



## International Conference

### The Global Education Program – Sustainability Science, Technology and Policy, Asia (SUSTEP Asia)

June 18 (Mon) – 20 (Wed), 2012,  
University of Tsukuba, Japan

### *JUNE 18*

#### *MORNING SESSION: INTERNATIONAL SEMINAR*

*Venue: G504(Institute of Biological and Agricultural Sciences Building G)*

*Time: 9:00 AM – 11:25 AM*

*Chair: Professor Misa Masuda*

<b>9:00 – 9:20</b>	Registration (at G503)
<b>9:20 – 9:30</b>	<b>Professor Kuniaki Miyamoto</b> , University of Tsukuba <i>Welcome address</i>
<b>9:30– 10:15</b>	<b>Professor Su Shew-Jiuan</b> , National Taiwan Normal University <i>The Role of Geography in Environmental Knowledge Production</i>
<b>10:15 – 11:00</b>	<b>Professor Tay Joo Hwa</b> , Fudan University Aerobic Granulation –An Innovative Biotechnology for Wastewater Treatment
<b>11:10- 11:25</b>	Joining our English Class by Prof. Zhang

#### *AFTERNOON SESSION: FIRST BUSINESS MEETING ON “ENGLISH CORE CURRICULUM”*

*Venue: G504 (Institute of Biological and Agricultural Sciences Building G)*

*Time: 13:30 PM – 17:30 PM*

*Chair: Professor Yoshiro Higano*

<b>13:30 – 14:00</b>	<b>Professor Luu Duc Hai</b> , VNU Hanoi
<b>14:00 – 14:30</b>	<b>Professor Feng Chuanping</b> , China Univ. of Geosciences
<b>14:30 – 15:00</b>	<b>Dr. Istiarto Hardjo Suprpto</b> , GadjahMada University
<b>15:00 - 15:20</b>	Coffee Break
<b>15:20 – 15:50</b>	<b>Professor Cecep Kusmana</b> , Bogor Agricultural University
<b>15:50 – 16:20</b>	<b>Professor Maki Tsujimura</b> , University of Tsukuba
<b>16:20 – 16:30</b>	Coffee Break
<b>16:30 – 17:30</b>	<i>Discussion And Preliminary Agreement</i>

## JUNE 19

### MORNING SESSION: INTERNATIONAL SEMINAR

Venue: G504 (Institute of Biological and Agricultural Sciences Building G)

Time: 9:00 AM – 11:40 AM

Chair: Professor Yoshiro Higano

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9:00 – 9:50	<b>Professor Le Thanh Son</b> , VNU Hanoi <i>Nano-materials as catalysts for biodiesel synthesis</i>
9:50 - 10:40	<b>Dr. Zhang Baogang</b> , China Univ. of Geosciences <i>Development of environmental protection in China and promising techniques introduction</i>
10:40 – 10:50	Coffee Break
10:50 – 11:40	<b>Professor Bambang Agus Kironoto</b> , GadjahMada University <i>Flow Characteristics of Clear Water and of Suspended-Sediment Non-Uniform Open Channel Flow</i>

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### AFTERNOON SESSION: INTERNATIONAL SEMINAR

Venue: G504 (Institute of Biological and Agricultural Sciences Building G)

Time: 14:00 PM – 16:00 PM

Chair: Dr. Helmut Yabar

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14:00 – 15:00	<b>Professor Lilik Budi Prasetyo</b> , Bogor Agricultural University <i>Trend Landscape Ecological Research in Indonesia: Application of GIS &amp; Remote Sensing for Conservation</i>
15:00 - 16:00	<b>Professor Djoko Legono</b> , GadjahMada University <i>Community-based Mt. Merapi Disaster Management</i>

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### AFTERNOON SESSION: INTERNATIONAL WORKSHOP

Venue: G504 (Institute of Biological and Agricultural Sciences Building G)

Time: 16:30 PM – 17:30 PM

Chair: Dr. Kenichi Matsui

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16:30 – 16:50	<b>Mr. Gonchig Gantulga</b> <i>The Establishment of Sustainable Livestock Farming Service in Galshir, Mongolia: Challenges and Possibilities of Integrated Governance</i>
16:50 – 17:10	<b>Miss Ngo Thi Lan Phuong</b> <i>A New Approach to Municipal Solid Waste Governance based on a Sound Material – Cycle Society Initiative in Hanoi, Vietnam</i>
17:10 – 17:30	<b>Mr. Hoang Thanh Tung</b> <i>Policy for Risk Management in the Rice Value Chain to adapt with Climate Change in Vietnam</i>

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**Dinner 18:00-20:00 (Participation of English Program Faculty, and EDL/JDS/G30 students)**

## ***JUNE 20***

***MORNING SESSION: SECOND BUSINESS MEETING ON “ENGLISH CORE CURRICULUM”***  
***Venue: Lab. for Environmental Disaster Prevention Research (Lecture Room 203)***

***Time: 9:00 AM – 11:30 AM***

***Chair: Professor Misa Masuda***

- Participation of all delegates: Discussion and final agreement

***EXCURSION: Visit Ibaraki Kasumigaura Environmental Science Center***

<b>11:50</b>	Departure from University Headquarter entrance
<b>12:30 – 13:30</b>	Lunch at Japanese Restaurant (Eel based dishes)
<b>14:00 –</b>	Ibaraki Kasumigaura Environmental Science Center

## ABSTRACTS

### **The Role of Geography in Environmental Knowledge Production**

Professor Su Shew-Jiuan, National Taiwan Normal University

In an era of rapidly changing world, the neutrality of knowledge production becomes challengeable. In particular, environmental knowledge is often produced with particular national concerns and goals that fit certain international fashions and standards. Therefore, the credibility and application of environmental knowledge for the solutions of local problems should be under close scrutiny.

In this paper, I will make theses on geography as a discipline of and for environment, and geography as a discipline of human spatial studies. I will mainly illustrate the significance of scales and scalar politics that deserve our attention in solving local environmental and geographical problems, in light of global implication. Social turn and spatial turn are two concepts that I will use to confirm my arguments for the production of geographical knowledge, rather than universally scientific environmental knowledge.

Two types of cases will be used to illustrate the significance of scale and to problematize scientific solutions for environmental problems. Coastal settlement issues (in global change era) and population displacement (and diaspora) issues are two types of questions that involve very different scales, but they both point to the significance of proper scales. In the end, I will explain why geographic knowledge matters!

**KEYWORDS:** *knowledge production, social turn, spatial turn, scales, coastal settlements, population displacement*

### **Aerobic Granulation –An Innovative Biotechnology for Wastewater Treatment**

Professor Tay JooHwa, Fudan University

Aerobic granulation sludge process is a promising biotechnology for wastewater treatment. Granulation is a process where microorganisms are self-immobilized into compact aggregates without the need for carrier media. Granules are dense and strong microbial structure, with excellent settling ability, high biomass retention, with mixed and diverse microbial community. Granules have good solid-liquid separation, Increase the volumetric conversion capacity, alleviate the impact of fluctuated loading rate, reduce land area requirement for sludge settling and able to simultaneous remove carbon and nutrients.

The formation, structure and metabolism of immobilized microbial community are associated very closely with hydrodynamic shear force in reactors. This talk attempts to review the essential factors for the formation and performance granular sludge. More compact, stable and denser aerobic granules form at relatively higher hydrodynamic shear force. It is clearly shown that shear force has significant influences on the structure, mass transfer, production of exopolysaccharides, metabolic/genetic behaviors of aerobic granules. In an engineering sense, hydrodynamic shear force can be manipulated as a control parameter to enhance microbial granulation process. It can be concluded that the knowledge regarding the effects of hydrodynamic shear force on granules is far from complete and much research is still needed to fully understand the relevant mechanisms.

## **Nano-materials as catalysts for biodiesel synthesis**

Professor Le Thanh Son, VNU Hanoi

Nowadays bio-fuels have prospect of becoming main energy resources in the future instead of fossil fuels. Biodiesel is a fuel made from natural vegetable oils, animal fats, and advanced non-food alternative crops with alcohol. Using biodiesel instead of regular diesel can therefore have a huge impact on the amount of CO<sub>2</sub> released overall. However, materials and technologies of producing bio-fuels still need developing much to take place fossil fuels completely. Nano porous materials are classified into several kinds by their size. According to IUPAC notation, micro-porous materials have pore diameters of less than 2 nm and macro-porous materials have pore diameters of greater than 50 nm; the meso-porous category thus lies in the middle. Meso-porous materials with regular geometries have been recently paid much attention owing to their great potentials in practical applications such as catalysis, adsorption, separation, sensing, medical usage, ecology and nanotechnology. In Vietnam, the government has approved "Project of developing bio-fuels up to 2015, vision up to 2025". Our research has been using NaOH, KOH solution, CaO/NaOH and sulfated SO<sub>4</sub><sup>2-</sup>-ZrO<sub>2</sub>/meso-porous SBA-15 materials as catalysts for the trans-esterification reaction. The reaction conversions were 60 to 89% for homogeneous and 25-70% for heterogeneous catalysts. The obtained biodiesel productions meet the diesel standard required specification as flashpoint D92, carbon residue D524, cetane number D613.

## **Development of environmental protection in China and promising techniques introduction**

Dr. Zhang Baogang, China Univ. of Geosciences

The importance of environmental protection has been recognized in China with development. Series of policies have been settled and progress has been made recently to solve the problems caused by two main factors: chemical oxygen demand (COD) and nitrogen. In the department of environmental engineering in China University of Geosciences Beijing, related techniques have been explored and the principles have been carefully studied. In the lecture, the speaker will introduce the development of environmental protection in China and the research progress of environmental techniques in China University of Geosciences Beijing.

## **Flow Characteristics of Clear Water and of Suspended-Sediment Non-Uniform Open Channel Flow**

Professor Bambang Agus Kironoto, GadjahMada University

The existence of non-uniformity of flow and of suspended sediment in open channel flows can influence the flow characteristics, such as velocity profile, suspended sediment concentration profile, etc. These flow characteristics can be significantly difference compared with those in uniform open channel flows. Non-uniform flows can be considered as accelerated and decelerated flows. How the existence of non-uniformity and of suspended sediment influence the flow characteristics, are examined in this study based on the laboratory experimental data obtained previously by Kironoto and Graf (1995) for clear water flows, and by Kironoto et al.

(2007) for suspended sediment flows, both for uniform and non-uniform open channel flows data. The analysis of the data is based on the known theories of uniform and non-uniform clear water open channel flows found in the literatures. The results of the analyzed data show that the existence of non-uniformity of flow, as well as the existence of suspended sediment, influence significantly to the velocity and suspended sediment concentration profiles. Compared with those of clear water flows, the  $Br$ -values for non-uniform open channel flows with suspended sediment, appear relatively to be smaller, although their values are still comparable. The trend of  $II = f(\beta n)$  for the data of clear water flow and flow with suspended sediment also show relatively different trends; both of them increase with the increasing value of the parameter of non-uniformity of flow — called as the pressure gradient parameter,  $\beta n$ . For accelerated flow with suspended sediment, the  $II$ -values are rather smaller than those of clear water flows; on the contrary, the  $II$ -values are rather greater in decelerated flows. In the range of data investigated in this study, the equations of suspended sediment concentration distribution of uniform flow, as was proposed by Rouse, can still predict satisfactorily the suspended sediment concentration profiles of non uniform flow data.

**Keywords:** *experimental data, clear water and suspended-sediment non-uniform flows, velocity profiles, suspended sediment profiles.*

### **Trend Landscape Ecological Research in Indonesia: Application GIS & Remote Sensing for Conservation**

Professor Lilik Budi Prasetyo, Bogor Agricultural University

Species distribution is important information for conservation program. Unfortunately, this kind of information is difficult to be provided due to access difficulties & very large area of conservation area compare to the resources. Geographical Information System, Remote Sensing and Radio telemetry application provide capability to overcome the problem. The technology can be applied to produce suitable habitat map, and species home range. Some example application for some key species would explain.

### **Community-based Mt. Merapi Disaster Management**

Professor Djoko Legono, GadjahMada University

The Directorate General of Water Resources (hereinafter referred as the DGWR), Ministry of Public Works of Indonesia has been recently conducting the disaster management project for Mt. Merapi (Urgent Disaster Reduction Project for Mt. Merapi, Progo River Basin) starting from 2006 until 2009. As a part of project, the study on institutional and community development targeting improvement of community knowledge and participation regarding the disaster management was applied. Since such community development requires continuous efforts for a long term, the result of the study has not changed the present conditions drastically; however, it shows a large potential of community participation in the disaster management because selected villages show self motivation to deal with the natural hazards. However, the response that had been performed by the community during the 2010 Mt. Merapi eruption has shown the necessity of the community participation in coping with Mt. Merapi disaster.

**Keywords:** *Vulnerability, disaster management, community participation*