

(For JSPS Fellow)

Form B-5

Date (日付)

05/06/2017 (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): Shokhrukh-Mirzo Jalilov (ID No.P15764)
- Participating school (学校名): Sendai Nika High School
- Date (実施日時): 01/06/2017 (Date/Month/Year: 日/月/年)
- Lecture title (講演題目): Water, Food and Energy Security: an Elusive Search for Balance in Central Asia
- Name and title of your company (同行者 職・氏名) United Nations University
- Lecture format (講演形式):
- ◆Lecture time (講演時間) 100 min (分), Q&A time (質疑応答時間) 40 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))
Power Point presentation, used projector, show short movie

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

Achieving water security is a top development challenge confronting the world's arid regions. Climate variability, growing populations, rising energy demands, increased importance of the environment, higher costs of water supply, watershed and environmental degradation, natural disasters, and military conflict are placing water resources under growing pressure. Water is an essential resource to food security, which occurs when people have the physical and economic access to adequate, safe and healthy food that meets their dietary needs. Water scarcity can be an important cause of famine and undernourishment, particularly in dry regions where people depend on local irrigated agriculture for food and income.

Central Asia heavily dependent on irrigated agriculture (ICG 2002). As of 2011, 60 % of the rural population in the region is employed by agriculture and related business (United Nations 2007a; Elhance 1997). Diverse mountain ranges known historically as the 'roof of the world' have always played a central political and economic role in this vast region of Asia. Only 18 million of the 59 million hectares of arable land are cultivated (United Nations 2007a) because of water supply limits. More than half of the region's Gross Domestic Product (GDP) directly comes from agriculture, which also employs 40 % of its labor.

Two of Asia's important mountain ranges—the Pamirs in Tajikistan and the Tien Shan in Kyrgyzstan – make those two countries the most mountainous in the region, with an average elevation of 3,000 m above sea level, and some peaks higher than 7,000 m. In addition to being

mountainous, Kyrgyzstan and Tajikistan are among the least economically developed of the Central Asian countries (Batjargal 2012). So carefully managing the region's water resources is critical for its countries' sustainable economic future (O'Hara 2000).

Another prominent feature of the region is a skewed distribution of energy resources in which Kazakhstan, Turkmenistan, and Uzbekistan have the largest proven reserves of oil and natural gas, while Kyrgyzstan and Tajikistan have approximately 90 % of the region's hydropower potential (United Nations 2007a). Among the region's natural resources water is the most conflict-prone (United Nations 2007b). Disputes over the use of scarce water resources within the region continue to escalate (Smith 1995; Sievers 2002). The just, efficient, and sustainable management of water in Central Asia continue to pose ongoing challenges to support the region's economic and political stability.

Water is special in central Asia. The Aral Sea Basin consists of the basins of the Syr Darya and Amu Darya rivers. In the Aral Sea Basin, the upstream countries of Kyrgyzstan and Tajikistan together control about 68% of the total water flows. The downstream countries of Kazakhstan, Turkmenistan and Uzbekistan consume the most water, about 85 % of that basin (Libert et al. 2008). Such a skewed proportion of water endowments and use patterns raise the debates from merely a hydrological challenge to a political issue (Libert et al. 2008). In 2008, Tajikistan announced its intention to resume construction of Rogun Dam (the Dam) on the Vakhsh River, a tributary of the Amu Darya (Schmidt 2008). Construction of the Rogun, at a planned height of 335 m, originally began in 1976 to develop the region's hydropower. The construction was halted in 1991 with the breakup of the former Soviet Union. Tajikistan has expressed an ongoing desire and capability to restart the Dam's construction, but the downstream countries fear impacts of reduced water supplies particularly as those supply reductions would affect irrigated agriculture.

- Overall advice or comments to future participants in the program (今後の講師へのアドバイス):

I strongly recommend to give a lecture at Japanese school. This is a unique opportunity of interacting with school students and teachers in Japan, to know about school process and generally to see a school from inside. You will be amazed by knowledge and curious character of students. I was nicely surprised by their English language and preparation to my lecture.

- Other noteworthy information (その他特筆すべき事項):

I think this requirement should be mandatory for each JSPS fellow.

- Impressions and opinions from a company (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。)

United Nations University appreciates such opportunity and encourage future JSPS fellows to participate in this program.