

(For JSPS Fellow)

Form B-5

Date (日付)

(Date/Month/Year: 日/月/年)

Activity Report -Science Dialogue Program-
(サイエンス・ダイアログ事業 実施報告書)

- Fellow's name (講師氏名): WeiQIAO (ID No. P12053)

- Participating school (学校名): Seishin Gakuen High School and Junior High School

- Date (実施日時) 18/12/2013 (Date/Month/Year: 日/月/年)

- Lecture title (講演題目): (in English) Waste to Bioenergy

(in Japanese)

- Lecture summary (講演概要): Please summary your lecture 200-500 words.

Abstract of the Lecture

Part I (10min): My hometown

I came from a city in Inner Mongolia Province, north of China. It is an area inhabited by ethnic minority group. I will introduce the culture and the development of the Province in recent years. The city I lived is Chifeng. It is the biggest city in Inner Mongolia Province. The city is very famous because it is the places where the important Hongshan culture originated and one of the places where China's civilization originated. The cultures existed in the 4000 BC to 3000BC, about 5500 years ago. Chifeng is a city with rich tourist resources. In this city, peoples can visit the Global Geopark and National Forest Park.

Part II (10min): My University

I spent 7 years in Hunan University for my Bachelor and Master degree. The University enjoys the title of an "Ancient Millenarian Academy, Famous Centennial University". As one of the key and most comprehensive universities affiliated with the Ministry of Education, it has been included in the state's "Project 211" and "Project 985" for priority investment and construction. Hunan University, an extension of one of the four famous Academies of the Song Dynasty, dates back to the period of the founding of Yuelu Academy in 976 AD. The university has maintained the glorious culture and education standards inherited from the historical institute in the process of the numerous changes faced with during the Song, Yuan, Ming and Qing dynasties.

I got my doctoral degree at Tsinghua University. The University was established in 1911, originally under the name "Tsinghua Xuetang". The school was renamed "Tsinghua School" in 1912. The university section was founded in 1925. The name "National Tsinghua University" was adopted in 1928. Now, Tsinghua University was the Top one in China University, and had the best science and engineering education.

Part III (40min): Why I choose a scientist career and the interest of my research

The deficiency of fossil fuel pushes me and my colleagues to find a new energy source. Human's life produce large amounts of waste, most of which are organic waste. These wastes can be converted into biogas (a mixture of CH₄ and CO₂) a kind of renewable and clean energy. After separating the CO₂ from biogas, the CH₄ can be transported into the city natural gas pipe. Through this process, the waste was re-utilized as an energy source, and the greenhouse gas emission was reduced. China has the 1,300 million populations. The huge amounts of energy demand bring a crisis of economic

development and peoples' life. Researchers all over the world have tried to develop high efficiency process to produce the biogas in a cost effective way.

Tohoku University had the top level laboratory in Japan and also in the world. We are doing research on methane fermentation from food waste, waste activated sludge and municipal solid waste. New processes of combing a membrane technology into traditional methane fermentation have been investigating. As a result, more biogas was produced from waste. I will show our research results in a case. To be a scientist is my dream. When I started my college life, I am majored in environmental engineering. I have mastered knowledge of water/waste water pollution control, air pollution control and bio-energy reclamation from biomass waste. I would like to share my experience of research with young students.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 40 min (分), Q&A time (質疑応答時間) 50 min (分)

◆Lecture style (ex.: used projector, conducted experiments)

(講演方法 (例: プロジェクター使用による講演、実験・実習の有無など))

PPT presentation

◆Interpretation (ex.: assistance by accompanied person, provided Japanese explanation by yourself) (通訳 (例: 同行者によるサポート、講師本人による日本語説明))

Master student SUNABA Takayuki assisst me to translate the english/japanese and communate with the students. A high school teacher also translate the language and organize the discusion.

◆Name and title of accompanied person (同行者 職・氏名)

SUNABA Takayuki

◆Other note worthy information (その他特筆すべき事項):

- Impressions and opinions from accompanied person (同行者の方から、本事業に対する意見・感想等がありましたら、お願いいたします。):