

## Topic: BIOMASS AS AN ALTERNATIVE RESOURCE

Unit: I  
Place Visited: SMA 3 & SMA 6, Jogjakarta, Indonesia  
Duration: 1 March – 14 March 2013  
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*This is a narrative of our reflections and realizations regarding our science lesson, which was executed in Indonesia.*

Our lesson, “Biomass, an alternative resource” was discussed to high school students of SMA 3 and SMA 6 in Jogjakarta. The objectives of our lesson were to: 1) let the students infer that biomass can be a possible alternative resource; and 2) introduce our recent research about converting biomass. We chose this theme because we studied about converting biomass in our laboratory in Chiba University. More importantly, we thought that the lesson would be useful to the students since biomass is something that seemed to be abundant in Indonesia (figure 1).



**Figure 1.** Introduction to biomass

To facilitate students’ understanding on Japanese cutting-edge research and technology (i.e. biomass conversion) and Indonesian biomass

resource, we chose familiar concepts like “Vanilla flavor” and “clove bud.”

Our first lesson was conducted in SMA 3, one of the high schools in Jogjakarta. There were 12 students in the class. We asked the students to form four groups.

These were some features of our lesson. Power point presentation was used throughout the lesson. We also did some simple activities like quiz game and video clips, and discussion (figure 2). Sometimes we talked to students to resolve their questions; we also gave a handout of our power point slides to promote their understanding. Samples substrate used in our research were shown to students to let them conduct first-hand observation.



**Figure 2.** Students participating in the quiz game

With regard to students’ assessment of our class, some students quipped that we needed to improve on our English pronunciation, simplify technical terms, and review the handout before distributing it. We did a quiz game, but the answers were printed in the handouts. Despite these shortcomings, according to the class survey, majority of the students felt our handout or samples, and the lecture were very good.

After making some improvements on the presentation, teaching materials, handouts, and English skills, we conducted another lesson in SMA 6. In their class, the sample substrates were not enough; i.e. three sets of samples were available for 9 groups consisting of 40 students. During the distribution of the samples, some groups had to wait for their turn. We should have prepared more samples for distribution.

Based on the students’ evaluation, they seemed to be satisfied with

the lesson. Majority of the students shared that the many of the aspects of handout and materials in the class were good. Below are some of the written insights given by the students.

- *“Maybe we can do this research tomorrow.”*
- *“We have to become familiar with on biomass conversion, because in my country Indonesia, like a corn and clove buds is (sic) very cheapest and can be converted easily.”*
- *I’m evaluate the lecture is very good to be know (sic) biomass perfectly.*
- *The lecture is good, but it would be better if the students can do experiment.*
- *I get new information (sic), and I wish I can find another alternative carbon resource.*
- *That was only the presentation, if it’s possible, may be (sic) it’s better to show some experiments (together with students), because I do love experiments (of course with some games).*

In our lesson, showing samples of substrates and demonstration video were good for students to understand chemical reaction, which is the key concept in “Biomass Conversion.” The topics seemed suitable for intercultural exchange between Indonesia and Japan.

Future implications are as follows: 1) technical terms should have been explained more carefully; 2) handouts should be more functional, for example, students fill in answer on the blanks in handout through the class. We ought to have carried out a gesture more; and it could have been better if we introduced our researches through an actual experiment, if we had more and more time.

This experience helped me realize how important it is to carefully explain technical terms to general public. This experience also inspired me to become a teacher, though I am already employed in a chemical company. Finally, I wish to convey our precious experience to the students who will be involved in this project, and hope to maintain the good relationship between Indonesia and Japan.

## Topic: JAPANESE CULTURE -Weaving-

Unit: I  
 Place Visited: SMA 3 & SMA 6, Jogjakarta, Indonesia  
 Duration: 1 March – 14 March 2013  
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The theme of the lesson was, “weaving”. The purpose of our class is as follows: 1) Japan and Indonesia may have different culture and life style, but certain aspects such as weaving patterns may have similarities; and 2) connect with knowledge and their daily life through experience of the weaving technique.

Table 1 presents the schedule of our class.

Table 1. Class schedule

Task	Activity	Time Allotment
Warm up	<b>Introduction to Chiba university</b> a. Introduction to Chiba university b. Introduction to faculty of education and engineering c. Introduction to home economics	10mins.
Input 1	<b>Discussions on weaving</b> a. Introduction to Indonesian weaving patterns from Indonesia (Ikat and Batik) and Japan (Kimono, Tenugui, and Shushu) b. Discussions on weaving (kind, structure, and how to use) c. Differences between weaving patterns (Indonesia’s Ikat and Batik, and Japan’s Kasuri and Rouketu-zome)	10mins.
Input 2	<b>How to make a coaster</b> We distributed handouts, and explained how to make a coaster.	10mins.
Experience	<b>Make a coaster</b> We taught the students how to make a coaster.	40mins.
Clean up	<b>Return the materials</b>	5mins.
Wrap up	<b>Summary our class</b> We explained that knowledge gained in our class can be connected to daily experiences.	5mins.
Questionnaire	<b>About this class</b>	10mins.

At first, we tried to explain, “how to make a cloth.” But it seemed be difficult and complicated, so we decided to narrow it down to “weaving.”

Second, our aim was to give opportunities for experiential learning by using real objects. We expected that if we use real objects and allow the students to manipulate them, the lesson would be so easy.

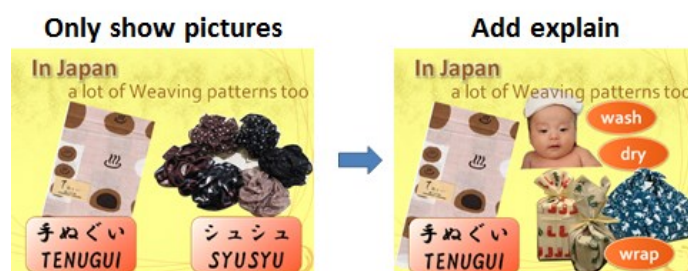
Fortunately, we were able to improve the contents and strategies of our lessons before we had our class at SMA6. Here is a simple summary of our reflections in SMA3.

1. When we introduced Japanese weaving patterns, we distributed “Tenugui” and “Shushu” as samples. However, it appeared to be difficult for the students to understand about the main difference between “Tenugui” and “Syusyu.”
2. Our explanation about some kinds of weaving technique was not enough.
3. During the activity, some students had difficulty making a coaster. The handout that we distributed wasn’t used enough.
4. Many student’s quipped that the activity on coaster were, ”cute” , ”interesting” , and “I could new experience”. But some students added that we should “improve (y)our English”.

### *Points for Improvement*

We added information about how to use Tenugui, and the difference between Tenugui and Shushu (figure 1).

## Improvement



**Figure 1.** Additional information on Tenugui

We also added a slide about some kinds of weaving techniques and the characteristic of each. In the input2 stage (explain how to make a coaster), we added short clip, and told the students to refer to this and the handouts during the discussion.

### *Class at SMA6*

There were more students than we expected in the second school (SMA6). So materials that we prepared lacked. To compensate the lack of materials, we asked the students to make a coaster in pairs. Some of the students seemed to be bored because of this. However, there were some pairs who worked cooperatively as they discuss how to make the coaster

About how to make a coaster, we believed that because of the improvements that we made, the students from SMA6 were able to easily grasp the lesson.

Some of the reactions from SMA6 students were similar to the ones from SMA3. But there were some students who refer to contents of Input1. For example, “studied about culture of Japan,” and ”can help me if there is something problem with my cloth”. About the handout and materials, we could get good evaluation from many students.

### *Realizations*

In our class, I heard that students were able to experience making a coaster, which was probably rare in Indonesian classes.

Through the class, I was able to realize the importance of using teaching materials. These materials facilitated students’ understanding.

### *Future Implications*

My major is special education, so I will teach students who have difficulty in getting “specific image” from “notional image.” So the experiences I acquired through this internship will help me implement some useful strategies in making teaching materials, especially to students who have special needs.

## Topic: CULTURAL PROGRAM IN INDONESIA

Unit: I  
Place Visited: SMA 3 & SMA 6, Jogjakarta, Indonesia  
Duration: 1 March – 14 March 2013  
Name: Takahiro Sato  
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*This is a narrative of our experience and realizations after we had our internship in Indonesia.*

We had a variety of experiences about the culture of Indonesia. Let me share with you some of those meaningful exchanges.

We visited some historical buildings, such as “Borobudur,” “Prambanan,” and “Taman Sari.” We also saw places dealing with local handicrafts, such as “Batik workshop” and “Silver workshop”. I had a chance to watch “Ramayana ballet,” which is a famous dance in Indonesia.

“Borobudur” and “Prambana” were particularly impressive. I saw a lot of buildings in “Borobudur,” which might have been influenced by Buddhism. There were ruins of a Buddhist temple. Many locals come to explore the buildings, but we were able to visit the place even though we don’t have a religion.

The materials used in the buildings were also similar to the rock formations in Mt.Merapi. For example, the buildings mainly used andesite. Mt. Merapi erupted around AD1100; the events in history was somewhat forgotten for about about 800 years. There was another eruption in 2010; many buildings were damage by the explosion. During those times, and even now the spirit of compassion has been alive in Indonesia. This might be considered as a charm of the people in “Borobudur” that could move the hearts of tourists.

“Borobudur” seemed to be a very large place. It was also like park. There were a variety of fruits there. We even learned about the prefixes of many fruits, such as “Dori=thorn, an=many of Durian” and “Rambut=hair, an=many of Rambutan.”

We also went to the “Batik workshop”. “Batik was one of the contents in our Japanese culture class, so we wanted to see how it is being manufactured. Incidentally, the word comes from “Ba,” which means write, and “tik,” which means point. We were able to observe near the the weavers of Batik. Batik making involves a delicate process. Nowadays, printed Batik clothes are available for a cheaper price. I know how hard it is to make Batik, because we also experienced how to dye the woven clothes. So I think I’ll occasionally buy a handmade Batik, even if it is a little expensive. Most of the locals, who had a working knowledge on Batik, had experience going to workshops when they were in elementary. I was glad since we could experience how to dye Batik. Now it was really good firsthand experience.

We also visited two schools, namely SMA3 and SMA6, respectively. We learned some information about the culture of the local school.

I surprised that both high school students are very eager to learn, and they were given opportunities to freely express their thoughts. There were many children who seemed to be interested in Japan and could speak a little Japanese. They tried hard to ask a lot of questions about Japan, and tried using some Japanese words. Students were able to express freely, because they could draw pictures on the wall.

There were many trees and plants in SMA6, and students could set-up composts by themselves. I thought it was a wonderful environment.

I was able to realize the cultural differences and connections between Japan and Indonesia through the cultural program. If I become a teacher, I can also show the children the story and photos of my experiences in Indonesia. Then it might become an opportunity to change the perception that children regarding intercultural exchange. When I become a teacher, I will not only teach students about academic contents. I want to inspire them to have global minds, by creating learning environment and opportunities that will help children learn proactively.



## Topic: DISCUSSIONS AT UGM

Unit: I  
Place Visited: SMA 3 & SMA 6, Jogjakarta, Indonesia  
Duration: 1 March – 14 March 2013  
Name: Takahiro Sato  
Affiliation: Faculty of Engineering

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*This is a narrative of our experience and realizations after we had our internship in Indonesia.*

### 1. Opening discussion

Date: At 4th March

Main contents

1. Greeting from each university
2. Introductions to researches (Chiba University)
3. Introduction to lesson plans (Chiba University)
4. Introduction to Faculty of Geography (UGM)
5. Introduction of research (UGM)

At first, assistant professors in each university expressed their gratitude for this program. Then students in Chiba University introduced their researches. We also made presentations about our research. However, it was the first time for us to introduce our research to people who belong to a different field, i.e. education. So it was a good chance to conduct a presentation in front of education students and teachers. During the question-and-answer session, some UGM students asked, “What is the goal of your research?” and “How is biomass utilized in present industry?”

After introducing our research, we explained the lesson plans of our culture and science class for high school students. The main aim of the culture class, which was to focus on the common point of weaving patterns between Japan and Indonesia, was explained. In addition, it was emphasized in the presentation that the activity on, “Let’s make coasters” was introduced to help the students realize certain aspects of clothes and clothing, which are parts of our daily lives. Mr. Agung, who is an assistant professor in the faculty of geography, told us to show the connection between Batik in Indonesia and *yuzen* in Japan.

The theme of the science class, which was originally about fruit batteries, was changed to “biomass -an alternative carbon source-“ because of the following reasons: 1) our laboratory are converting biomass derivatives to useful chemicals, 2) and there is a huge amount of biomass resources in Indonesia, so the topic is very relevant. The contents of class were introduced as follows. First, fossil fuel and biomass resources were compared; and emphasized that biomass resources are good alternatives as carbon resources. After which, we introduced our recent research about converting biomass.

The students in UGM introduced their faculty of geography and explained some of their school activities. The faculty of geography mainly consists of two areas; i.e. “Physics” and “Humanities.” In the student activity, students not only study about geography but also do volunteer works, such as scavenging or make maps for the blind.

Finally, the research of faculty of geography was introduced. The topic was, “Research of suitable agricultural land in KLATEN”. In Indonesia, government wants to export rice to other countries; however there are not enough and conclusive data about productivity of rice in Indonesia. The aim of this research is to fix the suitable agricultural land, and estimate productivity of rice by remote sensing technology. In their field research, they investigated amount of rainfall, and specific data of land, among others. After data were combined, they evaluated feasibility of agricultural lands in four levels.

Some concerns were raised by students from Chiba University, such as the reason of selection of KLATEN as sample, or the present balance of supply, and demand of rice in Indonesia. Mr. Agung presented relevant information about supply-demand balance of rice in Indonesia, and amount of exported rice in each country. It was the first time for students in both universities to face each other so that this discussion was under a tense atmosphere. However, it would be better to hold a welcome party before this discussion in order to establish rapport. This could contribute to a more interactive discussion.

## 2. Final discussion

Date: At 11th March

Main contents

1. Greeting from each university
2. Reflections
3. Comments from each high school
4. Discussion about the TWINCLE program

During the final discussion, the reflections about each class were reported. The first presentation was about the culture class. The objectives of the class were checked, and the improvements done after the first lesson, and the reflections were summarized. The theme and objectives of science class were also checked at first, and reflections, improvements and evaluations from students were presented. After our presentations, principals and assistant principals in each high school evaluated our lessons. They quipped that the theme on, “weaving” was so good since the students would become familiar with certain weaving patterns and weaving techniques through hands-on activity. In addition, students could enjoy the activity.

On the other hand, they shared that the theme of science class motivated a lot of students, so we should have given more details about our research. In addition, they told the class would have been better if there had been any experiments. Also it was a good strategy that we sometimes used Indonesian language in the class.

After this session, students from Chiba University were asked to also give their opinions. At first, we agreed that it would be useful to make a SNS group to ease exchange of information. Without neglecting our privacy, SNS group can help interns prepare better lessons in the future through constant correspondences. Secondly there was a suggestion that it's too short to deal with just one theme per lesson; students would want to acquire more profound knowledge. However we thought that longer time would be needed to deal with such request. One solution could be that a class should be divided into a few lessons. In the next program, the duration of the internship will be longer. Therefore, the number of schools where we will teach should not be increased, but the frequency of class or lessons in each school.