CPJ on Environmental Management and Advanced Technologies for KPC

A Customized Program-Japan (CPJ) on Environmental Management and Advanced Technologies was held from November 25 to December 6, 2013 as the first such customized program related to the environment for participants from the Kuwait Petroleum Corporation (KPC) Group.

1. Background

KPC is actively exploring environmental countermeasures in the oil industry as a priority issue in Kuwait's core industry, and is showing increasing interest in case examples of environmental technologies and advanced projects. Its areas of particular concern include responses to such issues as the effective utilization of precious water resources, waste treatment measures, and climate change countermeasures. The company is also showing strong interest in energy efficiency improvement and the introduction of renewable energies, particularly given the rapid increase of domestic oil consumption that not only Kuwait but other oil-producing countries are experiencing today.

Under this situation, JCCP is working to deepen its cooperative relationship with KPC through training programs on environmental topics, and has held a carbon management seminar and exchange events on energy conservation, CO_2 countermeasures, and carbon financing in 2012. In fiscal 2012, a large-scale seminar on water resources and waste management was successfully completed in Kuwait with the attendance of the top management of KPC and JCCP as well as the Japanese Ambassador to Kuwait.

To further strengthen this friendly relationship, members from the KPC Group engaging in environmental matters began to proactively participate in JCCP training programs in Japan since fiscal 2013. As part of this initiative, a CPJ came to be held for a group of environmental managers from companies of the KPC Group.

2. Course Concept

To prepare Kuwait's oil industry to solve environmental issues in its country, the course was designed to provide understanding of Japan's leading-edge technologies and advanced environmental initiatives that are taken in cooperation among the government, private companies and local residents, with a focus on allowing the fruits of training in Japan to be utilized to solve environmental issues in Kuwait's oil industry in the future. The course program placed particular emphasis on responding to high-need issues, including those related to the effective utilization of water resources and waste, and the introduction of renewable energies. Furthermore, the lectures were specifically catered to the group of participants composed of manager-level employees in environmental departments of KPC Group companies by placing emphasis on developing conceptual abilities and inventiveness and providing a general understanding of a wide range of fields. As the understanding and cooperation of a large number of stakeholders, including the international community, government organizations and local residents, is indispensable to environmental countermeasures in the oil industry, the framework for defining and resolving various issue needs to be flexible. Thus, in addition to providing an understanding of the latest technologies, the course focused on examining the diversity and flexibility of frameworks for resolving environmental issues through advanced case examples, and included the following core items.

(1) Advanced environmental case examples (public-private cooperation projects, in particular)
(2) Advanced environmental management in the oil industry
(3) Development and commercialization of advanced environmental technologies and process technologies by private companies
(4) Workshop on new project development

3. Content

(1) Lectures at JCCP

Mr. Masaki Iijima from Mitsubishi Heavy Industries, Ltd. gave a lecture introducing the latest renewable energy technologies, the separation and underground storage of CO_2, and technologies for the effective

Training in environmental management at Shirashima Oil Storage Company, Ltd.

At Kitakyushu Smart Community

industrial utilization of CO_2 and commercial case examples thereof. It deepened the participants' understanding that the oil industry has strong potential to contribute to the international community through its wide-ranging approaches to climate change.

Mr. Toshihiro Wakabayashi from Toyo Engineering Corporation lectured on the latest energy-saving distillation system. The participants learned that the oil industry is consistently pursuing technical developments in basic distillation technologies, and that there is still a large potential for achieving energy conservation.

Mr. Hiroaki Numata and Mr. Hirobumi Wada from JGC Corporation gave a lecture on technologies for the effective utilization of associated water and low-temperature heat sources in an easy-to-understand manner with reference to specific project examples.

JCCP lecturer Arii gave a lecture on the importance of exhibiting flexible views beyond conventional corporate bounds when establishing environmental countermeasures in the oil industry, and in relation to the above lecturers, engaged the participants in a class discussion to extract new ideas for promising new environmental projects in Kuwait. Through the discussion, the participants shared the awareness that Kuwait has strong potential to implement environmental and energy projects beyond the conventional framework of corporate cooperation.

(2) Site Visits

At Shirashima Oil Storage Company, Ltd., the participants learned about the environmental safety measures of an oil storage terminal. They seemed particularly impressed with the company's management practices that give full consideration to the environment and safety, such as its emergency disaster countermeasures and double oil-retaining walls.

At Kitakyushu Smart Community, an overview was given of Kitakyushu City's history of environmental pollution countermeasures, followed by an introduction of the Smart Community Project, which aims to promote the introduction of renewable energies and energy efficiency through cooperation between private companies and local residents. A lecture was also given on the dynamic pricing system for efficient utilization of renewable energies, and motivated the participants to implement a similar project in Kuwait in the future.

Also in Kitakyushu, the participants visited Next Generation Energy Park, where wind and solar power generation and an innovative waste energy project are being implemented, and Water Plaza Kitakyushu, where they learned about the system for efficient utilization of treated wastewater and desalinated seawater as water resources and about technical developments and the demonstration related to the latest membrane bio reactor. Learning about such advanced initiatives in Kitakyushu implemented by public-private partnership broadened the participants' perspective in pursuing new possibilities.

The Tokyo Metropolitan Bureau of Environment provided a lecture on the history, present state and future plans for waste countermeasures in Tokyo, with particular weight on the treatment of general and industrial waste and policies for promoting their effective utilization. It essentially provided a general understanding of how Tokyo's environmental policies have evolved while overcoming various issues encountered in different periods in time. Thereafter, a tour was given of the innovative Tokyo Super Eco Town project.

At Japan Environmental Safety Corporation (JESCO), the participants learned about the latest PCB treatment technologies.

At Bioenergy K.K., the participants listened to a lecture on a project for recovery of energy from food waste, and seemed impressed with how the company created and has successfully launched a profitable new business model by linking waste treatment and energy sales.

At the Kobe Office of Kawasaki Heavy Industries,

Training in environmental policies at Tokyo Metropolitan Government

Ltd., a lecture was given on the possibilities of strengthening the performance of such rotary equipment in the oil industry as steam turbines, gas turbines and gas engines by state-of-the-art technologies, and of increasing their energy efficiency by applying the latest technologies. The lecture also covered the absorption cooling technology and the possibilities of using it to save energy. Meanwhile, in the production plant, the participants had the opportunity to observe the manufacture of large machines, and seemed duly impressed by the sight.

Toray Industries' Shiga Plant introduced examples of the company's businesses that contribute to global environmental protection in various sectors by utilizing its core advanced technologies. It also explained and gave examples of the cutting-edge film-separation technology used in the system for effective utilization of water resources, and captured the participants' interest with the possible application of the separation technology to desert greening. Thereafter, the participants toured the research center, where cutting-edge technical development is undertaken, and learned about the company's wide-ranging research activities.

At the Development Center of Kurita Water Industries Ltd., a lecture was given on the latest wastewater treatment technologies and associated water treatment technologies, which showed that effective utilization of water resources could be achieved by utilizing chemicals to treat associated water and wastewater.

Training in the environment and energy conservation at Kawasaki Heavy Industries, Ltd.

4. Summary

The busy schedule of the course took the participants from Tokyo to Kyushu, Kobe and Shiga over a short period of 12 days, but the participants seemed to appreciate being exposed to Japan's advanced technologies and cases related to the effective utilization of water resources and waste treatment.

Since the program was intended for environmental managers from the KPC Group, the course duration was shortened to 12 days to facilitate their participation, but nevertheless provided a fulfilling program with the cooperation of administrative institutions and private companies in a wide range of sectors. It was designed to provide knowledge from four different perspectives: environmental policies and administration, environmental management businesses, development companies that provide environmental technologies, and residents. Through these perspectives, the participants learned that the cooperation of various stakeholders is involved in the development of state-of-the-art technologies and implementation of advanced projects in Japan.

Such comprehensive perspectives and flexible thinking will likely be qualities that the top management of oil industries in oil-producing countries will be expected to possess in the future. Furthermore, Japan's advanced initiatives in the environment sector could also contribute to addressing human resource development needs in oil-producing countries, and are expected to play an important role in deepening Japan's cooperative relationship with Kuwait hereafter.

<by Tetsuo Arii, Training Dept.>

Training in environmental technologies at Toray Industries