the scientific literacy within the society. Informal science learning can be occurred at anywhere. Thus, mobile science lab act as a mean to instill essential scientific skills such as observing, inferring, measuring, classifying, predicting and communicating by using instruments from daily lives. The activities selected are infused with Multiple Intelligence Theory that covers unique elements such as kinesthetic, musical, spatial, interpersonal, intrapersonal, logical mathematics, linguistic, naturalist and spiritual respectively. The usage of everyday and recycled materials as science apparatus breathe a fresh air that leads to a vibrant and compelling learning environment.

**Iskandar Malaysia Challenge to be Low Carbon Society  
Eco-Life Challenge education program from Japan to Malaysia**

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**Abstract**

We conduct research program “Development of Low Carbon Society Scenarios for Asian Regions” under Science and Technology Research Partnership for Sustainable Development (SATREPS) supported by JICA (Japan International Cooperation Agency) and JST (Japan Science and Technology Agency) since June 2011. We especially focus on Iskandar Malaysia region [RCE candidate] to become Sustainable Low Carbon Society (LCS). We developed a “Low Carbon Society Blueprint”, including 12 actions with roughly 300 options that would reduce carbon dioxide emissions in the relevant region by 40% compared with a business as usual case.

As part of this, we conducted a study visit to best practices of Action 6 “Low Carbon Lifestyles” and Action 7 “Community Engagement and Consensus Building” in Japan in spring 2012<sup>4)</sup> with Malaysian experts from Iskandar Regional Development Authority (IRDA), Universiti Teknologi Malaysia (UTM), and the Johor State Government Education Department (JPNJ). The item of greatest interest to the Malaysians among the examples<sup>5)</sup> was the Eco-Life Challenge Program. They were impressed by the way the children participated enthusiastically in the program, the sophisticated style of the lessons, and the fact that the program was implemented in all the schools.

Kyoto Children’s Eco-Life Challenge<sup>1)</sup> is a program started in 2005 developed based on the environmental housekeeping book system for children. It was implemented from 2010 at all elementary schools in Kyoto (to be taught for one year chosen by each school from 4<sup>th</sup> to 6<sup>th</sup> graders). In 2013, it was implemented at 168 schools. It is being implemented as Kyoto City’s environmental education through cooperation between Kyoto City Environmental Policy Bureau, Kyoto City Board of Education, Miyako Ecology

Center, Kiko Network (NPO), and Hinodeya Eco-Life Institute. Kyoto City provides the budget. As of the end of the 2013 academic year, 54,700 children have participated.

In May 2013, a meeting was held in the office of Kiko Network in Kyoto between IRDA, UTM, JPNJ, Kiko Network and the National Institute for Environmental Studies. In May and September, an administrator from Kiko Network (accompanied by somebody from Kyoto City in September) visited Malaysia and observed lessons in local elementary schools, and provided support for the development and implementation of a Malaysian version of the Eco-Life Challenge program in Iskandar.

The Iskandar Malaysia Eco-Life Challenge (IMELC) program in Iskandar was implemented for the 6th grade at 23 elementary schools in Iskandar from September to November 2013. From the end of September to the end of October, the program was implemented at each school and the students carried out the Eco-Life Challenge. At each school, a preliminary screening panel was held to decide a representative, and on November 13, an Eco-Life Challenge Project Contest was held at which the representative teams from 19 elementary schools gave presentations. The five members from the winning team accompanied by two teachers and representatives of IRDA visited Kyoto from December 16 to 22 including primary school visit to join original Eco-Life Challenge program, courtesy call to the Mayor of Kyoto.

IMELC is planned to be implemented to 80 schools in 2014 and all 189 primary schools in 2015. We will continue our analysis to enable the project to be adapted to wider regions, and we hope to continue our research into establishing a legal framework such as an environmental education promotion law.

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