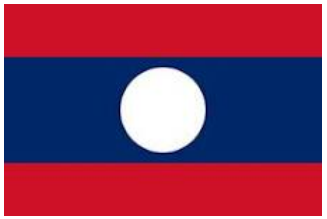
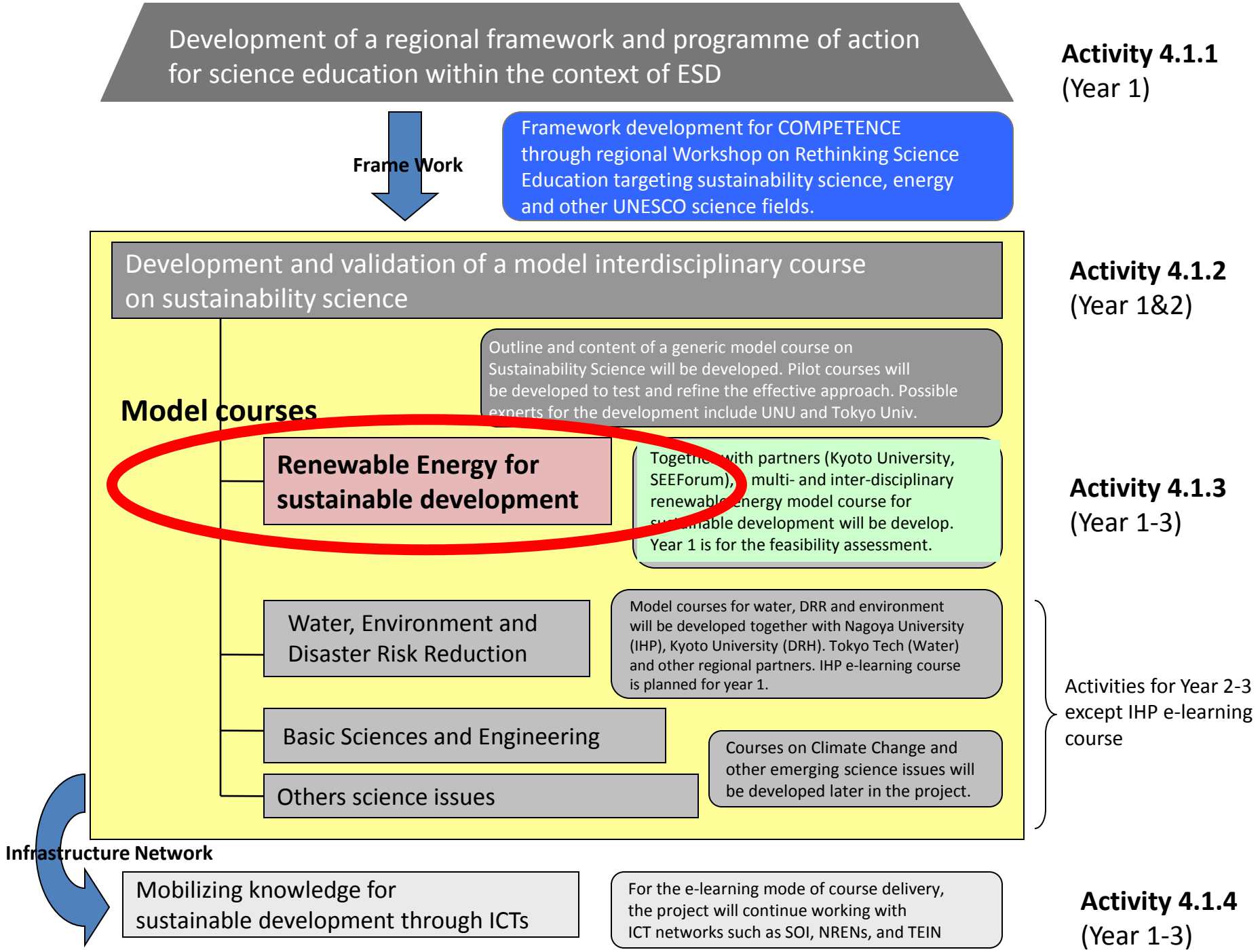



# UNESCO-COMPETENCE, “Energy for Sustainable Development in Asia” Course, and its extension activities in Vietnam, Laos, Cambodia, and Myanmar

H.Ohgaki, Kyoto University


Development of a regional framework and programme of action for science education within the context of ESD
Activity 4.1.1
(Year 1)
Frame Work
Framework development for COMPETENCE through regional Workshop on Rethinking Science Education targeting sustainability science, energy and other UNESCO science fields.
Development and validation of a model interdisciplinary course on sustainability science
Activity 4.1.2
(Year 1&2)
Outline and content of a generic model course on Sustainability Science will be developed. Pilot courses will be developed to test and refine the effective approach. Possible experts for the development include UNU and Tokyo Univ.
Model courses
Renewable Energy for sustainable development
Activity 4.1.3
(Year 1-3)
Water, Environment and Disaster Risk Reduction
Model courses for water, DRR and environment will be developed together with Nagoya University (IHP), Kyoto University (DRH). Tokyo Tech (Water) and other regional partners. IHP e-learning course is planned for year 1.
Basic Sciences and Engineering
Others science issues
Courses on Climate Change and other emerging science issues will be developed later in the project.
Activities for Year 2-3 except IHP e-learning course
Infrastructure Network
Mobilizing knowledge for sustainable development through ICTs
For the e-learning mode of course delivery, the project will continue working with ICT networks such as SOI, NRENs, and TEIN
Activity 4.1.4
(Year 1-3)

# Regional Experts Meeting to Develop a Model E-learning Course on Renewable Energy for Sustainable Development (19-20 May, 2010)

Jointly organized by
UNESCO Jakarta,
Directorate General of Higher Education,
Indonesian MoNE,
and Gadjah Mada University

# Objective

- To create  a multi- and inter-disciplinary **higher education** (undergraduate level & teacher) course that covers a broad range of energy for sustainable development issues
  - renewable energy technology and policy
  - energy-related environmental and social issues
  - gender and energy equity

***How energy can contribute to the MDGs.***

# Goals

To provide an understanding of

1) the linkage between energy services and sustainable development,
2) the current energy situation and the need for transition to a sustainable energy system,
3) different energy efficiency and renewable energy options and related issues,
4) role of energy efficiency and renewable energy in future energy scenarios.

# Mode of delivery

- The mode of delivery should facilitate access by students from different parts of the region for professional development and life-long learning.
  - Internet-based and be delivered through live video presentations with provision for downloadable presentations and lecture notes, online question and answer forums
  - Considering poor quality of Internet access prevalent in many developing countries, it would be useful to make all lecture materials available in the form of downloadable documents enabling off-line reading

United Nations Educational, Scientific and Cultural Organization

SEE Forum

## UNESCO E-Learning Course

# ENERGY FOR SUSTAINABLE DEVELOPMENT IN ASIA

Energy course is developed under COMprehensive Program to Enhance Technology, Engineering and ScienNCE Education (COMPETENCE)
The course will be delivered every 10.00 am - 12.00 pm (GMT+7)
For registration please visit www.connect-asia.org

### Theme 1: Understanding of Sustainable Development

10/02: Sustainable development, What are MDGs?; Prof. Hubert Gijzen, UNESCO
16/02: Energy access, linkage between energy and MDGs; Prof. Sivanappan Kumar, AIT

### Theme 2: Current Energy Situation and Needs to Transform Toward Sustainable System

17/02: Current energy situation, Resources and future energy scenarios; Prof. Sivanappan Kumar, AIT
22/02: Gender perspective; Ms. Christina Aristanti, Dian Desa
24/02: Social and environmental cost, Ethics and behavioral change issues; Prof. Tetsuo Tezuka, Kyoto University

### Theme 3: Current (Conventional) Energy Technologies

01/03: Technology and applications (pros and cons of technology options):
Nuclear power generation; Prof. Hideaki Ohgaki, Kyoto University
Fossil fuel power generation; Prof. Harwin Saptohadi, Gajah Mada University
02/03: Status of conventional energy technologies; Prof. P. Ravindra, University Malaysia Sabah

### Theme 4: Energy Efficiency

Energy efficiency technologies:
03/03: Sector wise opportunities in Japan and Asia; Prof. Keiichi Ishihara, Kyoto University
08/03: Sector wise opportunities in China and Asia; Prof. Yanjia Wang, Tsinghua University

Contact:
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UNESCO Office Jakarta
m.nakata@unesco.org
www.unesco.org/jakarta

**Theme 5: Renewable Energy**

10/03: Renewable energy technology; Prof. Hideaki Ohgaki, Kyoto University
15/03: Renewable energy technology - Bioenergy; Prof. V.K. Vijay, IIT
17/03: Support strategies to promote renewable energy (policy), Renewable energy as a tool to empower community; Dr. Bundit Funtamasan, JGSEE
22/03: Prof. Xi Wenhua, ISEC-UNIDO (tbc)

**Theme 6: Sustainable Energy Policy and Development**

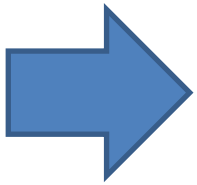
24/03: Local/national/global policies; Prof. Low Seow Chay, Nanyang Tech University
29/03: Stakeholder engagement; Prof. Low Seow Chay, Nanyang Tech University

**Theme 7: Case Studies**

31/03: Good practices (policy, technology innovation, public participations) and lessons learned; Prof. V.K. Vijay, IIT
05/04: Perspectives from participants; Prof. Kamaruddin Abdullah, Dharma Persada University and Dr. Dadan, Ministry of Energy, Indonesia (tbc)

# Outcome

- > 600 registrants from 23 countries (include EU and Central Asia)
- 130 accomplished
- 7 Essay Award Winners
- **Course materials : 7 themes (17 class, 16 lecturers)**



*Localization*

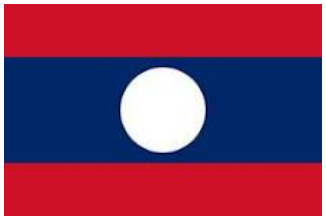
*Energy Issues : National Policy, Available Resources, Culture*

# Extension Activities under ODA-UNESCO

## Energy Science Education Activities for Sustainable Development in Asia

2011 : Vietnam

2012 : Laos



2013 : Cambodia

2014 : Myanmar

**2015 : Bangladesh : proposal submitted**

**(+ Timor-Leste)**

# Objective
## (ODA-UNESCO Program)

- To localize “Energy for Sustainable Development in Asia” for each country.

- Keep original concept (contents and target audience):
  - How can (renewable) energy contribute to MDGs.

# Mode of delivery
## (ODA-UNESCO Program)

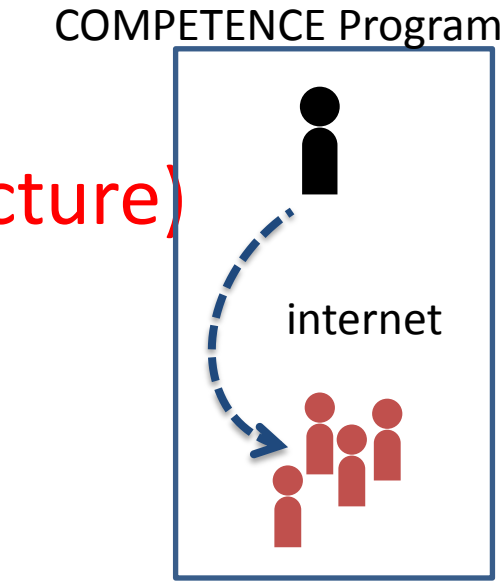
- Traditional style (face-to-face type lecture) would be suitable.

  *budget has been limited to 1yr project*

  - Need training seminar
  - Materials delivered via CDs or USBs
  - Downloadable from HP

    http://www.iae.kyoto-u.ac.jp/unesco-esd/

  - Textbook …
  - How to disseminate nation wide…




# Actual Activities - Timeline

1. **Match-up Workshop** to set-up the course and assignment of responsible lecturers (May-June) *material development*
2. **Human Capacity Building Workshop** to visit Japanese energy facilities and attend international symposium (Sept-Oct, @ Kyoto)
3. **Working Group Meeting** for verifying the content of educational materials (Dec) *brush-up*
4. **Local seminar/workshop** to disseminate and promote the energy course and materials (Feb)
5. **Evaluation Committee Meeting** to ensure the quality of the educational curriculum and materials (Feb)

1st workshop in Hanoi
May 30-31, 2011

2nd workshop in Kyoto University
September 26, 2011

3rd Workshop in Hanoi
December 25, 2011

Training Seminar in HCM
April 4-6, 2012

# Output (until Feb. 2015):

- **PPT materials** (in Vietnamese, Laos, Khmer, Myanmar, and English version of each country)
  - 7 themes = 14 (2hrs) – 28 (45min) class course
  - CD or USB delivery (downloadable from HP)
- **PPT supplemental material**
  - More than 1000p.
- **4 days Training Seminar** in Hanoi, HoChiMinh, Vientiane, Phnom Penh, Yangon:
  - More than 400 participants (certification)

- ***Future extension*** *: follow-up program (need survey!) and practice program for students (do something!)*

# Summary

- We have a very good experience, thanks to COMPETENCE program to initiate us!!
- Course materials becomes more sophisticated one.
- Good team with UNESCO energy experts, Vietnam, Laos, Cambodia, and Myanmar lecturers.

***Strong network has been established among them.***

| | COMPETENCE Course | Vietnam | Laos | Cambodia | Myanmar |
|---|---|---|---|---|---|
| Language | English | Vietnamese + English | Lao + English | Khmer + English | Myanmar + English |
| Expert meeting | 1+1(reviewing) | 3+1 | <= | <= | <= |
| Target Audience | Under Graduate Student | Lecturers | <= | <= | <= |
| Mode of delivery | E-Learning | Face-to-face | <= | <= | <= |
| Contents Themes | 7 | <= | <= | <= | <= |
| Session | 17 (2 hours) | 14 (2 hrs) | 14 (2 hrs) | 14 (1 hr) | 28 (45 min) |
| Supervisor | ASEAN experts | UNESCO experts | Vietnam experts | +Laos experts | + Cambodia experts |
| Term | 2010-2011 | 2011 | 2012 | 2013 | 2014 |


Thank you for your kind attention

United Nations Educational, Scientific and Cultural Organization

Japan Funds-in-Trust

# COMPETENCE | COMprehensive Program to Enhance Technology, Engineering, and ScienNCe Education in Asia

*The Role and Contribution of Higher Education Institutions*

A- A A+

Search...

## *"Rethinking Science Education"*

+ Excerpts

### Table of Contents



### About COMPETENCE

COMPETENCE focuses on rethinking science education to put it in the context of Sustainable Development, and introduces innovations into the teaching of science, technology, engineering and energy in higher institutions of learning and research and development bodies in Asia and the Pacific to make it a more effective tool to build their knowledge, skills and attitudes for sustainable living.

### COMPETENCE Team



### COMPETENCE Related Links



### Subscribe

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### General Objective

To use science education as a fundamental basis for sustainable development, and to engage youth, educational institutions, and governments to develop and use science education as a fundamental basis for sustainable development in Asia and the Pacific.

### Project Partners and Collaborators

SOI and CONNECT-Asia Network, APAN, Kyoto University, SEEForum, Hokkaido University CENSUS, Nagoya University, National University of Timor Leste, Brac University, Asian Institute of Technology, National University of Vietnam, National University of Laos, Keio University and other universities and research institutions in Asia

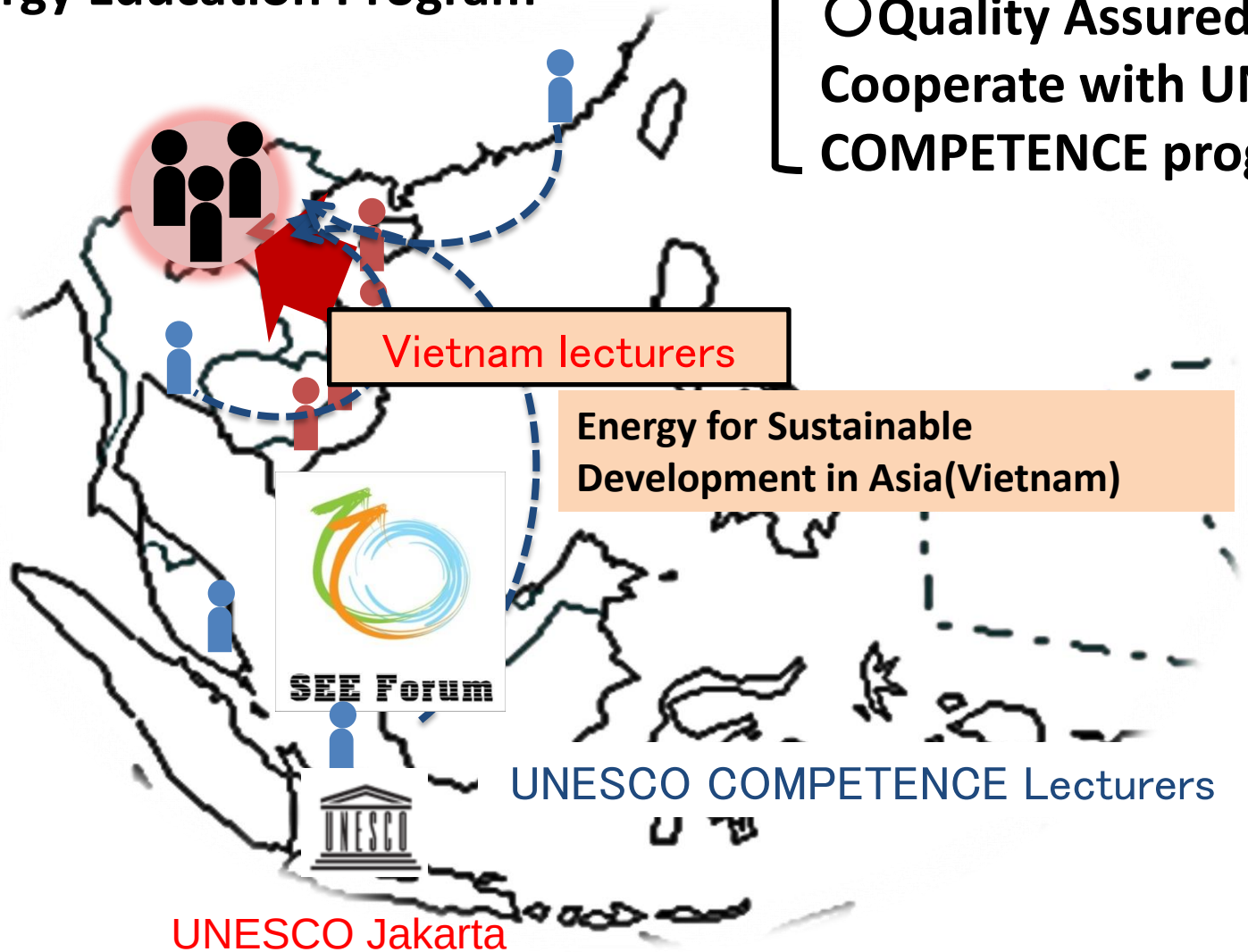
### For More Information:


**UNESCO Office Jakarta;** Regional Science Bureau for Asia and the Pacific.

Website: http://www.unesco.or.id
Mailto: jakarta@unesco.org
Phone: +62-21 739 9818 (Phone)
Fax: +62-21 7279 6489 (Fax)

## Development of Comprehensive Energy Education Program

- ○Human Resource Development in Energy Education
- ○Quality Assured in Cooperate with UNESCO COMPETENCE program



# Coordinators for each theme

| | **UNESCO team** | **Vietnam team** |
|---|---|---|
| **Theme 1**<br>Understanding of SD | Prof. S. Kumar, AIT | Prof. Luu Duc Hai, HUS |
| **Theme 2**<br>Current energy situation | Prof. Xi Wenhua, ISEC-UNIDO<br>Prof. T. Tezuka, Kyoto University | Dr. Nguyen Manh Khai, HUST |
| **Theme 3**<br>Current Energy technologies | Prof. Harwin Saptohadi, Gajah Mada University | Prof. Pham Hoang Luong , HUST<br>Dr. LE Duc Dzung, HUST |
| **Theme 4**<br>Energy efficiency | Prof. Keiichi Ishihara, Kyoto University | Dr. Nguyen Thi Anh Tuyet, HUST |
| **Theme 5**<br>Renewable energy | Prof. Hideaki Ohgaki, Kyoto University | Prof. Le Chi Hiep, Hochiminh City University of Technology |
| **Theme 6**<br>Sustainable Energy Policy | Prof. Low Seow Chay, Nanyang Tech University | Dr. Nguyen Thi Hoang Lien, HUS-VNUH<br>Dr. Nguyen Van Tai, MONRE |
| **Theme 7**<br>Case studies | Prof. Kamaruddin Abdullah, Dharma Persada University | Dr. Dang Thanh Tu, Institute of Environmental Technology |

**Goal 7. Ensure access to affordable, reliable, sustainable, and modern energy for all**

7.1 by 2030 ensure universal access to affordable, reliable, and modern energy services

7.2 increase substantially the share of renewable energy in the global energy mix by 2030

7.3 double the global rate of improvement in energy efficiency by 2030

7.a by 2030 enhance international cooperation to facilitate access to clean energy research and technologies, including renewable energy, energy efficiency, and advanced and cleaner fossil fuel technologies, and promote investment in energy infrastructure and clean energy technologies

7.b by 2030 expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, particularly LDCs and SIDS