

(For JSPS Fellow)

Form B-5

Date (日付)

17/11/2015 (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): Mengnjo Jude Wirmvem (ID No. P14331)- Participating school (学校名): Takamatsu Sakurai High School- Date (実施日時): 13/11/2015 (Date/Month/Year: 日/月/年)- Lecture title (講演題目): (in English) Hydrogeochemistry and Isotope Hydrology: Significance to Human Livelihood(in Japanese)

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

**Part I** of the lecture was about my country, Cameroon. Initially, I gave a summary of my education background from primary school to postdoctoral studies. I briefly introduced the students to the geography of Cameroon with emphasis on location, surface area, distance from Japan, climate, relief and population. Under Cameroon history, the origin of the name Cameroon, colonisation and independence were explained. About languages, the origin of the two official languages (English and French) and the numerous ethnic languages in Cameroon were elucidated. This was followed by education, the currency used, daily life, food, some aspects of culture, means of transport and roads, natural resources, sports (soccer) and famous footballer (Samuel Etoo) in Cameroon. The students were introduced to the triggering mechanism of the infamous August 1986 Lake Nyos disaster in Cameroon that led to the loss of human live and property, and the aftermath scientific mitigation measures by Japanese-Cameroonian scientists.

In **Part II**, I explained to the students my motives for becoming a scientist (Hydrogeochemist and Isotope Hydrologist). The link between environment, human health and development was discussed stressing the need to contribute scientific knowledge to our environment, especially in water resources management for human sustenance.

**Part III** of the lecture was about my research (Hydrogeochemistry and Isotope Hydrology). A review of daily uses of water including bathing, drinking, cooking, cleaning of dishes and laundry were discussed with the students. The students were introduced to basic aspects of hydrogeochemistry and isotope hydrology (The Water Cycle, water quality, chemical elements in water, the origin of water, groundwater recharge, the water molecule and heavy isotopes, causes of isotopic fractionation and the Global Meteoric Water Line). The application of the stable isotopes of hydrogen ( $^2\text{H}$ ) and oxygen ( $^{18}\text{O}$ ) in studying the movement and distribution of water in the environment was explained. Further applications of the isotopes to the study of groundwater recharge, surface water and groundwater interaction were explained to the students. I spoke about the use of stable isotopes in controlling and monitoring the distribution

of bottled water. The amount of water in the human body constituting 80% of the blood and 85% of the brain was presented and used to stress the importance of knowing the content of water we drink and the role of science in determining the quality of drinking water. The sources of major, potentially harmful trace and radiogenic elements in drinking water were introduced. The two main sources of these elements in water, i.e., rock weathering and human activities were discussed. Seawater intrusion as a potential source of pollution to fresh groundwater was introduced to the students. Some health effects from poor water quality including Arsenic poisoning, Mercury and Nitrate toxicities were made known to the students. My research cycle from fieldwork to laboratory analyses, attending conferences and writing articles in the English Language was presented. The students were shown some methods of collecting daily and monthly rainfall and the required materials. The lecture ended with a presentation of the link between the good quality drinking water, healthy body and subsequently national production. **Part IV** was opened to discussion of the lecture during which students asked questions about the lecture and were given answers.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 80 min (分), Q&A time (質疑応答時間) 10 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))

Used projector

◆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))

Japanese explanation during Q&A by the High School teacher (Yumi Hatta)

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

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◆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。):