



## ■コース生(第3期生)の活動報告



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Myself MD. AMIRUL ISLAM, citizen of Bangladesh. I have completed my Bachelor and Master degree from University of Dhaka, the best university of Bangladesh. My major was Applied Physics, Electronics and Communication Engineering. After completing my study I have joined as a Lecturer in a reputed government university of Bangladesh named "Bangabandhu Sheikh Mujibur Rahman Science and Technology University, Gopalganj".

It has been about 11 months since I came to Japan. I belong to Koyama-Miyazaki laboratory and my major is Energy and Environmental Engineering (EEE). It was a great experience for me in Japan. I was surprised with a lot of interesting incidents here. Variations in climate, disciplined manners of the citizens, charming beauty of the nature, use of advanced technologies in everywhere has provided me the ultimate comfort of life.

Apart from this, I am working on adsorption system in refrigeration and air-conditioning system. One major part of conventional air-conditioning system is compressor which use a large amount of electrical power to compress the refrigerant. Moreover, the compressor creates noise, its design is complex and it is unable to operate constantly 24 hours a day. The compressor is empirically replaced by adsorption bed to overcome these shortcomings and introduce an innovative way to perfectly use the waste heat generated from various systems such as automobile engines, manufacturing industries etc. I am using Maxsorb III (activated carbon) as the adsorbent which have high porosity, is capable of capturing refrigerant molecules and release the molecules by heating which is called desorption. Maxsorb III is in powder form and difficult to use in air-conditioning system. Thus, I am making solid blocks by mixing Maxsorb powder, various kinds of binders (PVP, PVA) along with water at different ratios and compacting with a hydraulic pressing machine with precise amount of pressure. I am trying to find the combination that gives best adsorption uptake. I am also measuring uptake characteristics of solid adsorbents combining with the heat exchanger. A high capacity adsorbent which is capable of fast adsorption and desorption can change the history of air-conditioning and refrigeration system.



**Tomy Alvin Rivai**

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I am Tomy Alvin Rivai, first year of master student in the Green Asia (GA) Program. I belong to Laboratory of Economic Geology, Department of Earth Resources Engineering, Kyushu University. I have started my research activities since I was enrolled in this university in October 2014. My research is talking about characterization of gold mineralization at the Poboya Prospect, Central Sulawesi, Indonesia.

This research is categorized as a field-based research. It means fieldworks in order to collect samples and to study directly the object in the field are indispensable. The fieldwork was conducted from February to March 2015. Prior to it, my work was focused to literature review and planning the whole research activities. After I came back from the fieldwork, I was able to go further by analysing the samples.

The first stage of the entire laboratory activities is identifying the host rocks of the deposit. This is one of important components to reveal the environment of the gold mineralization. In addition, the alteration products of the host rocks are also studied to know the effect of the past hydrothermal activity to the surrounding. To achieve this purpose, petrography analysis has been carried out since April 2015. Other analyses, such as XRD and XRF, will also be incorporated in the future to get the more comprehensive data.

There are still many stages must be done to elucidate the gold mineralization characteristics. They are; (1) identifying the ore minerals; (2) measuring the content of major, minor, and trace elements; (3) obtaining the information about the ore-forming fluid characteristics related to the gold precipitation, such as the temperature of trapping and the fluid salinity; (4) deducing the origin of the ore-forming fluid; and (5) determining the age of the gold mineralization. Within period as a GA student, the aim of this research is possible to be reached.

