

Summary of the first PARE symposium in Indonesia

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A symposium was held at the Mercure Jakarta Cikini hotel in Jakarta, Indonesia, on 28 February 2017 to discuss the educational and research aspects of the PARE program. One keynote speaker from the United Kingdom and seven general speakers from PARE consortium universities discussed various topics related to the program, and about 100 researchers, educators, students, and alumni attended and actively participated in the symposium. There were many positive messages and constructive suggestions to help advance the program.

In the keynote presentation, Dr. **Henny Osbahr**, University of Reading (UK), suggested that nurturing the PARE partnerships can help grow an innovative platform for education, mentoring and research in the region that informs how to better manage the boundaries and interactions between science, policy and practice to contribute to solving PARE-related issues. She also noted the importance of investing in intersectional research and education initiatives that enhance new approaches and methods to better understand and manage sustainable ecosystems.

The keynote presentation was followed by a report from Dr. **Ryusuke Hatano**, Hokkaido University, who reported on the PARE program and the 2017 Spring School.

Asia is the world's most populous continent, with 4.3 billion inhabitants accounting for more than 60% of the world's population. Recent rapid economic growth in Asia has led to increased urbanization, which has exacerbated the vicious cycle in the PARE Chain. The PARE program should be a platform for all kind of peoples to solve the problems related to PARE related issues in Asia.

In relation to this, Dr. **Edwan Kardena**, Bandung Institute of Technology, ITB (Indonesia), discussed the importance of developing cross-cultural understanding in students to prepare them for future jobs and strongly advised that we should increase student mobilization within Asia. He also suggested that we can continue cooperation and activities through our own resources and network rather than waiting for third party support. This will be important in the future when PARE consortium universities will

continue the PARE program using their own resources and networks.

Concerning understanding of PARE related issues, Dr. **Damayanti Buchori**, Bogor Agricultural University, IPB (Indonesia), discussed the importance of integrating local knowledge and wisdom with previous scientific knowledge holistically to develop sustainability science.

PARE issues are complex, include uncertainty, and have many tradeoffs, which often results in chaos. In a traditional Chinese story, chaos is shown to comprise various parts, and if part is independently solved, the chaos disappears. We already know that the solution to poverty is not simply through economic development, and that ecosystem services are important to people's lives. Balancing conservation and development is key to understanding and managing chaos.

Dr. **Toshifumi Igarashi**, Hokkaido University (Japan), discussed the results of surveys and analyses conducted as part of the PARE program on three rivers in Asia: the Ishikari (Japan), Chao Praya (Thailand), and Citarum (Indonesia). Residents along the rivers were also asked about the concept, use, sense of values of the rivers. He showed that preservation and remediation of riverine environments depend not only on the strategies of national and local governments, but also on the ideas and attitude of the residents along the river.

Mining brings many economic and social benefits, but can also lead to social conflicts. Dr. **Thitisak Boonpramote**, Chulalongkorn University (Thailand) discussed how mining companies need not only government permission but also “social permission” to conduct their businesses. Mining is important for development, but sometimes results in irreversible land-use change. Direct and honest communication with all stakeholders is important. He also reviewed the use of social license to operate (SLO) in various mining projects to help create a sustainable path for the mining.

Dr. **Itthisek Nilkhamhang**, Thammasat University (Thailand), described the unprecedented shift now occurring in manufacturing sectors around the world, which is referred to as *Industry 4.0*. He discussed the rise of *Industry 4.0* and the road towards sustainable manufacturing from the perspective of human populations, activities, resources, and the environment (PARE). He concluded by noting the importance of considering the impact of *Industry 4.0* on the PARE chain.

The importance of proper information exchange among the peoples from different cultures and disciplines is increasing more and more. Cross-cultural capability is strongly required.

Dr. **I Made Andy Arsana**, University of Gadjah Mada (Indonesia) gave a clear presentation in which he described a community service program at UGM that is mandatory for all undergraduates. During the two-month program, students live in villages and remote areas, and assist with the communities. During this period, they also learn about the four key issues in the PARE program: populations, activities, resources, and environments.

As globalization progresses, cross-cultural awareness and understanding have become increasingly important. The PARE program offers students a chance to learn about problems in real world, discuss strategies to solve the problems, and think about how they can achieve their goals.

Dr. **Supatida Abdullakasim**, Kasetsart University (Thailand) concluded the presentations by discussing the lessons learned from the PARE Spring School 2016 in Thailand. Her evaluation of the program indicated that the participants had positive impressions and most stated that they benefited from experiences during the program. She also suggested that the framework of last year's program was satisfactorily responsive to the expectation of most participants in general. She mentioned that through the PARE program, we can realize that there are many PARE related issues around us that we should solve. PARE program opened the door of the new education for awareness of the PARE related issues.

More than 300 students have participated in the PARE program since 2014 when the PARE program began. Nobody doubts that it is important to strengthen collaboration with the PARE program alumni network. It is believed that PARE program will contribute to achieving the Sustainable Development Goals (SDGs) to strengthen resilience in each country.

Following the presentations, there was a **panel discussion** of the main topics of the symposium with representatives from consortium universities and the keynote speaker, focusing on the educational impacts made and potential of the program for future

improvements. Interdisciplinary activities, lectures, and assignments were all recognized as key elements of the PARE program's strength because they are often insufficient in regular university curriculums even in environmental science programs. Future programs can be further enhanced by having stronger emphases on social sciences and perspectives on ecosystem services. Monitoring alumni students' career paths and obtaining their feedbacks on the program is a necessity to sustain and develop the meet the goal of the program. This was followed by the appointment of an ambassador and partners to the "**Hokkaido University Ambassador and Partner System**".

Symposium program

- 0915 **Opening address**
- 0925 **Henny Osbahr**, University of Reading (UK)
Intersectional research partnership to support inclusive green growth challenges
[Keynote presentation]
- 1000 **Ryusuke Hatano & Ryo Takeda**, HU
PARE Report
- 1015 **Edwan Kardena**, ITB
Cooperation Beyond PARE Project
- 1030 **Coffee/Tea break**
- 1045 **Itthisek Nilkhamhang**, TU
Road to Industry 4.0 and Sustainable Manufacturing in ASEAN
- 1100 **Damayanti Buchori**, IPB
New Frontiers in Sustainable Research: Learning from the Past, Adapting for the Future
- 1115 **Toshifumi Igarashi**, HU
Evaluation of resiliency of riverine environments: Comparison of river water quality between Citarum, Chaopraya and Ishikari rivers
- 1130 **Lunch**
- 1330 **Thitisak Boonpramote**, CU
Social License to Operate (SLO) for Sustainable Mining Investment
- 1345 **I Made Andy Arsana**, UGM
Compulsory Community Services in Universities in Relation to PARE Chain
- 1400 **Supatida Abdullakasim**, KU
Lessons from PARE Spring School 2016 and Prospect towards Future PARE Program
- 1415 **Panel discussion**
- 1445 **Closing address**
- 1445 **The appointment ceremony for the HU ambassadors and partners**
- 1540-16:50 **Mixer**