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## PREFACE

Our home “The Earth” which is the most beautiful plant in our solar system and known for the only place of living organisms according to our acquired knowledge from the science.

Although, humankind especially our ancestors might have experience of the varieties of natural disasters and phenomenon in the past, the acceleration of exploiting natural resources due to industrialization and technology revolution made various environmental impacts at our present moment. Some of them are visible through our eyes. The crystal-clear river water that our ancestors used in the past for their daily basic turned unclean and intoxicated with heavy metals from industrial waste water during our generation.

Humankinds and surrounding ecosystems have been suffering from natural disasters: ozone layer depletion, global warming, sea level rising, as well as man-made environmental problems: air pollution, water pollution, industrial waste water contamination, etc. which may further lead to the excessive amount of chemicals in our food changes. These problems further lead to the health and social problems. Developed countries have been facing those environmental problems whilst developing countries have much higher impacts due to the issues of poverty as the underlying background.

Poverty remains one of the greatest challenges in developing and underdeveloped countries where many are still struggling for the most basic human needs such as food, clean water, sanitation, education and work.

Due to the global demand and continuously increasing of gold price in recent decades, artisanal and small-scale gold mining known as ASGM became the survival for the living of the people living in poverty. An estimated 10-15 million miners, including 4-5 million women and children may directly involve in ASGM sector, another 100 million people to be reliant upon the sector for their livelihoods, where there are varieties of social conflicts and economic issues. Along with those conflicts and issues, it is also the largest global demand for mercury and release the estimated amount of 1400 tons of mercury annually.

The environmental pollution related to ASGM activities have health impacts as miners and people living surrounding areas have suffered from varieties of health issues such as respiratory distress and lung disease from toxic inhalation, and vomiting, headache, fever, chills, abdominal pains and diarrhea from absorption of elemental mercury.

In order to make solutions for those environmental and social problems, we need transdisciplinary approach of research and practice in collaboration and cooperation between scientists and key stakeholders including various societal partners such as governments, companies, and citizen groups, and then we will clarify the solution to solve the problems as well as the sustainable development for the future generations to become well-beings and live in this beautiful world because this is the only known planet where human beings can survive.

Prof. Masayuki Sakakibara  
Project Leader  
SRIREP Project, RIHN



*Discussing with stakeholders*

## ABOUT SRIREP PROJECT

Among the environmental pollution problems, the mercury (Hg) pollution problem is one of the most serious problems impacting on the ecosystem and human health. Especially, "Minamata disease" that occurred in Kumamoto and Niigata prefectures in the 1950s and 1960s shocked the world. Despite these, Hg has been used in the industry until now for its unique usefulness, and Hg has been released into the atmosphere. To tackle this issue, the United Nation Environment Program (UNEP) concluded a global treaty, "Minamata Convention on Hg (10 October 2013)", which works for the reduction of anthropogenic release of Hg and prevention of Hg pollution on global scale. Recent investigations by UNEP have highlighted the continuing significance of Hg pollution in developing countries and its harmful effects on human health and ecosystems.

One of the main causes of Hg pollution is artisanal and small-scale gold mining (ASGM), where Hg is used in the traditional method of amalgamation to extract gold from the ore rock. Although many countries have ratified the Minamata Convention, mercury emissions are increasing rather than decreasing. This indicates that in practical, this poverty-based global environmental problem cannot be solved with ratification of international treaties and NGO activities alone.



*Meeting with miners*

## OUR PURPOSE

The purpose of our FR is to understand the link between poverty reduction and environmental management and to establish a process for constructing sustainable societies through regional innovations in collaboration with stakeholders in ASGM areas and to strengthen related environmental governance in developing countries. In our FS, we will conduct the following three levels of research based on a transdisciplinary approach, within the scope of Association of Southeast Asian Nations (ASEAN) countries: a) case studies of reductions in Hg pollution using a future scenario in ASGM areas of Indonesia and Myanmar; b) study of regional networks that aim to generate Hg-free societies communities in Indonesia and Myanmar; and c) study of improvements in environmental governance in ASEAN countries.



*Creating agriculture plot*

Through these studies, we will achieve the regional innovation in collaboration with the stakeholders, and we will clarify the solution to solve the global mercury pollution of global environmental problem. In addition, we will also examine the design, practical use, and evaluation method of the transdisciplinary community of practice (TDCOP), a tool in problem-solving of regional communities, by applying the transformative boundary objects (TBOs) in interaction with stakeholders.

## OPEN HOUSE EVENT, 2019

### OPEN HOUSE Event, 2019

Members of SRIREP Project led by Prof. Masayuki Sakakibara, Project Leader and visiting students from the Institute of Technology Bandung (ITB) of Sakura Science program participated in Open House event on July 26th, 2019 at the Research Institute for Humanity and Nature (RIHN). This is our very first project activity for Open House with treasure hunting game under the title of "Let's Find the Beautiful Minerals!" for visitors especially parents and their kids. In the event, the kids enjoyed searching the four types of minerals such as garnet, peridot, labradorite, and aquamarine which were hidden in white sand in the small containers. We also shared the information of mining of these minerals, mining-related global environmental problems, and action of our project with visitors.

Students from the Institute of Technology Bandung (ITB) of Sakura Science program performed traditional Indonesian dance at the event.



## STUDENTS FROM HASANUDDIN UNIVERSITY (UNHAS)'S VISIT

### Students from Hasanuddin University (UNHAS)'s visit

Students led by Professor Sukri Palutturi from Public Health Department of Hasanuddin University (UNHAS) arrived at RIHN as a part of Sakura Science Program for the training on September 12th, 2019.

Students of UNHAS took part in the program "Training on Future Design for Sustainable Sanitation Systems" from September 12th to 18th at the Research Institute for Humanity and Nature (RIHN), Kyoto, Japan and had a tour to the current projects of RIHN during their visit.



*Professor Sukri Palutturi and students from Public Health Department of Hasanuddin University (UNHAS), Kansai International Airport, Osaka, Japan.*



## STUDENTS FROM HASANUDDIN UNIVERSITY (UNHAS)'S VISIT



*Students attending special sanitation lectures at Research Institute for Humanity and Nature (RIHN)*



*Students taking part in a cooking activity at Research Institute for Humanity and Nature (RIHN).*



## The Activities

## STUDENTS FROM HASANUDDIN UNIVERSITY (UNHAS)'S VISIT



Sakura Science Exchange Program's visiting students led by Professor Sukri Palutturi from Public Health Department of Hasanuddin University (UNHAS) visited Kyoto Municipal North Incineration Plant, Kyoto city, Japan on 13th September 2019.



The tour was accompanied by Professor Masayuki Sakakibara and members of SRIREP project members.



## STUDENTS OF ITB'S FIELD TRIP VISIT

### Students of Insitute of Technology Bandung (ITB)'s Field Trip Visit

Students from Insitute of Technology Bandung (ITB) visited RIHN as a part of Sakura Science Program for the training from July 22nd to July 28th, 2019.

Students of ITB took part in the training under the title of "Future Design for Sustainable Energy Resources" at the Research Institute for Humanity and Nature (RIHN), Kyoto, Japan and had a tour to the current projects of RIHN during their visit.

They visited Elmar Maizuru museum on July 25th, 2019 as a field trip to learn about the history of power generation works from the ancient time to the present moment, the available energy resources, and renewable energy, etc. They also enjoyed the splendid scenery of seaside and the constellation of Mt. Fuji at the planetarium theatre of Elmar Maizuru museum.



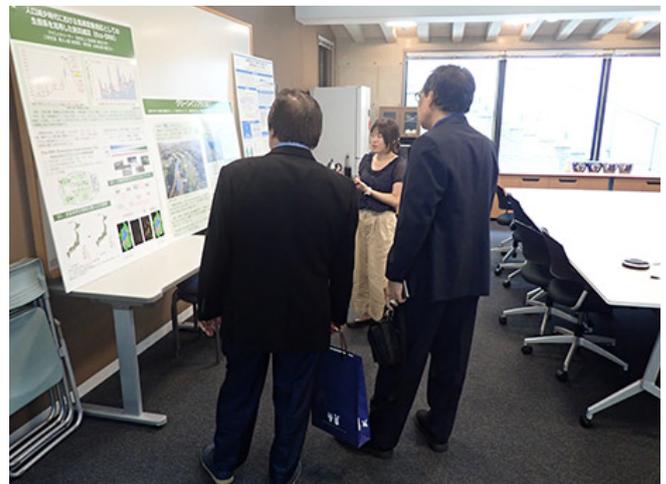
## STUDENTS FROM HASANUDDIN UNIVERSITY (UNHAS)'S VISIT

### Students of Insitute of Technology Bandung (ITB)'s Field Trip Visit

MOU signing ceremony between Research Institute for Humanity and Nature (RIHN) and University of Lampung was held at RIHN on July, 29th, 2019.

The signing ceremony was attended by Prof. Dr. Hasriadi Mat Akin, Rector, and delegates of the University of Lampung, Prof. Makoto Taniguchi, Deputy Director-General, RIHN, Prof. Masayuki Sakakibara, Project Leader, SRIREP and Prof. Katsuya Tanaka, Vice Project Leader, SRIREP.

After that, professors from the University of Lampung toured the current projects at RIHN.



## SRIREP PROJECT MEMBERS

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Project Leader of SRIREP project  
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**Satomi Kimijima**  
Project Researcher of SRIREP project, RIHN

Satomi Kimijima, a researcher and one of the leading members in SRIREP project at Research Institute for Humanity and Nature (RIHN). She studied Master's in Gender and Development Studies at Asian Institute of Technology (AIT), Thailand as well as at Ochanomizu University, Tokyo, Japan respectively, and then she obtained Ph.D. for the specialties of Remote Sensing and GIS from Asian Institute of Technology (AIT), Thailand. Her interest in rural development and passion for the integration of the engineering approach into social science produces the essential involvement in the objectives of SRIREP projects especially creating transdisciplinary boundary objects and transdisciplinary communities of practice in rural areas of Indonesia.