IELP Symposium 2018
Report

20-21 January, 2018

国際環境リーダー育成プログラム（**IELP**）シンポジウム**2018**　報告書

Graduate School of Environmental Studies
International Environmental Leadership Program (IELP)
Tohoku University
Sendai, Japan

東北大学
大学院環境科学研究科
国際環境リーダー育成プログラム（*IELP*）

Symposium participants group photo, 20th January, 2018
シンポジウム参加者集合写真

IELP Symposium 2018
Report

20–21 January, 2018

国際環境リーダー育成プログラム（IELP）シンポジウム2018　報告書

Graduate School of Environmental Studies
International Environmental Leadership Program (IELP)
Tohoku University
Sendai, Japan

東北大学
大学院環境科学研究科
国際環境リーダー育成プログラム（*IELP*）

Index

Greetings from the Dean

研究科長よりご挨拶

The Graduate School of Environmental Studies was established in 2003 to play a responsible role as a knowledge provider and to foster students to be future leaders with wide global perspectives and a high level of expert knowledge. The International Environmental Leadership program, IELP is the second phase of our international educational program, which is designed to develop human resources, which hold the key for solving future environmental issues in Asia and Africa. Phase 1 of our environmental leadership program, Strategic Energy and Resource Management and Sustainable Solutions, SERMSS, had been supported by the Japan Science and Technology Agency, JST, as a five year "Special Coordination Funds for Promoting Science and Technology" from 2010 to 2014. Both of our educational programs have successfully provided excellent opportunities for students to develop their critical thinking skills and global views. With the experience of interdisciplinary learning in a global context and the development of critical thinking skills, many alumni have been taking an active role in their individual positions in the world.

I hope all the participants of the IELP symposium got a lot of positive inspiration from the presentations by excellent guests, and had fruitful and rewarding exchanges there.

We sincerely appreciate all the support for and contributions to the symposium, and would appreciate your continued support in the future.

東北大学大学院環境科学研究科は*2003*年に世界大の広い視野と高い専門性を持った人材育成を理念として設立されました。設立以来、国際的な環境リーダー育成を目指した２つの教育プログラムが実施されました。一つ目の教育プログラム「国際エネルギー・資源戦略を立案する環境リーダー育成拠点*(SERMSS)*」は*2010*年から*2014*年にかけて*5*年間*JST*の補助を受けて実施されました。引き続き二つめの教育プログラムである「*International Environmental Leadership Program(IELP)*」はアジア、アフリカにおける将来の持続可能な社会形成に資する人材育成を目指して実施されております。両プログラムともに、これまで高度な専門性と分野融合型の広い視野を有する優秀なリーダー候補生を輩出してきました。

このたび*IELP*シンポジウム*2018*は、素晴らしいゲスト講師と世界各地で活躍している修了生を迎え、青葉山にて成功裏に開催されました。現役学生を含むシンポジウム参加者の多くは、有意義かつ実りある*2*日間の交流を楽しんだことと確信しております。本シンポジウム開催に際し、ご支援ご協力を賜りました全ての皆様に心より御礼を申し上げます。また今後ますますのご支援を賜りますようお願い申し上げます。

Toshiaki Yoshioka

Dean, Graduate School of Environmental Studies
Tohoku University

東北大学大学院環境科学研究科
研究科長　吉岡　敏明

Symposium objective

開催趣旨

The International Environmental Leadership Program (IELP) was launched in October of 2014 as an "International Priority Graduate Program" with support from the Ministry of Education, Culture, Sports, and Technology (MEXT) in Japan. It builds on our predecessor program, the above-mentioned SERMSS program, and offers a combined masters and doctoral degree program over a total of five-years. The overall objective of IELP is to foster leaders who can solve diverse sustainability issues in both a local and global context. These goals are pursued through specialized research in one of the various research laboratories in the Graduate School of Environmental Studies as well as in a specially designed IELP curriculum. This offers students the opportunity to learn about diverse sustainability issues from various disciplines and viewpoints and develop important skills relative to sustainability careers such as critical thinking, anticipatory competencies, teamwork, communication and problem solving.

With nearly four years passed since the launch of IELP, several students have completed the masters program and are now in the mid to advanced stages of their doctoral degree. Therefore, they are now starting to think more and more about the type of career that they will pursue upon graduation to apply the skills gained in IELP. They are also anxious about additional preparation required for smoothing the transition from a PhD degree to the job market.

The IELP Symposium 2018 was held to assist current IELP students in this task. It was also held to increase the understanding for our faculty on the types of careers that internationally trained environmental professionals are able to develop, and the relevance of higher education to these. To achieve this, we reached out to alumni from the former SERMSS program and invited approximately a dozen to join the symposium and deliver their insights to current students about important strategies for building a fulfilling sustainability career.

We would like to extend our most sincere appreciation to all SERMSS graduates who attended this symposium. We are highly proud of the work that you are carrying out and are immensely pleased to see how your hard efforts in the job market have contributed to our ultimate objective of fostering highly skilled and effective international environmental leaders for tackling the diverse sustainability challenges of the 21st century.

国際環境リーダー育成プログラム（以降*IELP*）は文部科学省「国費外国人留学生の優先配置を行う特別プログラム」として*2014*年*10*月より開始しました。「国際エネルギー・資源戦略を立案する環境リーダー育成拠点*(SERMSS)*」の後継プログラムとして、*IELP*は博士課程前期から博士課程後期へと続く*5*年間の教育システムを提供しています。本プログラムでは、持続可能性に関する多種多様な問題を、局所的および大域的に解決できるリーダーの育成を総合目標としています。この目標は、本研究科の研究室では専門的な研究を通して、また*IELP*では専門カリキュラムにおいて追求されています。これにより学生は、様々な規律と観点から持続可能性に関する問題について学ぶ機会を得、そして批判的思考能力や予測能力、チームワーク力、コミュニケーション能力や問題解決力のような、生涯に渡って使える重要な能力を培うことができます。

*IELP*が始動して間もなく*4*年となり、博士課程前期を修了し博士課程後期も中盤を迎えた学生もおります。そのため、*IELP*で得た能力を発揮できる修了後の進路について模索を始めています。また、博士号取得から就職活動へのスムーズな移行に必要な備えや心構えについても案じているところです。

*IELP*シンポジウム*2018*は、このような課題を持つ*IELP*学生を支援するために開催されました。また、国際的な教育を受けた環境分野のエキスパートが活躍できる職業や組織について私達自身の理解を深め、かつ高度教育の関連性を高めるという目的もあります。そしてこれを実現するために、この度*10*名の*SERMSS*プログラム修了生を本シンポジウムへ招き、充実し生涯続けられるキャリアの形成に必要な戦略について、それぞれの見解を現役学生へ向けて発表してもらう機会を設けました。

本シンポジウムにご参加いただいた*10*名の修了生には研究科一同心より感謝申し上げます。皆さんの活躍が、国際環境リーダーの育成に大きく寄与していることを知り、非常に嬉しく頼もしく感じています。

IELP Symposium 2018 Program

Day 1: January 20th, 2018

Opening session 開会

10:00 ***Welcome remarks by Prof. Kazuyo Matsubae, IELP working group head, GSES***
開会挨拶／環境科学研究科　***IELP***ワーキンググループ長　松八重 一代 教授

10:05 ***Introduction by Assoc. Prof. Gregory Trencher, IELP working group member, GSES***
プログラム紹介／環境科学研究科　***IELP***ワーキンググループ　グレゴリー トレンチャー 准教授

Morning session 午前の部

10:15 ***Plenary talk "Things you have to look at while you stay in Japan ~ one of the most difficult countries to realize Net Zero Emissions ~"***
by Prof. Emer. Itaru Yasui, The Univ. of Tokyo
Former Vice-Rector of the United Nations University
Former President of National Institute of Technology and Evaluation
基調講演／東京大学名誉教授　安井 至 氏(一般財団法人 持続性推進機構***IPSuS*** 理事長・国連大学前副学長)

11:45 ***Lunch*** 昼食

Afternoon session 午後の部

13:00 ***Session 1--- [Meet SERMSS alumni] -- Presentations***
第***1***部／環境リーダー育成プログラム修了生プレゼンテーション
Dr. Shogo Kumagai / Assist. Prof. GSES 環境科学研究科　熊谷 将吾 助教
Dr. Hajime Ohno / Assist. Prof. of School of Engineering 工学研究科　大野 肇 助教
Dr. Anna Suzuki / Assist. Prof. of Institute of Fluid Science 流体科学研究所　鈴木 杏奈 助教
Dr. Yuta Kimura / Assist. Prof. IMRAM 多元物質科学研究所　木村 勇太 助教
Dr. Hikaru Nishizaka / City of Sendai 仙台市　西坂 光 氏
Dr. Paulo Sousa / EX Research Institute Ltd. 株式会社エックス都市研究所　パウロ　ソウザ 氏
Dr. Riyan Achmad Budiman / AIST: National Institute of Advanced Industrial Science and Technology
国立研究開発法人産業技術総合研究所　リヤン アクマド ブディマン 氏
Mr. Mohammad Shofie / Kubota Corporation, Jakarta 株式会社クボタ　モハマド ソフィー 氏
Ms. Abhilasha Sumangal Devaraj / Toyota Motor Corporation トヨタ自動車株式会社　デバラジ アビラーシャ スマンガル 氏
Mr. Milkos Borges Cabrera / Ph.D. candidate, GSES 環境科学研究科博士課程後期　ミルコス ボルゲス カブレラ 氏

15:00 ***Break*** 休憩

15:30 ***Session 2--- [IELP students meet SERMSS alumni] -- Panel discussion***
第***2***部／教授、修了生、***IELP***現役学生によるパネルディスカッション
Panelists: パネリスト
Prof. Emer. Itaru Yasui / The University of Tokyo 東京大学名誉教授　安井 至 氏
Prof. Ryo Kohsaka / GSES, Tohoku University 環境科学研究科　香坂 玲 教授
Ms. Abhilasha Sumangal Devaraj / Toyota Motor Corporation トヨタ自動車株式会社　デバラジ アビラーシャ スマンガル 氏
Ms. Arie Pujiwati / Ph.D. candidate, GSES, Tohoku University 環境科学研究科博士課程後期　アリー プジワティ 氏
Mr. Phan Thanh Chien / Ph.D. candidate, GSES, Tohoku University 環境科学研究科博士課程後期　ファン タン チェン 氏

Closing session 閉会

16:30 ***Address from former SERMSS faculty, Specially-appointed Prof. Michael Norton,***
Tokyo Institute of Technology
環境リーダー育成プログラム前専任教員挨拶／東京工科大学　マイケル ノートン 特任教授

16:45 ***Closing remarks by Dean of the GSES, Prof. Toshiaki Yoshioka***
閉会挨拶／環境科学研究科　吉岡 敏明 研究科長

Group photo session 記念写真撮影

Day 2: January 21st, 2018

8:30 Leave Aobayama
9:30 Site visit: Shiogama Seafood Wholesale Market
12:30 Site visit: Onagawa Nuclear Visitor Center
15:00 Activity: Interview with the locals near Onagawa station
17:30 Come back in Sendai

Plenary talk by Professor Emeritus

Itaru YASUI

基調講演

東京大学名誉教授　安井 至 氏

"***Things you have to look at while you stay in Japan—one of the most difficult countries to realize Net Zero Emissions***"

Overview

We were honored to receive a keynote lecture by Prof. Emer. Itaru Yasui, who is currently the Director of the Institute for Promoting Sustainable Societies in Tokyo. He was formerly the Vice-Rector of the United Nations University in Tokyo and a Professor Emeritus at the University of Tokyo. His research has specialized in environmental science, risk assessment and management of chemical substances. Dr. Yasui now runs a blog at http://www.yasuienv.net and writes on many contemporary environmental topics in a way that is easy for the public to understand. Below, several student participants summarize key messages from this talk as well as their reactions to these.

Renata Khasenova (2nd year doctoral candidate, Russia)

Prof. Yasui began his presentation with an introduction on amazing scenic spots in Japan like the hydrogen sulfide mountain in Kawarage Jigoku in Akita; hot springs with water up to 95 degrees Celcius in Koyasu Valley in Akita, and Yudono-san Shrine in Yamagata. These scenic areas epitomize Japan in certain ways, particularly from the perspective of Japan's beautiful and unique nature, its shortage of natural resources, the non-aggressive mentality of its people, and its ancient history.

From here, Prof. Yasui moved on to focus on key problems in contemporary society and humanity in general. He focused on population issues in Japan relative to the rest of the world since population can therefore help us understand other societal changes that have developed recently. In Japan's case, population aging and shrinking are two defining issues, especially since Japan's population is the most aged on the planet and is forecast to drop from around 126 million to 100 million by mid-century. Although Prof. Yasui did not mention this, I think it is a logical step for developed countries to eventually reach a phase of negative growth value after a period of growth. I feel that this can be argued when considering that—as Prof. Yasui highlighted—our existence on Earth is governed by basic, universal laws. Despite this commonality, when confronting future sustainability challenges like depopulation and energy, it is important that each country takes into account their unique landscape and historical issues. Prof. Yasui also drew attention to the natural limits of the Earth by explaining the concept of the "planetary boundaries". Although technological innovation in human history such as the industrial revolution and agricultural revolution helped us to achieve a more convenient and safe life, on the flipside it has generated unavoidable consequences. We have now crossed several planetary boundaries including CO2 emissions from fossil fuels, loss of biodiversity, and interference with the global nitrogen and phosphorous cycle from chemical fertilizers.

I enjoyed the Q&A session very much. We discussed some disputable points and Prof. Yasui gave us his vision of such issues. I was glad to hear that Prof. Yasui might not know the details of a particular topic raised by a student but was impressed how he was able to find a fitting answer or lead students to make a decision. Although I cannot agree with some points, for instance regarding the need for nuclear power, I respect that Prof. Yasui has his own opinion and evidence to support this.

Meshal J. Abdullah (1st year masters candidate, Kuwait)

Prof. Yasui covered a lot of ground in his talk and I was impressed how he could fit in so much in such a short time. In the latter part of his talk he focused on the strategies of many prominent and emerging companies that are working toward meeting the environmental challenges created by industrialized society and the declining state of natural resources. He also drew attention to an initiative spearheaded by international organizations such as government pension investment funds that adhere to the United Nations Principles for Responsible Investment (UN-PRI). These funds seek to create an investment system that supports the achievement of sustainability targets. Prominent examples include national government pension funds in Norway, Sweden, New York and California. These operate on the firm belief that fossil fuel projects should not be financed and that long-term, responsible investment will benefit the environment and society in the long-term.

Prof. Yasui's talk also covered energy topics. After explaining the importance of renewable energy, and hybrid or electric cars for transport he underlined the government's commitment to re-establishing nuclear power as the main source of energy supply by 2030. He emphasized that innovation will take nuclear reactor design to new heights (such as miniaturization to fit into public transport vehicles) but also explained that many technological challenges will need to be addressed—for example, the issue of how to deal with the bioproduction of polonium via nuclear power reactors. Bringing us back full circle to the topic of the difficulty of achieving net zero emissions in Japan, he drew attention to the immense land requirements of renewable energy such as solar and wind in land-constrained Japan. After that the floor was open for a Q&A session that was as engaging and as entertaining as the talk itself.

Angga Hermawan (1st year doctoral candidate, Indonesia)

While listening to Prof. Yasui's keynote presentation I realized that Indonesia and Japan share common difficulties regarding implementation of the Paris Agreement. This is because both nations have very similar characteristic especially from a geographical perspective. Indonesian is an archipelago country with more than 17,000 islands. Population is unevenly distributed and the nation is still very dependent on non-renewable energy. However, electricity and energy demands increase every year because of the massive infrastructure planned by Indonesian government. Because of the geographical features, it is very hard to distribute the electricity from one island to another island. I therefore agree with Prof. Yasui who spoke about the potential of using submarine DC (direct current) cables to transport electricity over long distances in a cost effective manner. Actually, the Indonesian government has set out to achieve 23% renewable energy use by 2025, and 31% by 2050. Achieving these targets could be possible, in my opinion, if the Indonesian government focuses more on developing renewables for industry, buildings and transport. In addition, it should develop a comprehensive bioenergy program to ensure sustainable development and use of this vital energy source. I think bioenergy source is more promising for Indonesia than solar or wind energy considering the more affordable cost and the diversity of plantations across Indonesia. We are currently the biggest exporting nation for palm oil and, therefore, research on the utilization of palm oil as bioenergy should get more attention.

Alumni session

修了生紹介

Overview

During the IELP Symposium we were fortunate enough to be able to invite 10 graduates of the former SERMSS program, which IELP has since replaced. All of these graduates are now working as environmental professionals in various fields that range from academic research, local government, international automotive and engineering companies, and environmental consulting firms. Many graduates have found employment within Japan while several have found employment abroad, but with Japanese companies. The common objective of the SERMSS and IELP programs is to foster young environmental leaders with the ability to carry out sustainability problem solving in an international setting. From this perspective, we are very proud to see how our graduates have managed to find highly-skilled employment positions in various environmental problem-solving tasks. These include developing electrical powertrains and dealing with environmental legal aspects in Toyota hybrid vehicles, installing and operating biogas plants in Indonesian palm oil plantations, overseeing technical operations in a local waste water treatment run by the municipality, and performing research at positions in both academia and private consulting firms.

In the below sections we introduce the alumni that were kind enough to attend our symposium to share their experiences with current IELP students and faculty. They also provide reflections on their memories of the SERMSS program as well as advice for current students.

10 graduates

Shogo Kumagai
熊谷　将吾

1

Nationality / Degree / Date of graduation
Current affiliation

Japan / Ph.D.(Environmental Studies) / March 2015
Tohoku University
Graduate School of Environmental Studies (Assist. Prof.)

国籍／学位／修了年月
現在の所属

日本／博士（環境科学）／2015年3月
東北大学大学院環境科学研究科　助教

What were the most important or beneficial experiences you had in SERMSS?

環境リーダプログラムで得た重要な経験は？

Lectures regarding environmental studies by Prof. Norton, Prof. Plagens, and Prof. Tanaka were very attractive. In their lectures, students frequently had to communicate to each other and present their own opinion. Because of this frequent communication with each other, we gained deep understanding into the research of our colleagues from other fields that were totally different from my own. This was a great experience for cultivating our holistic ability to recognize sustainability problems and formulate solutions.

ノートン教授、プレゲンス教授、田中教授らによる環境科学に関する講義が大変魅力的でした。講義では頻繁に学生同士でかつ英語で意見交換をし、発表しなければならず、そのお陰で異なる研究畑の仲間達とより深く理解し合うことができました。これが持続可能性に関する問題提起・解決立案のための総合的な能力を養う貴重な経験となりました。

Hajime Ohno
大野　肇

2

Japan / Ph.D. (Environmental Studies) / March 2014
Tohoku University
Graduate School of Engineering (Assist. Prof.)

日本／博士（環境科学）／2014年3月
東北大学大学院工学研究科　助教

What were the most important or beneficial experiences you had in SERMSS?

環境リーダプログラムで得た最も重要な経験は？

For me the fact that I was able to study in English has been a huge advantage for my career in academia as a young Japanese researcher. In addition, I also gained a lot of international experience, for example, from participating in a conference in Vietnam. Here I was able to meet other researchers in my field from all around the world as well as gain valuable feedback on my research.

日本人若手研究者として学術分野でキャリアを積む上で、英語で講義を受けられたことは大変有益でした。更に、ベトナムでの学会に参加するなど国際経験を多く積むことができ、自分と研究分野を同じくする世界中の研究者達と出会い、自身の研究に対する貴重な意見も得ることができました。

Anna Suzuki
鈴木　杏奈

3

Japan / Ph.D. / March 2014
Tohoku University
Institute of Fluid Science (Assist. Prof.)

日本／博士（学術）／2014年3月
東北大学流体科学研究所　助教

What were the most important or beneficial experiences you had in SERMSS?

環境リーダプログラムで得た最も重要な経験は？

By studying with colleagues from all over the world and conducting an internship abroad I was able to build many international connections. These have proved invaluable to my present career.

世界各国の仲間達と共に学び、海外でのインターンシップに参加したことで、多くの国際的な関係を結ぶことができました。このかけがえのない経験が私の現職に繋がっています。

Yuta Kimura
木村　勇太

4

Japan / Ph.D. (Environmental Studies) / March 2015
Tohoku University Institute of Multidisciplinary Research for Advanced Materials (Assist. Prof.)

日本／博士（環境科学）／2015年3月
東北大学多元物質科学研究所　助教

What message do you have for current IELP students?

*IELP*在学生にメッセージをお願いします。

I think that a way of thinking advocated by Elon Musk, the founder of Tesla Motors, is really important. He talks about the importance of starting from "first principles". That is, when you are confronted with a problem you boil it down to the most fundamental truths and then reason up from there. This can help to avoid accepting "common sense" and lead to higher levels of originality and innovation. I try hard to integrate this way of thinking into my career as a researcher.

テスラモーターズ共同設立者のイーロン・マスクの提唱する、第一原則から始めるという考え方が、非常に重要であると思います。つまり、問題に直面した場合、根本的真実まで突き詰め、そこから論理的に考えて行くということです。これは「常識」にとらわれることなく、より高いレベルの独創性や革新へ導いてくれます。私はこの思想を自身の研究者としてのキャリアに取り込み邁進して行きたいと思います。

Hikaru Nishizaka
西坂　光

5

Japan / Ph.D. / March 2015
City of Sendai
Minami-Gamo Wastewater Treatment Plant (Technical Officer)

日本／博士（学術）／2015年3月
仙台市南蒲生浄化センター　技術管理者

Please describe your current professional activities and your motivations for this position.

あなたの現職と、志望動機について教えてください。

I am currently working as a technical officer for the City of Sendai. I work at the Minami-Gamo Wastewater Treatment Plant which treats about 70% of waste water from Sendai. I decided to join the municipality sector after visiting overseas and realizing that local government plays such a big role in delivering public services like water treatment etc. The Minami-Gamo Wastewater Treatment Plant was destroyed by the tsunami and it had to be rebuilt while continuing to treat waste water. Since I wanted to share these experiences with the world so I published a journal paper last year about this.

現在私は仙台市の南蒲生浄化センターにて技術管理者として勤務しています。ここでは、市内の70%に及ぶ廃水を浄化処理しています。海外の地方行政が水処理等の公共事業において重要な役割を果たしていることを現場で目の当たりにし、将来の進路を地方自治体に決めました。南蒲生浄化センターは東日本大震災による甚大な津波被害に合いながらも、再建と稼働を同時進行しました。この経験を世界に共有すべく、私は昨年論文を発表しました。

Paulo Sousa
パウロ ソウザ

6

Brazil / Ph.D. (Environmental Studies) / September 2015
EX Research Institute, Tokyo (Consultant)

ブラジル／博士（環境科学）／2015年9月
㈱エックス都市研究所　コンサルタント

What were the most important or beneficial experiences you had in SERMSS?

環境リーダプログラムで得た最も重要な経験は？

I would say the ability to analyze the same environmental issue from different points of view. As a consultant, it is essential to have both a specialized and a bird's eye view about any environmental issue. This experience in terms of analytical thinking gained from the SERMSS program is used on a constant basis in my work.

同じ環境問題に対し、異なる視点から分析していく能力を得たことです。コンサルタントとして、いかなる環境問題に関しても専門的視点と鳥瞰的視点の両方を備えていることが不可欠です。環境リーダープログラムで会得した、分析的思考力が現職のコンサルタント業務の原理として活かせています。

Riyan Achmad Budiman
リヤン アクマド ブディマン

7

Indonesia / Ph.D. / September 2015
National Institute of Advanced Industrial Science and Technology, Ibaraki (Special Researcher)

インドネシア／博士（学術）／2015年9月
国立研究開発法人産業技術総合研究所
特別研究員

What were the most important or beneficial experiences you had in SERMSS?

環境リーダプログラムで得た最も重要な経験は？

I would say presentation and discussion skills as well as the ability to see a problem from another point of view. All of this has proved valuable for improving my presentation and speaking skills during job interviews.

プレゼンテーション・ディスカッション能力と、異なる視点から問題を捉える能力を得たことだと思います。これらの経験を通じ、就職面接の場に必要なプレゼンテーション能力や会話力を向上させることができました。

Mohammad Shofie
モハマド ソフィー

8

Indonesia / Master of Environmental Studies / September 2014
Kubota Corporation, Jakarta (Engineer)

インドネシア／修士（環境科学）／2014年9月
㈱クボタ　ジャカルタ分室　エンジニア

What message do you have for current IELP students?

IELP在学生にメッセージをお願いします。

I would like to encourage IELP students, especially those from developing countries such as Indonesia (as in my case), don't merely seek comfort and wealth after graduation. Instead, you should challenge yourself to develop your capacity as an environmental leader by consistently doing the right thing. As environmental leaders, we have a special moral responsibility to think, act, and live according to the principles of sustainable lifestyle. Please keep this in mind when you return to your country after graduation from Tohoku University. I wish you all the best of luck!

大学院を修了しても、ただ快適さや裕福さだけを求めるのではないと言うことを、学生の皆さんに、特に私の母国インドネシアのような新興国出身学生にお伝えしたいです。むしろ自身に挑戦し信念を貫き環境リーダーとしての能力を広げて行ってほしいです。私達は環境リーダーとしての道徳的責任が特にあり、持続可能なライフスタイルの原理を忘れずに考え、行動し、生活をしていかなければなりません。東北大学を修了し帰国した後もこれを心に留めてください。皆さんのご健闘をお祈りします。

Abhilasha Sumangal Devaraj 9

デバラジ アビラーシャ スマンガル

India / Master of Environmental Studies / September 2015
Toyota Motor Corporation, Aichi (Engineer)

インド／修士（環境科学）／2015年9月
トヨタ自動車㈱　エンジニア

What were the most important or beneficial experiences you had in SERMSS?

環境リーダプログラムで得た最も重要な経験は？

Because of the diverse members in the SERMSS program, I was able to gain knowledge about environmental issues in other countries from students from discussions during classes. Also, by participating in various fieldwork in different countries and contexts I was able to understand how people from other cultures think when it comes to raising awareness of environmental problems.

プログラムの参加者が国際色豊かでしたので、講義の際には他国の学生からそれぞれの環境問題について知識を得ることができました。また、国も内容も異なる様々なフィールドワークへの参加により、環境問題提起の際、多文化の人々がどのように考えるのか理解することができました。

Milkos Borges Cabrera 10

ミルコス ボルゲス カブレラ

Cuba / September 2018 (expected)
Tohoku University
Graduate School Environmental Studies (Ph.D. candidate)

キューバ／2018年9月（修了予定）
東北大学大学院環境科学研究科
博士課程後期　学生

What message do you have for current IELP students?

IELP在学生にメッセージをお願いします。

To be sustainable is the only way to guarantee the future of the planet and humanity. So everything we think about and strive for should be in the goal of pursuing sustainability.

持続可能であることこそが地球と人類の未来を保障します。ですから、私達が考え目指しているすべてのことが、持続可能性の追求というゴールにあるはずだと考えます。

Panel discussion

Overview

A panel discussion took place after the lunch break with a dual objective.
Firstly, to allow participating IELP students to learn about how alumni and invited guests viewed sustainability challenges, and secondly, to provide key insights into how fulfilling and productive careers can be achieved in the sustainability field.
A series of questions were organized by students in advanced and the invited panelists then related their responses to the audience.
Some highlights of this discussion are presented below.

In your opinion, what are some of the most important initiatives for sustainable development taking place currently? Why are they important?

Prof. Ryo Kohsaka / Tohoku University

In my view, there are two highly significant initiatives taking place currently. Firstly, the United Nations Sustainable Development Goals (UN-SDGs) and the predecessors, the Millennium Development Goals (MDGs). After completion of the MDG time period the World Bank reflected on results-to-date and they expressed regret that many goals had not been achieved. It is interesting to note that in their assessment reports they pointed out that the market and private sector had played a key role in development by helping to lift large numbers of people out of poverty. Despite this, the importance of market forces are often forgotten in discussions about sustainable development. As a second initiative, internationally binding instruments such as the Paris Agreement are important. I find that it is all too easy to say they are useless. But let's face it. It is more difficult to find a meaningful alternative. Even when you look at the efforts of individual frontrunner cities to say mitigate climate change, although these efforts are important they are not occurring on the same scale and the efforts that a global instrument can foster.


Ryo Kohsaka


Itaru Yasui

Prof. Emer. Itaru Yasui / The University of Tokyo

It is important to follow the history of the concept "sustainable development", beginning from say around the 1970s or so. Environmental problems are largely the result of different types of industrial activities. Since the nature of these problems is highly dependent on local circumstances, there is no single universal approach or solution to pursuing sustainable development. For example in Japan we have experienced so called "kogai" problems with air and water pollution and this was the start of our so-called "unsustainable" society. Since this time, new technologies were invented to tackle that situation. But in addition to these technologies, when pursuing sustainability it is also essential that we think about the rights of future generations.

Shogo Kumagai

What are some of your thoughts on the types of future strategies required for us to build a sustainable society?

Ms. Abhilasha Sumangal Devaraj / Toyota Motor Corporation

In my experience, I am finding that everything is interconnected and interdisciplinary. I work with cars so if you are polluting this can affect the air, and this in turn can then affect people's health. Yet when you work for a company you tend to focus on one small thing. So pursuing sustainability in the context of Toyota is not just about making sustainable cars, it is also about making the production process itself sustainable and this tends to be forgotten. Keeping this integrated perspective is really important for developing strategies to increase societal sustainability I feel.


Abhilasha Sumangal Devaraj

Prof. Emer. Itaru Yasui

The question of culture is important. But knowing is also important. For example, we have to build scientific knowledge to help us understand the nature of the problems we are facing and the measures required to address these. One of the best examples out there is the concept of the "planetary boundaries". These show us that there are in fact ecological boundaries in the Earth's system that cannot be crossed. So building this understanding is the first step to advancing sustainability I would say.

Prof. Ryo Kohsaka

Looking at how innovation occurs is also helpful. For example, before I said that the market is important but leaving all to the market does not solve all problems. Policy is important. Automotive policies in the 1970s were important for kick-starting industrial innovation to combat air pollution. Germany when faced with new policies was worried they would lose competition to Japan, and this spurred competitiveness and innovation. Another really important issue that we are yet to resolve completely is how to negotiate around sustainability issues in the context of development—for example, when building an airport. Most people are supportive of such a proposal. But when it comes to integrating sustainability concerns and achieving stakeholder consensus, then development becomes much more difficult.

In your opinion, what is the most pressing issue facing the environment today, especially in your countries?

Mr. Phan Thanh Chien / IELP doctoral candidate

In developing countries I would say air and water pollution. For example, in Hanoi in my home country, air pollution is the main concern. The main cause lies in drastic increase of motorcycle and automobile use. They are currently contributing up to around 70% of air pollution in our cities. In addition, coal-fired power plants are also contributing to the problem as well as mining, especially with old and inefficient mining equipment. I have even personally experienced incidences involving environmental damage such as water pollution. In Vietnam there was a large scale incident of fish die back near a steel mill. After much denial the mill was forced to provide compensation and adopt anti-pollution measures. But it is still unclear if the clean-up measures have been effective or not.


Arie Pujiwati

Ms. Arie Pujiwati / IELP doctoral candidate

For me climate change is the defining issue facing my home country of Indonesia. Firstly, in terms of drivers, the number one factor is deforestation, more so than energy. It is responsible for around 44% of GHG emissions. So in our country, you cannot say that climate change is predominantly an energy issue. Also in terms of impacts, sea level rise is going to pose a huge problem for my country as land scarcity is already a major issue when pursuing development. But as sea levels rise this century, we can expect to see less and less land available. Also, mining is becoming more and more of an issue, especially with coal and metal mines.

What is your advice for becoming a passionate and productive person in order to achieve a bright academic career?

Ms. Abhilasha Sumangal Devaraj

This is really difficult to answer. I am sure that professors go through this too, but even last year I was going through a period where I was not really motivated. For example the battery project I was working on was not going to be commercialized and things were not going well. So I decided to learn what was happening in other departments. This helped me to learn about what was happening in other sections of the company and this helped me to learn new things, meet new people and remain motivated. Also, another factor that continues to motivate me is my upbringing. Although I am Indian I have never lived in India, and have mainly lived in the U.S. What motivated me to devote my career to the environment was my first trip to India. The air pollution was overwhelming and motivated me to try to do something about it. I wrote this motivation in my application to Toyota and I know this made an impression on the hiring committee as I had a clear career objective.

Prof. Emer. Itaru Yasui

Maintaining passion over say 10 years would be difficult as it is prone to peaks and troughs. But as a word of advice, why don't you all set up your own version of SDGs regarding career goals? Then for each set of goals you could make some targets.

Prof. Ryo Kohsaka

As for advice regarding working in the United Nations where I used to work, besides having a Ph.D., speaking several languages, and having international project experience (laughing) I would say that the most important skill is to gain some working experience outside of your country.

Study tour participants in front of the Onagawa Nuclear Visitor Centre with the centre guides

Visit to Onagawa Nuclear Visitor Center and Onagawa

スタディツアー　女川原子力PRセンター

Sunday 21st January, 2018

Overview

On Sunday the 21st of January, the day after the IELP symposium, participants and faculty visited the visitor center in the Onagawa Nuclear Power Plant operated by Tohoku Electric Power Corporation. This is located at the outskirts of the town of Onagawa in Miyagi Prefecture, 70 km north of Sendai. It was a long, windy drive and many students got car sick but recovered once we arrived. The main purpose of the trip was to learn first-hand about the operation of a nuclear power plant safety measures implemented after the 2011 Great East Japan Earthquake and tsunami, and also to gain insights into the acceptance of local residents regarding the Onagawa power plant. Students and participants also visited the town center of Onagawa afterwards and interviewed locals and visitors.

The Onagawa nuclear power plant consists of three reactors and has a capacity of nearly 2.2 GW. The first reactor came online in 1984 and the third in 2002. Immediately after the Great Eastern Japan Earthquake on March 11, 2011 it experienced a 13-meter tsunami at 15:29. This was safely contained by a protective concrete dike and the height of the site, which is 14.8 meters. Although the nuclear reactors did not experience any damage, the plant was shut down immediately after the tsunami, along with all reactors in Japan. To this day it remains closed as it carries out safety measures based on experiences from the accident at the Fukushima Daiichi Nuclear Power Plant. It plans on re-opening in the next year or two.

Below, several students share their thoughts on the tour.

Anung Riapanitra (2nd year doctoral candidate, Indonesia)

The tsunami and Fukushima disaster in March 2011 showed Japan and the world that nuclear power is fundamentally unsafe. Onagawa nuclear plant was the closest to the earthquake's epicenter of all reactors in Japan. Yet unlike the Fukushima Daiichi Power Plant, it was remarkably undamaged. This was due to the successful shutdown and cooling process as well as the 14.8-meter height of the site. During our visit, we learned that Onagawa Nuclear Visitor Center works hard to educate the public about the increasing safety of their power plant. Staff included several experienced public relation officers as well as engineers. The center included a model of the nuclear reactor to show the electricity generation process from nuclear fission and its associated safety measures. For me, the highlights of the trip were learning about the successful shutdown of the reactor, the use of the site's gymnasium as a shelter for local residents after the tsunami, and the safety measures taken post-Fukushima. From a safety perspective, I think that the Onagawa Nuclear Power Plant is ready for activation. Yet the biggest task is to convince the public about this.

Participants listen to an explanation of the safety features of the site's design.

Chelsea Langa (2nd year masters candidate, Mozambique)

For me the highlight was being able to see how a nuclear power plant operates and how the process of generating energy from uranium occurs. I also enjoyed learning about the group of measures that taken after the Fukushima accident to increase safety regarding earthquakes and tsunamis. Some of the measures were the storage of emergency water for cooling, the construction of an elevated barrier to prevent waves from reaching the site as well as the performing of continuous rehearsals and simulations of disasters.

Duong Thanh Nga (2nd year masters candidate, Vietnam)

As for the interview with the local people, I am surprised that some people have a lot of knowledge about the nuclear power plant and some new energy resources. Some people recommended that government should use more new energy resources such as wind energy. Half disagreed on the operation of Onagawa Nuclear Power Plant due to the problem of nuclear waste. Moreover, they worried about potential increases in the price of electricity in the case that the operator carries out maintenance or upgrades on the reactors—since Onagawa unit 1 is very old. Overall, I found the interviews with the local people extremely interesting and appreciated their enthusiasm and willingness to talk to us.

Otgonbayar Dandar (2nd year doctoral candidate, Mongolia)

In Onagawa town, I along with six other students visited some shops and spoke to the staff. The owner of one shop explained that she lives in Ishinomaki and works in the the town of Onagawa. Her thought was that starting the nuclear power plant has both positive and negative aspects. Positive aspects include employment creation since many local people work at the plant. As for negative aspects, she explained that she had environmental concerns about what would happen if an accident occurred like at the Fukushima nuclear power plant. Furthermore, she explained that she did not have enough information about the Onagawa nuclear power plant. I was very impressed by this bus tour because I have never visited nuclear power plant before today and therefore had very little knowledge about their operation.

Jingwen Wang (1st year masters candidate, China)

It is a great pleasure for me to join this bus tour since this was the first time for me to get so close to a nuclear power station. After the earthquake in 2011 and the disaster of Fukushima nuclear plant, people have reconsidered about whether the nuclear power station benefits us or not. Societal resistance makes efforts to try to restart nuclear reactors very challenging. Seven years after the Fukushima accident, the Onagawa Nuclear Power Plant should learn lessons from previous disaster and use these to improve current safety measures. When I communicated with the locals, I was impressed how even though they live very close to the nuclear reactors they feel safe enough to live there. This seems to be because they are confident in the safety features designed into the site and the preparatory measures such as simulations and training drills where an array of emergency situations are envisaged by plant workers.

Viliame Savou (2nd year doctoral candidate, Fiji)

I found this trip very informative since I was able to witness demonstrations of what actually occurs inside the Onagawa Nuclear Power Plant. To tell the truth I was hoping to actually enter inside the operating plant. But since the plant is now offline I found instead that demonstrations provided by the visitor center were very informative. I was actually able to relate the processes of nuclear fission with my previous work on processing sugar from sugarcane bagasse. From the interview activity with the employees around Onagawa station, a lot of people, I assume, have mixed ideas about the nuclear power plant. While they have negative ideas from comparing Onagawa with Fukushima, I gained the impression that they do not totally object to the plant as it offers employment to many of their friends and families. However I believe there needs to be widespread public consultation about the pros and cons of such a plant. In any case, the precautionary measures undertaken by the Onagawa Nuclear Power Plant are very impressive. I hope it would be possible to actually enter the plant on my next visit.

Participants listen to a technical explanation of the nuclear fission process inside the reactor in front of a scale model of the reactor core.

Students conduct an interview with a local shop operator in Onagawa to learn about local perceptions of the nuclear power plant.

Participants audit a detailed presentation on the safety features of the site by the director of the visitor centre.

About IELP

IELPについて

Mr. Hiroyuki Tsutsumi, CEO and President of Philips Japan, delivers a guest lecture at the Graduate School of Environmental Studies for IELP students.

Mr. Fumihiro Haga from Nissan and Mr. Watanabe from IERE (International Energy Research Exchange) listen to solutions proposed by students regarding energy and mobility challenges.

The International Environmental Leadership Program (IELP) was launched on October 2014. All courses are conducted in English and the program especially addresses the needs of international students wishing to study in Japan. Designated as an "International Priority Graduate Program" by the Ministry of Education, Culture, Sports, and Technology (MEXT), IELP receives financial assistance in the form of scholarships for outstanding applicants.

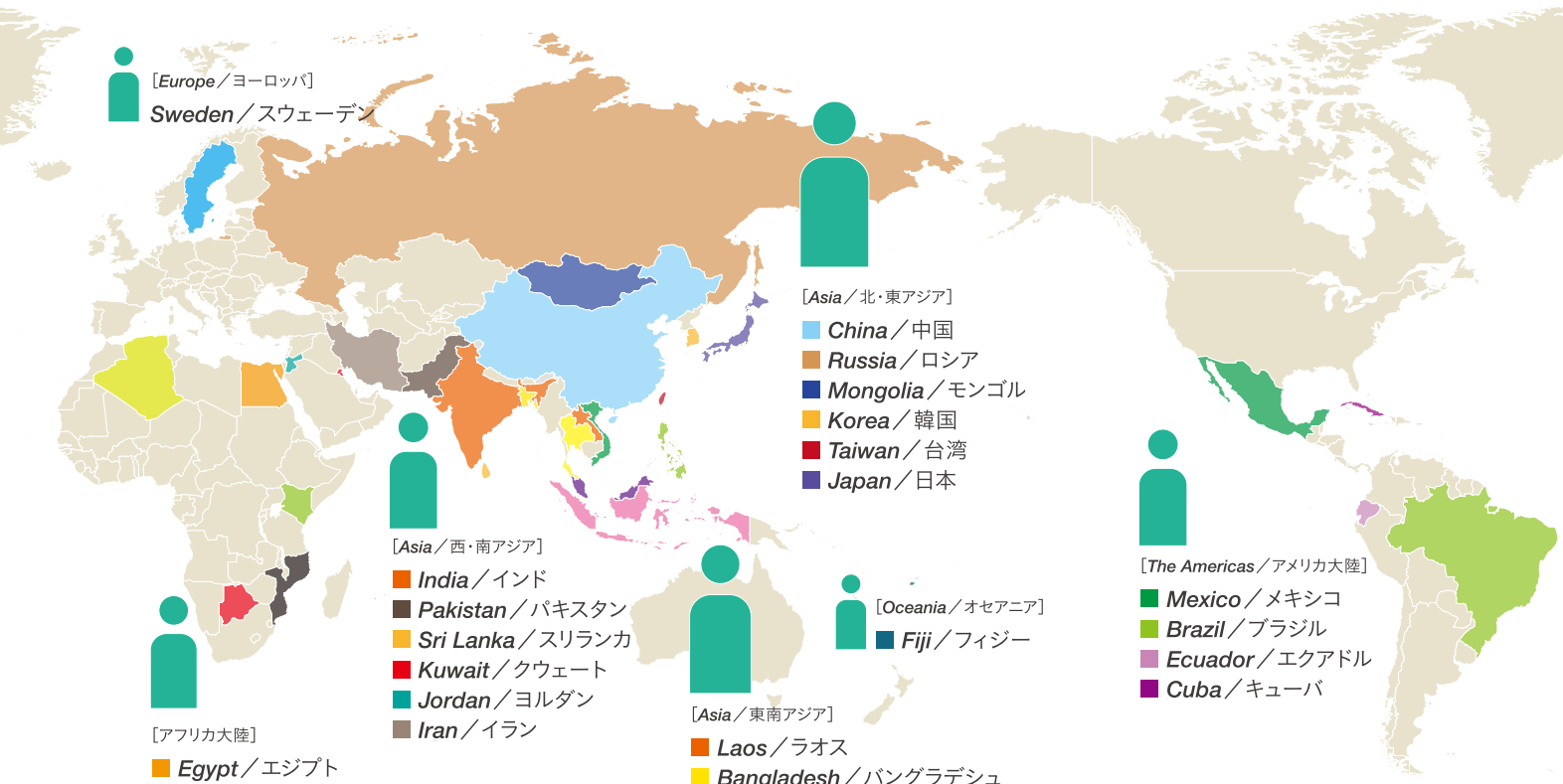
IELP consists of a combined two-year masters and three-year doctoral degree. At present, there are approximately 50 students enrolled across both the master's and doctoral level. Although domestic Japanese students may enroll, the vast majority of our students are from Asian countries such as Indonesia, Malaysia, Thailand, Philippines, China and Vietnam in addition to Russia, and various African and other countries.

As mentioned, IELP builds on our predecessor program SERMSS with which we share a common objective of fostering leaders capable of solving diverse sustainability issues in both a local and global context. However, while SERMSS focused on energy and environmental resource issues, the thematic focus of IELP is much wider. In addition to these themes, we also integrate policy and technology studies and diverse sustainability challenges ranging from waste management and business sustainability strategies to agriculture.

So what is the distinctive educational approach at IELP? Firstly, our courses are highly interactive. Students are constantly challenged to view sustainability challenges from diverse disciplinary and societal perspectives and to communicate their thoughts regarding these to colleagues. Secondly, our classes utilize case studies to allow students to learn about the real societal conditions behind sustainability challenges. For this, we conduct several field trips each year to locations such as waste processing facilities in the City of Sendai and the already mentioned Onagawa Nuclear Power Plant. We also regularly invite guest speakers from corporations, research firms, universities and government to allow students to combine their scientific understanding with the expertise housed by societal sustainability practitioners. To date, we have invited speakers from Philips Japan (see photo), the City of Sendai, Japanese Atomic Energy Agency and the Honorary Consul to Kiribati. Thirdly, students also engage in problem solving tasks in teams. One of the signature approaches for this is the IELP meeting, which is held several times per year. Here, doctoral students work with faculty to arrange a two-day research meeting where two environmental leaders are invited from abroad to share their research or societal activities with students as well as the diverse sustainability challenges that these address. To date, we have received speakers from prestigious research universities across Asia, Europe and the USA as well as societal practitioners from government and industry. Students build problem solving skills by forming small groups and formulating potential solutions to a real- world sustainability challenge presented by the invited speaker. So far, students have presented their ideas regarding the future of sustainable individual transport to representatives from Nissan, IERE (International Energy Research Exchange) (see photo), the Ministry of Science and Technology Thailand and other research universities.

IELP will accept its last intake of students in October 2018. We look forward to the next five years as we continue to fine-tune the program and work with our graduates to ensure that their post-graduate careers as international environmental leaders are fulfilling and effective.

Nationalities／国籍内訳



［*Europe*／ヨーロッパ］
Sweden／スウェーデン

［*Asia*／北・東アジア］
China／中国
Russia／ロシア
Mongolia／モンゴル
Korea／韓国
Taiwan／台湾
Japan／日本

［*Asia*／西・南アジア］
India／インド
Pakistan／パキスタン
Sri Lanka／スリランカ
Kuwait／クウェート
Jordan／ヨルダン
Iran／イラン

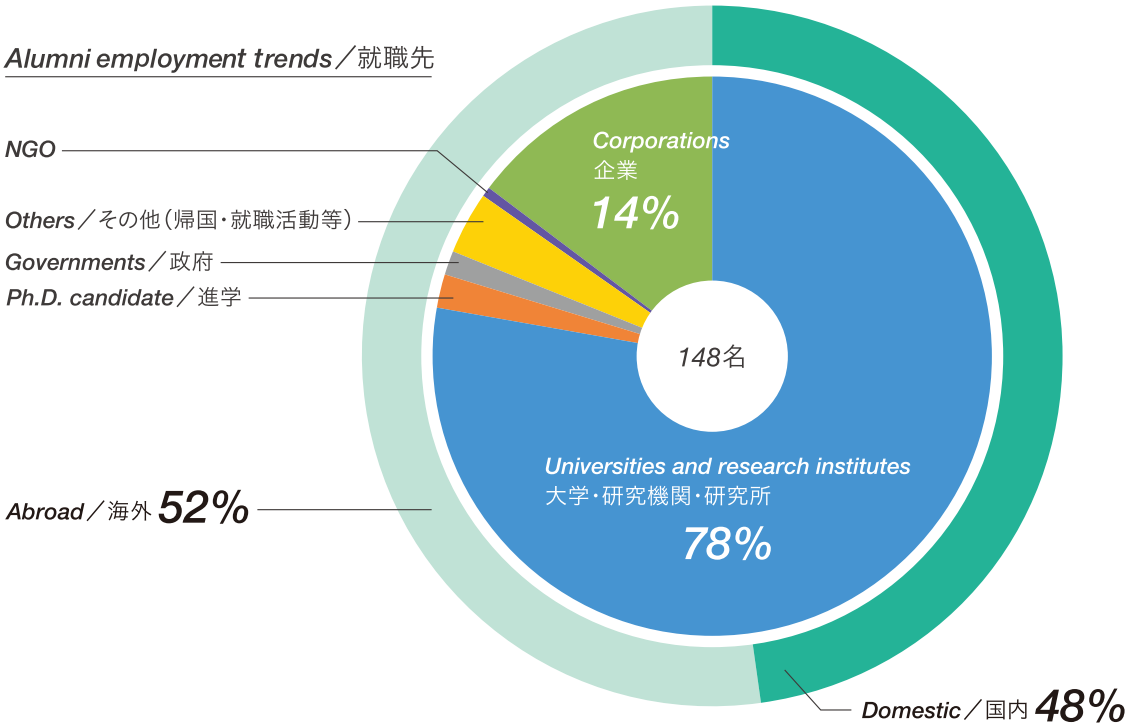
［*The Americas*／アメリカ大陸］
Mexico／メキシコ
Brazil／ブラジル
Ecuador／エクアドル
Cuba／キューバ

［*Oceania*／オセアニア］
Fiji／フィジー

［*Asia*／東南アジア］
Laos／ラオス
Bangladesh／バングラデシュ
Philippines／フィリピン
Vietnam／ベトナム
Thailand／タイ
Indonesia／インドネシア
Malaysia／マレーシア

［アフリカ大陸］
Egypt／エジプト
Argelia／アルジェリア
Kenya／ケニア
Botswana／ボツワナ
Mozambique／モザンビーク

Alumni employment trends／就職先



Selected achievements by IELP students）／*IELP*学生各種業績（抜粋）

Peer-reviewed research papers／査読有研究論文［*Published*／掲載済］

Salem G. S. A., Kazama S., Shahid S. and Dey N.C., Optimum Abstraction of Groundwater for Sustaining Groundwater level and Reducing Irrigation Cost," Water Resources Management, Vol. 31, 1947-1959, 2017.

Phan Thanh Chien, Tomoaki Satomi, Hiroshi Takahashi, "Study on Sludge Recycling with Compaction Type and Placing Type by Rice Husk-Cement-Stabilized Soil Method", Advanced Experimental Mechanics, Vol. 2, 159-167, 2017.

Rangsiwanichpong Prem, Kazama So, and Ekkawatpanit Chaiwat., "Analyzing the relationship between ocean indices and rainfall in the Chao Phraya River Basin", International Journal of Climatology, Vol.37, 230–238, 2017.

R.S. Khasenova, S.V. Komarov, V.Yu. Zadorozhnyy, "Mechanical plating of Al/CNT composite coatings on aluminum substrates," Journal of Alloys and Compounds, 707, 2017, 238-244.

Chien Minh VU, Tuan Anh LE, Tomoaki Satomi and Hiroshi Takahashi, "Study on Effect of Chemical Composition of Geopolymer to Improve Sludge by Using Fiber Materials", Advanced Experimental Mechanics, Vol.2, 168-173, 2017.

Khiem Quang Tran, "Study on strength behavior of cement stabilized sludge reinforced with waste cornsilk fiber", Int. J. GEOMATE. 13, 2017, 140–147. doi:10.21660/2017.39.28994.

Kurniawan, Robi, and Shunsuke Managi,"Sustainable development and performance measurement: Global productivity decomposition." Sustainable Development 25.6, 2017, 639-654.

Salem G. S. A., Kazama S., Shahid S. and Dey N.C.,"Impact of temperature changes on groundwater levels and irrigation costs in a groundwater-dependent agricultural region in Northwest Bangladesh", Hydrological Research Letters, Vol.11, 85-91, 2017.

Ngoc Kien Bui, Tomoaki Satomi, Hiroshi Takahashi, "Mechanical properties of concrete containing 100% treated coarse recycled concrete aggregate", Construction and Building Materials, Vol.163, pp.496-507, February 2018.

Rahman M. T., Kameda T., Kumagai S., Yoshioka T, "Effectiveness of Mg-Al Layered Double Hydroxide for heavy metal removal from mine wastewater and sludge volume reduction", International Journal of Environmental Science and Technology, Vol. 15, 263–272, 2018.

10 more／他10件
Other papers : 42／その他論文：42件

International conference presentation (oral)［国際学会・口頭］

Rahman M. T., Kameda T., Yoshioka T., "Effectiveness of Mg-Al layered double hydroxide to remove arsenic from waste water", 2015 International Chemical Congress of Pacific Basin Societies, Honolulu, Hawaii, USA, 2015.

Pimsiri Suwannapat, Daisuke Komori, Wonsik Kim, "Negative Correlation of Transpiration and Carbon Dioxide Uptake over a Paddy Field", International Symposium on Agricultural Meteorology (ISAM), 2016.

Otgonbayar Dandar, "Formation of Secondary Olivine after Orthopyroxene during Serpentinization: Evidence from the Hantaishir Ophiolite, Western Mongolia", Japan Geoscience Union (JpGU) and American Geophysical Union (AGU) joint meeting, 2016.

Ngoc Kien Bui, Tomoaki Satomi, Hiroshi Takahashi, "Study on new combination method for replacing recycled concrete aggregate in concrete", The 6th Vietnam/ Japan Joint Seminar on Geohazards and Environmental Issues, Hanoi, March 11, 2016.

Nurul Fajar Januriyadi, So Kazama, Idham Riyando Moe, Shuichi Kure. "Estimation of flood damage costs in developing country", 20th Congress of IAHR – APD, Colombo, 2016.

Rahman M. T., Kameda T., Kumagai S., Yoshioka T., "Multifunctional activity of Mg-Al layered double hydroxide to remove heavy metals from mine waste water", The 3rd Asian Clay Conference, Guangzhou, China, 2016.

Amila Karunathilake, Motoyuki Sato, "Radar technologies against Natural disaster and Man-made hazards", Science Council of Asia-16 (SCA-116), Sri Lanka, 2016

Khiem Quang Tran, "Study on effect of cornsilk fiber incemented soil stabilization", The 4thCongrès International de Géotechnique - Ouvrages -Structures, 2017.

A. Hermawan, Y. Asakura, and S.Yin, "Synthesis and Characterizations of Morphology Controlled Aluminium Nitride Powders", The 9th International Conference on Materials for Advanced Technology (ICMAT), Singapore, 2017.

Nurul Fajar Januriyadi, So Kazama, Idham Riyando Moe, Shuichi Kure. "Estimation of spatial flood damage costs in Jakarta, Indonesia". Proceedings of the 37th IAHR World Congress, 2017.

22 more／他22件

International conference presentation (poster)［国際学会・ポスター］

M.Liu, A.Iizuka, E.Shibata. "Magnetic Properties of Acid Mine Drainage Sludge Derived Hexagonal Ferrite", Sardinia 2017 – 16th International Waste Management And Landfill Symposium, Sardinia, Italy, Oct 2017.

Rangsiwanichpong Prem and Kazama So, "Relationship between landslide and sediment yield in Thailand", XVI World Water Congress, International Water Resources Association (IWRA), Cancun, Mexico, 2017.

Zaka Ruhma, Keiji Yashiro, Fumitada Iguchi, Kazuhisa Sato, Tatsuya Kawada, "Residual Stress Measurement of 8 mol% YSZ Coating for SOFC Application", 42nd International Conference and Expo on Advanced Ceramics and Composites, 2018.

4 more／他4件

Domestic conference presentation (oral)［国内学会・口頭］

A. Lyulyakin, M. Sato, "75 GHz FMCW radar system for Synthetic Aperture Radar Imaging", Proceedings of the IEICE General Conference, vol.2015, B-1-51, August 2015.

Phan Thanh Chien, Tomoaki Satomi, Hiroshi Takahashi, "Study on Improvement of Sludge in Mekong Delta Area, Vietnam by Using Rice Husk", The 10th International Symposium on Advanced Science and Technology in Experimental Mechanics, 2015.

Viliame Savou, Guido Grause, Shogo Kumagai, Tomohito Kameda, Toshiaki Yoshioka, "Enhancement of bio-oils produced from the pyrolysis of sugarcane bagasse pretreated with sulfuric acid at ambient and elevated temperatures", 廃棄物資源循環学会東北支部　第8回廃棄物資源循環学会東北支部研究発表会, 2015.

Rangsiwanichpong Prem, Ekkawatpanit Chaiwat, Komori Daisuke, and Kazama So, "Assessment landslides hazard map in Thailand using extreme daily rainfall", Japan Society of Civil Engineers Conference; Tohoku Branch. Iwate University, 2016.

Anung Riapanitra, Mikihiko Kobayashi, Yusuke Asakura, Shu Yin, "Hydrothermal Synthesis and Thermochromic Properties of Fluorine Doped Vanadium Dioxide" Japan Ceramic Conference, Kobe September 2017.

Arie Pujiwati, Kengo Nakamura, Noriaki Watanabe, Takeshi Komai, "Environmental Assessment of Trace Metal Elements in Soil Related to Coal Mining Area in Tanah Laut, South Kalimantan, Indonesia", the 13th International Workshop on water Dynamics, 2016.

Zaka Ruhma, Masayoshi Adachi, Hidekazu Kobatake, Hiroyuki Fukuyama "Nitrogen Solubility Measurement of Ga-Al Melts by a Chemical Equilibrium Method", 日本金属学会第159回秋期講演大会, 2016.

Iakov Chernyak, Motoyuki Sato, "Near range radar image reconstruction algorithm by caustic finding", IEICE Tech, 2016.

Kevin Muhamad Lukman, "Evaluation of Lifestyle Change Based on Ontology Engineering", 32nd Annual Academic Conference Japan Society for Research Policy and Innovation Management, 2017.

F. F. Amanda, R. Yamada, M. Uno, and N. Tsuchiya, "Evaluation of Deep Geothermal Reservoir and Magma Process Revealed by Melt Inclusion-Example in West Sendai, NE Japan-", Geothermal Research Society of Japan Annual Meeting, 2017.

9 more／他9件

Domestic conference presentation (poster)［国内学会・ポスター］

Hugo Fathur Rahman Erawan, Shun Yokoyama, Hideyuki Takahashi, Kazuyuki Tohji, "Synthesis of CIS Nanoparticles through Chemical Reactions in Aqueous Solution", The 76th JSAP Autumn Meeting, 2015.

Vani Novita Alviani, Masaoki Uno, Noriaki Watanabe, Noriyoshi Tsuchiya, "Effects of Aluminum Milling for Hydrogen Production by Aluminum-Hot Spring Water Reaction", Annual Meeting of The Geothermal Research Society of Japan, Koriyama (Fukushima), 2016.

Chien Minh VU, Tomoaki SATOMI, Hiroshi TAKAHASHI and Tuan Anh LE, "Study on Weak Soil Improvement by Using Geopolymer and Paper Fragments", The Eighth International Conference on Materials Engineering for Resources, 2017.

Danila Podobed, "Evaluating the Effect of Afforestation on Groundwater Recharge Using Naturally-Occurring Isotopes", Global Safety Symposium, 2017.

A. Nurdiana, A. Okamoto, M. Uno, N. Tsuchiya, "Release and transport of supercritical fluids from intrusive body: an example of granitic pegmatite dike in Kinkasan Island, NE Japan", Geothermal Research Society of Japan (GRSJ) Annual Conference, 2017.

11 more／他11件
Other presentations: 40／その他発表：40件

Awards／受賞

Ngoc Kien Bui, Best Paper Award, International Symposium on Earth Science and Technology 2016 CINEST, Fukuoka, December 8-9, 2016.

Iakov Chernyak, Annual electromagnetic theory research student reward for the excellent presentation, IEICE Tech, 2016.
Christine Dwi Ariani Wiyono, Poster Presentation Awards, Gap Summit 2017, Voices of Tomorrow, 2017.

Kevin Muhamad Lukman, 2nd Winner of Lifestyle Contest 2017, Nikkan Kogyo Shinbun, 2017.

Amila Karunathilake, Young scientist award 2017, IEEE Geoscience and remote sensing, 2017.

Angga Hermawan, Best Poster Presentation Awards, the 34th International Japan-Korea Seminar on Ceramics, Hamamatsu, Japan, 2017.

Phan Thanh Chien, Excellent paper award, ICMR2017 Akita, 2017.

11 more／他11件

Institutions for student internships／インターンシップ研修先

［*Japan*／国内］
国立研究開発法人農業環境技術研究所（茨城）
仙台環境開発株式会社（仙台）
株式会社安藤ハザマ（岩手）
*DOWA*エコシステム（秋田）
産業技術創業研究所（茨城）
三井造船株式会社（岡山）

［*Abroad*／海外］
Jingdezhen Lehua Ceramic Sanitary Ware Co., Ltd.（中国）
Tien Giang University（ベトナム）
University of Technology Malaysia（マレーシア）
University of Moratuwa（スリランカ）
Institute of Mechanics VAST（ベトナム）
Ministry of Energy and Mineral Resources（インドネシア）
Dong Nai Water Joint Stock Company（ベトナム）
LENTERA Bumi Nusantara,（インドネシア）

IELP Meetings／*IELP Meeting* 開催実績

The 1st IELP Meeting, October 21-22, 2015
Prof. Dr. Mukhtasor, Institute of Technology Sepuluh Nopember (ITS), Indonesia
"An Environmental Leadership Approach to Indonesian Energy Problems"
Assoc. Prof., Dr. Shamsuddin Shaid, University Technology Malaysia, Malaysia
"Towards Sustainable Solution of Complex Water Challenges in Bangladesh"

The 2nd IELP Meeting, December 10-11, 2015
Dr. Chew Boon Cheong, Universiti Teknikal Malaysia Melaka (UTeM), Malaysia
"Green and Sustainability Protocol Development for Malaysian Halal Food Industry"
Assoc. Prof. Wattanapong Rakwichian, University of Phayao, Thailand
"Smart Grid Infrastructure and Climate Change: Disaster and Ecological Capacity"
Dr. Mohd Syaiful Rizal Bin Abdul Hamid, Universiti Teknikal Malaysia Melaka (UTeM), Malaysia
"Transformation from Lean Service to Green Service"

The 3rd IELP Meeting, February 18-19, 2016
Dr. Jagath Gunatilake, University of Peradeniya, Sri Lanka
"Natural Disaster in Sri Lanka and South Asian Region; Responses and Disaster Risk Management"
Dr. Luu Xuan Loc, Ho Chi Minh City University of Technology, Vietnam
"Impact Assessment of Flood Diversion of Dong Thap Muoi Area for Mekong Delta"

The 4th IELP Meeting, April 21-22, 2016
Assist. Prof. Kyle Bahr, Tohoku University
"Resource Development and Social License to Operate"
Assist. Prof., Dmitry Sukhanov, Tomsk State University, Russia
"Radar Tomography for Environmental Studies"

The 5th IELP Meeting, July 19-20, 2016
Prof. Herto Dwi Ariesyady, Institut Teknologi Bandung, Indonesia
"A Gradient of Water Condition in Citarum River Basin, Indonesia: A Baseline Feature for Its Restoration"
Prof. Jasim Uddin Ahmad, Jahangirnagar University, Bangladesh
"Environmental Pollution from Industrial Effluents in Bangladesh: Recent Activities of Our Group"

The 6th IELP Meeting, December 13-14, 2016
Assoc. Prof. Sanya Sirivithayapakorn, Kasetsart University, Thailand
"Soil and Groundwater Contamination in Thailand"
Mr. Konishi Chisato, OYO Corporation, Japan
"Geophysical Methods for Environmental Investigations"

The 7th IELP Meeting, March 13-14, 2017
Assoc. Prof. Jei-Pil Wang, Pukyong National University, Korea
"Recovery of Metal Values from Photovoltaic Ribbon of Spent Solar Module"
Prof. Nguyen Minh Tam, University of Technology-Vietnam National University, Vietnam
"Performance and Analyses of Thick Soft Clay Deposit Improved By PVD with Surcharge Preloading and Vacuum Consolidation"
Dr. Shun Myung Shin, Korea Institute of Geoscience & Mineral Resources, Korea
"Recovery of Valuable Metals from Recycled Resources and Metal Ores"

The 8th IELP Meeting, July 5, 2017
Mr. Fumiro Haga, Nissan Motor Co., Ltd., Japan
"The Future of Mobility and Individual Electric Vehicle R&D at Nissan"
Mr. Takao Watanabe, International Electric Research Exchange (IERE) Japan
"Japanese Energy Policy and Advanced Thermal Power Generation Technology"

The 9th IELP Meeting, November 16, 2017
Assoc. Prof. Voeli Veitayaki, The University of the South Pacific, Fiji
"Marine Pollution and Marine Resources Management in the Pacific Region"
Assoc. Prof. Buyankhishig Nemer, Mongolian University of Science and Technology, Mongolia
"Groundwater Resources and Hydrogeological Studies in Mongolia".

The 10th IELP Meeting, February 1-2, 2018
Dr. Sutat Weesakul, Ministry of Science and Technology, Thailand
"S&T Implementation for Water Resource Management: Turning Challenges into Opportunities: Thailand Case Study"
Prof. Iwan Kridasantausa Hadihardaja, Institut Teknologi Bandung, Indonesia
"IWRM Context of Disasters and Flood in the River Basin"

Symposium participants list

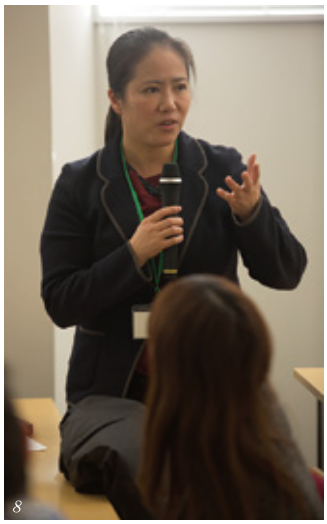
シンポジウム参加者一覧

	Name	Affiliation, title / position, country
1	**Itaru Yasui**	The University of Tokyo, Professor Emeritus, Japan
2	**Michael Norton**	Tokyo Institute of Technology, Specially-appointed Professor, England
3	**Toshiaki Yoshioka**	GSES, Dean, Japan
4	**Ryo Kohsaka**	GSES, Professor, Japan
5	**Kazuyo Matsubae**	GSES, Professor, Japan
6	**Tatsuya Kawada**	GSES, Professor, Japan
7	**Yu-you Li**	School of Engineering, Professor, Japan
8	**Yasumitsu Tanaka**	Tohoku University, Specially-appointed Professor, Japan
9	**Gregory Trencher**	GSES, Associate Professor, Australia
10	**Guido Grause**	GSES, Associate Professor, Germany
11	**Kyle Bahr**	GSES, Assistant Professor, USA
12	**Shogo Kumagai**	GSES, Assistant Professor, Japan
13	**Hajime Ohno**	School of Engineering, Assistant Professor, Japan
14	**Anna Suzuki**	Institute of Fluid Science, Assistant Professor, Japan
15	**Yuta Kimura**	IMRAM, Assistant Professor, Japan
16	**Hikaru Nishizaka**	City of Sendai, Technical officer, Japan
17	**Paulo Sousa**	EX Research Institute Ltd., Consultant, Brazil
18	**Riyan Achmad Budiman**	AIST: National Institute of Advanced Industrial Science and Technology, Special Researcher, Indonesia
19	**Abhilasha Sumangal Devaraj**	Toyota Motor Corporation, Engineer, India
20	**Mohammad Shofie**	Kubota Corporation Jakarta, Engineer, Indonesia
21	**Milkos Borges Cabrera**	GSES, Doctoral candidate , Cuba
22	**Hirosi Sugata**	GSES, Chief, Academic Affairs Section, Japan
23	**Yoko Akasaka**	GSES, Staff, Academic Affairs Section, Japan
24	**Yuko Sasahara**	GSES, Staff, Academic Affairs Section, Japan
25	**John Dominguez**	GSES, Doctoral candidate , Philipines
26	**Bayanzul Batdemberel**	GSES, Doctoral candidate , Mongolia
27	**Arie Pujiwati**	GSES, Doctoral candidate , Indonesia
28	**Batsaikhan Undarmaa**	GSES, Doctoral candidate , Mongolia
29	**Zaka Ruhma**	GSES, Doctoral candidate , Indonesia
30	**Otgonbayar Dandar**	GSES, Doctoral candidate , Mongolia

	Name	Affiliation, title / position, country
31	**Tran Quang Khiem**	GSES, Doctoral candidate , Vietnam
32	**Phan Thanh Chien**	GSES, Doctoral candidate , Vietnam
33	**Hugo Erawan**	GSES, Doctoral candidate , Indonesia
34	**Robi Kurniawan**	GSES, Doctoral candidate , Indonesia
35	**Renata Khasenova**	GSES, Doctoral candidate , Russia
36	**Anung Riyapanitra**	GSES, / Doctoral candidate , Indonesia
37	**Viliame Savou**	GSES, Doctoral candidate , Fiji
38	**Zhengyang Zhang**	GSES, Doctoral candidate , China
39	**Novita Vani**	GSES, Doctoral candidate , Indonesia
40	**Vu Chien Minh**	GSES, Doctoral candidate , Vietnam
41	**Fajar Febiani Amanda**	GSES, Doctoral candidate , Indonesia
42	**Marsetio Noorprajuda**	GSES, Doctoral candidate , Indonesia
43	**Wang Suyun**	GSES, Doctoral candidate , China
44	**Angga Hermawan**	GSES, Doctoral candidate , Indonesia
45	**Tsogtbaatar Amarsaikhan**	GSES, Master candidate , Mongolia
46	**Indah Anandya Mahendra**	GSES, Master candidate , Indonesia
47	**Christine Wiyono**	GSES, Master candidate , Indonesia
48	**Astin Nurdiana**	GSES, Master candidate , Indonesia
49	**Duong Thanh Nga**	GSES, Master candidate , Vietnam
50	**Chelsea Langa**	GSES, Master candidate , Mozambique
51	**Kevin Lukman**	GSES, Master candidate , Indonesia
52	**Hoang Nhu Quynh Anh**	GSES, Master candidate , Vietnam
53	**Geri Agroli**	GSES, Master candidate , Indonesia
54	**Asma Akter Parlin**	GSES, Master candidate , Bangladesh
55	**Dinis Rasulov**	GSES, Master candidate , Russia
56	**Jingwen Wang**	GSES, Master candidate , China
57	**Meshal J. Abudullah**	GSES, Master candidate , Kuwait
58	**Tazkiyah Syakira Al Kaff**	GSES, Master candidate , Indonesia
59	**Vempi Satriya Adi Hendrawan**	GSES, Master candidate , Indonesia
60	**Kaoruko Kimura**	GSES, Master candidate , Japan

IELP Symposium 2018

20-21 January, 2018



1 Assoc. Prof. Gregory Trencher delivers some opening remarks. 2 Q & A session during presentations 3 Prof. Michael Norton encourages IELP students in the closing session 4 Kevin Lukman enjoys curry lunch buffet 5 Prof. Tatsuya Kawada listens intently to the captivating discussions during the panel discussion. 6 John Dominguez delivers impressions during presentations 7 IELP students visit Shiogama Seafood Wholesale Market 8 Prof. Kazuyo Matsubae delivers impressions of the key messages raised during presentations. 9 Hugo Erawan delivers impressions during presentations 10 Renata Khasenova delivers impressions during presentations 11 Lecturer Kyle Bahr listens to an explanation on Japan's energy challenges during the keynote lecture by Prof. Yasui.

Acknowledgements

We would like to express our cordial thanks to all who helped make this conference a success. We have much pleasure in thanking several organizations such as Ministry of Education, Culture, Sports, Science and Technology (MEXT) which has funded our international programs for several years and Japan Science and Technology Agency (JST) for supporting the predecessor program SERMSS..

We would like to express a special thanks to Prof. Kazuyuki Tohji, Prof. Yasumitsu Tanaka, Prof. Li Yu-you, Prof. Michael Norton and Prof. John Plagens for their long term support and their invaluable assistance during the conference.
We are also very grateful to Mr. Abe of Shikisai (director of the catering service 四季彩), Mr. Terai and Mr. Moindron of Switch for taking beautiful pictures during the whole conference and for producing such an attractive final report.
We further wish to extend a big thank you to our excellent staff at GSES, Ms. Yoko Akasaka and Ms.Yuko Sasahara, who contributed to the many tasks related with the IELP and the symposium.

We would also like to thank all the students who helped to organize the symposium, in particular Arie Pujiwati, Phan Thanh Chien, Hugo Erawan, Kevin Muhamad Lukman and John Dominguez. We also extend our gratitude to all members of the IELP Working Group (IELP-WG); in particular past and current leaders Prof. Eiki Kasai, Prof. Tatsuya Kawada, Prof. Takeshi Komai, Prof. Kazuyo Matsubae, and also Assoc. Prof. Gregory Trencher who played the most important role as the conference moderator and coordinator. Without their tireless efforts the conference would not have been possible.

Last but not least, we extend our utmost gratitude to the SERMSS graduates who took the trouble to attend the conference from afar and abroad. We wish you all the best in continuing to develop your careers as environmental leaders.

TOHOKU
UNIVERSITY

International Environmental Leadership Program (IELP)
Graduate School of Environmental Studies
Tohoku University
468-1 Aramaki-aza-Aoba, Aoba-ku, Sendai, Japan

東北大学大学院環境科学研究科
国際環境リーダー育成プログラム
宮城県仙台市青葉区荒巻字青葉*468-1*