Day 2

Concurrent Session A
“Trends with Faculty – Expanding Opportunities for Young Researchers to Gain Overseas Training Experience”
The international training program (ITP) designed by JSPS was started from 2007. The planning of Kagoshima University as above titled was accepted of that year. The beginning, LIPI-RCB and Andalas University, Indonesia and UM Sabah and UM Terengganu, Malaysia were chosen as counterparts.

On 2007, total 3 graduate students were visited LIPI-RCB and UM Sabah-, for 1 month, because actual academic period of the first year was short.

The second year, 2008, 9 graduate students were delegated to respective institution for 2 months. 1 PhD student advanced her field research by follow-up visit. The counselor accompanies each student, discuss with the partner faculties and direct to the students about the methods for their research proceeding at the beginning of dispatch.

The ITP Seminars are held occasionally by guest speakers, and annual practical report during their delegation by returned students from each country. Moreover, International workshop is also taken place in rotation at each partner institute.

On the other hand, to give a chance of practical training at Kagoshima University to the young scientists of the partner institutes, we applied to the “JASSO international student scholarship for short-term study in Japan”. On 2008, 3 young scientists have been accepted to invite to Kagoshima University.

To progress for the latter period of this program, we planned to increase the institutes who conclude the Academic Exchange Agreements to thick the partnership network, and expand the research programs especially in Southeast Asian countries.

The goal of this program, participated postgraduate students will expect to be anchor persons for the international relations of Kagoshima University and the institutes of foreign countries.
“Kagoshima University International Training Program for Young Scientists to Sustain Biodiversity in the Tropics”

Started from 2007

International Training Program for Young Scientists to Sustain Biodiversity in the Tropics

This new program, was launched in 2007. It aims to strengthen overseas research and education opportunities for young researchers in Japanese universities. To advance these objectives, ITP supports Japanese universities in their organizational efforts to establish collaborative relationships with overseas research institutes and groups. "Young researchers" under this program are graduate students (master’s and doctoral students), postdoctoral researchers, and research associates of an equivalent level.


Kickoff Symposium
Internationalization Program for Japanese Postgraduate students (December 10, 2007 at Kagoshima University)

Program achievements from 2007 - 2008

Delegation of young scientists (Graduate students)

2007 1 DC student and 2 MC students
Period; 1 month

2008 1 DC student and 8 MC students
Period; 2 month

During their visiting period, the counselors of each student shortly visit respective University or Institute to discuss with counterpart advisor about the research project. On 2008, a few students proposed the second visiting.
Activity 1
Fauna of Land snail in Gn. Halimun, Java.

The distribution study of land snails around Cikaniki in Gunung Halimun - Salak National Park conducted in February 2008 (rainy season). The land snails were hand collected paying particular attention to litter, herbs, tree trunks and dead trees. The time of collecting is 20 minutes in one place (total 14 places). And land snails were collected at random in other places.

Activity 2
Experiment for the Forest Rehabilitation dominated by invasive plant, *Calliandra calothyrsus*.

This leguminous tree is an important to early recovery of natural forest, which is a good habitat of endangered animals such as Java gibbon. However, this exotic plants also suppress the succession of natural vegetation.

Activity 3
Mercury content in air and plants around small-scale gold mining area, West Java

- Hg 0.5 kg
Field and Laboratory work

Sampling

Hg Analyzer (JICA)

Visited Professor

Japanese student

LIPI Indonesian Institute of Science

ITP Seminar at RCB-LIPI Indonesia
(February 19, 2008)

Opening remarks by LIPI Senior staff

Research presentation by Japanese student

Discussion between Japanese and LIPI Researches

Courtesy visit to Andalas University (Indonesia)
(February 21, 2008)

Visit to The Marine Borneo Research Institute of University Malaysia Sabah
(September 2, 2008)

Courtesy visit to the President of UMS
Prof. Dr. Kiyohara, Dean of Faculty of Science, KU,
Dr. Motomura, Assoc. Prof. KU-Museum and 3 Graduate students.

Keynote address by Prof. Dr. Kiyohara

Related Program with ITP

The Invitation Program is carried out for the Counterpart University Postgraduate students and Young scientists by “JASSO INTERNATIONAL STUDENT SCHOLARSHIP FOR SHORT-TERM STUDY IN JAPAN”.

Three students were invited by this program and started each training program from October, 2008.
Leaflet for the recruitment of Graduate students for wishing to participate of ITP

Applicants were slightly increasing.

Other Activities;

ITP Seminars; any time
1st – 3rd (2007)
4th – 7th (2008, Nov.)

Products report seminar on 2007;
May 8, 2008

The Field Symposium at Andalas University, Indonesia;
December 3-4, 2008

Thank you for your attention
Internationalizing Our Engineers: A Strategic Focus on Sustainability in Brazil

Larry SHUMAN
Senior Associate Dean for Academic Affairs
University of Pittsburgh

We have made substantial progress in internationalizing our engineering education experience by creating a series of innovative, short-term study abroad courses, developing a sustainability focus that leverages a growing relationship with Brazilian partners, and by forming a number of strategic alliances both within the University of Pittsburgh and with other universities. Further, we have been able to obtain National Science Foundation, Department of Education and private funding to do much of this. One challenge facing engineering educators is how to train both undergraduate and graduate students to routinely include sustainability as important design criteria. Equally important is the need for engineering students to both broaden their perspective and learn to function collaboratively in cross-cultural environments. We are addressing both of these issues by educating a cadre of students from the BS through PhD levels as part of a comprehensive educational and research program in sustainability funded by the NSF (IGERT, IRES and REU), US Department of Education (GAANN and FIPSE-CAPES) and NCIIA as well as private foundations. To best address global concerns, we have partnered with the University of Campinas (UNICAMP) in Campinas, Brazil to provide substantial international research and educational experiences. UNICAMP has one of the best engineering programs in South America; its faculty has comprehensive research programs in important sustainability areas. In short, we are creating an engineering curriculum for students interested in sustainability that emphasizes team-based design and truly crosses departmental lines. At the graduate level a capstone sustainable design course is included so that students from the various specialties not only learn a common framework for sustainable design, but also acquire the multi-disciplinary team skills needed to address significant problems. Further, because sustainability is a global issue, a centerpiece of our program is a study and research experience in Brazil that will enable students to learn to live and work cross-culturally. To do this we have had to overcome and are still overcoming a number of barriers; this process will also be discussed.
Motivation Summary:

- Globalization – the world is really “flat.”
- Significantly freer and faster movement of
  - Goods
  - Services
  - Information
  - Ideas
  - Money
- People (a lot of people!)
- Rapid growth in technology, especially information technology
- Competitive pressure: outsourcing and downsizing

Commoditization of engineering talent and a need for U.S. engineers who:

- Understand in a global context (ABET):
  - Engineering solutions
  - Economic, political and societal factors
  - Contemporary issues including the environment and sustainability
- Beyond ABET
  - Understand the importance of entrepreneurship, innovation, and lifelong learning
  - Are able to work with colleagues in other countries
  - Can become world citizens!

The First Challenge:

- Only 2.4% of eligible students enrolled in a US engineering or computer science program participate in an international education program*.

The Second Challenge

Educate graduate engineers who:

- Can readily incorporate sustainability into engineering designs
- Appreciate the ways in which sustainable design varies internationally, and
- Can effectively operate in an international context

Our Overall Objective:

To provide engineering students with an explicit international focus through:

Creative coursework at the University of Pittsburgh

Field experiences that build upon that coursework.

* Calculated by combining information from IIE Open Doors and the ASEE Profiles of Engineering.
Our Assets
- University Center for International Studies (UCIS)
- Department of Education National Resource Centers:
  - Center for Latin American Studies (CLAS)
  - Asian Studies Center (ASC)
  - Center for Russian & East European Studies (CREES)
  - Center for Western European Studies (CWES) and European Studies Center
  - International Business Center (CIBER)

Brazil: Our Objectives
- Create curricula and research that emphasize multi-disciplinary team-based design
- Enable students to learn a common framework for sustainable design
- Approach sustainability globally – a focus on Brazil

Brazil: Our Objectives

Achieving the Vision
- Nucleate strong research programs, innovative curricular advances, and broad outreach initiatives.
- Forge partnerships: University (national and international), Industry, Foundation, and Government.

Partnership UNICAMP / University of Pittsburgh
Innovative approach to engineering / design education and product development

Pitt Program Objectives
- Train engineers to routinely incorporate sustainability into designs.
- Educate engineers to effectively operate in international contexts and appreciate the diversity in sustainable design across countries and cultures.
- Create sustainable products and processes, especially for the construction and water collection/purification industries.
International Opportunities.

Long-term
- Traditional study abroad (typically for one semester)
- Semester-at-sea

Short term
- International service learning programs
- Integrated Field Trip Abroad (IFTA)
  - Plus3 (Germany, Chile, Brazil, China and now Vietnam)
  - EMPOWER (Brazil)
  - INNOVATE (Comparative study of two Asian countries)
  - Product Realization for Global Opportunities (Brazil)

Why A Short-term Program?
- Doesn’t delay time to graduation
- Incorporates international experience in creative and relevant manner
- Frequently less expensive
- Easier for students to study in non-English speaking, non-traditional destinations
- Easier option for non-traditional (older) students
- Teaser: Students desire to go abroad again

IFTA
- Combine course (typically in spring term) with a short-term experience (spring break or summer)
- Structured academics, and organized itineraries but freedom outside classroom
- Offered at various levels (rising sophomores through seniors and even graduate students)
- Highly interdisciplinary in nature and often with other universities and/or colleges within Pitt
- Could be used to fulfill technical elective or Humanities / Social Science requirements

IFTA Example Plus3
- Designed for rising sophomore engineering and business students
- Provides a multidisciplinary team experience
- Have visited: Brazil, China, Chile, Czech Republic, France, Germany and now Vietnam
- Won 2005 Heiskell Award for Innovation in International Education

Plus3: Add-on Course at end of Freshman Year
- Pre-departure
  - Overview of history, philosophical traditions, relationship to U.S., political situation, economic development, art and architecture
  - Basic language instruction
  - Overview of companies to visit; team assignments
  - Tips on traveling; approximately half the students have not traveled internationally.

Plus3 Program Goals
- Immerse young engineering and business students in a foreign culture for two weeks
- Provide experiences in multiple dimensions:
  - Technical
  - Business
  - Cultural
  - Historical
  - Philosophical
  - Political
Plus3 – In-Country

- Company and University visits
- Lectures on economics, relationship to US, politics
- Continued basic language training
- Cultural activities
- Time to interact with hosts

Plus3: Post-trip

- Complete an electronic journal
- Prepare a 25 page report
- Prepare a 15 minute presentation for symposium in early September
- Evaluation and reflection

Synthesis & Reflection

Strategic Fit Within the Automotive Industry

- Youth
- New Facilities = Innovative Techniques
- Developing Identity
- Market Selectivity
- Global Network
- Local Facilities to Meet Local Needs
- Hybrid Vehicles
- Leader in Hydrogen-Electric Hybrid Vehicles
- One of Hyundai’s Fuel Cell Electric Vehicles now being tested in California.

Workforce

Low Cost Labor
- Mexico: 12
- Morocco: 15
- Vietnam: 14
- India: 11
- China: 10

High Income
- Germany: 20
- Japan: 19
- Switzerland: 18
- Sweden: 17
- France: 16

Communism + Capitalism = Success?

Sustainability: Combining Education and Research

Graduate Education: Overview

- International research based in sustainable design

Undergraduate Education
- Research
- IRES Research Opportunities
- IGERT

Graduate Education
- IGERT
- GAANN

Student Organizations
- Engineers Without Borders
- Engineers for a Sustainable World

Integrative Graduate Education and Research Traineeship

- Create sustainable products and processes related to construction industry and water resources

Forging International Research Collaborations
- UNICAMP – Campinas
- University of Puerto Rico – Mayaguez
- Center for Latin American Studies
Integrative Graduate Education and Research Traineeship

- Introduction to Sustainable Engineering
  - Life cycle analysis
  - Environmental costing
  - Worldwide regulatory frameworks
  - Global and legal issues
  - Risk analysis
  - Social and international implications of non-sustainable design
  - Environmental management in industry
  - Ethics
  - Responsible conduct of research
- Capstone Design Course
  - Two-semester
  - Inter-disciplinary
  - Team-based
- Preparation for Research Study in Brazil
  - Two, 5-credit courses in Portuguese
  - One, 3-credit course in technical Portuguese language
  - IGERT Seminar – economic, political, social, and cultural aspects of Brazil & Latin America

Capstone Design Course

- Two-semester
- Inter-disciplinary
- Team-based

Preparation for Research Study in Brazil

- Two, 5-credit courses in Portuguese
- One, 3-credit course in technical Portuguese language
- IGERT Seminar – economic, political, social, and cultural aspects of Brazil & Latin America

Undergraduate Education: Sustainability/Brazil Overview

- Today’s engineers must function effectively on multinational teams
- Sustainability has not been systematically covered in undergraduate engineering curricula

Undergraduate Education

- Research
- IRES
- MSI Summer Research Fellows
- NCIIA - International Product Realization Fellows
- IPSE-CAPES
- Student Organizations
  - Engineers Without Borders
  - Engineers for a Sustainable World

IFTA Example: EMPOWER

- Investigate renewable energy sources
- Explore Brazil’s utilization of clean power
- Hydroelectric, wind and alternative fuels
- Engage in dialogue with Brazilian sustainable energy industry leaders
- Experience the culture of Brazil
- Utilized Production Consumption Model as sustainability framework

EMPOWER

- Co-sponsored with IAESTE
- Course investigates renewable energy sources
  - Explore Brazil’s utilization of clean power
    - Hydroelectric, wind and alternative fuels
  - Engage in dialogue with Brazilian sustainable energy industry leaders
  - Experience the culture of Brazil
- Delegates
  - Pitt, CMU, Rice, Wisconsin, Minnesota, Kentucky, Illinois
  - Chemical, Industrial, Mechanical, Civil/Environmental, Food/Agriculture, Electrical, Materials, Nuclear & Industrial Design

Undergraduate Education: EMPOWER

- Pre-Departure
  - Six weeks
  - Brazilian culture, economics, politics
  - Regional & national talks about renewable energy
  - Portuguese
- Assignments
  - Perspectives of field to sustainability
  - Sustainability considerations given country infrastructure
  - US energy bills
  - Company reports
- Post Field Experience
  - Comparison research report

EMPOWER Field Experience

- Caterpillar
- Recycle
- AES
- Electropaulo
- CEDBS
- Itapuá Bara Bonita
- Fortaleza
- Sao Jao Sugar Mill
- Sao Jao Sugar Distillery
- Voith Siemens
- Wobben
- Itapuá Bara Bonita
- Recycle
- Sao Jao Sugar Mill
- Sao Jao Sugar Distillery
- CTC
IFTA Example: International Product Realization

- Pitt and UNICAMP junior/senior engineering students
  - Collaboratively create new products
  - Focused on sustainable human development
  - Natural extension of IGERT research activities
  - Overcome differences
    - Scheduling, Language, Culture
- Visit UNICAMP during Spring Break
  - Collaborate directly on project
  - Internet and video conferencing thereafter
- Funded in part by NCIIA

Initiatives value - Learning from different realities

- Ex.: housing in the Brazilian context
  - Spatial (social) separation prevalent
  - User satisfaction rates - high in all classes when:
    - Ownership is guaranteed
    - Security provided
  - Satisfaction cannot be used as indicator:
    - Comfort conditions overlooked
    - Low quality does not trigger user attitudes directly
  - Territorially strongly expressed
  - Privacy often a problem
  - Communal urban areas rarely adopted by users
  - Urban parks and vegetation insufficiently valued
  - Quality of life: job, family, health and God
  - Sustainability: reduction in utility bills

Learning from different realities:

Undergraduate Education: NCIIA International Product Realization

- Improve the safety, reliability and energy usage of hot water for showering
- Improve the quality of lighting in homes while reducing energy consumption
Undergraduate Education: NCIIA International Product Realization

- Improve the quality of construction methods and materials for self-built homes

Undergraduate Education: NCIIA International Product Realization

- Find a method to supply clean, safe water that supplements the current systems of municipal supply
- IRES

FIPSE-CAPES: US-Brazil Partnership in Sustainability and Innovative Design (S&ID)

- University of Pittsburgh
- Rose-Hulman Institute of Technology
- State University of Campinas (UNICAMP)
- Federal University of Espirito Santo

FIPSE-CAPES

- Learn to work cross-culturally, in diverse teams (architecture, business and engineering) in international settings both in-person and in virtual, collaborative environments.
- Develop viable, marketable products that address sustainable development needs;
- Understand the impact of engineering solutions in a global and societal context and achieving insight into professional and ethical responsibilities; and
- Acquire language skills and the ability to study in a non-native language.

FIPSE-CAPES

- 16 to 20 students from each country
- US students will receive $1000 travel stipend; $200 per month expense stipend while in Brazil
- $1000 for language acquisition
- Internship experience in Brazil

FIPSE-CAPES

- Research team experience tightly linked to IGERT
  - Two or more IGERT fellows
  - Two or more IRES interns
- Co-led by Pitt and UNICAMP faculty
- Kick off – Summer 2007

Undergraduate Education: Research - IRES International Internships

- First Summer
  - Six weeks at Pitt (pre departure)
  - Four weeks at UNICAMP
  - Two weeks at Pitt (post return)
- If student takes 10 credits of Brazilian Portuguese, then
- Second Summer
  - Four weeks at Pitt
  - Eight weeks at UNICAMP
Acknowledgements

- NSF Grants: IGERT and IRES
- Department of Education: GAANN
- NCIIA
- Global Academic Partnership Award
- EPA

Thanks!

University of Pittsburgh
Q&A
Concurrent Session A-1

Sunami: Now we would like to take questions for Dr. Abe and also for Dr. Larry Shuman. Questions or comments?

Q: I have a question for Dr. Abe. When you entered Indonesia, you mentioned that it takes about a week until you get the visa. You said that you had to visit the immigration office for about a week almost every day. Can you explain a little bit more?

Abe: Well, I did not go to Indonesia myself, because I have only stayed there for less than three weeks. However, if you are going to stay for more than a month, it seems that you need to have a special academic visa and that you cannot apply that visa before you depart. You do have to send in certain documents beforehand and you need to get some support from the counterpart, in this case LIPI, but even with that you take about a week or ten days. You have to visit the police office as well as the immigration office. So if you are going to go for research, you need to go into Indonesia a week or 10 days beforehand so that you can clear all these deskwork and documentations. So this is based on the Indonesian immigration rules.

Q: Thank you very much. So is it just for the students or for researchers in general? Do professors also need to apply?

Abe: Yes, it is common.

Q: I have a question for both of you. So you are receiving funding from funding agencies. That is why you can continue with the programs, but the system within the university, Dr. Shuman talked about sustainability, but if you want to continue with this program, when the funding runs out, what will the university do to sustain the program?

Shuman: That is a very good question and certainly one that we wrestle with. What we are hoping we are able to do, and so far we have been fairly successful with our sustainability initiative. That is to raise money from outside foundations and other organizations, including alumni. We are very fortunate that we have an alumnus who is very much interested in this program and has donated quite a bit of money. It is difficult
with the university to help to maintain it. Because we are seeing it with the undergraduates, what I hope is that once we create the culture that you are going to do something internationally, then the students are expecting to do this. So we are seeing that, for example, sending something like 35% of our undergraduates as an engineering school by the time they graduate will have had some type of international experience and will have paid for that themselves. So the idea is, if we can create the graduate experience, particularly being able to obtain the research grants because if we do not have the research grants, we do not have the graduate students. So hopefully we can obtain the research grants that will enable them to continue to go to Brazil. With the undergraduates, we hope that we can obtain a little money to offset some of the costs, but the undergraduates are starting to recognize that this is very important for their education. What we are telling them is this is not something that you question whether or not you can afford to do it, but you question whether or not you can afford not to do it. And that seems to be working, particularly in this economy, but we work very hard to try to keep the costs down. That was an excellent question.

Abe: Well, I believe we share in this problem. I hope that our university president hears your question. Of course, funding runs out. Right now we have about eight to nine students dispatched to Southeast Asia, but without the funding we will not be able to maintain or continue this program. In our case, we have about 30 undergraduate students who have about a week to ten days to go overseas once every two or three years. The students will have to pay for their own expenses. The professors will receive public funding for the research to be done in Southeast Asia, so we are asking the students to share some part of the burden in order to continue with this program. And I believe that is one possibility, but as we have heard, the research funds or research grants that are used for the graduate students, is possible. So we may have to limit the number of students that are sent overseas, but by limiting the number, we believe that we can continue.

Sunami: Thank you very much. Any other questions, comments?

Q: I have two different questions for each of the presenters. For the first presenter, you are dealing with and offering conditions that are very interesting for field work. Why, for instance, the pamphlet is it not in English, is not sent abroad? It would be a very good possibility to attract international funding because if you are living probably in the United States or in Europe and if you were a professor there, you would have all the
incentives to have contacts with universities in Japan, Indonesia and Malaysia, to send your students there to do the field work. It would be a possibility to get extra funding. On the second presenter, I have a little provocative comment. I saw a presentation this year about a colleague of yours from Stanford and basically she was saying is that ‘basically we are giving some international kind of input to our students because they are constantly working through the Internet and this is based on the fact that the world is flat in the information technologies’. Their students work with groups from Germany, China, Russia, etc. on a 24-hour around the clock projects. And she argues that they really do not need to go to those places. Through the Internet, you can have them communicating with people from different cultures and working on a common project. So, how would you comment on that? Thank you.

Abe: Thank you very much for the comment. For this program, we do have a web page concerning this program. I believe that we are updating and improving the English web page as well. Of the published pamphlets, we only have in Japanese so far, but once I am back in my university, I will call upon the members and also explain the comment that I received from you. Thank you.

Shuman: The short answer is, if the Internet can replace an international experience, it should replace an international experience. The long answer is that, yes we are looking into doing that for those students that cannot, for one reason or other, travel abroad. It is very difficult to set up these courses and programs where students are working in a team with students from another university. It sounds very good. I would challenge my colleague at Stanford in terms of how many students actually get this experience because I think it is a great experience to do international team assignments; there are a number of universities that are doing little bits of this and certainly if you look at the number of opportunities that you offer your students to do something cross-culturally, working as part of a virtual team is one of the alternatives, but I do not think that a virtual team work will replace the actual experience of having to live in a different environment and having to adjust to a different environment. We are very much interested in providing these virtual experiences because it requires the student teams now to wrestle with a number of issues, not the least of which are time differences, cultural differences. We have heard a little yesterday about differences between how U.S. and Japanese students, for example,
would approach problem solving. So I am a big advocate of the virtual experience, but I really do not believe the virtual experience replaces the actual international experience. But I do think it is a complement and if you can do it creatively, you combine both the international experience with the virtual teamwork. There are some very good examples. One of the best examples may be at Purdue University. They have a program called GEAR that is been very successful. Also, Union College in the U.S. has done a program for a number of years with Middle East Technical University. And at the University of Michigan they had a program at the graduate level that involved Germany and Korea. So there are some very good examples of virtual teamwork, but I see it only as a complement, not as a full replacement for international experience.

Sunami: Thank you very much. Professor Abe, I want to ask for your reaction to the comments made by Professor Shuman?

Abe: It has been slightly more than one year or just one year since we launched this program. Now for those students who are yet to go to Brazil, we have not really come up with a solid program as to how to share the experience with those who went. We just give an opportunity for them to share their experience on a session. However, such a program could be substantively important, as you have rightly pointed out. Options would include, possibly, especially due to the fact that Japanese or contemporary students usually take a look at the computer screen as if they are watching TV screens, so when I make lectures to my students, I try to explain what can be done via Internet. However, they tend to have a different attitude toward Internet or virtual experience than ours.

Sunami: Any other questions or comments?

Q: Thank you very much for wonderful presentations. I have a question. International experience reminds me of a possible destination that is not as safe as you may want the destination to be. What measures do you take to ensure the safety of the students?

Abe: Security is a very major concern for us. As for the university, we do have a crisis management program in place and we apply that crisis management to the international scene as well. Actually that mercury refinery area is done rather in an illegal way. I’m
not really sure if that was a good case to present, but in any case, because of that safety concerns, we do have our counterpart accompany our students and the students will stay and survey areas where it is most safe. Also for the tropical forest program, we do have our counterparts accompany the students. For example, technicians will accompany the students. I went into the field once. It seems that that area is quite safe as long as you do not get lost because nobody actually goes in there. The only concern would be being attacked by wild animals. But so far, it seems to be quite safe.

Shuman: Yes. I am from a university that is very risk adverse, so the university goes to great pains to make sure that we do not send students into areas that are dangerous and that the State Department may have issued a warning on. One example was last spring there was an outbreak of Dengue Fever in Rio de Janeiro. Some 60,000 people were hospitalized. The university did not allow us to send their students to Rio de Janeiro during that time because they were very much concerned about the very small probability that a student might contract Dengue Fever. Actually, the risk aversion of the university has created problems in the other direction where we think that there are areas that are relatively safe for our students to go into and we are being discouraged to send students into those areas and into those countries. It is a very good question because we live in, at least in the U.S., a very litigious society and the universities are very much concerned about the potential for risk. University of Pittsburgh used to operate a program called Semester at Sea, where we took students around the world. That program is still ongoing operated by the University of Virginia, but a couple of years ago, the ship was stuck in the north Pacific in a storm without power. That caused a tremendous amount of concern on the part of the university and probably was one of the reasons that it is no longer part of the University of Pittsburgh program. So the U.S. universities in general and my university in particular, is very risk averse and very much concerned about international experiences because of this risk aversion.

Abe: I forgot to mention one thing. The students who are sent abroad would receive vaccination against contagious disease. This funding that we receive does cover these vaccinations. Therefore, they would be prepared in that sense.

Sunami: Thank you very much. I have one question for Dr. Abe. Professor Shuman talked about the language training in Portuguese for students going into the field, and I believe language is also a concern for Japanese students as well. So, do you have any such programs?
Abe: Well, thank you very much for that question. So far, because we are sending students to Indonesia and Malaysia, we have many students from these countries at our university. Once the students decide that they are going, they take lessons in Indonesian and the Malaysian language once a week. The exchange students from these countries would become the instructors to teach the Japanese students Indonesian and Malay very basic phrases that they should remember and this would continue for about two or three months before they are sent abroad.

Sunami: Thank you very much. Any other questions? Well, we will have another Q&A time at the end of this session, so I would now like to close the first half of the Session A. Thank you very much.
Abstract of Concurrent Session A

Internationalization of the University of Tokyo: Past, Present and Future of Researchers’ Exchange

Makoto ASASHIMA
Managing Director; Executive Vice President
University of Tokyo

In recent years, the University of Tokyo has identified “internationalization” as one of the most important policies to be pursued. Under the umbrella of this strategy of internationalization, the University has instituted several new actions including the creation of the Charter of the University of Tokyo, the University Action Plan, and the University of Tokyo Internationalization Promotion Plan. As a result, the number of exchange agreements with overseas universities and the number of overseas offices is showing a steady increase. Additionally, through programs to invigorate exchange of researchers established by this university, JSPS, or MEXT, many young researchers are now pursuing challenging studies abroad.

In September 2007, the University of Tokyo established the Todai-Yale Initiative within Yale University. This initiative is a center for research and educational activities in the fields of Japanese Studies and the humanities and social sciences related to Japan. Through JSPS support via the ITP it has been possible to begin establishing the training and research framework via which young researchers, who are the foundation of this initiative, are able to participate. In addition to sending young researchers from within the University, this program includes a variety of activities such as participation in Yale summer sessions and workshops, and young researchers now come away with a rich experience.

By continuing and strengthening the education of young researchers, it is planned to establish a still stronger foundation to ensure that even after the end of the ITP it is possible to maintain a significant program of exchange. Further, it is planned to promote the Todai-Yale Initiative still more actively in the future.

The University of Tokyo, in order to increase exchange opportunities for young researchers and students, in addition to the ITP has established a variety of programs including the IARU Global Summer Program and AIKOM. Further, through the UT Forum (from now on the Todai Forum) and other university-wide events, the University of Tokyo is actively creating opportunities for young researchers to engage in international exchange and overseas study.

At the University of Tokyo, in order to nurture the talent required to shoulder the future of scholarship, will continue to strive to promote international exchange opportunities for young researchers.
Internationalization of the University of Tokyo
Past, present and future of researchers’ exchange

Makoto ASASHIMA
Managing Director,
Executive Vice President
The University of Tokyo

1. Internationalization of Todai

The Charter of the University of Tokyo

The goals of the University of Tokyo lie in maintaining as well as developing the highest level of education and research in the world and in serving the public interest of the world.

Being constantly aware of its status as a Japanese university located in Asia, this university, by taking advantage of its accumulated expertise, knowledge-base and research capacity, will strive to strengthen its links with Asia and advance mutual exchanges with diverse parts of the world.

The University of Tokyo’s Stance for Globalization

1. Aim at the pinnacle of academia with the highest level research and education
2. At the same time, as a university located in Asia, place value on education and research based on the Asian diversity
3. Provide solutions to the world’s problems as a university in the country as a “forerunner of emerging issues”
4. Be a model university in the 21st Century through the development of global faculty and student body
5. Serve as a hub for academic exchanges connecting Asia with Europe and North America
6. Develop multi-lingual infrastructure, including facilities for education and research, and housing.

International Activities

Academic Exchange Agreements
295 Academic Exchange Agreements with universities and institutions in 49 countries and region around the world

Europe (102)  Asia (114)  South America (7)  Middle East (6)  Africa (3)  Oceania (14)  North America (50)

Acceptance of international students

<table>
<thead>
<tr>
<th>Status</th>
<th>Region</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>Asia</td>
<td>557</td>
<td>557</td>
</tr>
<tr>
<td>Graduate (Sr. Div)</td>
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<td>MSc Student</td>
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<tr>
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<tr>
<td>MSc Student</td>
<td>Europe</td>
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<td>MSc Student</td>
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Total students dispatched abroad

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<th>Region</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>Asia</td>
<td>557</td>
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</tr>
<tr>
<td>MSc Student</td>
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<tr>
<td>MSc Student</td>
<td>South America</td>
<td>7</td>
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<td>Oceania</td>
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<tr>
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<tr>
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Total students studying abroad in 2007

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<tr>
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<td>37</td>
</tr>
<tr>
<td>MSc Student</td>
<td>Europe</td>
<td>7</td>
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</tr>
<tr>
<td>MSc Student</td>
<td>South America</td>
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<td>MSc Student</td>
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<tr>
<td>MSc Student</td>
<td>Other</td>
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<td>2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2136</td>
<td>2136</td>
</tr>
</tbody>
</table>

Total 2008 Total 2009 388
2. Exchange of Researchers at Todai (Past – Present)

Exchange Programs

- University of Tokyo International Academic Exchange Funding Programs
  - For researchers
  - For graduate students

Postdoctoral Fellowship for Research Abroad (JSPS)

Number of Researchers Dispatched from Todai

3. Todai – Yale Initiative (International Training Program) and Other Programs
Todai-Yale Initiative

History

The “Todai-Yale Initiative” was established in September 2007 as Todai’s first university-wide multidisciplinary base for education and research in the U.S. by an agreement between President Komiyama and President Levin.

Objectives

- to contribute to the development of Japanese studies at Yale and in the U.S.
- to encourage and foster young researchers in Japanese studies.

Objectives

To enhance the presence of Japan in the international academy by deepening the understanding of Japanese society and culture.

Opening ceremony on November 2, 2007.

Structure

- Todai-Yale Initiative Steering committee:
  Chairman: Professor Asashima
  Executive Vice-President for International Affairs
  Vice-Chairman: Professor Tanaka

- Director of Division for International Relations

Visiting professors

2007-2008
  Professor Junko Kato, Graduate Schools for Law and Politics
  Associate Professor Takuji Okamoto, Graduate School of Arts and Sciences

2008-2009
  Professor Makoto Abe, Graduate School of Economics
  Associate Professor Hidemi Takahashi, Graduate School of Arts and Sciences

Activities

- Symposium: Mind, Brain and Society, April 25, 2008
- Todai-Yale Initiative Lecture Series
- Enhancing research cooperation between Yale and Todai

International Training Program (ITP)

Vision

- Symposium: A Journey of Tea, Japanese Tea Culture Past and Present will held from April 23 to 25, 2009.
- Todai-Yale Initiative Lecture Series
- Fellowships and Symposiums for young researchers under the ITP

Research output in Japanese studies by Todai-Yale Initiative

Continuing and increasing programs for young researchers

Cooperation with “Friends of Todai”

※“Friends of Todai” is a New York non-for-profit corporation, established by Todai alumni to support Todai’s activities in the U.S.

Yale Summer Session Program

Date: July 6 - August 8, 2008
Place: Hongo Campus at Todai
Course: “Japanese Cinema and Culture”
Instructor: Asst. Prof. Aaron Gerow (Yale Univ.)
Participants: 10 Yale students (1 assistant), 3 Todai students

Other Programs

APRU
AERU
IARU Global Summer Program
BEITOH
(BEijing-SEoul-TOkyo-Hanoi)

(Short-term student exchange program; since 1995)
Other Programs

- UT Forum 2000 in Boston with MIT & JSPS
- UT Forum 2000 in Silicon Valley and the Bay Area with Stanford & UCSF
- UT Forum 2002 in Singapore with NUS
- UT Forum 2004 in Sweden with Stockholm Univ., Karolinska Institute, Stockholm School of Economics, Uppsala Univ.
- UT Forum 2005 in Peking with PKU, Tsinghua, CAS
- UT Forum 2007 in Seoul with SNU, Korea Univ.
- Todai Forum 2009 in London

Other Programs

Todai Week at Tsinghua (2008.5)

4. Todai’s Challenges for the Future of Researchers’ Exchange

Challenges in Promoting Young Researchers’ Exchange

- Further encouragement of recent international activities of Todai
- Todai’s main challenges
  - Promotion of young researchers’ short-term exchange programs
  - Improvement of the system of programs
  - Improvement of infrastructure at Todai
  - Enrichment of the University of Tokyo fund
    - Increasing scholarship programs for international/domestic students
    - Increasing in the number of scholarship programs for international students ensured before their coming to Japan
    - Giving more opportunities for domestic students to be trained overseas
  - Preparation of housing, scholarships, space, etc. to encourage exchange of researchers
  - Holding lectures and symposia inviting international academic participants

Challenges in Promoting Young Researchers’ Exchange

- Equal Partnership
- Utilizing “The G8 University Summit” and “Network of Networks”
- To fulfill “The Role of Universities”
  - “Structuring of Knowledge” to integrate pieces of knowledge in a way useful to solving the issues we face
  - “Driving Engine” for the social changes through “Knowledge Innovation”
    - Ideal liberal education and education consortia
    - Industry and the international community
    - Medical science and health
    - Sustainability and aging society
  - Use of university campuses as the base for Social Experiment
  - Maintaining Cultural Diversity in the wave of globalization.
Abstract of Concurrent Session A

Developing World Partnerships: Expanding Opportunities for Young Researchers through Community-Based Sustainable Development

James R. MIHELCIC
Professor of Civil & Environmental Engineering
University of South Florida

Since the release of Limits to Growth (Meadows et al., 1972) there has been increased global discussion on issues related to sustainability. Sustainability has many definitions and is often practically interpreted as mutually advancing the long-terms goals of economic growth, societal prosperity, and environmental protection.

In 1997 Dr. Mihelcic created the Master’s International program in Civil and Environmental Engineering. This program allows students to combine graduate school with 2+ years of overseas engineering service in the U.S. Peace Corps. One unique aspect of this program is that it requires university, faculty, and student partnerships with the U.S. Peace Corps, nongovernmental organizations (NGOs), and rural and urban communities located in the developing world. The partnership with U.S. Peace Corps requires students integrate on-campus and off-campus education and research requirements with 2+ years of training and service in the U.S. Peace Corps. To date over 60 graduate students have served and performed research in 24 countries.

There are several motivators for creating similar programs. These include interests of young people (i.e., student interests), national calls to reform engineering education; incorporation of concepts of sustainability into engineering education; how we do teach concepts of social justices, equity, and ethics; and globalizing and diversifying the engineering workforce. There are also a significant opportunities for young researchers to link their science and engineering skills with community based issues of sustainability. This talk will provide several examples that demonstrate how the community-based international engineering experience can be integrated with graduate education and research requirements and young investigator research.
Developing World Partnerships: Expanding Opportunities for Young Researchers through Community-Based Sustainable Development

James R. Mihelcic
Civil & Environmental Engineering
Patel Center for Global Solutions
University of South Florida (Tampa)

How do we globalize our workforce and get faculty and our students interested in the world? Sustainable Development in a Global Context

- Since 1997 we have partnered with the U.S. Peace Corps, non-governmental organizations, and developing world communities (urban and rural)

Locations where my engineering graduate students are educated and conduct research

Outline of Talk
Motivators (Students and young researchers)
What is the Master’s International Program
Examples of Young Investigator Research

The following motivators will show how to make our research programs exciting to:

Young Investigators
Undergraduate students
Graduate students
Government
Foundations
Industry
The Public

A good hockey player plays where the puck is. A great hockey player plays where the puck is going to be.

I skate to where the puck is going to be, not to where it has been.

- Wayne Gretzky
**Increasing Diversity through Education & Research Initiatives in Sustainability**

<table>
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<th>Specific Program</th>
<th>Total Students</th>
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<th>% Female</th>
<th>% Minority</th>
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<td>75</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>NSF International Sustainable Development Research Exper.</td>
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<td>18</td>
<td>82</td>
<td>0</td>
</tr>
<tr>
<td>NSF BRU in Sustainability</td>
<td>40</td>
<td>44</td>
<td>56</td>
<td>37</td>
</tr>
<tr>
<td>Masters International in Civil &amp; Environmental Eng.</td>
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<td>50</td>
<td>42</td>
<td>7</td>
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<tr>
<td>International Senior Design</td>
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<td>47</td>
<td>53</td>
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</table>


**Top 10 Causes on Minds of Young People in the U.S.**

(Cone Inc., AMP Insights, 2006)

- Education
- Power
- Environment
- Health and disease
- Drug and alcohol prevention
- Human rights
- Immigration reform
- Global warming
- AIDS
- Hunger

**How to do we teach engineers about social justice, equity, and environmental risk?**

“All people, whatever their stage of development and their social and economic conditions, have the right to have access to an adequate supply of safe drinking water.” -WHO

**Young investigators can now align themselves with Schools of Medicine and Public Health**

Healthy life is an outcome of sustainable development, as well as a powerful and undervalued means of achieving it. We need to see health both as a precious asset in itself, and as a means of stimulating economic growth and reducing poverty.

Dr. Gro Harlem Brundtland
Director-General Emeritus, World Health Organization, 2005

**We seem to forget that poverty has many meanings, and engineering can eliminate all forms of poverty.**
In response to a question about what he learned from his Peace Corps experience, a student answered that "along with gaining valuable engineering skills, he also learned what it was like to put engineering into practice while taking into consideration the social, economic, and environmental limitations of the developing world."

Broader Impact

NSF requires that all proposals address the broader impact of the proposed research. This includes: societal benefits, broadening participation of under-represented groups; & advancing discovery while promoting teaching and learning. This can be difficult for young investigators.


Master’s International Programs

- Currently about 7,000 volunteers, but less than 500 health and sanitation workers
- Peace Corps has partnerships with 50+ universities in scarce-skill areas representing > 500 students

Three goals of the U.S. Peace Corps

- help the people of interested countries in meeting their need for trained men and women
- help promote a better understanding of Americans on the part of the peoples served
- help promote a better understanding of other peoples on the part of Americans.

Course Requirements

- Field Engineering in the Developing World
- Global Health Principles & Contemporary Issues
- Environmental Anthropology

Language and Graduate Certificates in “Humanitarian Assistance” and “Water, Health, Sustainability”

Peace Corps Assignments

- Students serve for 2+ years as water/sanitation engineers and are assigned to an NGO, community partner, or government unit (village, city, federal).
Example of Engineering Service: Unprotected spring in the village of Bilik-Bikot, Cameroon.

The finished product

I started this program in 1997, what are some other related impacts on young investigators?

Young Investigator: Jennifer McConville

- MS Environmental Engineering and Peace Corps Volunteer, Mali
- Currently PhD student at the Royal Institute of Technology in Stockholm, Sweden
- Recipient of NSF Graduate & Research Fellowship
- She speaks Icelandic, French, Bambara, and Swedish
Conventional way to Evaluate Sustainability

Three Pillars of Sustainability

Environmental  Social  Economic

Evaluating Sustainability in the Developing World

Five Pillars of Sustainability

Environmental  Social Cultural  Political  Economic

Respect  Cohesion  Participation


Life Stages of Infrastructure Project in Developing World Cycle of a Water/Sanitation Development Project

Conceptual Designs and Feasibility Study

Design Development and Action Planning

Implementation

Operation and Maintenance

Needs Assessment

Similar to Streamlined Life Cycle Assessment

<table>
<thead>
<tr>
<th>Life Stage</th>
<th>Socio-cultural</th>
<th>Social</th>
<th>Environmental</th>
<th>Economic</th>
<th>Political</th>
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<tbody>
<tr>
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<td>1.4</td>
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<td>2.2</td>
<td>2.3</td>
<td>2.4</td>
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<tr>
<td>Design Development and Action Planning</td>
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<td>3.2</td>
<td>3.3</td>
<td>3.4</td>
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</tr>
<tr>
<td>Implementation</td>
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<td>4.2</td>
<td>4.3</td>
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<td>5.2</td>
<td>5.3</td>
<td>5.4</td>
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</tr>
</tbody>
</table>

What are water-related considerations for providing global sanitation access in coming decades?

Story of two young investigators:
David Watkins, Jr. Associate Professor, expertise in Water Resources Planning & Management
Lauren M. Fry, Doctoral student in environmental engineering
Research Question, will selection of sanitation Technology (compost latrine, pour flush latrine, sewer) in the future be limited by water availability?, especially as population Expands and the water scarcity becomes More prevalent.

<table>
<thead>
<tr>
<th>Scenario 1 to 2</th>
<th>Additional people under moderate stress</th>
<th>Additional people under severe stress</th>
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<tr>
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<td>7.98 x 10^6</td>
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<tr>
<td>Scenario 3 to 4</td>
<td>9.06 x 10^6</td>
<td>4.81 x 10^6</td>
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<td>Scenario 4 to 5</td>
<td>2.58 x 10^7</td>
<td>8.11 x 10^7</td>
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<td>Scenario 5 to 6</td>
<td>1.39 x 10^7</td>
<td>3.63 x 10^7</td>
</tr>
<tr>
<td>Scenario 6 to 7</td>
<td>9.99 x 10^7</td>
<td>4.02 x 10^7</td>
</tr>
</tbody>
</table>


Some current research in Bolivia supported by NSF

Some of the Positive Outcomes

- Supports globalization of our undergraduate and graduate programs
- Attracts a diverse student body
- Allowed us to develop “new” partnerships
- Supports sustainability initiatives and provided methods to teach issues of justice and ethics
- Linked to capstone senior design & ABET
- Administration and funding agencies value the service aspect and the knowledge creation of research
- “New”, prominent, and fundable research venues for young investigators

Where has research with Lauren and David gone?

- Ongoing field study in Bolivia on how land use impacts spring output
- Developing method with global public health faculty on how spring output (water volume) relates to some measurement of health (DALYS).
- Develop model of watershed linked with GIS to provide spatial resolution of impact at community level to larger regional, country, and global issues.
- David has taken sabbatical at Columbia University’s Earth Institute

Ongoing field study in Bolivia on how land use impacts spring output

Developing method with global public health faculty on how spring output (water volume) relates to some measurement of health (DALYS).

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Acknowledgements:
1) our many community partners
2) U.S. Peace Corps
3) National Science Foundation support for Bolivia Inter. Sustainable Development Engineering Research Experience Project (Grant No. OISE-0623558)
Q&A
Concurrent Session A-2

Sunami: Now, please raise your hands if you have any questions or comments.

Q: I have two perhaps related questions to Dr. Asashima. My first concerns the participation by your undergraduates at Todai in study abroad. My guess is that the undergraduate population at your university is somewhere between 7,000 and maybe 10,000 undergraduate students. And the figure you gave us was some 58 students at the undergraduate level studying abroad, which by comparison with universities in other developed countries, is exceedingly low and, interestingly, very low even compared with universities of a similar level here in Japan. I would be interested in how you explain that very low figure. My second question concerns the very high figure, in fact three times the number of undergraduate students almost, of Todai’s offices abroad, 141. What do these offices do and are they actually staffed by Todai staff? Thank you.

Asashima: By way of answering to your first question, Todai undergraduate students is currently around 14,000. Even though we receive not as much number of international students from developed countries, but we have received international students from around the globe, including from Middle East or from Africa. JSPS and governmental funding and other funding sources are available and they are the first screening method as well, so some of them may take a look at Todai web page before sending in an application. So we have a separate screening system for different modes of application as well. Internet is going to play an increasingly important role. For us to communicate the availability of the funding and fellowship and we are expecting an increase in the number of international students. With regard to the second question of yours, at the University of Tokyo, we are currently paying attention to Japan’s positioning in the world and how Japan should position itself to communicate with the world. Say, for example, in Egypt or in South Africa, we have made efforts and institutionalized a system to further develop a relationship with our counterparts. Sometimes we are visiting them and sometimes we are receiving them. We already have launched a number of programs in order to further promote the internationalization of Todai. Thank you very much.
Q: My first question concerned the number of students going out from Todai to study abroad. The figure we were given was 58. And my question asked for an explanation as to why was that too low in relation to universities in other developed countries and then in relation to universities of a similar character here in Japan. So why are the number of undergraduate students participating in experiences outside of Todai during their undergraduate course 58, which is exceedingly low, particularly in relation to the higher figure of undergraduates we have just been given. That is my first question. My second question was very specific. Why are there 141 offices, what do they do and are they staffed by Todai faculty or staff?

Asashima: Todai is an open university, but there are some factors such as fellowships and other issues. So there is a tendency that larger amount of fellowship is available for research activities rather than educational activities. AIKOM or IARU systems are certainly available, however, research oriented activities tend to attract more attention. So with regard to the less number of undergraduate students, I think that that is an exemplification of the fact that we have less funding for undergraduate students to study abroad as that for graduate programs, we have been able to establish substantive supporting system in addition to global COEs. And that also has opened up the door even wider for our international students. Todai is a research university and the gap is also one way to explain that we are a research university. Have I been able to answer to your first question so far?

Q: I am still concerned why it is so low relative to other high ranked Japanese research universities, the participation rate. It is 58.

Asashima: So are you concerned about the selection method?

Kimura: You have 140,000 students and you only have 58 students going abroad during the undergraduate program. Professor Asashima is a study abroad program director, that is why he asked this question.

Asashima: Like I said repeatedly, we are screening without any nepotism, but so long as we can prepare, the number of sufficient funding for undergraduate students could have been larger, but we have a limited resources for undergraduate students to receive fellowships. So we could possibly increase the number if we can receive more public
funding for study abroad programs for undergraduate students. India, China or Korea could be a potential supporter, but we are still in the process of selection and that is also the reason we have less number of international students, but that is also the reason that we wanted to maintain a certain level of academic selectivity.

Kimura: No, you sent out 58 Todai students to international universities.

Asashima: Well, if you look at the number, in case of AIKOM, we sent out 30 students to non-Japanese universities, 18 for IARU. In total, there are 2,400 students going abroad. And that is the official number. So, even though the official number is 58, the actual number could be 380. 58 is the number of students who participated in the study abroad program with unit-taking courses with rigorous support from Tokyo University. But some other students may be paying for their study abroad participation and some of them may be going to other universities with credit that cannot be converted back to Todai credit. But the number of 58 are the students who participated in a study abroad program under Todai and partner institution agreement. So when you say the number is 58, I do not think that the number is too low because in reality, I think that the number is much higher than 58. That student number of units is a matter of concern for students as well. Tokyo University’s academic course work needs to be evaluated by the students and the universities who are sending them to Tokyo University and we also have to evaluate the programs of our partner institutions as well. So it is the trick of the magic, right, when you say that the number is 59. When you say study abroad, that gives an impression that there are some unofficial programs as well, but this number of 58 includes only the official study abroad program. (Maybe the study abroad program includes casual study abroad program participation, but, so maybe that is the problems of the definition.) When I became in charge of this program, number of international branches back then was 26 and this number of 26 are the offices that have been established under official agreement with a partner institution, but there are more looser associations and if you include that, that number balloons to 130 from 29. So the official number is both substantive and official. So it is a very conservative number, but if you take a wider viewpoint, the number of students going abroad is 2,400 per year. When discussing international matters, the numbers needs to be calculated more accurately. By that I mean that universities have to discern those who are studying abroad in an official program and those in an unofficial program because I do not want to casually balloon the number by including casual students. Also we give the rankings to those programs on a scale from A to E. Those that is correct and right from every angle can
get a letter grade A, but when it falls short of achieving the A level, then the program will typically get B. And we said we maintain primarily on grade A study abroad programs and we do not include more lowly graded study abroad programs when we are taking statistics. I think that Todai should be responsible when we disclose any numbers and even though the number may be limited, there are other students who are studying abroad with the government funding apart from the Todai funding.

Sunami: Then can you answer the second question? I think you mentioned about 147 or so offices abroad. Do you have any staff stationed there from Todai?

Asashima: We do send some staff to Beijing, to Yale. When we count these offices, so when we say staff, do we mean faculty or do we mean the researchers, do we mean the post-doctors from the graduate school? The 139 that I gave you means that there is a desk for the staff there. There are researchers stationed there for about a year. There is somebody there throughout the year. So in that category, we have 139 offices. So if we just count the agreements, the number may change, but, so, under the category that I explained, is 139. If you look at our web page, you would understand what kind of agreements we have with what counterparts and what kind of exchange programs are there and what kind of funding supports that.

Sunami: And any other questions, comments from the floor?

Q: My question is for Professor Mihelcic. The students you send abroad earn graduate degrees and, right? The committees that evaluate them, is there a normal thesis defense? Are you able to get the committees involved in their overseas work as well, or are you the only part of the committee that is really involved in the overseas portion of the work?

Mihelcic: So, in terms of how the students interact with people back on campus, there is a couple of different ways. Before the students go overseas, they form a committee. So they pick a graduate advisor. That person may or may not be me. And then they form their regular committee. In terms of how well faculty on campus interact with a student in Africa, South America, or the South Pacific, that is different. So there is a certain group of faculty, I have noticed, that they operate really well. They are very
engaged with students, but those students have to come to their office. These are students sometimes that are just showing up at a computer every three or four weeks and they might have like a weekend where they have access to the Internet or access to cell phone reception. So I have found that there is some faculty that are responsive, some are not. And then the other thing that happens, it is very common that these students will change the graduate committee about halfway through their assignment, because when they leave for Peace Corps, they might think they know what they want to do for research, but many times they are put in a situation where they can not either execute that research, or their research just changes because they thought they were going to do water, but they are very heavily involved in solid waste, for example, so they will switch the research topic. So we found out that the people back home have to be a little flexible and, like I said, some faculty are a little better than others on doing it, so it is kind of all over the board.

Q: May I ask a follow-up question? Do you find that the program is successfully drawing faculty members in either that have had no or some interest before and now have much more interest, that it is really promoting internationalization of the faculty at the same time?

Mihelcic: I have switched universities. At my previous university I had about two or three faculty that were very engaged. And these tend to be faculty that have very active research programs. And so every year they will be there. Like I will take one extra student on, so I will have this little subset of my research group that is doing this international work. And I was not so good at getting other faculty involved with the group. Now at my new university, I have a tremendous amount of faculty that want to be involved either from within or outside of my department. What I think I have to do is set up some kind of training program for them so they understand, before the students go out in the field, the realities of how they conduct research. For a lot of faculty, especially junior faculty, if they can see, I can show people now that you can do publishable research in this, right, because junior faculty need to be advising students that are getting some publication out and going to lead to some kind of external funding later on. It is not just because they like these students or it is interesting. So we have been able to show now that you can do publishable research in it. There is a large group of faculty, especially young faculty. Older faculty gets set in our ways and I would say that we are very good at putting a little bubble around ourselves and there is something
we do very well. It seems like there is a lot of interest from the junior faculty that are just starting to get into this and they want something different out of their research.

Kimura: I would like to ask one question to Professor Mihelcic. My background is civil engineering. You too, I think. I graduated from Tokyo University in 1961. In those days, the number of classmates was about 50. Majority of them were saying that, “I would like to work in the developing countries”. But while staying at Tokyo Institute of Technology for 33 years, I clearly saw that that sort of ambition of youngsters has been diminishing in this country enormously. Towards the end of my career, it was almost impossible for me to find students with that sort of ambition. Everybody wanted to work in the civilized country, not in the developing countries. Don’t you see that sort of trend in United States? (Actually I have seen the opposite.) What I am saying that this country is getting really affluent country (Yes). As affluency increases, I mean that the youngsters tend to lose interest in working in developing countries.

Mihelcic: In response to that, I agree and disagree with you. In our country, when I was in school there was a lot of young people working as activists. We were very involved in our local politics and changing the world. And I noticed in the ‘90s that started to change. We even saw decrease in environmental engineering programs in the U.S. If you have looked at the last five years now in the U.S., environmental engineering enrollment is picking up again. You can see it in this last election campaign. There is a movement of young people in the U.S., and this has only started in the last four or five years, many young people now are looking outside the U.S. and some are affluent and some are not. I believe that one graph I showed about what is on young people’s minds. It is changing in the U.S. Like I said, you could see it with this election that we just had in November. The amount of young people that were turning out for rallies, that wanted to vote, our president-elect talks about service. He is the first president for decades that has talked about students giving something back to their local community or giving something back abroad. The pendulum is switching and part of that, as we heard this morning, many students going abroad are paying for it out of their own pocket or their aunt or mother is paying for it, so I think most of them are wealthy students, especially at the undergraduate level. I would just say, my students are also finding out that you can get a very well-paid position overseas. So if you want to come out of this program, if you have two years of experience overseas, you can get a job with an NGO that pays quite well. So students are starting to see this as a possible career, but that is taken me time to have a few students that can serve as role models.
Kimura: I hope that my country will be in that situation in near future. Thank you.

Q: I have a question to Asashima-sensei. Thank you very much for your interesting speech. I have a very simple question about the Todai-Yale initiative as it has been touched upon yesterday. Japan is now having a program or an initiative to increase international students’ number to 300,000 and some of them are thinking about providing classes and course work bilingually. But what do you think about the Japanese culture and language? How do you look at the issues of Japanese culture and issues? And what are the other candidates before you selected Yale as an initiative partner? And when receiving students, are they coming to the international student center or are they being received as humanities students or social science students?

Asashima: With regard to Todai-Yale initiative, Dr. Komiyama and Dr. Levin’s close personal ties were the start of this initiative. Natural science field does not really need any institutional support. We already have outposts in China, Europe and other countries in the world. But when it comes to humanities, I thought that it was behind other field of sciences. There is an historical ties with Yale and Professor Hamada, who is teaching at Yale. He also served as the bridge for us to establish an initiative with Yale. We are now losing important cultural aspects in Japan, but I thought that we wanted to reserve and conserve those Japanese cultural aspects, not only at home, but also in the U.S. as well. And we are hoping to revitalize the importance of these cultural aspects by providing support for the Yale initiative. Lessons and discussions are being carried out in English, but in cases of symposiums, we sometimes provide simultaneous interpretation. In either case, Yale students and Japanese students and faculty members are on an equal footing in operating the initiative at Yale University. When Yale University students are coming to Japan, they are very often accompanied by Yale professors and the faculty members accompanying the students provide the lectures on Todai campus and the lectures are being attended by Todai students as well. And I think that the Todai-Yale initiative can provide a bread for thought in exploring new business model, if you will. I have participated in initiative twice so far, and I was impressed by the enthusiasm that they demonstrated and their rate of satisfaction was nearly 100% because students were happy to have been able to come to Japan, to come to direct contact with Tokyo students. Yale students would like to see in Japan Toyota, Diet or Tsukiji Market and all the spearhead of the Japanese society and they want to see today’s Japan. But Harvard students sometimes have a different perspective. They were
interested in meeting the homeless people in Sanya-Ueno area, so they wanted to take a look at the bottom of the Japanese society. So each student from different universities takes different perspectives. Some of them want to take a look at the top of the society and the bottom of the society, which was quite interesting. But the common undercurrent is their willingness to keep an eye on the evolution of the Japanese society. And we also were able to give an opportunity for our students to have a discussion in English as well. Now, do you think it is realistically possible to provide lessons in English to university students in Japan? Science writing is being taught by native speakers at the University of Tokyo. And for junior and senior in engineering and ICT departments or Bio-engineering division, some of the courses can be taken in English. So there is only a limited offerings in English, even though we have a university wide bulletin in English. Of the 19 departments, they all have English bulletins and all 15 graduate programs have at least one English program. ICT and engineering are the only courses that can be taken courses all in English. English-only course work is already available, even though it is quite limited. English bulletin is now, like I said, available. So contents wise and program wise, I think that Todai is becoming increasingly open to international students.

Sunami: We are already running over time, so I would like to take one last question from the back please.

Q: Well, thank you very much for the lecture. I have a question to Dr. Asashima. At my university, we do not have an official exchange student program. We do have some summer programs, which extend over two weeks to a month. And we sometimes accept students from partner universities. We have the veterinarian course, which does that actively. Usually, exchange students would be going for about a year. Our students are focusing on passing the exam that comes six years later, so in that sense, these exchange student programs may not really be attractive for the students. I believe that it is very good to have these programs, but, the university itself is not positively looking at that. Of course, when we think about Japan’s project to accept or have the 30,000 exchange students, we hope to have this program as well. In Tokyo University, I believe that in the medical school, the agricultural faculty also will have a test in the end, but within this limited university years. In order to have these official programs, how do you coordinate that within the school year?
Asashima: One way that we try to do it in the University of Tokyo is that, it may be rather unique, we are focusing on general education, meaning that in the first two years of university, students will have to go through the general education course. They attend the Komaba campus for that. And after two years at Komaba, they split up into the field of expertise. First of all, they have to nurture themselves as citizens, to build up the basis as citizens. After that they go on to learn about the academic field. So after they divide up into the academic fields within the University of Tokyo, we utilize these IARUs and summer program as well as AIKOM, where we have 30 universities around the world and where students can transfer their credits. The engineering faculty also has a similar program. There are separate programs for the whole university as well as programs based on departments, but when we accept overseas students, the contents of education is improving. We are able to see the improvements, but the biggest issue is when we accept exchange students, the scholarship, the dormitories, how they pay for their living expenses. We need to have the facilities in place or else we will not be able to say that we are truly an international university. Linked with the English programs as well as the examinations to become doctors, physicians or veterinarians, I believe that we need to have these exchange student agreements in place, so that we know which credits will be transferred from one university to the other. It depends on what each university does in that sense, how they transfer the credits, how they collect the funds, how they set up the scholarships, etc. Right now, we are still in that process. Not all the hurdles have been cleared yet. And, as you have just mentioned, there is this issue of double degree. So there are all kinds of issues we still face. The 300,000 student abroad project, what Japan really wants to do with that is the focus of the question and each university is doing their best so that they can accept students from overseas. We still have a lot to do left.

Sunami: Thank you. So, speed is very important, as you have rightly suggested. Now with this, I would like to conclude the Session A.