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NEWS

Special Issue

Japan Cooperation Center, Petroleum

Report of Activities Related to **Saudi Arabia**

FY2011—FY2013

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Special Message



H.H. Dr. Turki Saud Mohammed Al-Saud Vice President for Research Institutes King Abdulaziz City for Science and Technology (KACST)

H.H. Dr. Turki was born to the royal family of the Kingdom of Saudi Arabia. He has served as Chairman of the Supervisory Committee of the National Science and Technology Plan and other important posts, and plays a central role in the development of science and technology in Saudi Arabia. Possessing a deep understanding of Japan, Dr. Turki has also supported JCCP activities in Saudi Arabia over many years. On occasion of JCCP's 30th anniversary, His Highness has graciously complied with our request to receive a commemorative message from him, as presented below.

I am honored to be invited to write a message on the 30th anniversary of Japan Cooperation Center, Petroleum (JCCP). In June of 2008 I had the privilege to visit Japan and the JCCP headquarters on the invitation of the JCCP. During my stay in Japan, the JCCP arranged for me a visit to the Petroleum Refining Research & Technology Center at Japan Energy Corporation; the Earth Remote Sensing Data Analysis Center (ERSDAC); Toyota Motor Corporation; and the national Institute of Advanced Industrial Science and Technology (AIST). I was delighted by the fruitful discussions that I had and impressed by technology that I saw.

During my visit we also discussed the cooperation between KACST and JCCP, resulting in a project, started in 2006, to utilize the Interferometry Synthetic Radar (InSAR) to map surface deformation in Saudi Arabia. I am glad to say that the Saudi researchers got some training on InSAR data analysis in Tokyo. By the end of 2008 the InSAR project was completed and we started another endeavor to map three dimensional deformation below the earth surface utilizing Accurately Controlled, Routinely Operated, Signal System (ACROSS). Its aim was to complement the first project and to develop a complete system for monitoring surface and subsurface deformation. In 2012 KACST and JCCP jointly organized an international workshop and invited local, regional and international speakers to jointly present their scientific achievements on surface and subsurface monitoring. Participant were invited to visit the ACROSS field site and they were amazed by the achievements.

Looking back I believe that the cooperation between KACST and JCCP has been very fruitful and will have an impact on future surface and subsurface monitoring technologies. I also believe the results will serve Japan and Saudi Arabia and strengthen our cooperation ties.

Messages from JCCP Graduates

JCCP graduates have offered warm messages of congratulations on occasion of our 30th anniversary, as introduced below.

.....



H.E. Eng. Zeyad H. Al Zahrani
Undersecretary, Saudi Ministry of Petroleum and Mineral Resources

Participant of a regular course on Marketing Management offered in 1988

A JCCP delegation visited my office in the Saudi Ministry of Petroleum and Mineral Resources on November 15, 2011. They had sought me out on the occasion of JCCP's 30th anniversary upon learning that I work at the ministry, and brought with them the application form that I submitted prior to participating in the Marketing Management course (TR-7-88) in July 1988. When I saw the photo attached to the form, memories of that period 23 years ago came flooding back.

The delegation's visit was a pleasant surprise, not to mention being given the honor of writing a brief message for JCCP News. It is my pleasure to celebrate JCCP's 30th anniversary with this message.

The Marketing Management course was an extremely memorable experience. It made me want to study once more at JCCP, and prompted me to participate in another course on environmental management. Participation in the two courses increased my knowledge of both the technical and management aspects of the oil industry. The lectures and guidance provided by the Japanese experts were especially helpful to enriching my knowledge, and thereafter proved extremely beneficial to my career at the ministry.

I can still vividly recollect my experience in participating in a JCCP program. The Japanese people were all friendly, courteous and well educated, and Tokyo was a remarkable city, although I was surprised at how expensive everything was. I also appreciated the opportunity to visit the old capital of Kyoto and learn about Japan's long history of development.

Looking back, I realize the Japan that I saw back during that time has played a major role in shaping the future vision of Saudi Arabia, and also believe it helped Saudi Arabia strengthen fraternal relationships with other countries in the Middle East. On a personal level, I see now that the JCCP course was designed so that participants could gain mutual understanding of each other's customs and cultures and broaden their perspectives.

The recent reunion with JCCP members on the occasion of JCCP's 30th anniversary has once again stimulated my interest in visiting JCCP and exchanging views on requests for new programs toward formulating future plans in my country. I look forward to JCCP's continued cooperation in the development of the Kingdom of Saudi Arabia.

Mr. Al Zahrani passed away last December 18 while in London to attend a conference on behalf of the Minister of Petroleum and Mineral Resources, a mere two weeks after sending us the above message. We extend our deepest condolences and pray that he rests in peace.

CPJ Seminar on "Japan's Oil Industry" Held for Saudi Aramco

1. Background

In January 2009, JCCP received a request for a training program in Japan from the Tokyo Office of Aramco Overseas Company B.V. (AOC), a subsidiary that provides services and materials to Saudi Aramco. After a series of discussions, AOC Tokyo and JCCP agreed on the implementation of a program that would allow participants to comprehensively study Japan's oil industry from the perspective of materials procurement, as well as learn about the commercial practices of Japanese companies, their system of procuring materials, and their business operation methods and principles. This agreement was formally endorsed by Saudi Aramco and JCCP in December 2010, and came to be implemented as a Customized Program-Japan (CPJ) in February 2011.

2. Program Overview

As decided in preliminary discussions, the CPJ was held from February 22 to March 1, 2011, with two days given to lectures at JCCP Headquarters ((1) The oil industry and oil marketing and physical distribution in Japan; and (2) General overview of Kaizen and the Toyota Way) and three days to practical offsite training ((1) Toyota Motor Corporation, Motomachi Plant; (2) JFE Steel Corporation, West Japan Works; and (3) Showa Shell Sekiyu K.K., Head Office).

The program was attended by a total of ten supervisor-class participants—nine from the Materials Procurement Department in the Head Office and one from AOC Shanghai. Their average age was 36.

3. Program Content

Training at JCCP

(1) The oil industry and oil marketing and physical distribution in Japan

This lecture emphasized the importance of stable oil supplies to Japan, and discussed the flow of oil in Japan in terms of oil marketing and physical distribution, in light of the recent decline in demand for oil in Japan's oil industry.

(2) General overview of Kaizen and the Toyota Way

This lecture was organized to provide preliminary knowledge before visiting a Toyota plant in the latter part of the program. The first half of the lecture discussed the concept of Kaizen and its introduction to industrial processes. The second half focused on Toyota Motors' Kaizen-oriented management system as a representative style of Japanese management.

Offsite training

(1) Toyota Motor Corporation, Motomachi Plant

Toyota Motor offers guided tours of its entire automobile production line at the Motomachi Plant, where visitors can see how automotive parts are welded and assembled using robots. Moreover, the tours are provided not only in Japanese but also in English. With the plant located some distance from the nearest city of Nagoya, we realized that the tour would take an entire day, but we nevertheless included it in the program, because we believed a tour of the state-of-the-art plant would be worth the time, and also because we had strong approval from AOC Tokyo.

After the plant tour, the participants stepped inside the Toyota Kaikan Museum, where they feasted their eyes and shot pictures of the latest hybrid cars, fuel-cell vehicles, and cutaway models.

(2) JFE Steel Corporation, West Japan Works

JFE Steel provided high-level lectures on pipe structures and manufacturing and the installation and maintenance management of pipelines. As procurement



At JFE Steel Corporation, West Japan Works

experts, the participants asked many technical questions about pipelines.

After the lectures, the participants toured the company's world-class steel plant and specifically the rolling mill and pipe manufacturing facility that were in operation. They focused strong attention on the tour, as it had direct relevance to their procurement activities, and expressed amazement at the sheer impact and scale of the plant. Coincidentally, the participants spotted a large stack of pipes earmarked for export to Saudi Aramco and, with great delight, took group pictures in front of the pipes.

The lectures by pipeline experts at JFE Steel and the special tour of the plant seemed to be highly appreciated by all participants.

(3) Showa Shell Sekiyu K.K., Head Office

First, members of the Sales Planning Department in Showa Shell Sekiyu's head office gave a corporate overview of the foreign-affiliated oil company and the marketing environment in Japan as a whole. Then, the Retail Sales Department gave a lecture on gasoline sales policies and service station operations, which is the core business of the company, and the Distribution Department gave a lecture on the company's physical distribution system and the rationalization of physical distribution.

The content of the lectures and English teaching materials provided deep knowledge befitting the world-renowned Shell Group of companies.

4. Summary

Initially, we failed to have a clear grasp of AOC Tokyo's needs, and mistakenly thought it would fully suffice to design a typical one-week program in Japan that covers such topics as Japanese culture and history and Japanese-style business practices, intended for



Lecture at Showa Shell Sekiyu K.K., Head Office

employees of AOC. However, when we signed the confirmation document with AOC on December 1, 2010 and received a nomination list, we saw that participants were carefully selected from among Saudi Aramco's Procurement Department, and understood that we were expected to provide specialized training related to procurement. The participants indicated a broad range of interests, and expressed a particular desire to learn about the excellent supply chain in Japan. Taking this into consideration, we included a lecture on Kaizen and the Toyota Way on the premise of taking a plant tour at Toyota Motor, to respond to the participants' wishes as much as possible.

For practical offsite training, we asked JFE Engineering Corporation to give a technical lecture on pipelines, and to change the scope of the plant tour from a general tour to one that focuses on the rolling mill and pipe manufacturing facility. We furthermore asked Showa Shell Sekiyu to not only give a general presentation of its operations, but to also discuss the supply chain of oil within the overall flow of oil, with a focus on the marketing and physical distribution aspects.

In the evaluation forms filled in at the end of the program, the participants gave straightforward opinions about the good and bad points of the program befitting their occupation as specialists in Saudi Aramco's Procurement Department, and indicated their desire for specialized, in-depth training instead of general overviews. Taking into consideration the many opinions and suggestions for future training programs we received from the participants, we realize that, when we again have the opportunity to implement a CPJ for Saudi Aramco's Head Office Procurement Department, we will be expected to design an advanced program within a short timeframe centered on the supply chain in Japan.

The participants were a group of outstanding employees with all-around skills. Moreover, we were impressed by the way they looked after each other and spontaneously acted as a team under the strong leadership of the group leader. They also exhibited impeccable manners while thoroughly enjoying their time together in the program, sharing ideas and exchanging views.

The program being the first attempt of its kind, we faced some uncertainties prior to its implementation, but were able to successfully complete the program thanks to the generous cooperation of all relevant companies and by being blessed with wonderful participants.

<by Kazuo Kojima, Training Dept.>

CPO Seminar on “Human Resource Development” Held at Saudi Aramco

A Customized Program-Overseas (CPO) on “Human Resource Development” was held from October 9 to 13, 2010, at the Yanbu Refinery in Saudi Arabia.

1. Background

This seminar was realized in response to a request from a participant of a regular course on “Training Management” (TR-17-10) implemented in December 2009. The participant, a manager in charge of training in the Yanbu NGL Fractionation Department at Saudi Aramco, made the request after returning to Saudi Arabia and obtaining the approval of his company. JCCP obliged, and this became the first seminar on human resources to be held in Saudi Arabia.

2. Lecturers

Mr. Hiromasa Tanaka (Professor, Meisei University)
Mr. Hideki Otsuka (Human Affairs Dept., JGC Corp.)
Mr. Akio Hoshino (Training Dept., JCCP)

3. Seminar Overview

The seminar was held over a five-day period. Following an opening seminar, a lecture on “Japanese-style HRM and Corporate Training” was held on this day and half of the next, and provided an overview of HRM and HRD issues. The latter half of the second day was spent on a lecture titled “Kaizen General,” which



Opening speech by the director of the Yanbu NGL Fractionation Department



Participants of the seminar after the closing ceremony

focused on “creating a Kaizen mind” as a perspective of training-related programs. The third and fourth days featured a seminar on training theories by Professor Tanaka, and the last day was devoted to an introduction of the personnel system employed by JGC Corporation and its corporate training activities. Finally, the seminar ended with a closing ceremony.

4. Details of the Seminar

[Day 1 and first half of Day 2]

“Japanese-style HRM and Corporate Training”

The seminar began with an opening speech by Mr. Mohammad N. Al-Naghash, Director of the Yanbu NGL Fractionation Department.

Then, a lecture was given for a day and a half on Japanese-style HRM and corporate training, divided into the following four parts.

- (Part 1) History of Japan and the Japanese mentality
- (Part 2) Japanese-style organizational teamwork and the substance of Japan’s high economic growth
- (Part 3) Characteristics of Japan’s human resources and the reality of corporate training
- (Part 4) Recent changes in Japanese society and companies and future corporate training issues

Throughout the lecture, there were many questions and comments from the participants, which at times developed into active discussions among them and set the tone for a highly successful program.

[Latter half of Day 2]

“Kaizen General”

The goal of this lecture is to provide knowledge of the Kaizen concept and the unique Kaizen mind of the Japanese people. It explained the process of introducing Kaizen activities, the “5S” method of achieving Kaizen, and “The Toyota Way” as an example of the result of accumulating Kaizen efforts, to examine what is needed to establish a “Kaizen mind” in the workplace. Most of the participants seemed new to the principles presented and listened to the lecture with strong interest, in their capacities as refinery trainers and managers.

One of the participants noted that the Kaizen concept is similar to the “Six Sigma” strategy he learned about in a previous training program and asked to be allowed to introduce it, so the lecture was suspended for several minutes while the participant introduced the strategy to the other participants.

[Days 3 and 4]

“Training Program Planning and General Training Theories”

This lecture is a regular program of the JCCP course on Training Management, which is given by Professor Hiromasa Tanaka of Meisei University over two days. It introduces the comprehensive knowledge needed to implement education and training, including survey methods for training needs, training program designing, and evaluation of training results. Owing in part to Professor Tanaka’s proficiency in English, the lecture was a very well-received and high-level program that captured the participants’ strong interest.

[Day 5]

“Personnel Management System and Training System in an Engineering Company”

The lecture began with an overview of the personnel system at JGC Corporation with a focus on the company’s current salary and evaluation systems, and also covered employees’ career path structure in the engineering company. After the first four days of lectures on an overview of HRD and training theories, this was the only lecture that introduced the reality of corporate training in specific terms.

After all of the programs were completed, the seminar closed with a closing speech by Mr. Husain M. Asiri, Operations Division Superintendent, Yanbu NGL Fractionation Department, and the presentation of completion certificates by A. Hoshino.

5. Summary

(1) The group of participants comprised 24 high-level employees above superintendent level and below manager level in charge of training. They came to Yanbu to attend the seminar from Saudi Aramco’s head office and its refineries and terminals located throughout Saudi Arabia. From the beginning to the end of the seminar, they displayed earnest attitudes and frequently asked questions, raised new issues, and sought the lecturers’ opinions. As mentioned earlier, their questions and comments at times stimulated active discussions among themselves.

(2) We assumed that the Middle East countries, and particularly Saudi Arabia, are much more “Americanized” than Japan. Therefore, we thought that an (American-style) “performance-based work environment” had already taken root in Saudi Arabia, compared to Japan, because it was only about ten years ago that Japanese companies began reviewing their seniority system, which had been an important factor in Japan’s rapid economic growth. In this respect, we were worried whether information concerning present personnel systems in Japan would provide helpful knowledge to Saudi Arabia.

There was no need to worry, however, as the participants gave full and concentrated attention to the lectures on Japanese-style HRM and HRD, which seemed to capture their interest as new concepts. In addition to raising many questions and expressing their views, they also engaged in active discussions among themselves. Moreover, practically all participants took an active part in the seminar—whereas in most cases only a certain handful of participants engage in this type of active behavior—and demonstrated the high level of Saudi Aramco’s employees and their outstanding English skills.



Discussions during a lecture presentation



Small seminar at Yanbu Industrial College



Students asking many questions after the seminar

6. Small Seminar at Yanbu Industrial College

The team of Japanese lecturers gave a special small seminar at Yanbu Industrial College, a regional college located in Yanbu City, on the night of the fourth day of the seminar. The faculty and students of the college, as well as HR managers from local companies, were invited to attend. It was held in response to a separate request from Saudi Aramco based on the wishes of the university aiming to achieve globalization.

Held in a large auditorium at the university, the seminar drew an audience of more than 100 faculty members, students, and other interested parties. After A. Hoshino and Prof. Tanaka gave short presentations, a surprising number of people took part in the subsequent Q&A session. The two major questions were the following.

- (1) How do Japanese companies retain outstanding personnel?
- (2) What are the differences between an individualism-oriented organization and a teamwork-oriented organization?

There were more questions than could be answered in the allotted time of the seminar, and because of this, many participants came up to the podium to ask questions after the close of the seminar. They mainly asked the following (replies omitted).

- (1) What is the best way to create teamwork?

- (2) How is Japan able to treasure its traditional culture while at the same time developing modern scientific technologies?

- (3) What is important to continuing Kaizen?

The lecturers were impressed with the participants' pure drive and enthusiasm that was clearly evident in their eyes and behavior, qualities we are seeing less of in Japan today. With a large population of such young people, Saudi Arabia is certain to develop into an even greater power.

7. Observations

Yanbu, the city we visited for the seminar, is situated on the western coast of Saudi Arabia, north of Mecca and Jeddah, facing the Red Sea. It is a regional city comprising a large industrial zone, which has developed from its origin as Saudi Aramco's shipping terminal, and quiet towns. This was the Japanese lecturers' first visit to Saudi Arabia, and it exposed us to a world of Islam that is unlike that of other Middle East countries.

After the seminar, we visited JGC Gulf International, a local subsidiary of JGC Corporation located on the eastern coast of the country in Al-Khobar, to hold an exchange of information. The sight of the large city that differed from Yanbu opened our eyes to another aspect of Saudi Arabia.

<by Akio Hoshino, Training Dept.>



Prof. Hiromasa Tanaka, Meisei University



Mr. Hideki Otsuka, JGC Corporation



A. Hoshino, JCCP

CPO Seminar on “Safety Management” Held at Saudi Aramco’s Jeddah Refinery

1. Background and Overview of the Seminar

As Saudi Arabia is one of the most important crude oil suppliers to Japan, JCCP regularly surveys the training needs of oil-producing countries in the Middle East. In 2008, we received a request from Saudi Aramco for a Customized Program-Overseas (CPO) on safety management in the refinery, and implemented the seminar on two separate occasions. The first seminar was held at the Ras Tanura Refinery in December 2008, and the second was held at the Yanbu Refinery in February 2010.

Following the first two seminars, Saudi Aramco’s Jeddah Refinery offered to host the third convening of the seminar, and thus it was held in a seminar room at the refinery’s training center over a period of four days, from February 27 to March 2, 2011. The members of the Japanese team dispatched to implement the seminar in Saudi Arabia included Mr. Hideto Hamada from JGC Corporation, Mr. Susumu Adachi from NKSJ Risk Management, Inc., and JCCP lecturers Yoshiaki Ueno and Fumihito Tone.

The participants were a group of employees carefully nominated and selected by their superiors in organizations relevant to the refinery. Therefore, they seemed to attend the seminar with a conscious awareness that they were each a representative of their respective workplace. The large majority of 21 participants were from different departments in the Jeddah Refinery, but there were also two participants from the Riyadh Refinery and three from the NGL Department.

2. Seminar Content

On the first day, following self-introductions by the participants and an introductory DVD presentation of JCCP, Y. Ueno lectured on “Theories and Practices in Safety Management in the Refinery,” with discussions on the occupational health and safety management system standard (OHSAS 18001), the reformation of safety culture, and safety awareness-building. By showing a video of danger prediction activities and finger-pointing



Participants of the seminar

confirmation activities, particular emphasis was placed on introducing safety activities and systems and small-group activities that have been established through the years in Japanese companies and society. After the first day of the seminar, the four lecturers toured the refinery site in preparation for the next day’s lectures.

On the second day, F. Tone gave a lecture on “Safety Management Activities in Japanese Refineries,” covering such topics as specific case examples of accidents in the refinery, safety management systems, and TPM activities, which captured the participants’ interest and were well received. Following this lecture, Mr. Hamada from JGC Corporation gave a lecture titled “Safety Design Technology and Risk Management in Plants.” He introduced technical issues in equipment design and risk assessment in detail from the perspective of an engineering company, and also discussed methods and concepts that are considered effective in the operational management of existing plants. The overall structure of the lecture was as follows, with items 4 and 5 covered in the morning of the third day of the seminar through actual examples and practical training.

- (1) HSE risk management
- (2) HSE risk assessment
- (3) Plant safety design from the HSE perspective
- (4) Introduction of safety risk assessment systems (HAZOP, LOPA, OHR)
- (5) HAZOP & LOPA study methods and training

From the latter half of the third day to the first half of the fourth day, Mr. Adachi from NKSJ Risk Management gave a detailed introduction of risk evaluation and



Lecture by Yoshiaki Ueno,
JCCP Lecturer



Lecture by Mr. Susumu
Adachi (NKSJ Risk
Management)



Lecture by Mr. Hideto Hamada (JGC Corporation)

assessment in refineries from the perspective of a nonlife insurance company. His lecture specifically focused on: the reality of risk management in Japan; accident trends and risk analysis in Japanese refineries and petrochemical plants; critical elements of risk evaluation in oil refineries and petrochemical plants; risk evaluation methods; the perspective of an underwriter; and rate calculation methods. Many participants showed particularly strong interest in learning about risk evaluation methods.

After the lecture, the lecturers and participants reviewed the program and lectures and engaged in questions and answers. The lecture on the 5S activities and other small-group activities for building a safety culture, in particular, seemed to create a strong impression on most of the participants, and promoted an understanding of the significance of these activities.

In the closing ceremony, JCCP thanked everyone for their role in the successful implementation of the seminar, expressed their future expectations, and encouraged each participant to take a step forward in building a culture of safety.

3. Evaluation and Impressions of the Seminar

Practically all participants said the seminar was meaningful, and that the knowledge they acquired will benefit their current jobs. Given this response, we believe that the seminar precisely matched the participants' level of understanding. In response to a question about their impressions of Japanese-style small-group activities, such as the 5S activities, KYK (danger prediction) activities, near-miss prevention activities, and finger-pointing confirmation activities, and their effectiveness in creating a safety culture, many participants agreed that the 5S, finger-pointing, and KYK activities are effective

practices. We take this to mean that the necessity of small-group activities is gaining greater recognition and dissemination in the oil industry.

Saudi Aramco enjoys a relatively strong position in terms of human resources, organizational power, and technological capability, and has been stringent in its requests and demands of JCCP. We implemented CPO seminars on safety management in the refinery twice in the past, and received high praise for our implementation of the first seminar at the Ras Tanura Refinery in December 2008. We agreed to maintain the same content for seminars in other refineries as requested by the Saudi Aramco side, and thus came to implement this third seminar.

One of the major themes of this seminar was to introduce the activities and methods that have been adopted by Japanese companies to establish a safety culture and a safe working environment. The other major theme was to provide detailed knowledge of risk management systems from the perspective of process safety design. Under these themes, most of the participants said they acquired an extremely broad range of knowledge even within a short four days. Therefore, we believe this seminar was just as successful as the previous ones had been.

<by Fumihito Tone, Training Dept.>



Presentation of the completion certificate

CPO Seminar on Total Productive Maintenance Management (TPM) Held Jointly with Saudi Aramco



Participants of the seminar

1. Purpose and Background

A seminar on maintenance management based on TPM activities was implemented for engineers of Saudi Aramco, in response to a request from the company's Maintenance Council, which is responsible for all company-wide maintenance technologies, and the Professional Engineering Development Division (PEDD), the division in charge of training and developing professional engineers. It is worth noting that this seminar was the first to be formally registered under Saudi Aramco's company-wide engineer training program.

The very beginnings of the seminar go back to September 2010, when Mr. Sami A. Iskandrani, Assistant to the Vice President, Refining and NGL Fractionation, introduced JCCP to PEDD during JCCP's survey on the renewal of training courses. PEDD reviewed the lecture materials from four seminars that JCCP implemented in the past for Saudi Aramco personnel in the downstream sector since fiscal 2008 and, in a meeting held in May

2011 with the attendance of Mr. Nezar Al-Shammasi, Director, Maintenance Council, announced that it wished to register and implement the course on TPM-based maintenance management as part of PEDD's training program.

The five-day seminar took place from September 10 to 14, 2011, in a PEDD lecture room on the second floor of the east wing of the Al-Midra Tower Building. Four Japanese lecturers were sent to Saudi Aramco to conduct the seminar, including JCCP lecturers Kenji Saito and Fumihiko Tone, and Messrs. Yoshisumi Tamao and Akio Ishida from Idemitsu Kosan Co., Ltd.

The participants comprised 22 members from Saudi Aramco's maintenance sectors, ranging in experience from 3 to 30 years and a wide hierarchy of posts.

2. Content of the Seminar

In the opening session on the first day, Mr. Nezar Al-Shammasi, Director, and Dr. Dahamman M. Al-Anaji, Head (A) of PEDD, gave an opening address and spoke briefly about how the seminar came to be held with JCCP and what the objectives are. Mr. Al-Shammasi particularly explained that the Maintenance Council took an interest in JCCP's TPM-based maintenance management course because PEDD's training program has few courses related to maintenance. Dr. Al-Anaji



Al-Midra Tower

encouraged all participants to learn not only about specialized maintenance technologies, but also about principles and methods behind maintenance activities.

The first lecture was given by Saito on maintenance management in the refinery and maintenance optimization by risk management. It was intended to promote understanding that the seriousness of risks varies greatly according to national affairs and corporate philosophies, so that the same phenomenon might be regarded as a serious accident or a minor incident to different parties. The lecture also aimed to teach participants about the importance of accepting and understanding the best possible solution for an organization by creating a decision-making matrix to find the optimum alternative from among many possibilities.

In the first half of the lecture, on maintenance management in the refinery, Saito used photos and diagrams to illustrate a comparison of differences in the refinery maintenance management framework, maintenance management software used, and work safety management between Japanese refineries and refineries in Middle East oil-producing countries. In the second half, on maintenance optimization by risk management, he focused on the corrosion of distillation columns and countermeasures against it. Participants were taught to predict risks by classifying corrosion-related malfunctions into three groups and understanding the probability and extent of damage of malfunctions in each group, and to select an optimum measure (maintenance method) based on a comparison of multiple countermeasures.

On the second day, Tone gave a lecture on safety management in the refinery and an overview of TPM activities. Using actual data, photos, videos, and analysis results, he described a number of major accidents that have occurred in oil complexes in Japan, including a corrosion fracture accident involving dead-end pipes, a pressure vessel explosion accident caused by improper renovation and poor change management, a plant explosion and fire accident caused by human error, and a tank destruction and fire accident caused by long-period ground motion. These are examples of cases resulting from poor design, poor change management, inadequate information and manuals, and natural disasters, to illustrate the fact that most fundamental causes are attributable to human error and improper management systems, and explained that maintenance management improvement activities and TPM came to be introduced as a means for breaking away from this

type of adverse situation. Furthermore, after lecturing about the management system in Japanese oil refining companies and the important role of managers in boosting motivations in the workplace, Tone laid the groundwork for the third and fourth days' lectures by providing an overview of the TPM concept that has been refined and upgraded by Japanese refineries and introducing several representative small-group activities, including the tool-box meeting (TBM), danger prediction activity, point and call, and the 5Ss. Tone also took charge of the group discussion held on the fourth day, in the form of a workshop where participants were told to diagram their problems in an easy-to-understand manner. By having the participants give each other a clear presentation of an issue they currently face, he effectively promoted mutual understanding among the participants from diverse departments.

On the third day, Messrs. Tamao and Ishida from Idemitsu Kosan gave a lecture entitled "Case Examples of TPM and Improvement Activities for Refinery Management," and introduced TPM activities that are implemented in Idemitsu's refineries. Mr. Tamao first gave a general outline of TPM activities, its framework, and key points for establishing TPM activities as part of regular maintenance activities. He also discussed voluntary maintenance activities, and performed an exercise on identifying defects using photos of pumps, to make the point that "cleanup equals inspection" in initial cleanup, which is the first step in maintenance. In the exercise, about 70% of the participants were able to identify no more than five defects. The objective of the exercise was not only to identify the major defects but to make closer observations and discover as many defects as possible, however sufficient results were not obtained. Noting that young engineers at Idemitsu are able to find more than 100 defects in a single unit of equipment, Mr. Tamao emphasized that finding as many specific defects as possible leads to larger numbers of improvements. The exercise was a simple but effective way to instill an understanding of the significance of initial cleanup.

Mr. Ishida lectured about maintenance management systems and maintenance plans from the standpoint of a facility maintenance engineer. He gave examples of typical equipment maintenance and specifically explained where the focus of maintenance should lie, with the goal of deepening participants' understanding. The issues that Mr. Ishida covered regarding maintenance management systems were based on a prior request from PEDD



Mr. Yoshisumi Tamao (Idemitsu Kosan)



Mr. Akio Ishida (Idemitsu Kosan)

to introduce improvement examples of maintenance management and quality assurance. However, Mr. Ishida added his own ideas to the request, and narrowed his focus to onsite activities that are implemented in conjunction with the operations departments. By doing so, he effectively captured the attention of the maintenance engineers and promoted understanding of the importance of working in cooperation with the operations departments, as well as an understanding of the development of activities down the line.

On the fourth day, the participants were divided into three groups of six to seven members each to discuss the gap (problem) between their “to be” ideal images of the workplace and the “as is” reality, and solutions for bridging the gap. Each group was composed of engineers of various levels and positions, and was asked to select a group leader and presenter from among themselves.

Firstly, all members enumerated issues they currently faced and shared a common understanding of the gap between “to be” and “as is.” Next, they sorted the priority of these issues as a group and selected an issue that was either relevant to all members or was judged to have the

highest priority. Then, they examined the causes of the issue according to the 5-Why, 4M analysis, and fishbone analysis methods, and sought through discussion to identify the principal cause. The themes selected by the groups were “the handover of technical knowledge and experience,” “extending the MTBF (mean time between failures) of pumps,” and “the difference between planned and actual maintenance man-hours.” In contrast to the previous sessions, this group discussion exercise drew out the participants’ professional side as maintenance engineers, as they discussed and probed their theme in highly technical terms and dissected the cause of the issue. Unfortunately, while the discussions did not yield an action plan for solving their respective issue, they were meaningful in that young and experienced engineers alike expressed and asserted their views on an equal footing.

On the last day, Dr. Al-Anaji of PEDD gave a closing address. He revealed that a participant had come to him during the seminar to point out what he thought were some problems with the seminar, but stressed that the seminar was not intended to be strictly a technical acquisition seminar in the first place, but a management seminar centered on the Japanese concept of TPM to gain a proper understanding of “owner’s mind.” Dr. Al-Anaji also stated that the seminar will be held again next year and onward, and expressed his appreciation for JCCP’s cooperation. Before closing the seminar, Tone presented a completion certificate to each participant.

3. Observations

As impressions and opinions of the seminar, half the participants said the content was beneficial and would help them in their jobs. Others gave a poor rating, saying that they had expected strictly technical content but the



Group discussions



Closing ceremony

seminar did not meet their expectations. This disparity may have occurred because the participants were from diverse job levels, and their evaluations may have differed according to their level. Nevertheless, since engineers in higher positions seemed to understand the significance of TPM and emotional matters relating to an employee's mindset, it can be said that the seminar successfully conveyed the necessity of TPM at least to the experienced engineers. In fact, one of the experienced participants reproved the young engineers who claimed TPM is unnecessary, by saying that when he was young the young engineers did all the equipment cleaning, painting and maintenance by themselves, but because there is now a clearly defined job description for operations, cleanup and other activities, there is a definite lack of mutual interest in each other's duties.

It is also worth noting that while Japanese refineries

principally do not employ maintenance technicians and instead have their engineers conduct and manage maintenance activities with the help of subcontractors, Saudi Aramco undertakes all maintenance activities in-house. For this reason, the development of maintenance technicians and the transfer of technologies from veteran to young engineers is an extremely important issue to Saudi Aramco.

Taking into consideration the views and suggestions given by the participants, it is clear that measures need to be taken to improve the seminar, perhaps by narrowing down the target of the seminar to only participants of certain job levels, or by dividing the seminar into two sessions and offering a general overview and basics of TPM in the first half and holding a workshop on actual application case examples in the second half. We will explore these measures and others to improve the seminar for future implementation.

<by Fumihito Tone, Training Dept.>



Presentation of the completion certificate

CPO Seminar on Practical Field Training in TPM Activities Held for Saudi Aramco



Participants of the seminar

1. Objective and Background

Saudi Aramco and JCCP have jointly held customized programs on total productive management (TPM) at Ras Tanura Refinery, Riyadh Refinery, Yanbu NGL Fractionation Department and Southern Area Oil Operations (Abqaiq), since fiscal 2008. However, all previous seminars were centered on classroom lectures, and were unable to adequately communicate the essential purpose and meaning of TPM. To remedy this inadequacy, Mr. Abdulsalam A. Ashi, Maintenance Superintendent, Yanbu Refinery, requested a program that focuses on the “visualization” of TPM activities and provides actual practice. After repeated discussions, Saudi Aramco and JCCP agreed to implement a seminar on visualization activities as a practical course on TPM activities.

The seminar ran for 10 days, from January 10 to 18, 2012, at the training center at Saudi Aramco’s Yanbu Refinery and the site of a catalytic reformer (continuous catalyst regeneration reformers: CCR). The four-member group of Japanese lecturers consisted of JCCP lecturers Kenji Saito and Fumihiko Tone and Messrs. Yoshisumi Tamao and Toshiyuki Kasami from Idemitsu Kosan Co., Ltd.

Participants selected to attend the seminar were a group of 21 elite members. They included five members from the operations department and two supervisors and

six post-supervisors from the maintenance department at Saudi Aramco’s Yanbu Refinery. These people were selected as having the potential to become core facilitators of future TPM activities. Other members included two members from Jeddah Refinery, one supervisor and one post-supervisor from Juaymah NGL Fractionation Department, and two supervisors and one post-supervisor from Yanbu NGL Fractionation Department.

2. Content

On the first day, Mr. Fahad S. Al-Dhukair, Training Unit Supervisor, Yanbu Refinery, gave an opening speech, followed by JCCP lecturer Tone, who also gave an opening greeting, in which he recounted how the seminar came to be implemented after almost two years of discussion with Mr. Ashi, and articulated the objectives of the seminar.

Following the opening speeches, JCCP lecturer Saito gave a presentation on the optimization of maintenance through maintenance management and risk management in the refinery. He aimed to promote understanding that the size of a risk varies according to national affairs, corporate philosophies, and other such circumstances, and that the same accident may therefore be assessed as a serious or minor accident depending on who is doing the assessing. He also stressed the importance of creating



Lecture by Mr. Yoshisumi Tamao (Idemitsu Kosan Co., Ltd.)



Lecture by Mr. Toshiyuki Kasami (Idemitsu Kosan Co., Ltd.)

a Decision-making Matrix as a means for selecting an optimum countermeasure from among many, and of accepting and understanding that best solution as an organization.

In the first part of his presentation on maintenance management in the refinery, Saito discussed the differences in the maintenance management organization, software used for maintenance management, and work safety management between Japanese refineries and refineries in Middle East oil-producing countries, using photos and diagrams. Then, in the second part on optimization of maintenance through risk management, he focused on corrosion in the distillation column and its countermeasures, and instructed how to predict risks from the odds of a malfunction and the extent of damage in the case that a malfunction does occur, and how to select the most suitable maintenance method based on a comparative examination of multiple countermeasures.

Next, JCCP lecturer Tone lectured on safety management and TPM activities in the refinery. He discussed the background to the introduction of TPM by explaining that improvement activities for maintenance management have become popular as a solution to breaking away from the existing situation where the causes of most major accidents that occur in Japan's oil complexes are attributed to flaws in design, change management, and information and manuals or natural disasters, which in most cases are fundamentally rooted in personal errors or flawed management systems. Furthermore, after expounding on management practices in companies related to oil refining in Japan and on the important role of managers in raising motivation in the workplace, Tone gave an overview of the improvement and advancement of TPM activities in Japanese refineries and introduced some representative small-group activities, such as the Tool Box Meeting (TBM),

danger prediction activities, near-miss incidents and the 5S activities, with particular emphasis on the 5Ss as an important part of visualization efforts.

On the second day, Messrs. Tamao and Kasami from Idemitsu Kosan lectured on TPM activities that are implemented in Idemitsu's refineries. First, Mr. Tamao gave a general overview of TPM activities, explained its framework, and enumerated the key points toward establishment of TPM activities in the workplace from the perspective of his experience as a member of a TPM promotion committee in Idemitsu Kosan. Mr. Kasami then talked about autonomous maintenance activities, and drove home the point that initial cleaning, which is the first step in TPM, equals inspection, by carrying out an exercise in identifying malfunctions using photos of pumps. The participants introduced many more case examples of malfunctions than in any previous training course. He also analyzed case examples of visualization activities in the workplace and their effects in an easy-to-understand manner using before-and-after photos.

The third and subsequent days were spent on field training in "visualization" using devices inside a plant site, to provide practical exercise in TPM. Prior to commencing the field exercise, Mr. Ashi clarified the meaning and purpose of this visualization training and expressed his expectations of each participant.

The participants were divided into two groups, Groups A and B, respectively assigned to pumps and compressors, and engaged in field training over three days. They spent the first day identifying problems related to their assigned component and deriving improvement methods through discussions of their normal, optimal state. After Tone and Mr. Tamao re-explained the purpose and specific methods for achieving visualization, the participants of both groups set about identifying problems in their designated



Mr. Abdulsalam A. Ashi, Maintenance Superintendent, Yanbu Refinery

component. Both groups came up with more than 30 types of problems. They then returned to the classroom to classify and prioritize the problems, identify areas for visualization, discuss methods of visualization and create a rough plan.

The second day of practical training was spent on reviewing tasks to be performed on that day, followed by instructions from Mr. Kasami on how to use the tools needed for visualization (method of cutting display tapes, etc.) using a pressure gauge as an example. In the actual workplace, the participants first engaged in initial cleaning as a preliminary step to visualization activities. While the lecturers initially expected the participants to clean only parts relevant to visualization, everyone immersed themselves in the task, making active efforts to remove grease spots and other persistent buildup of deposits using solvents and steam. Normally, a dedicated subcontractor undertakes cleaning and painting tasks, but for this training, the participants themselves took active charge of these tasks. This positive attitude was seen as a manifestation of the inherently conscious awareness of each participant, and came as a surprise to the lecturers who have personally experienced the same behavior in TPM activities in their own workplaces.

On the third day, after a confirmation of the areas that were cleaned on the previous day, the participants



Initial cleaning

engaged in additional cleaning of areas that needed more cleaning and undertook thorough repair and painting work. When they discovered a flaw in the component, they even went out of their way to replace the component and restore its normal functions. Lastly, they took steps for visualization of said components.

On the fourth day, each group reviewed the activities they performed on the previous days and discussed their discoveries and future action policy and program. They also prepared materials for their presentations to be given in a debriefing session on the last day.

The closing session on the last day of the seminar was attended by Mr. Salahaddin H. Dardeer, Yanbu Refinery Manager, as well as Mr. Ashi and other executives of the Yanbu Refinery.

In the session, each group reported on their activities, the results they achieved, and future plans they have compiled. In response, Mr. Dardeer reminded everyone that visualization activities are performed not to beautify facilities, but to enhance facility reliability, and that the continuance of the results is what is most important. Toward this end, he said he and the management team would spare no support. Furthermore, Mr. Dardeer noted that Saudi Aramco's safety management system (SMS) has entered the next stage, where reliability enhancement is the goal, and that the recent visualization activities are the starting point of that stage. The successful implementation of the seminar was also apparent in the



Report of activity results



Mr. Salahaddin H. Dardeer, Yanbu Refinery Manager (second from left)

participants' awareness of the importance of teamwork and continued activities and their wish to disseminate visualization activities across the board. JCCP lecturer Tone shared his impression that all participants, who attended the seminar from many different workplaces, made positive efforts to mutually understand their differences and bring out their respective strengths. He also said the participants are "seeds" of future TPM activities, and that he hoped they would hold regular reviews and spread the activities in their workplaces. He then closed the seminar after presenting a completion certificate to each participant.

This seminar was intended for employees who were selected for their potential to become core facilitators of future TPM activities, but after this seminar, Mr. Ashi said he also wishes to implement a training program for operators, maintenance technicians and other working-level employees. JCCP therefore proposed to organize a seminar staffed not only by Japanese specialists selected by JCCP, but also by a few selected participants from the recent seminar. Mr. Ashi agreed to this proposal, and will soon be discussing the dates and content of the seminar with JCCP.

3. Observations

In the initial meeting with the lecturers of the seminar, there was a general assumption that Saudi Aramco supervisors would not lend their hand to initial cleaning, although it is a mandatory part of TPM, so it was agreed that they would only clean the parts necessary for visualization. On the contrary, however, everyone took initiative in cleaning and washing all equipment to the surprise and delight of the lecturers. Even in the painting work after cleaning, once they took brush in



Before pump improvement



After pump improvement



Before improvement of the compressor area



After improvement of the compressor area

hand, they happily applied themselves to the task in the place of the contractor.

On the whole, the JCCP side received many comments from the participants that the training activities were extremely helpful. They seemed to realize that visualization is an effective way to call attention to operational precautions, clarify the main parts of each piece of equipment, reduce operational errors, and enhance facility reliability, and also an effective way to instill an ownership mentality in operations and maintenance department workers. Participants from Yanbu NGL, in particular, said that by understanding the concept and experiencing visualization activities through this seminar, they were able to see the benefits of these activities over the voluntary maintenance activities they currently implement at Saudi Aramco, and seemed excited to introduce TPM activities to their workplaces. This positive attitude is perhaps an indication that they have developed an ownership mind over their machines and plants through this seminar, and is something that probably would not have been achieved in previous seminars that mostly featured classroom lectures. The fact that the participants pointed out more problems than was initially expected by the lecturers on the first day of the field exercise in identifying malfunctions also highlighted their high awareness and positive attitude.

The seminar provided the first steps in TPM activities, but the continuation of activities will determine whether this seminar was successful or not. Just as is true in Japan, TPM activities will not take root unless they are promoted by a strong leader. Fortunately, Mr. Ashi exercises extremely strong leadership, and has already been designated to lead TPM activities in Saudi Aramco, so JCCP looks forward to regular reports of achievements in the future.

<by Fumihito Tone, Training Dept.>

CPO Seminar on TPM Held at Saudi Aramco's Jeddah Refinery

1. Purpose and Background

A series of TPM seminars have been jointly implemented with Saudi Aramco, beginning with the first seminar held at the Ras Tanura Refinery in 2008. The recent seminar was the sixth in the series, and was implemented in response to a request from Saudi Aramco's Jeddah Refinery. The request stemmed from the Jeddah Refinery's awareness that TPM training is essential to improving field operations and to smoothly disseminating the "my machine, my unit" mentality that the refinery is independently promoting among its employees. Initially, practical on-site training in TPM activities was considered as requested by Jeddah Refinery, but a basic course was ultimately decided to be implemented, taking into consideration the turnaround maintenance that was forthcoming in April 2013.

The seminar was held over a period of five days, from November 3 to 7, 2012, at the training center in the Jeddah Refinery, and was implemented by four lecturers, including Mr. Kiyoshi Sakaino from JGC Corporation, Mr. Fujio Takeishi and Mr. Motonari Yasutake from Idemitsu Kosan Co., Ltd., and Fumihiro Tone from JCCP.

The participants were a group of 20 members, comprised of 18 members from the Jeddah Refinery and two from the Ras Tanura Refinery. In terms of department, seven were from the maintenance division (including three regular inspection officers), five from the electrical instrumentation division, four from the operations division, and four from the engineering division (including three reliability officers).

2. Content

The seminar opened with words of greeting from Mr. Abdullah A. Al-Deraibi, Manager, Jeddah Refinery Dept., and Mr. Rayyan S. Tayeb, Supervisor (A), Training Unit. They also spoke about how the seminar came to be held jointly with JCCP and what the objectives are, and Mr. Al-Deraibi, in particular, reflected on his experience in participating in a JCCP regular course in 1989 and stressed how that experience has proven highly beneficial to his job.

Fumihiro Tone also gave an opening address on behalf of JCCP and explained the seminar program.

Following Tone, Mr. Sakaino from JGC Corporation lectured on maintenance management in the refinery (daily maintenance and periodic maintenance, facility reliability improvement). In the first half of the lecture on daily maintenance and periodic maintenance, Mr. Sakaino succinctly discussed the technologies that are needed for periodic maintenance, with particular focus on items that are required for effective improvement of facility reliability. In the latter half, Mr. Sakaino provided an overview of the risk management concept and explained the theory and application of RCM (reliability-centered maintenance) to facility reliability improvement. Toward the end of the session, the participants were divided into groups to discuss and study a case example of a BP Texas accident and its causes. Their serious approach to the discussion and pertinent comments to each other's presentations demonstrated their high level of knowledge.

On the second day, Tone gave a lecture on maintenance management and safety management based on TPM activities in the refinery in reference to serious accidents that have occurred in oil complexes in Japan, including an accident caused by a facility design flaw, an accident caused by the lack of change management, an accident caused by the deterioration of safety culture and violation of regulations, and an accident originating from a natural disaster. Tone explained that the accidents were fundamentally the result of a human error or a poor management system, and discussed how TPM activities came to be introduced as a means for improving maintenance management and breaking away from the risks of such accidents. He then introduced an overview of the TPM concept and representative small-group activities, including the tool-box meeting (TBM), hazard prediction activity, learning from near-misses, and the 5S policy, and discussed management practices in oil refining companies in Japan while emphasizing the manager's important role in boosting motivation in the workplace.

Additionally, a workshop was held in which the participants were required to explain a problem they



Mr. Abdullah A. Al-Deraibi, Manager, Jeddah Refinery Dept., giving an opening address

currently face in a manner that all other participants could easily understand by drawing a diagram of their problem. This exercise was effective in facilitating mutual understanding among participants from different departments.

On the third day, Messrs. Takeishi and Yasutake from Idemitsu Kosan Co, Ltd. introduced and discussed TPM activities implemented in Idemitsu's refineries. Mr. Takeishi first gave a general outline of TPM activities, frameworks, and key points for establishing TPM activities in the refinery. Mr. Yasutake then discussed voluntary maintenance activities with reference to case examples of activities at each stage of maintenance. To impress upon the participants that the first step of maintenance is initial cleanup, in which "cleanup equals inspection," an exercise was held in identifying defects in photos of pumps before maintenance. Close to 70% of the participants were able to identify only five defects at the most. However, as the objective of the exercise was not only to identify the major defects, but to make close observations and discover as many defects as possible, the result was not necessarily satisfactory. Mr. Yasutake

noted that new employees at Idemitsu usually identify more than 100 defects, and explained that finding as many specific defects as possible leads to larger numbers of improvements.

Mr. Takeishi then lectured about maintenance management systems and maintenance plans from the standpoint of a facility maintenance engineer, and deepened participants' understanding by explaining the focus of maintenance through examples of the maintenance of representative refinery equipment.

A group discussion was held on the fourth day. To achieve a good balance in regard to the participants' experience level, positions and age, they were divided into four groups of five members each, and were asked to select a group leader and presenter from among their members. Each group made a presentation on the theme of "What our section should be like, problems and their countermeasures."

First, group members wrote problems they face on separate post-its, categorized them according to genre, and selected an issue of high priority. They then analyzed the cause of the selected issue based on the 5-why, 4M and fishbone analysis methods, and discussed the issue up to the preparation of an action plan for solving the issue.

The themes selected by the groups were "contractor safety," "knowledge transfer from experienced employee to younger employee," "lack of stability," and "high employee attrition."

Each of the themes clearly highlighted current issues and posed extremely difficult problems. However, the participants seriously discussed how they could overcome their respective management problem instead of surrendering to the passive thinking that there is nothing they could do, and exhibited strong determination to take action.



Lecture by Mr. Motonari Yasutake, Idemitsu Kosan Co., Ltd.



Group discussion

The final fifth day consisted of a course review and closing session. All participants were of the opinion that the seminar will benefit their future activities. They also expressed their expectations of a practical course and further support for the future implementation of TPM activities at the Jeddah Refinery. After receiving words of appreciation from Mr. Tayeb, Tone said in closing that the seminar was extremely fruitful, and that “kaizen has already begun in the workplace.” By way of encouragement, he said each and every participant is a seed of a future fruit, which will grow to be two to three times the size it is today, so they should look forward to their future growth. The seminar was then brought to a close with the presentation of a completion certificate.



Group photo

3. Observations

The implementation of the seminar was considered from the perspective of contributing to the smooth promotion of the “my machine, my unit” campaign that the Jeddah Refinery is independently promoting among its employees.

Post-seminar evaluations revealed that all participants thought the seminar provided useful and beneficial knowledge. Their positions, specialties and ages varied broadly, but they were one in their wish to overcome their current situation by their own actions. That many of them expressed a desire for further support in introducing TPM activities to their workplaces also left a strong impression.

As the response to the seminar was strongly positive, JCCP may consider its continued implementation in the future. It can be said that this possibility has underlined the importance of ongoing communication and follow-up initiatives.

<by Fumihiro Tone, Training Dept.>

CPO Seminar on Practical TPM Activities for Field Operators Held at Saudi Aramco



Seminar participants and lecturers

A Customized Program-Overseas (CPO) on TPM activities for visualization of field operations was held at Saudi Aramco, intended for machine operators and maintenance staff. It took place at the Yanbu Refinery's Training Center and at the site of a diesel fuel hydrodesulfurization unit in Process Area 3, over a period of 5 days, from March 2 to 6, 2013.

1. Objective and Background

Saudi Aramco and JCCP have implemented a series of joint seminars on TPM activities since fiscal 2008. Held at the Ras Tanura Refinery, Riyadh Refinery, Yanbu NGL, Jeddah Refinery, and Southern Area Oil Operations (Abqaiq), these seminars comprised classroom lectures only, and fell short of providing deep understanding of TPM activities, which are mainly field-oriented. Given this situation, the recent seminar on TPM activities for visualization of field operations was designed to mainly provide practical hands-on training to field managers, and was held on the refinery floor, at the strong request of Yanbu Refinery, which is currently considering the introduction of TPM activities.

The seminar program gave due consideration to the sustainability of TPM activities, as requested by Mr.

Basim A. Zarie, Superintendent, Planning & Training Division. It also aimed to encourage voluntary activities by field operators and maintenance staff who undertake operations and maintenance activities in the refinery.

2. Seminar Content

Lectures were given in the mornings on the first two days, and hands-on field training was provided in the afternoons to facilitate understanding of issues presented in the lectures.



Mr. Basim A. Zarie, Superintendent, Planning & Training Division, giving an opening speech

Lecturers included Fumihiro Tone from JCCP and three members from Idemitsu Kosan Co., Ltd.: Messrs. Yoshisumi Tamao, Masanori Wada, and Masaaki Desaki.

The group of participants consisted of a total of 22 elite members selected from Saudi Aramco's various refineries and departments. From the Yanbu Refinery, they included one engineer and three technicians from the maintenance department and 11 operators from the operations department. They also included one supervisor and one operator from the Ras Tanura Refinery, one maintenance planning officer from the Riyadh Refinery, one supervisor from Juaymah NGL, one maintenance engineer from Yanbu NGL, and two instructors from the Yanbu Training Center.

On the first day, the seminar began with an opening speech by Mr. Osama A. Hassan, Supervisor, Planning & Accountability, followed by a detailed explanation of the significance and objectives of the seminar by Mr. Zarie. Mr. Zarie attended a regular course on maintenance in fiscal 2008, and is also well-versed in Japanese-style management practices, so his support for the implementation of this seminar was deeply appreciated.

Mr. Tone defined and provided an overall description of TPM in his lecture entitled "Overview of TPM and maintenance management and safety management based on TPM activities in the refinery." In reference to a case example of a serious accident that occurred in an oil complex in Japan, he explained that TPM activities came to be introduced as a means for improving maintenance management following the accident. He also explained that the success and failure of TPM activities are predicated on the awareness of the leader, and emphasized the importance of management practices in oil-related companies in Japan and the role of the manager in boosting motivation in the workplace. Tone

then introduced representative small-group activities that form the core of TPM activities, including the tool-box meeting (TBM), hazard prediction activity, learning from near-misses, and the 5S policy, explaining that this policy is particularly important to achieving visualization.

In the afternoon, the participants engaged in Workshop Part 1 on extracting and examining problems in visualization in an actual workplace. Divided into two groups for pumps and compressors, they assessed the present state of defects and grime and searched for problems using a checklist.

On the second day, Messrs. Tamao, Wada and Desaki from Idemitsu Kosan introduced case examples of TPM activities implemented in Idemitsu's refineries. Mr. Tamao first gave a general outline of TPM activities, frameworks, and key points for establishing TPM activities in the refinery. Mr. Desaki then conducted an exercise in identifying defects using photos of pumps riddled with defects, to make the point that the spirit of initial cleanup—"cleanup equals inspection"—is the first step in voluntary maintenance activities, which form



Extracting problems



Mr. Masanori Wada giving a lecture



Initial cleanup



Hands-on training in visualization

an important pillar of TPM activities. Lastly, Mr. Wada showed a video of serious accidents that have occurred at Idemitsu Kosan in the past, to provide an understanding of the importance of visualization, and Mr. Tamao explained the effects of visualization in an easy-to-understand manner through photos of workplaces before and after the implementation of visualization activities.

In the afternoon, the participants engaged in Workshop Part 2 on extracting and examining problems in visualization in an actual workplace, and took to the task of identifying areas for cleanup from among the problems and concerns they had extracted on the previous day. For the compressor, they limited the range of their task, as it was too large to complete within the time available.

On the third day, the problems that were extracted were classified into those related to maintenance and those related to visualization, and after narrowing them down to 10 or so visualization problems due to limited time, the participants discussed their levels of priority, cleanup method, overall plan, and members to be in charge of each task. In temperatures reaching to 35°C, they applied themselves to the cleanup with vigor, actively cleaning oil stains with a solvent and eliminating dust with an air blower or water hose. Some areas were ready for painting by the same afternoon.

On the fourth day, Mr. Desaki first explained about the necessary tools for achieving visualization of gauges and how to use them, and had the participants engage in hands-on practice in cleaning the gauges.



Before



After

The participants then moved to the site of their workshop for post-cleaning verification, and performed additional cleaning and painting of needed areas. Certain considerations were given so that paint colors and remedies to some of the equipment defects conformed to Saudi Aramco's regulations. Among the problems extracted were malfunctions of the vibration indicator and pressure gauge in regard to the compressors, and malfunctions of the pressure gauge in regard to pumps, but because these problems require the judgment and instruction of a supervisor from a dedicated department and also require time to address, they were decided to be left until they could be addressed in future activities. Lastly, visualization measures were applied to selected equipment, to visualize the proper range of gauges and motor rotation direction, for example. After completion of training in the workplace, both groups looked back on their tasks and summarized matters that came to their attention during the activity and future action plans.

On the fifth and last day of the seminar, the participants compiled presentation materials in preparation for giving a report on the results of their activities to the refinery management. They formed the structure of their presentation in consultation with each other, and made the necessary corrections to the materials by having a speaker rehearse the presentation. Such team efforts could also be said to be a meaningful result of this seminar.

The closing ceremony was held with the attendance of Mr. Mustafa M. Almahdi, Yanbu Refinery Manager, Mr. Zarie, and Mr. Mohammed S. Aidarous, Supervisor, Training Unit. Mr. Almahdi said the seminar presented knowledge and skills that would prove highly useful in upgrading refinery maintenance, and should be put to full use hereafter. He also articulated his plan to request JCCP's cooperation in implementing similar seminars in the future. Tone expressed his appreciation to the Saudi Aramco management on behalf of JCCP, and brought the seminar to a close after presenting the participants with a completion certificate.

3. Observations

Last year (FY2011), a seminar on workplace visualization activities was held for supervisors and post-supervisors, with the main aim of developing leaders of visualization activities.

This year, the seminar was held for operators and maintenance staff. Because they normally work under

instructions from their supervisors, there was a slight concern about whether they would be comfortable with taking voluntary action. The concern, however, was dispelled once the seminar began. The participants seemed to enjoy and gain a sense of satisfaction in engaging in practical, hands-on training in an actual workplace as in the previous seminar, indicating that such training would also be effective if incorporated in other seminars in the future. In particular, the participants seemed well aware of the objective of cultivating the "my machine," "my plant" ownership mindset that is a keyword in TPM activities, and thus seemed to take the hands-on training with a sense of purpose. Field activities are necessary for achieving specific results such as changes in awareness and improving equipment reliability, and the establishment of systems and schemes that managers can initiate are particularly important.

The Yanbu Refinery is presently composed of three areas, two of which have been used for onsite training in this seminar. The participants applied themselves to two days of initial cleanup activities, and achieved the intended results of visualization. At the end of the seminar following their presentations, most of the participants declared their intention to apply the practice to their respective workplaces, and raised expectations for future achievement of visualization.

In a meeting held after the seminar, the Training Unit sought the continued implementation of the seminar next year. Thus the content, period of implementation, and other particulars of the seminar will be discussed in detail hereafter, with a view to offering an even more practical seminar that includes onsite training and that could be attended by all members concerned, from manager-level employees to field operators and maintenance staff.

<by Fumihito Tone, Training Dept.>

Regular Course on Essential Petroleum Technologies in the Future

A regular course on Essential Petroleum Technologies in the Future was held from May 8 to 25, 2012.

1. Background and Intention

As part of JCCP's effort to refine the content of regular courses as a whole, lecturers of the Training Department have been exploring and discussing new themes for regular courses that have never been offered before. This particular course was based on the existing Essential Petroleum Technology course, but was refined by incorporating several years of participant feedback, as well as the results of an analysis of technical fields of interest among participants of courses provided by the Process Group. The renewal aimed to introduce the status of Japan's initiatives related to three key topics that are expected to become increasingly significant in the future—heavy oil treatment, biofuels and hydrogen—and to present a technical direction toward which the global oil industry ought to proceed as one in the future. To clarify this perspective, the word “future” was added to the previous title, and the content was reviewed as appropriate to the new title, “Essential Petroleum Technologies in the Future.”

Several new topics were added to the course, including hydrogen energy, fuel cell vehicles, bio-ethanol, and heavy oil treatment (Eureka Process®). New approaches were also introduced to practical training, and included a tour of the Advanced Technology and Research Institute of the Japan Petroleum Energy Center in Toke, Chiba Prefecture and various hydrogen station facilities and test-driving of fuel cell cars.

2. Participants

The 15 participants of the course consisted of six participants from the Middle East (five from Saudi Arabia and one from Kuwait), two from Africa (one each from Libya and Nigeria), and seven from Asia (two from Indonesia and one each from Myanmar, Pakistan, Thailand and Vietnam).

3. Training at JCCP

(1) Japan's Oil Industry

This lecture introduced the characteristics of Japan's oil industry and provided an understanding of the market potential of Japan as an export destination of oil. The concept of maintaining competitiveness in line with market principles seemed new to the participants from oil-producing countries, where most oil companies are run by the government. They also showed strong interest in the high quality of oil products in Japan and in the Japanese oil industry's efficient response to the shrinking heavy oil fraction market.

(2) World's Energy Situation and the Present Status of New Energies

(Lecturer: Mr. Mitsuyuki Maeda)

This lecture served an important function in developing a shared perspective among the participants as the starting point of the course. Participants from Saudi Arabia strengthened their awareness of their country being a leading oil producer, and deepened their concern foremost about the future energy supply situation.

(3) Refinery Profitability Improvement Simulation

<Practical training using JCCP's training simulator>

The previous course provided simulator training on the startup of an FCC unit, but this was not necessarily completely relevant to all participants in terms of their



Simulator training on the optimization of refinery equipment configuration

positions and posts. Therefore, changes were made to provide a simulation of how profitability is improved through the process of gradually adding a heavy oil cracker to a grassroots refinery.

This simulator training session was highly well received by the participants, who proposed numerous other case examples for simulation besides those that were prepared in advance by the lecturer.

(4) Transportation of Hydrogen as an Organic

Compound

*(Lecturer: Dr. Yoshimi Okada,
Chiyoda Corporation)*

The means for transporting hydrogen will become a major issue in building a hydrogen energy society in the future. This lecture therefore provided an understanding of the advantages of handling hydrogen in liquid form and the benefits of hydrogen as a new, exportable energy source to take the place of crude oil.

(5) Life Cycle Assessment of Biofuel

*(Lecturer: Dr. Masayuki Sagisaka,
National Institute of Advanced Industrial Science
and Technology)*

The introduction of biofuel is predicated on the carbon neutrality concept. However, the process of commercializing biofuel actually requires the use of a significant amount of energy, such as for the cultivation, harvesting and processing of raw materials (irrigation water, fertilizer), as well as for the delivery of the final product. Thus, this lecture emphasized that an optimal utilization of bioresources can only be achieved by gaining proper understanding of this disadvantage in addition to their advantages as an alternative to fossil fuels and as a means for strengthening energy security. It also discussed bioresources in relation to other important issues, such as the acquisition of agricultural land and competition with food production, and provided an important awareness that biofuel is not necessarily without disadvantages.

(6) Bioethanol Production from Wood Materials

(Lecturer: Dr. Daisuke Taneda, JGC Corporation)

Bio-refinery Concept

(Lecturer: Mr. Makoto Ikeou, JGC Corporation)

Bioethanol is produced by a fermentation method using mainly corn or sugar cane. With this type of first-generation bioethanol, increasing fuel production means decreasing food supply, which food resource-

poor countries such as Japan cannot afford to do. Based on this awareness, studies are being conducted on the production of second-generation bioethanol from algae, grain straws and woody materials. Among these materials, this lecture focused on the production of bioethanol from woody materials, as well as examined the production of fuel oil (isobutanol) and chemical products according to a chemical synthetic procedure using biomass as starting material.

(7) Building Hydrogen Infrastructures

*(Lecturer: Mr. Kazuhiro Kikuchi, Japan Petroleum
Energy Center)*

This lecture discussed scenarios for the construction of hydrogen infrastructures toward the dissemination of fuel cell vehicles, regulations on the handling and safety of hydrogen, and the supply of high-purity hydrogen for fuel cell vehicles.

(8) Development Trend and Future Outlook of Fuel Cell Vehicles

*(Lecturer: Mr. Katsuhiko Hirose, Toyota Motor
Corporation)*

Mr. Hirose, who works at the forefront of technical development at Toyota Motor Corporation, gave a highly impressive presentation on the development trend and future outlook of fuel cell vehicles in Japan based on the participants' onsite experience in test-riding in a fuel cell vehicle at Kyushu University and in a fuel cell bus at Meitetsu Bus Co., Ltd. As the leading expert in the development of hybrid vehicles at Toyota Motor, Mr. Hirose also emphasized that the fuel cell vehicle could not have been realized without the development of the hybrid technology, and impressed upon the participants the importance of technical development.

(9) Presentations by the participants

To engage the participants in interactive discussion, each participant was asked to prepare and give a presentation on an energy-related topic for mutual discussion among the entire group.

The topics varied according to the country of the participant, but it was apparent that the majority of countries have strong interest in renewable energies such as solar power generation, wind power generation and bioethanol. There were also countries that aim to achieve advanced technologies such as for desulfurization of supercritical water, and as a whole, the presentations provided highly meaningful references for selecting future training themes.

4. Offsite Training

(1) Cosmo Oil Co., Ltd., Research and Development Center

Training on the development of heavy oil catalysts has conventionally been the main feature of training at Cosmo Oil's Research and Development Center, but three new themes have been added this year, including the BTL technology (biomass-to-liquid technology: technology for producing liquid fuel from biofuel through chemical synthesis), bioethanol production by fermentation, and advancement into new sectors (agricultural chemicals). The tour of the laboratory elicited highly active discussions and was strongly appreciated by all participants.

(2) Fuji Oil Company, Ltd., Sodegaura Refinery

Fuji Oil's Sodegaura Refinery was added to the program this year as a new training destination. The refinery is famous for its development and commercial operation of the Eureka Process®, a type of coker process that keeps the pitch in liquid state for easy handling and allows it to be sold as refinery boiler fuel or as a coke binder when cooled and solidified. Fuji Oil is the only company in the world that operates this process.

The refinery also takes measures to conserve energy through pinch energy analysis, and has introduced a 4000kW Kalina-cycle power plant (uses ammonia as a working fluid), the largest of its kind in the world, to make effective use of low-temperature waste heat that has had little use up to now.

(3) Japan Petroleum Energy Center, Advanced Technology and Research Institute (ATRI)

ATRI was also added to the program this year as a new training site. Japanese oil companies compete with each other, but also work together as an industry in addressing issues that are too complex for each company to tackle on its own. Among these issues, ATRI provided knowledge of the practical evaluation of biofuels (gasoline, diesel fuel) and petroleomics (examination of heavy oil upgrading based on detailed evaluation of heavy oil composition). The laboratory facility employing a chassis dynamometer perhaps appeared new to the participants, as probably no such facility exists in oil companies in the Middle East and Asia.

(4) Kyushu University, Itoshima Hydrogen Town

At Kyushu University, the participants were given test rides in a fuel cell car to experience the potential of hydrogen fuel as a power source. Knowledge was also provided of hydrogen container materials. In Japan, container materials are severely restricted by the High Pressure Gas Safety Act (formerly called High Pressure Gas Control Act). As the restrictions pose an obstacle to making fuel cells lighter and reducing cost, the university is conducting research on low-cost materials evaluation for greater economic efficiency of fuel cells. In particular, the research focuses on the use of hydrogen obtained from water electrolysis and converting energy to hydrogen in order to absorb the fluctuations of natural energies (such as solar power and wind power generation, which produce a large difference in energy generation as a result of changes in natural conditions).

At Itoshima Hydrogen Town (formerly known as Maebaru Hydrogen Town), the participants examined the actual operation of a solid-oxide fuel cell installed in each residence. Here, hydrogen is produced using a concentrated supply of propane gas from Saibugas Co., Ltd. and equipping each fuel cell power generator with a hydrogen manufacturing unit. Waste heat is recovered in the form of hot water in a small cogeneration system.

Fukuoka Prefecture is involved in the selection of research themes at Kyushu University and in the operation of a hydrogen town project in a number of locations in the Kyushu region, and is aiming to attract researchers and manufacturing industries in the hydrogen sector as part of its challenge to develop new



Participants listening to an explanation of mechanisms under the hood of a fuel cell car at Kyushu University

industries. It thus offered its cooperation in this offsite practical training program through the New Industries and Technologies Division in the Fukuoka Prefectural Government.

(5) Kitakyushu Hydrogen Town

At Kitakyushu Hydrogen Town, hydrogen is supplied to each facility by obtaining by-product hydrogen from a steel mill, refining it in a hydrogen station (PSA unit), and distributing it through high-pressure gas pipes. A manager from JX Nippon Oil and Energy Corporation, the company that actually runs the facilities at the hydrogen station, provided invaluable information about the safety and daily management of the facilities.



*At a hydrogen station in Kitakyushu City:
The car behind the participants on the left is a fuel cell car
used for business by Fukuoka Prefecture.*

(6) Meitetsu Bus Co., Ltd. (fuel cell bus)

Meitetsu Bus offered a test ride in a fuel cell bus and provided an understanding of how the practical application of fuel cells is expanding from the compact passenger car sector to the public transportation sector as well. Prior to the test ride, a manager from Toyota Motor Corporation, the development company, provided training on the environmental performance and maintenance of fuel cell buses using an actual fuel cell bus in standby at a Meitetsu Bus service office.

(7) Central Japan International Airport (Centrair) Hydrogen Station

To provide practical training at hydrogen stations that use different hydrogen supply methods, a visit to the hydrogen station at Central Japan International Airport was selected as one of this course's offsite training



At a hydrogen station in Central Japan International Airport

destinations. The hydrogen station there produces hydrogen in an on-site type of hydrogen manufacturing equipment (operation of a small hydrogen production unit located adjacent to the hydrogen station) using city gas supplied by Toho Gas Co., Ltd. This hydrogen station was selected as a potential business model of an oil company that produces hydrogen.

5. Observations

This course was designed by making major changes to the previous course based on the views of the training program renewal committee in the Training Department. As emphasis was placed on selecting diverse offsite training destinations, the participants had to keep up with a busy schedule, but gained a good understanding of technical development in Japan.

In an evaluation form they were asked to complete after the end of the course, a large majority of the participants rated five specific themes as bearing high importance: (1) alternative fuels, (2) heavy oil upgrading, (3) energy conservation, (4) quality control, and (5) desulfurization and FCC technologies for clean fuel production. Participants from a number of countries also expressed a request for training on solar and wind power generation.

We will continue to keep our ears open to the needs and requests of oil-producing countries and examine themes in a flexible manner.

<by Bunsuke Kariya, Training Dept.>

Regular Course on Safety Management for Refineries

1. Background and Aim

Safety Management for Refineries was offered for the first time in fiscal 2006 in response to rising needs for training on the subject, and has since become one of the most popular regular courses at JCCP. Intended for refinery engineers, the course aims to foster engineers with diverse skills by widely introducing the actual state of safety management in Japanese refineries and providing various perspectives on safety management techniques that support refinery operations. The safety management techniques discussed in the course included the latest plant safety design method, techniques related to risk assessment and risk management, organizations and frameworks for safety management and disaster prevention, safety education, laws and regulations related to safety and security, and maintenance management.

Additionally, a visit was made to a major insurance company in Japan to more specifically introduce and provide greater knowledge of technologies related to risk assessment and risk management also with regard to various risks including that of earthquakes.

2. Course Content

2.1 Training at JCCP

(1) Outline of Safety Management

This lecture provided knowledge of various matters that need to be understood to ensure safety management in refineries, such as the basic concept of safety management, the OHSAS 18001 standard, principal safety-related laws and regulations in Japan, various safety activities in refineries, and risk management, in relation to the organization of the entire course.

Many questions were raised by the participants regarding the meaning and effects of 5S and KYK activities, the practice of finger-pointing confirmation, and other such activities for building a safety culture.

(2) Plant Maintenance and Safety Management

This lecture covered a wide range of topics on plant

maintenance and safety management, such as case examples and an analysis of causes and countermeasures to refinery facility problems, maintenance styles and management of refineries, TPM activities, and voluntary maintenance activities. Topics that particularly captured the interest of the participants as engineers in a position to ensure safety management included the following: the history and development of the maintenance management concept in Japan, which steadily evolved from breakdown maintenance (BM) to quality control (QC), preventive maintenance (PM), total productive maintenance (TPM), reliability-centered maintenance (RCM) and risk-based inspection (RBI); important perspectives on maintenance management; specific methods for reliability evaluation of facilities and RBI; and an introduction of an HDS reactor accident and other major disasters and accidents that have occurred in refineries in the past. Overall, the lecture was highly rated by all participants.

(3) Environmental Management

This lecture discussed environmental management in Japan with references to the history and background to Japan's pollution prevention efforts, an overview of laws for prevention of air and water pollution, and various processes involved in these initiatives for pollution prevention.

Environmental issues are one of the priority areas of global concern, as is apparent in worldwide initiatives to prevent global warming. As they are also issues that both directly and indirectly concern everyone, the lecture garnered strong interest from all participants.

(4) Japanese Laws and Regulations Related to Safety, Action-related Accident Prevention and Safety Education

(Lecturer: Mr. Hirotoshi Goto, Japan Association of Safety and Health Consultants)

This lecture provided an understanding of the objective and content of the Labor Standards Law and the Industrial Safety and Health Law, government policies, responsibilities of labor and management, guidelines,

and the role of the Labor Standards Inspection Office. The participants listened with strong interest to the details of Japan's initiatives for accident prevention and improvement of labor conditions through public-private cooperation as part of the effort to promote rapid economic growth.

The Japan Association of Safety and Health Consultants is an organization of experts who engage in various activities for promotion of industrial safety and health. It is also closely connected with the Japan Industrial Safety & Health Association, and is active in providing a wide range of services, including technical support, surveys and research, zero-disaster promotion activities, health and safety education, and international cooperation.

(5) Plant Safety Design and Risk Management

(Lecturer: Mr. Masatoshi Kano, HSE Systems Department, Engineering Division, JGC Corporation)

As with the lecture provided last year, one and a half days were spent discussing the concept of plant safety design, the definition of risk, and specific risk management and risk assessment methods from the perspective of an engineering company.

The lecture captured the participants' attention by providing views from the standpoint of an engineer in charge of actual plant design and construction based on the latest technologies, and carried persuasive weight, coming from an engineering company operating diverse businesses around the world. With a workshop also providing practical training in the safety design of an actual plant, this lecture was as highly appreciated by the participants as it was last year.

(6) Presentations by the participants (case studies)

Two days before completion of the course, each participant gave a presentation for mutual discussions. Participants from Kuwait, Myanmar, Saudi Arabia and Vietnam gave presentations on specific cases related to safety, such as fire accidents, as well as their causes and countermeasures. They were high-level presentations that not only introduced case examples of accidents and problems, but also examined whether improvement measures have been taken and whether a safety management system has been established in response to such accidents. Active discussions also took place after each presentation.

2.2 Offsite Training

(1) Idemitsu Kosan Co., Ltd., Tokuyama Refinery

The training program at the Tokuyama Refinery provided detailed knowledge of the refinery's safety management system, with particular focus on the company-wide network that disseminates trouble/accident information, countermeasures, and troubleshooting examples. In the instrument room, even more specific explanations were given of safety activities in the refinery, and captured the participants' strong interest and attention.



At Idemitsu Kosan's Tokuyama Refinery

(2) JX Nippon Oil & Energy Corporation, Negishi Refinery

The Negishi Refinery gave a detailed overview of its refinery, safety management system, activities related to safety, earthquake response procedures, and disaster prevention system and initiatives. A lecture on the role of the joint disaster prevention center at times of large-scale fires and an introduction to the refinery's state-of-the-art fire extinguishing car for high locations were also well received by the participants.

Basic issues in safety management, such as factors that lead to trouble and accidents, readiness to avoid



At JX Nippon Oil & Energy Corporation's Negishi Refinery

such incidents, and work efficiency, were explained in an easy-to-understand fashion through questions and answers. The active participation of the participants produced many questions, and made for a meaningful and beneficial program.

(3) Yokogawa Electric Corporation, Mitaka Head Office

The training program at the Mitaka Head Office provided knowledge of the latest DCS control system (DCS Centum CS3000) with a focus on its configuration, functions and technical background, and of the latest technologies for reliability improvement and redundancy, which elicited various questions from the participants regarding the usage conditions and actual performance of the system.

The latest technologies for reliability improvement and redundancy, such as the ProSafe-RS and New SIL3 System, are highly technical and sophisticated, but reliable control systems are indispensable to stable refinery operations and emergency response. This program proved to be extremely valuable and beneficial to the participants as it provided an understanding of this important point.



At Yokogawa Electric Corporation's Mitaka Head Office

(4) Azbil Corporation, Fujisawa Technology Center

There has been a recent trend toward the standardization of alarms and particularly of DCS and process alarm management mainly in Europe and the United States, based on their experience of large plant disasters. The training program at the Fujisawa Technology Center first explained the background to the need for alarm management and an overview of the present stage in the standardization process (guidelines), and then introduced examples of alarm management using the functions of a newly installed DCS (Harmonas-DEO). As verified by the participants' many questions about the handling

of system alarms, the training on alarm management systems captured their strong interest.

(5) NKSJ Risk Management, Inc., Risk Engineering Department

The lecture by the Risk Engineering Department first provided knowledge of the meaning of risk evaluation to an insurance company, the history of risk management up to the present, and the development of the BCM (business continuity management) practice, then discussed in detail the risk hazards facing companies today and technical issues on how to mitigate or provide financing against such hazards.

Explanations were also given of the factors and formulas used for evaluation risks in refineries and petrochemical units, and the methods of risk evaluation and simulation with respect to earthquake disasters.

Most participants seemed unfamiliar with the field of risk engineering, but the lecture provided a highly valuable understanding of the concepts and specific aspects of risk assessment and risk management, and elicited many questions from the participants.



At the head office of NKSJ Risk Management, Inc.

3. Summary

Due to the increasing interest in safety management, we are working hard to provide diverse responses, such as through offsite training at an insurance company. This training, in particular, has been highly appreciated every year, and seems to lend impact to the course. The course content is also reviewed every year, and in a post-evaluation of the course, many participants requested training in environment and safety technologies, such as for the treatment of contaminated water and water safety management. We will therefore take this specific request into consideration when next implementing the course.

<by Takaaki Yuasa, Training Dept.>

Regular Course on Petroleum Marketing

1. Overview

JCCP has been providing this course for many years, but a number of changes have been made based on a review by the Regular Course Renewal Committee established within JCCP. The opinions of participating countries were deliberated and reflected as much as possible. That is, changes have been made to the program content so that it more faithfully reflects the basic principle that oil-exporting countries export crude oil and oil products, and Japan, as an oil-consuming country, imports, refines and delivers oil to domestic users. From this standpoint, the program was first modified to more closely benefit the future operations and management activities of managers in charge of marketing crude oil and oil products in state-run oil companies in oil-exporting countries. A new workshop on financial accounting and negotiation has been included in the program. Therefore, certain changes have been made to the lecture contents and location of site visits. These have been revised to provide the substantial background that is required when said managers take higher responsibilities. Furthermore, the program structure was designed to enable participants to easily grasp the larger picture, in consideration of the fact that many participants assume management positions in the marketing department from technical and other fields. Having prepared this foundation, the program was opened not only to marketing and physical distribution managers, but also to managers in departments who have a need to understand the above-mentioned activities to pursue their management duties.

A total of 18 participants, including three women, from nine countries attended the course. In terms of age, two were in their 20s, five in their 30s, ten in their 40s and one in his 50s. In terms of jobs, twelve were engaged in marketing and physical distribution, four in planning, finance and accounting, and two in refinery operations. The course ran for a period of 11 days, from January 10 to 20, 2012.

2. Course Content

2.1 Training at JCCP

(1) Japan's Oil Industry

While introducing the various fields of Japan's oil industry, we shared an understanding of the importance of oil-producing countries to Japan and the importance of the Japanese market to oil-producing countries. As the United States and the EU acquire half of their oil supplies via onshore pipelines, participation in this portion by other exporting countries is difficult. Since Japan does not have that kind of supply source, Japan is closely tied to the Middle East through sea transportation by VLCC. Nothing less than those, oil-producing countries other than the Middle East countries are also important to Japan as recourse in case of emergency. Many participants agreed to having come to realize the role and significance of JCCP activities.

(2) Workshop on Negotiation and Financial Accounting

This workshop aimed to provide practical knowledge of important skills in two completely different fields—negotiation and financial accounting—through two separate lectures combined with an exercise using the board game Monopoly. Monopoly is a business game that was created in the United States more than one hundred years ago. Players compete against each other as business owners and see who can acquire the greatest profit by finding hidden profit sources as the board



Workshop on negotiation and financial accounting

game progresses and selling, buying and exchanging properties through negotiation and bargaining with the other players. Depending on the participants' level of understanding, it can provide an extremely high level of training experience. With respect to negotiation, participants learn the new approach of "creating the pie to be distributed" by going beyond establishing a win-win relationship from the high point of view of a negotiation supervisor. With respect to financial accounting, which is indispensable to management yet presents a high barrier, intensive training was provided to allow participants to acquire the essential principles of accounting, from entering transactions in the book and creating financial statements. As far as small businesses go, participants gained the necessary foundation for understanding the financial statements of their company by acquiring the skills to prepare a balance sheet and profit-and-loss statement on their own. The workshop was designed so that participants can arrive at their study goal only by performing hands-on activities while communicating with other participants. They therefore engaged in discussion with a degree of concentration that even had them losing track of the time and forgetting to take any breaks.

(3) World's Energy Situation

(Lecturer: Prof. Mitsuyuki Maeda, Tokyo Institute of Technology)

This lecture provided an understanding of world energy trends in relation to global environmental issues. Detailed explanations of energy situations were substantiated by abundant data on petroleum, LNG, nuclear power, coal, water and wind power. Trends in crude oil prices stemming from financial problems were also explained using specific examples and captivated the attention of participants from planning departments, as well as those who presently work in a regional office but aspire to work in the head office of their company.

2.2 Site Visit

(1) JX Nippon Oil & Energy Corporation, Mizushima Refinery

At the Mizushima Refinery, the participants inspected the actual facilities of the refinery and engaged refinery staff members in active Q&A interchanges as they toured a large tank truck offloading facility, lube oil loading facility, and a crude oil receiving facility. Many of the questions were in reference to the land transport of oil



Coastal tanker transporting oil from the refinery to a storage facility

by tank truck. Other questions and opinions were about Japan's characteristic lack of a pipeline network and the fact it mainly depends on shipment by tanker, indicating the participants' strong interest in the rationalization of physical distribution.

(2) JX Nippon Oil & Energy Staging Terminal Corporation, Kiire Terminal

On the day of the visit, a VLCC of 300,000DWT was in the process of unloading oil, and the participants were able to get a direct feel of the large scale of the crude oil loading/unloading facility and tanker. After receiving an overview of the terminal, they inspected the pier from the sea and received a description of the crude oil loading/unloading process. Then, in the control house, they received an explanation of the terminal's fully computerized and systematized operations, and in the tank yard, they stepped inside a large 160,000 kl tank that was under open inspection while listening to an explanation of open inspection procedures. The participants also inspected the latest vapor recovery device for crude oil tankers. In the afternoon, the members



Inside a crude oil tank open for inspection

of the terminal's operations group provided a lecture on the roles, functions and operational management of the terminal, and members of the environment and safety group gave a lecture on the terminal's environmental and safety management initiatives.

(3) Uyeno Kosan Ltd., Kawasaki Tank Truck Base

Uyeno Kosan is a company whose history goes back more than 100 years in the coastal shipping and tank truck transportation sectors. Instructors from each sector gave a lecture on the transportation of oil products and their safety activities. Many questions were asked, particularly from participants in charge of domestic sales of oil products. They expressed their view that the lecture provided a wealth of knowledge they could put to use immediately upon returning to their country, including methods of inventory management, determination of quantity and handling complaints from stakeholders.



Tank truck base of a major oil transporter

(4) JX Nippon Oil & Energy Corporation, Head Office

The head office of JX Nippon Oil & Energy Corporation provided a broad-based lecture on the size and operations of the company, trends in automotive fuel quality in Japan, environmental issues, and alternative fuels. A lecture on volatile hydrocarbon recovery technology was also given as an issue common with oil-exporting countries.

(5) Showa Shell Sekiyu K.K., Head Office

The head office of Showa Shell Sekiyu first gave an overview of its position within the global Shell Group, then provided a lecture on the R&D trends and status of demonstration tests of alternative fuels, such as biofuel, GTL and hydrogen fuel. In the afternoon, the participants toured a hydrogen station operated by the company.

3. Summary

This course traced the oil flow in Japan, one of the biggest consumers. Starting from the import of crude oil and through refinery, we went over the transportation and marketing of oil products from a managerial viewpoint, with a focus on accident and fraud prevention rather than the details of actual operations. A constant stream of lively questions from the participants regarding solutions to issues mentioned in the lecture and the principles and concepts behind those solutions made for active daily discussions. The workshop, in particular, received high praise as an ideal opportunity to exchange views with participants from differing fields.

<by Masayuki Jimbo, Training Dept.>

Regular Course on Inspection and Reliability Evaluation

1. Overview

This course aimed to introduce countermeasures to corrosion of refinery facilities (static equipment), inspection and diagnosis technologies and reliability evaluation methods, and was intended for inspection engineers, materials engineers and corrosion engineers who work with static refinery equipment. Specifically designed to provide knowledge and technologies needed to ensure reliability of refinery facilities and maintain safe and stable operations, it covered the latest inspection and diagnosis methods for principal refinery facilities, including towers and vessels, heat exchangers, furnaces, tanks, and pipes, and methods for evaluation of inspection results and countermeasures.

A total of 18 participants from 12 countries attended the course, including eight from the GCC countries. At an average age of 36, the group mainly comprised middle-level inspection and maintenance engineers. The course ran from January 17 to February 3, 2012.

2. Course Content

2.1 Overview

(1) Course Objective

The course aimed to provide knowledge and technologies regarding specific inspection, diagnosis and evaluation methods, and countermeasures to damage and repair methods, as measures for ensuring facility reliability and maintaining safe and stable refinery operations.

(2) Program Content

At JCCP Headquarters, JCCP lecturers gave a general overview of maintenance management and maintenance technologies in Japanese refineries, and external lecturers gave presentations on water management and anticorrosion management. Following the lectures, the participants engaged in group discussion to seek the true causes of equipment damage and explore appropriate countermeasures.

Two refineries provided offsite training in the

basic principles of maintenance and management methods, as well as in on-stream inspection (OSI) and periodic inspection methods and repair cases and plans based on inspection results. Additionally, two plant equipment and materials manufacturers (a pressure vessel manufacturing plant and a steel pipe and tube manufacturing plant) provided training on material characteristics and their manufacturing technologies and processes; a plant inspection company gave a lecture on the latest inspection technologies and provided hands-on inspection experience; and a maintenance company gave a lecture on equipment and tank maintenance, repair and material diagnosis technologies.

As a whole, the course covered a broad range of technologies in a well-balanced manner through both lectures and onsite training, with the goal of providing practical knowledge and technologies to engineers in charge of equipment inspection and maintenance in their respective countries.

2.2 Training at JCCP

(1) Refinery Maintenance Management

This lecture focused mainly on TPM (total productive maintenance) activities and autonomous maintenance activities by refinery operators. It also covered risk-based maintenance, taking a case study on corrosion damage as an example. Through exercises and discussion, participants studied how to evaluate risks and prepare cost-effective repair plans.

(2) Material Problems of Static Equipment in Refineries

This lecture provided knowledge of material characteristics that need to be understood when selecting refinery equipment materials, and methods for selecting materials based on an understanding of relevant regulations/codes and design conditions. It also introduced a case study of equipment damage in order to discuss the true causes of damage and measures for dealing with them.

Various inspection methods and their application were also introduced, including new methods for

inspection of pipes from the outside, self-propelled inspection methods, and methods for inspection of pipes from the inside, such as direct inspection by inspectors and the pig inspection method.

(3) Management of Boiler Water and Cooling Water and Anticorrosion Management of Plants
(External lecturer: Mr. Takashi Suzuki, Suzuki Engineering Office)

Refineries use seawater and industrial water (river water, etc.) as cooling water and boiler feed water. As most countries commonly face issues regarding freshwater production, pretreatment of boiler feed water and cooling water management, albeit to varying degrees, the participants expressed strong interest in learning about water management, operational maintenance and anticorrosion management of plants, and particularly about the selection and management of inhibitors.

(4) Oil Refinery Plant Troubles and Countermeasures
(External lecturer: Mr. Katsumi Yamamoto, Japan Society of Corrosion Engineering)

This lecture introduced case examples of damage to aging plants in the oil industry in Japan and abroad. A group exercise session was also held in which participants were divided into three groups to discuss and exchange knowledge and information about an actual damage case and present the results of their discussion to the other groups. This lecture received high marks from the participants for its active and meaningful content that effectively encouraged their input.

2.3 Offsite Training

(1) Cosmo Oil Co., Ltd., Sakaide Refinery

Employees of the Sakaide Refinery introduced case studies of actual damage to aged plants, such as corrosion and cracking, and discussed a method of deterioration diagnosis that was developed as a measure to assess the state of aged plants. The participants expressed strong interest in this topic, as oil-producing countries are expected to encounter the same types of issues in the near future.

The participants also deepened their understanding of maintenance management practices in Japan through a lecture on refinery maintenance plans, maintenance management methods and the maintenance management system employed by the Sakaide Refinery.

(2) Kobe Steel, Ltd., Takasago Works

At Kobe Steel's Takasago Works, a lecture was given on the production, inspection and quality control of reactors and other heavy-walled vessels, with particular focus on the development of new materials, analysis of thermal treatment and thermal stress, and new welding inspection methods.

The plant also provided practical training in the implementation status of welding, heat treatment and inspection processes, as well as in the production status of heavy-walled vessels using large processing machinery. As a whole, it allowed the participants to experience an aspect of manufacturing in Japan.

(3) Sumitomo Metal Industries, Ltd., Steel Tube Works

The staff at Sumitomo Metal Industries' Steel Tube Works gave a lecture on the steel pipe and tube production technology and technologies for damage inspection after pipes and tubes are placed in service. They also explained in detail the properties of stainless steel and the characteristic damage it sustains during use.

Additionally, a hands-on training session clarified how ordinary pipes are produced, inspected and shipped, and provided a good understanding of the ingenuity and the latest technologies that are involved in the production of pipes.



At Sumitomo Metal Industries' Steel Tube Works

(4) Non-Destructive Inspection Co., Ltd., Head Office

In addition to a lecture on the theory and methods of new non-destructive inspection technologies, a demonstration using a new inspection device and a simulated sample provided meaningful training that captured the participants' attention and interest.

The participants not only learned about the principles of Japan's outstanding inspection technologies that largely differ from what they normally experience in



At the head office of Non-Destructive Inspection Co., Ltd.



At Showa Yokkaichi Sekiyu's Yokkaichi Refinery

their respective organizations, but they also gained practical hands-on experience in an actual inspection procedure.

(5) Showa Yokkaichi Sekiyu Co., Ltd., Yokkaichi Refinery

At the Yokkaichi Refinery, a lecture was given on the utilization of maintenance management systems, with a focus on their prediction function, coverage and management. An example was also given of a system that also incorporates a risk-based reliability management function. In practical training, the participants seemed particularly impressed at seeing how advanced plants are rationally and closely interconnected in a compact group.

(6) Shinko Plantech Co., Ltd., Head Office

Employees at the head office of Shinko Plantech introduced the maintenance, inspection and repair

technologies for plant units and tanks, and provided practical training in materials testing and metallographic examination using an electron microscope, based on Q&A interchanges. This offsite training also provided a close look at the significant role of maintenance companies in the maintenance of Japanese refineries.

3. Summary

The participants were a well-balanced group of young to seasoned engineers, and included many high-quality refinery inspection engineers. They asked more questions than in any other course—and specific and advanced questions at that—to absorb all they can about Japan's technologies and experience that support refineries in Japan that were built as long as 50 years ago, thereby making for an active and lively course.

<by Hiromitsu Saito, Training Dept.>

Regular Course on Finance and Accounting Management [New Course]

1. Background and Objective

Last year, lecturers deliberated overall course programs to take in the suggestions of participating countries after several visits by the lecturers in charge. At the same time, the Course Renewal Committee was established in JCCP to improve running programs and provide new programs. Having taken one year for its development, a new course on “Finance and Accounting Management” was established and held for ten days, from November 27 to December 6, 2012.

We believe that this new course suits JCCP’s significance of being a help to the improvement of technologies and corporate management of participating countries. This course offers the background that is needed by participants when they become involved in corporate management in the future, and is designed for those from the finance, accounting and management departments. Although those programs are not of their area of specialty, they will surely contribute to broadening horizons in their future role.

Responding to suggestions from participating countries, the course consists of several hands-on workshops, which have become a global trend in corporate training and development. Unlike conventional class-style lectures and note-taking, in hands-on workshops, participants find and acquire what to learn through discussions of cases among themselves.

For site visits as well, the participants are encouraged to resolve any and all of their questions through discussions with those on the spot and among themselves.

2. Course Content

2.1 Training at JCCP

(1) Japan’s Oil Industry

This lecture introduced the various fields of Japan’s oil industry and helped participants gain better understanding of the Japanese market. By comparing the major crude oil markets in the world, including the U.S., EU, China and India, the participants broadened their perspective as crude oil exporters. Furthermore, learning

that EU acquires half of its oil supplies by pipeline from Russia and that the United States acquires half of its oil supplies similarly by pipeline from Canada and Mexico reminded us of the importance of our relationships. In this respect, many participants voiced views that placed JCCP activities in high esteem.

(2) Workshop on Negotiation and Financial Accounting

This workshop was designed to provide practical knowledge of important skills in two different fields: negotiation and financial accounting. Two different programs were combined with the use of a board game—the world famous, classic real estate simulation game of “Monopoly.” With respect to negotiation, participants learned a new strategy for “generation of the pie to be shared for both” beyond a “win-win relationship” from a higher viewpoint to command persons at the front line of negotiation. This approach demands active initiatives of the commander in a negotiation. With respect to financial accounting, participants learned less about each detail of financial statements but obtained a bird’s-eye-view of a whole business from the understanding of the structure of financial statements. Accounting managers in large organizations who operate an extensive modern accounting system tend to become caught up in their narrow specialty and do “not to see the forest for the trees.” Therefore, by writing an accounting slip by themselves for each business transaction in Monopoly and transferring the figures into a balance sheet and an income statement, the participants reconfirmed the



Workshop on negotiation and financial accounting



Workshop on procurement

relation between business and accounting. This exercise provided a smooth approach for participants from fields other than accounting to reading financial statements.

(3) Workshop on Procurement

(Lecturer: Mr. Osamu Uehara, Institute of Supply Management, Japan)

This workshop focused on procurement management, which an ability that is indispensable to executive officers in state-run oil companies who are responsible for large investments, material procurement and service contracts. Participants learned about the latest international trends in procurement and Japanese-style procurement as well, which differs from international practices. Case studies were examined mainly through exercises, followed by group presentations and active discussions based on the presentations.

(4) Workshop on Oil Derivative Transactions

Today, oil marketing and trading cannot stand alone apart from derivative transactions. But it is rather difficult for people in managerial and administrative positions to understand the complication of derivative transactions handled by marketing and trading teams.

Although economic success in marketing and trading cannot be expected without derivative transactions, such transactions involve great risks that require proper control and management. Management officers must therefore acquire a certain degree of knowledge in this field of business. Participants thoroughly went over as many as twenty cases, starting from the understanding of how commercial transactions are concluded in the markets, to making decisions for every derivative transaction plans submitted by traders for approval. It was a highly brain-squeezing exercise that made every minute of the workshop very meaningful.

2.2 Site Visits

At each of the sites visited, the participants were given detailed explanations from relevant staff members and received satisfactory answers to their questions. They were treated with respect and dignity, by answering all of their questions until they were satisfied.

(1) JX Nippon Oil and Energy Corporation, Mizushima Refinery

At the Mizushima Refinery, participants inspected the refining, storage and shipping facilities along the entire oil flow, from the receipt of oil sent from oil-producing countries to its shipping into coastal tankers and tank trucks.



At JX Nippon Oil & Energy Staging Terminal Corporation's Kiire Terminal

(2) JX Nippon Oil & Energy Staging Terminal Corporation, Kiire Terminal

Participants inspected the transshipment of crude oil from a large ocean-going tanker to a coastal tanker and the blending of crude oil in a mixture appropriate to the destination refinery. The statutory oil reserve was



Inspection of a 100,000kL crude oil tank that is open for overhaul

introduced as one of the efforts made by oil-consuming countries for stability of supply and price, which are beneficial for both of us.

3. Observations

Upon completion of the course, I am very pleased to have had many compliments from managers and participants who seek various perspectives about their corporate activities. From their feedback, we became quite confident that this course was satisfactory for

many participants, and have decided to continue this course from now onward. For future improvement, we will consider providing more information about program details to help participants decide whether the course offers what they seek, and if they choose the course, to immediately send some textbooks for preparation prior to the course. These improvements would be beneficial to participants of this course, which includes some very advanced contents for such a short period as ten days.

<by Masayuki Jimbo, Training Dept.>

JCCP Regular Courses Completed in November 2010 – January 2011

TR-16-10 Training Management November 22 – December 9, 2010

Lecturer: Akio Hoshino

Content: Overview of Japanese Oil Industry; Japanese-style Human Resource Management & Development; HRD of Oil Company in Japan; HRM & TPM at Refinery; Kaizen General & Kaizen examples at a Refinery; HRD of Engineering Company; Training Program Development by University Professor; Rational Thought and Team Consensus Building

Site visits: JX Nippon Oil & Energy Corporation (Head Office); Idemitsu Kosan Co., Ltd. (Tokuyama Refinery); JX Nippon Oil & Energy Corporation (Mizushima Refinery); JGC Corporation; Meisei University

Country of participants: Bahrain, China, Indonesia, Libya, Myanmar, Nigeria, Oman, Pakistan, Saudi Arabia, UAE, Vietnam



<11 countries / 16 participants>

TR-17-10 Information and Control Systems Utilized in Refineries November 22 – December 9, 2010

Lecturer: Kazuhiro Suzuki

Content: Petroleum Industry in Japan; Outline of Distributed Control System (DCS); Trend of Information and Control Systems; Process Control Theory; Hands-on Training of Process Control; Operation Support System; Outline of Alarm Management; Modernization of Instrumentation

Site visits: Yokogawa Electric Corporation (Mitaka Headquarters); Emerson Japan Ltd. (Mizushima Solution Center); JX Nippon Oil & Energy Corporation (Mizushima Refinery); Idemitsu Kosan Co., Ltd. (Chiba Refinery); JGC Corporation

Country of participants: Indonesia, Kazakhstan, Libya, Mexico, Nigeria, Oman, Saudi Arabia, Sudan, UAE, Vietnam, Yemen



<11 countries / 14 participants>

TR-18-10 Energy Saving for Profitability Improvement January 11 – January 28, 2011

Lecturer: Bunsuke Kariya

Content: Petroleum Industry in Japan; Simulator Practice; Energy Saving of Refineries; Pinch Technology; Recent Energy Saving Technology 1 (Furnace, Rotating Machinery, Multiple Sites Pinch Technology); Recent Energy Saving Technology 2 (Energy Conservation Design, Co-generation); Case Study

Site visits: JX Nippon Oil & Energy Corporation (Negishi Refinery); Toa Oil Co., Ltd. (Keihin Refinery); TLV Co., Ltd. (Head Office, Kakogawa Factory); Mitsubishi Heavy Industries, Ltd. (Nagasaki Shipyard & Machinery Works)

Country of participants: Colombia, India, Indonesia, Iraq, Kuwait, Mexico, Myanmar, Pakistan, Thailand, UAE, Sudan, Vietnam



<12 countries / 13 participants>

IT-1-10 Turnaround and Inspection
November 29 – December 10, 2010

Lecturer: Fumihiro Tone

Content: Outline of Petroleum Industry in Japan; Planning and Execution Management of Turnaround Maintenance & Inspection in Japanese Refineries; Maintenance Technology and Human Resource Development of Contractor; Latest Maintenance Technologies and Responses to Maintenance Management Overseas; Overhaul Technologies for Boilers and Other Static Equipment; Introduction and the Latest in Non-Destructive Inspection Technologies; Reliability Improvement and the Latest Technologies in Rotary Machines and Pressure Vessels; Latest Maintenance Technologies of a Plant Maintenance Company; Promotional Framework and Case Examples of Maintenance Planning & Scheduling in the Refinery

Site visits: JGC Corporation (Headquarters); Mitsubishi Heavy Industries, Ltd. (Yokohama Works); Non-Destructive Inspection Co., Ltd. (Headquarters); Kobe Steel, Ltd. (Takasago Equipment Plant); Shinko Plantech Co., Ltd. (Isogo Factory); Idemitsu Kosan Co., Ltd. (Chiba Refinery)

Country of participants: Indonesia, Mexico, Oman, Nigeria, Pakistan, Saudi Arabia, Sudan, Thailand, Vietnam, Yemen



<10 countries / 15 participants>

IT-2-10 Petroleum Marketing and Physical Distribution
January 18 – January 28, 2011

Lecturer: Yasuo Tabei

Content: The Petroleum Industry in Japan; Current World Energy Situation; Shipping Facilities of Refinery; Oil Company's Sales Strategy and Physical Distribution; Crude Oil Terminal; Transportation System & Safety Driving; Development of New Business & New Automobile Fuel; Japanese Management Style and Kaizen General

Site visits: JX Nippon Oil & Energy Corporation (Head Office / Mizushima Refinery); Nippon Oil Staging Terminal Co., Ltd.; Uyeno Kosan, Ltd.; Showa Shell Sekiyu K.K. (Head Office)

Country of participants: Bahrain, Gabon, Iraq, Nigeria, Oman, Sudan, Thailand, UAE, Vietnam, Yemen



<10 countries / 12 participants>

JCCP Regular Courses Completed in February 2011

TR-19-10 Quality Management of Refinery Products February 8 – February 25, 2011

Lecturer: Takaaki Yuasa

Content: Quality Management; Quality Control in Japan; Environmental Strategy of Japanese Oil Companies; QC in Refinery; ISO-9000; Clean Fuel in Japan; Product Planning by LP Model

Site visits: Yokogawa Electric Corporation; DKK TOA Corporation; Idemitsu Kosan Co., Ltd. (Tokuyama Refinery); Shimadzu Corporation; JX Nippon Oil & Energy Corporation (Negishi Refinery); Tanaka Scientific Limited

Country of participants: Bahrain, Kazakhstan, Kuwait, Libya, Malaysia, Mexico, Nigeria, Oman, Pakistan, Thailand, Vietnam



<11 countries / 15 participants>

TR-20-10 Inspection and Reliability Evaluation February 8 – February 25, 2011

Lecturer: Hiromitsu Saito

Content: Petroleum Industry in Japan; Material Problem of Static Equipment; Maintenance Management in Japanese Refinery; Corrosion and Fouling Control and Inhibitors; Reliability Evaluation of Pressure Vessel; Maintenance Management of Static Equipment; Typical Problems and Countermeasures; Material Characteristics of Pressure Vessels and Quality Control; Steel Piping Manufacturing Process & Its Quality Control; Lecture & Practice on Newly Developed NDT; Reliability Activities in a Refinery; Typical Problems and Countermeasures; Maintenance and Repair Technologies of Plants & Tanks; Corrosion and Deterioration of Material in Refinery Equipment

Site visits: Cosmo Oil Co., Ltd. (Sakaide Refinery); Kobe Steel, Ltd. (Takasago Equipment Plant); Sumitomo Metal Industries, Ltd. (Kansai Steel Div.); Non-Destructive Inspection Co., Ltd. (Headquarters); Showa Yokkaichi Sekiyu K.K. (Yokkaichi Refinery); Shinko Plantech Co., Ltd. (Isogo Factory); Chiyoda Corporation (Head Office)

Country of participants: Iraq, Libya, Nigeria, Philippines, Saudi Arabia, Sudan, Thailand, Vietnam, Yemen



<9 countries / 15 participants>

TR-21-10 Advanced Process Control on DCS February 8 – February 25, 2011

Lecturer: Teruhiko Sasaki

Content: Basic Process Control Theories with Practice Using Computer Simulator and Miniature Plant with DCS Application: Advanced Process Control Theories with Practice; Engineering Practice of Control Design; Controller Drawing and Operation Support System Using DCS; Latest DCS-related Technologies; Application Examples of Advanced Process Control in Japanese Refineries; Modernization of Latest Instrumentation

Site visits: Yokogawa Electric Corp. (Headquarters); JX Nippon Oil & Energy Corp. (Marifu Refinery); Seibu Oil Co., Ltd. (Yamaguchi Refinery)

Country of participants: India, Iraq, Libya, Malaysia, Mexico, Nigeria, Saudi Arabia, Sudan, Thailand, Vietnam



<10 countries / 15 participants>

JCCP Regular Courses Completed in September – October 2011

TR-10-11 Environmental Management for Refineries September 20 – October 7, 2011

Lecturer: Bunsuke Kariya

Content: Petroleum Industry in Japan;
Overview of Environmental Pollution Control in Japan and Japanese Industry;
Global Warming Countermeasures;
Measures for Controlling Global Warming Management;
Waste Water Control and Soil Remediation in the Refinery;
Air Pollution Control in Refineries;
Case Study and Action Plan by each participant

Site visits: Water Plaza Kita-Kyushu (Kita-Kyushu City);
Cosmo Oil Co., Ltd. (Sakaide Refinery);
JX Nippon Oil & Energy Co., Ltd. (Marifu Refinery);
Shimadzu Corporation (Kyoto Sanjo Factory);
Research Institute of Innovative Technology for the Earth (Kyoto)

Countries: China, Colombia, Timor-Leste, Indonesia, Iraq, Kuwait, Nigeria, Pakistan, Saudi Arabia, Sudan, Thailand, UAE, Vietnam



<13 countries / 20 participants>

TR-11-11 Project Management for Mechanical Engineers September 20 – October 7, 2011

Lecturer: Fumihiro Tone

Content: To improve the project management ability and leadership of mechanical engineers in the construction or maintenance department at oil refineries.
Project Management Activities in Oil Refineries in Japan;
Case Study of Problems and Countermeasures in Participant's Project Management;
Recent Technologies for High Pressure Vessel Manufacturing;
Project Planning and Management in the Refinery;
Tank Inspection Planning and Execution & TPM Activity;
Recent Technologies for Turbine and Boiler;
Project Management for EPC Project & HSE Evaluation;
Project Schedule Management Practice;
Project Engineering for EPC Project by Utilizing IT;
Project Cost Management;
Project Risk Management and Contract

Site visits: The Japan Steel Works, Ltd. (Muroran Plant);
Idemitsu Kosan Co., Ltd. (Hokkaido Refinery);
Hokkaido Joint Oil Stockpiling Co., Ltd. (Hokkaido Office);
Mitsubishi Heavy Industries, Ltd. (Takasago Works)

Countries: China, Iraq, Kuwait, Mexico, Myanmar, Nigeria, Pakistan, Sudan, Thailand, UAE, Vietnam



<11 countries / 14 participants>

TR-12-11 Petroleum Marketing & Oil Terminal
October 11 – October 28, 2011

Lecturer: Kazuo Kojima

Content: Petroleum Industry in Japan;
Management by Rational Thinking Process;
Crude Oil Terminal by Private Sector;
Production of Pipelines & Maintenance;
Delivery & Storage of Oil Products & Maintenance;
Shipping System & Maintenance at Refinery;
Crude Oil Terminal by Government Sector;
Jet Fuel Facilities & Refueling to Airplane at the
Airport; New Automobile Fuel & Vapor Recovery
Technology;
World Energy Situation



<10 countries / 17 participants>

Site visits: JX Nippon Oil & Energy Staging Terminal Corporation
(Kiire Base);
JFE Steel Company (West Works);
JX Nippon Oil & Energy Corporation (Fukuoka Oil Depot);
JX Nippon Oil & Energy Corporation (Mizushima Refinery);
JOGMEC (Shirashima National Oil Stockpiling Base);
Central Japan International Airport (Centrair Fueling Facilities Company)

Countries: Brazil, China, Indonesia, Nigeria, Sudan, Thailand, Timor-Leste, UAE, Uzbekistan, Vietnam

TR-13-11 Advanced Field Device and Control
October 11 – October 28, 2011

Lecturer: Shigeru Matsui

Content: Design of Field Instrumentation/Design of Typical
Control Loop;
Latest Instrument Technology/Recent Trend of
Instrument and Control;
Latest DCS and Wireless Sensor/Operation Support
System Practice;
Process Control Theory/PID Controller and Tuning
Method & Practice;
Safety Instrumented System/Practice of SIS;
Vibration Measurements and Diagnosis/Practice of
Balancing Method;
Design of Control Valve/Practice of Maintenance;
Design of Flow Meters/Practice of Maintenance;
Design of Level Gauges/Practice of Maintenance;
Refinery Information and Control System



<10 countries / 15 participants>

Site visits: Yokogawa Electric Corporation;
Invensys Process System Japan, Inc.;
Shinkawa Sensor Technology, Inc.;
Yamatake Corporation;
Endress+Hauser Japan Co., Ltd.;
Idemitsu Kosan Co., Ltd. (Tokuyama Refinery)

Countries: China, Colombia, Indonesia, Iraq, Mexico, Nigeria, Pakistan, Sudan, UAE, Vietnam

JCCP Regular Courses Completed in November 2011 – February 2012

TR-4-11 Human Resource Management (HRM) January 17 – February 3, 2012

Lecturer: Akio Hoshino

Content: Transition & Status-quo of Japanese-style Human Resource Management; HRM of Oil Company; HRM of Engineering Company; HRM of Oil Transportation Company; HRM & TPM at Refinery; Kaizen General & Kaizen Examples of Manufacturer; HRM of Catalysts & Chemical Company; Rational Thought and Team Consensus Building

Site visits: JX Nippon Oil & Energy Corporation (Negishi Refinery); JGC Corporation (Headquarters); Uyeno Kosan Ltd.; Idemitsu Kosan Co., Ltd. (Tokuyama Refinery); JX Nippon Oil & Energy Corporation (Mizushima Refinery); JGC Catalysts & Chemicals Ltd. (Kitakyushu Operation Center)

Countries: Bahrain, Indonesia, Iraq, Kazakhstan, Malaysia, Myanmar, Nigeria, Oman, Pakistan, Sudan, Thailand, UAE, Vietnam



<13 countries / 19 participants>

TR-9-11 Maintenance Management November 21 – December 2, 2011

Lecturer: Kenji Saito

Content: Safety and Reliability of Aged Plant; Philosophy & Function of Maintenance Activities in a Refinery; Risk-based Optimization of Maintenance in a Refinery; Trouble Experience and Countermeasures in a Refinery; Plant Life Cycle Engineering; Latest Welding Method of Boil Tube; Non-destructive Inspection of Boiler Tube & Quality Management; Characteristics of Special Stainless Steel and Factory Observation; Project Management; Case Study and Discussion

Site visits: Toa Oil Co., Ltd. (Keihin Refinery); Mitsubishi Heavy Industries, Ltd. (Nagasaki Shipyard & Machinery Works); Sumitomo Metals Industries Ltd. (Kansai Steel Div. Steel Tube Works)

Countries: Bahrain, Indonesia, Iraq, Kazakhstan, Kuwait, Mexico, Myanmar, Pakistan, Saudi Arabia, Sudan, Thailand, Vietnam



<12 countries / 17 participants>

TR-14-11 Gas Processing for LNG November 1 – November 18, 2011

Lecturer: Takaaki Yuasa

Content: Outline of LNG Plant; Global LNG Market; Steel Pipe Technologies; Development and Production of LNG; Natural Gas to New Energy Development DME, GTL, IGCC; LNG Vaporizer and Compressor Technologies; Gas-Turbine Technologies; LNG Storage Tank Technologies; LNG Ship Technologies

Site visits: Kobe Steel, Ltd. (Takasago Works); The Kansai Electric Power Co., Inc. (Himeji LNG Power Station No. 1); Osaka Gas Co., Ltd. (Himeji LNG Terminal); Mitsubishi Heavy Industries, Ltd. (Takasago Machinery Works); IHI Corporation (Headquarters); Mitsui Engineering & Shipbuilding Co., Ltd. (Chiba Shipyard)

Countries: Bahrain, Indonesia, Iraq, Mexico, Pakistan, Saudi Arabia, Sudan, Thailand, Vietnam



<9 countries / 14 participants>

TR-15-11 Material Problems and Their Countermeasures
November 1 – November 18, 2011

Lecturer: Hiromitsu Saito

Content: Petroleum Industry in Japan;
Material and Inspection of Static Equipment;
Maintenance Management in Japanese Refinery;
Material of Pressure Vessels;
Estimation of Remaining Life of Static Equipment;
TPR (Total Plant Reliability) Activity;
Typical Case of Corrosion in Refinery;
Fundamentals of Welding; Metallurgy of Welding;
The Latest Welding Technologies;
Typical Problems and Countermeasures of High
Tensile Steels; Repair Technology of Tanks;
Tank Corrosion and Countermeasures; Corrosion &
Deterioration Problems of Materials in Refinery;
Typical Mechanical Damages in Refining Industry; The Latest Welding Technology;
Corrosion of Metals in Oil & Gas Industries

Site visits: The Japan Steel Works Ltd. (Muroran Plant); JX Nippon Oil & Energy Corporation (Muroran Refinery); Taseto Co., Ltd. (Fujisawa); IHI Corporation (Production Engineering Center); Shinko Plantech Co., Ltd. (Head Office); Chiyoda Corporation (Head Office)

Countries: Bahrain, Colombia, Indonesia, Iraq, Kuwait, Nigeria, Pakistan, Sudan, Thailand, Vietnam



<10 countries / 16 participants>

TR-16-11 Human Resource Development
November 22 – December 9, 2011

Lecturer: Akio Hoshino

Content: Overview of Japanese Oil Industry; Japanese-style
Human Resource Management & Development;
HRD of Oil Company in Japan; HRM & TPM at
Refinery; Kaizen General & Kaizen Examples at
a Manufacturer; HRD of Engineering Company;
Training Program Development by University
Professor; Rational Thought and Team Consensus
Building

Site visits: JX Nippon Oil & Energy Corporation (Head Office);
Idemitsu Kosan Co., Ltd. (Tokuyama Refinery);
JGC Catalysts & Chemicals Ltd. (Kitakyushu
Operation Center); JGC Corporation;
Meisei University

Countries: Colombia, Indonesia, Iraq, Kazakhstan, Kuwait, Malaysia, Nigeria, Pakistan, Saudi Arabia,
Sudan, Timor-Leste, Vietnam



<12 countries / 19 participants>

TR-17-11 Information and Control Systems Utilized in Refineries
November 22 – December 9, 2011

Lecturer: Kazuhiro Suzuki

Content: Petroleum Industry in Japan;
Outline of Distributed Control System (DCS); Trend
of Information and Control Systems;
Process Control Theory; Hands-on Training of
Process Control; Operation Support System;
Outline of Alarm Management;
Modernization of Instrumentation

Site visits: Yokogawa Electric Corporation (Mitaka
Headquarters); JX Nippon Oil & Energy
Corporation (Marifu Refinery);
Idemitsu Kosan Co., Ltd. (Chiba Refinery);
Emerson Japan Ltd. (Mizushima Solutions Center)

Countries: Bahrain, Colombia, Indonesia, Iraq, Nigeria,
Pakistan, Russia, Thailand, Vietnam



<9 countries / 14 participants>

TR-18-11 Energy Saving for Profitability Improvement —Project Development—
January 17 – February 3, 2012

Lecturer: Tetsuo Arie

Content: Capacity Building for New Energy-saving Project Development
Project Finding with Simulation Technology
— Process Dynamics, Application of Pinch Technology, Optimization
Advanced Technology
— Process, Facility, Equipment and Control
Project Development Methodology
— Carbon Finance, Economics
Project Development Exercise
— Case Studies



<14 countries / 19 participants>

Site visits: Yamatake Corporation; Toa Oil Co., Ltd.;
JX Nippon Oil & Energy Corporation;
Kawasaki Heavy Industries, Ltd.;
Mitsubishi Heavy Industries, Ltd.;
Kyushu Power Electric Co., Ltd.

Countries: Colombia, Indonesia, Iraq, Kazakhstan, Kuwait, Mexico, Myanmar, Nigeria, Pakistan, Philippines, Saudi Arabia, Sudan, Thailand, Vietnam

TR-19-11 Inspection and Reliability Evaluation
January 17 – February 3, 2012

Lecturer: Hiromitsu Saito

Content: Petroleum Industry in Japan;
Material and Inspection of Static Equipment;
Maintenance Management System, Trouble Experiences and Countermeasures;
Material Characteristics of Pressure Vessels and Quality Control; Material Characteristics of Pipes & Tubes and Quality Control;
Advanced Inspection Technologies;
Lecture and Practice on Newly Developed NDT;
Reliability Activities in the Refinery;
Trouble Experiences and Countermeasures;
Maintenance Management in Japanese Refinery;
Maintenance and Repair Technologies of Refining Equipment;
Corrosion and Fouling Control for Petroleum Refining Plants;
Corrosion of Metals in Oil & Gas Industries



<12 countries / 18 participants>

Site visits: Cosmo Oil Co., Ltd. (Sakaide Refinery); Kobe Steel, Ltd. (Takasago Works);
Sumitomo Metal Industries, Ltd. (Steel Tube Works);
Non-Destructive Inspection Co., Ltd. (Head Office);
Showa Yokkaichi Sekiyu Co., Ltd. (Yokkaichi Refinery);
Shinko Plantech Co., Ltd. (Head Office)

Countries: Iraq, Kuwait, Nigeria, Oman, Pakistan, Papua New Guinea, Russia, Saudi Arabia, Sudan, Thailand, Vietnam, Yemen

IT-1-11 Turnaround and Inspection
November 21 – December 2, 2011

Lecturer: Fumihiro Tone

Content: Outline of Petroleum Industry in Japan;
Planning and Execution Management of Turnaround Maintenance;
Case Study (Current Situation and Problems in Turnaround Maintenance);
Maintenance Planning & Scheduling in the Refinery;
Inspection Technologies & NDT Inspection;
Operational Practices and Maintenance of Screw, Centrifugal & Reciprocating Compressors;
Maintenance Management and Advanced Maintenance Technology of Contractor;
Latest Maintenance Technologies and Responses to Maintenance Management Overseas;
Maintenance Technology and Human Resource Development of Contractor



<11 countries / 15 participants>

Site visits: Idemitsu Kosan Co., Ltd. (Aichi Refinery); Non-Destructive Inspection Co., Ltd. (Headquarters);
Kobe Steel Ltd. (Takasago Equipment Plant); Shinko Plantech Co., Ltd. (Isogo Factory);
JGC Corporation (Head Office); Sankyu Inc. (Maintenance Center)

Countries: Colombia, Indonesia, Iraq, Kuwait, Mexico, Myanmar, Nigeria, Pakistan, Russia, Thailand, Vietnam

IT-2-11 Petroleum Marketing & Physical Distribution
January 10 – January 20, 2012

Lecturer: Masayuki Jimbo

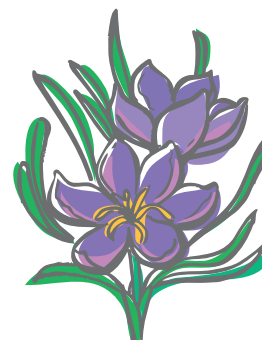
Content: Petroleum Industry in Japan;
Workshop for Business Skill Development: "Negotiation and Financial Accounting in Marketing";
World Energy Situation;
Refinery Shipping System of Petroleum Products;
Refinery Site Observation of Shipping Facilities;
Crude Oil Terminal; Distribution of Petroleum Products;
Petroleum Marketing and SS Business



<9 countries / 18 participants>

Site visits: JX Nippon Oil & Energy Corporation (Mizushima Refinery);
JX Nippon Oil & Energy Staging Terminal Corporation;
Uyeno Kosan;
JX Nippon Oil & Energy Corporation (Head Office);
Showa Shell Sekiyu K.K. (Head Office)

Countries: Bahrain, Indonesia, Myanmar, Nigeria, Pakistan, Russia, Sudan, Thailand, Vietnam



JCCP Regular Courses Completed in February – June 2012

TR-20-11 Quality Management of Refinery Products February 7 – February 24, 2012

Lecturer: Takaaki Yuasa

Content: Quality Management; Quality Control in Japan; Environmental Strategy of Japanese Oil Companies; QC in the Refinery; ISO-9000; Clean Fuel in Japan; Product Planning by LP Model

Site visits: Yokogawa Electric Corporation; DKK TOA Corporation; Idemitsu Kosan Co., Ltd. (Tokuyama Refinery); Shimadzu Corporation; JX Nippon Oil & Energy Corporation (Negishi Refinery); Tanaka Scientific Limited

Countries: Iraq, Kuwait, Myanmar, Pakistan, Sudan, Thailand, Venezuela, Vietnam



<8 countries / 12 participants>

TR-21-11 Advanced Process Control on DCS February 7 – February 24, 2012

Lecturer: Teruhiko Sasaki

Content: Basic Process Control Theories with Practice Using Computer Simulator and Miniature Plant with Applied DCS; Practice of Advanced Process Control Theories and Operation Support System Using DCS; Application for Shutdown Sequence System on DCS and Practice of Safety Instrument System; Latest DCS Related Technologies

Site visits: Yokogawa Electric Corporation (Mitaka Headquarters); JX Nippon Oil & Energy Corporation (Mizushima Refinery); Seibu Oil Co., Ltd. (Yamaguchi Refinery)

Countries: Iraq, Kazakhstan, Nigeria, Pakistan, Philippines, Saudi Arabia, Sudan, Thailand, Venezuela, Vietnam, Yemen



<11 countries / 15 participants>

TR-1-12 Petroleum Marketing April 9 – April 26, 2012

Lecturer: Masayuki Jimbo

Content: Petroleum Industry in Japan; Refinery Shipping System for Petroleum Products; On-site Observation of Facilities; Endless Price War in the Retail Market; Oil Flow to Mass Consumers; Latest Service Station Facilities; Integrated Refueling System; Facilities and Safety Refueling Operation; Distribution of Petroleum Products; Facilities and Safety Measures; New Automobile Fuel; Business Expansion to Non-oil Fields; Management by Rational Thinking Process; Workshop on "Advanced Negotiation"; Workshop on "Financial Accounting"; Workshop on "Supply Management"; Workshop on "Oil Derivatives"

Site visits: Idemitsu Kosan Co., Ltd. (Aichi Refinery); Fujitani Inc. (depot, service stations); San-ai Oil Co., Ltd. (Haneda Airport Branch); Tatsuno Corporation (Yokohama Factory); JX Nippon Oil & Energy Corporation (Head Office); JX Nippon Procurement Corporation (Head Office)

Countries: Brazil, Indonesia, Kazakhstan, Kuwait, Libya, Myanmar, Nigeria, Qatar, Saudi Arabia, Sudan, Thailand, Timor-Leste, UAE, Vietnam



<14 countries / 20 participants>

TR-2-12 Upgrading Processes of Heavy Oil
April 9 – April 26, 2012

Lecturer: Takaaki Yuasa

Content: Outline of Upgrading of Heavy Oil; Hydrotreating and Hydrocracking Catalysts; Thermal Cracking Process; IGCC Technology and Selection of Heavy Oil Upgrading Process; FCC & Resid-FCC Process Technology; Hydrotreating and Hydrodesulfurization Process Technology; FCC Catalyst Reaction Theory; Thermal Cracking (Delayed Coker) Unit and FCC Unit; Operation and Troubleshooting and Decreasing Effect in Heavy Oil Production; Developed HDS & FCC Catalyst and Its Theory; Process and Characteristics of RFCC and VRHDS Units; Evaluation Technology and Its Results for HDS Catalyst & FCC Catalyst; Process Simulator Practice in FCC Startup; Linear Programming and Production Planning for Refinery

Site visits: JGC Catalysts & Chemicals Ltd. (Kitakyushu Operation Center); JX Nippon Oil & Energy Corporation (Negishi Refinery)

Countries: Indonesia, Iraq, Kuwait, Libya, Myanmar, Nigeria, Pakistan, Qatar, Sudan, Venezuela, Vietnam



<11 countries / 16 participants>

TR-3-12 DCS Fundamentals and Applications
April 9 – April 26, 2012

Lecturer: Kazuhiro Suzuki

Content: Petroleum Industry in Japan; Outline of Distributed Control System (DCS); Latest DCS and Instrumentation; Process Control Theory; Hands-on Training in Process Control; Engineering Practice in DCS; Outline of Alarm Management; Modernization of Instrumentation

Site visits: Yokogawa Electric Corporation (Mitaka Headquarters); Azbil Corporation (Fujisawa Techno Center & Shonan Factory); Emerson Japan, Ltd. (Mizushima Solutions Center); Idemitsu Kosan Co., Ltd. (Tokuyama Refinery)

Countries: Indonesia, Iraq, Kazakhstan, Kuwait, Libya, Malaysia, Nigeria, Pakistan, Qatar, Sudan, Thailand, Vietnam



<12 countries / 17 participants>

TR-4-12 Essential Petroleum Technologies in the Future
May 8 – May 25, 2012

Lecturer: Bunsuke Kariya

Content: Petroleum Industry in Japan; World Energy Situation and New Energy; Profitability Improvement Simulation of JCCP Refinery; Hydrogen Transportation by Organic Compound; Life Cycle Assessment of Biofuel; Biofuel Production from Wood and Bio Refinery; Hydrogen Infrastructure; Fuel Cell Vehicle; Future Energy Vision of Each Country

Site visits: Cosmo Oil Co., Ltd. (Central Research Laboratory); Fuji Oil Co., Ltd. (Sodegaura Refinery); Japan Petroleum Energy Center (Advanced Technology and Research Institute); Kyushu University; Fukuoka Hydrogen Town; Kitakyushu Hydrogen Town; Meitetsu Bus Company; Chubu International Airport Hydrogen Station

Countries: Indonesia, Kazakhstan, Kuwait, Libya, Myanmar, Nigeria, Pakistan, Saudi Arabia, Thailand, Vietnam



<10 countries / 15 participants>

TR-5-12 Petroleum Distribution
May 29 – June 15, 2012

Lecturer: Kazuo Kojima

Content: Petroleum Industry in Japan & Petroleum Marketing and Distribution; Management by Rational Thinking Process; Transportation System & Safety Driving at a Transportation Company; Manufacturing Process of Petrol Dispensing Equipment at a Petrol Dispensing Pump Manufacturer; Efficiency and Safety of Petroleum Product Distribution Process at Jet Fuel Supplier; Shipping System for Petroleum Products at an Oil Company; Production & Maintenance Process of Pipelines at a Steel Company; Functions of an Oil Stockpiling Base at an Oil Storage Terminal Company; Role of Procurement at a Procurement Company and Workshop on "Supply Management"; Latest Situation & Future Outlook of Energy in the World



<13 countries / 16 participants>

Site visits: Uyeno Kosan, Ltd. (Kawasaki Training Center); Tatsuno Corporation (Yokohama Factory); San-ai Oil Co., Ltd. (Haneda Airport Branch); Cosmo Oil Co., Ltd. (Sakai Refinery); JFE Steel Corporation (West Works); JX Nippon Oil & Energy Staging Terminal Corporation (Kiire Base); JX Nippon Procurement Corporation (Head Office)

Countries: Bahrain, Brazil, Indonesia, Iraq, Kuwait, Libya, Myanmar, Nigeria, Pakistan, Qatar, Thailand, Uzbekistan, Vietnam

TR-6-12 Maintenance Management
May 29 – June 15, 2012

Lecturer: Hiromitsu Saito

Content: Petroleum Industry in Japan; Maintenance Management in a Japanese Refinery; Maintenance Activities in a Japanese Refinery; Manufacture and Inspection Technologies for Turbines and Boilers; Manufacture Technology and Material Characteristics of Stainless Steel Tubes and Pipes; Maintenance and Repair Technologies for Refining Equipment; Reliability Management in the Refinery; Trouble Experiences and Countermeasures; Safety and Reliability of Aged Plants; Plant Life Cycle Engineering; Project Management Activities in a Japanese Refinery and Maintenance Management by TPM



<13 countries / 17 participants>

Site visits: Mitsubishi Heavy Industries, Ltd. (Nagasaki Shipyard & Machinery Works); Sumitomo Metal Industries, Ltd. (Steel Tube Works); Shinko Plantech Co., Ltd. (Head Office); Toa Oil Co., Ltd. (Keihin Refinery); JGC Corporation (Yokohama Headquarters)

Countries: Colombia, Indonesia, Iraq, Kuwait, Malaysia, Myanmar, Nigeria, Pakistan, Sudan, Thailand, Uzbekistan, Venezuela, Vietnam

TR-7-12 Refinery Management
May 30 – June 13, 2012

Lecturer: Tetsuji Kubota

Content: Overview of the Oil Industry in Japan; Project Management/EPC Business/Engineering IT; An Example of Maintenance Management; Carbon Management; Safety Management; Environmental Management; Production Planning Management; Human Resource Management; Rational Thinking Management; Case Study



<12 countries / 16 participants>

Site visits: JGC Corporation (Yokohama World Operation Center); JX Nippon Oil & Energy Corporation (Mizushima Refinery)

Countries: Colombia, Indonesia, Iraq, Kuwait, Myanmar, Nigeria, Pakistan, Qatar, Sudan, Uzbekistan, Vietnam, Yemen

JCCP Regular Courses Completed in June – October 2012

TR-8-12 Practical Training for Younger Instrument and Control Engineers June 5 – July 13, 2012

Lecturer: Shigeru Matsui

Content: Theoretical and Practical Training in Process Control;
Latest DCS and Software;
Practice Building Control System;
Safety Instrument System;
Wireless Instrument System;
Information and Control System in Refinery;
Latest Analyzer;
Model Predictive Control;
Instrument Engineering Design;
Training and Practice of Field Instrument (transmitter, level meter, flow meter, control valve);
Control System in Power Plant;
Discussion about the Maintenance of Instrument



<14 countries / 16 participants>

Site visits: Yokogawa Electric Corporation (Mitaka Headquarters & Kofu Factory); Endress+Hauser Japan Co., Ltd. (Kofu Factory); Emerson Japan, Ltd. (Mizushima Solutions Center); Idemitsu Kosan Co., Ltd. (Tokuyama Refinery); Shimadzu Corporation (Kyoto Headquarters & Sanjo Factory); Oval Corporation (Yokohama Operation Center); Kyushu Electric Power Co., Inc. (Omuta Power Plant); Tobata Co-Operative Thermal Power Company, Inc.; Azbil Corporation (Fujisawa Technology Center & Shonan Factory)

Countries: Indonesia, Iraq, Kuwait, Libya, Malaysia, Myanmar, Nigeria, Pakistan, Saudi Arabia, Sudan, Timor-Leste, Uzbekistan, Vietnam, Yemen

TR-9-12 Safety Management for Refineries June 19 – July 6, 2012

Lecturer: Takaaki Yuasa

Content: Safety Management for the Refinery;
Environmental Control;
Safety Regulations and Disaster Prevention;
Safety Consideration for Plant Design and Risk Management;
Safety Management for Plant Maintenance;
Case Study and Discussion



<9 countries / 16 participants>

Site visits: JX Nippon Oil & Energy Corporation (Negishi Refinery);
Idemitsu Kosan Co., Ltd. (Tokuyama Refinery);
Sompo Japan Risk Management Inc. (Shinjuku Head Office);
Yokogawa Electric Corporation (Mitaka Headquarters);
Azbil Corporation (Fujisawa Technology Center)

Countries: China, Indonesia, Iraq, Kuwait, Malaysia, Myanmar, Saudi Arabia, Vietnam, Yemen

TR-10-12 Diagnostic Techniques and Maintenance for Rotary Machinery
June 19 – July 6, 2012

Lecturer: Shintaro Miyawaki

Content: Outline of Petroleum Industry in Japan;
Diagnostic Techniques and Maintenance for Rotary Machinery;
Vibration Measurement and Control System;
Various Technologies for Combined Cycle Generators and Boiler Systems;
Refinery Practices for Maintenance of Rotary Machinery;
Various Technologies for Gas Turbine Systems;
Operational Practices and Maintenance of Governors;
Latest Technologies for Steam Turbines;
Operational Practices and Maintenance of Compressors and Transmission Gears;
Operational Practices and Maintenance of Mechanical Seals;
Vibration Analysis Technologies for Rotary Machine Bearings

Site visits: Shinkawa Sensor Technology, Inc. (Hiroshima Factory); Babcock-Hitachi K.K. (Kure Works); JX Nippon Oil & Energy Corporation (Mizushima Refinery); Mitsubishi Heavy Industries, Ltd. (Takasago Machinery Works); Woods Corporation (Head Office); Hitachi Ltd. Power Systems Company (Hitachi Works); Hitachi Plant Technologies, Ltd. (Tsuchiura Works); Eagle Burgmann Japan Co., Ltd. (Gosen Factory)

Countries: Bahrain, Indonesia, Iraq, Kuwait, Libya, Mexico, Myanmar, Nigeria, Oman, Pakistan, Saudi Arabia, Sudan, Vietnam, Yemen



<14 countries / 19 participants>

TR-11-12 Human Resource Management
October 9 – October 26, 2012

Lecturer: Eiji Okuyama

Content: Overview of Japanese Oil Industry;
Japanese-style Human Resource Management;
Training & Career Development System and Total Productive Management;
Manpower Outsourcing and HRM System;
Safety Education and HRM System;
Personnel Course, Qualification System, Evaluation System;
HRM System and Small Group Activities;
Rational Thought and Team Consensus Building

Site visits: Idemitsu Kosan Co., Ltd. (Chiba Refinery); JGC Corporation (Head Office); Uyeno Kosan, Ltd., Uyeno Yuso Ltd. (Head Office); JX Nippon Oil & Energy Corporation (Mizushima Refinery); Cosmo Oil Co., Ltd. (Sakaide Refinery); JGC Catalysts and Chemicals Ltd. (Kitakyushu Operation Center)

Countries: Indonesia, Iraq, Kazakhstan, Libya, Malaysia, Mexico, Myanmar, Oman, Qatar, Russia, Saudi Arabia, Thailand, Timor-Leste, UAE, Uzbekistan, Vietnam



<16 countries / 19 participants>

TR-12-12 Environmental Management
September 18 – October 5, 2012

Lecturer: Bunsuke Kariya

Content: Petroleum Industry in Japan; Environmental Management; Wastewater Treatment; Air Pollution Control; Oil Industry's Contribution to Environment Protection; Wastewater Treatment Using Ferrous Particles; Carbon Capture and Storage; Environment Protection and High Efficiency Turbine; Environmental Management in Refinery; CO₂ Reduction and Introduction of New Energy; Industrial Waste Treatment and Soil Remediation; Global Warming Countermeasures; Case Study and Discussion



<13 countries / 16 participants>

Site visits: JX Nippon Oil & Energy Corporation (Head Office); Hitachi Plant Technology; Research Institute of Innovative Technology for the Earth; Kawasaki Heavy Industries; JX Nippon Oil & Energy Corporation (Marifu Refinery); Nippo Corporation (Head Office & Sodegaura Plant)

Countries: Indonesia, Iraq, Kazakhstan, Libya, Malaysia, Pakistan, Papua New Guinea, Philippines, Saudi Arabia, Thailand, Uzbekistan, Vietnam, Yemen

TR-13-12 Project Management for Mechanical Engineers
September 18 – October 5, 2012

Lecturer: Fumihito Tone

Content: Project Management Activities in Oil Refineries in Japan; Project Cost Management; Project Engineering for EPC Project by Utilizing IT; Project Risk Management and Project Contracts



<13 countries / 17 participants>

Site visits: Non-Destructive Inspection Co., Ltd. (Headquarters); Mitsubishi Heavy Industries, Ltd. (Takasago Works); JGC Corporation (Yokohama World Operation Center); The Japan Steel Works, Ltd. (Muroran Plant); Idemitsu Kosan Co., Ltd. (Hokkaido Refinery); Hokkaido Joint Oil Stockpiling Co., Ltd. (Hokkaido Office)

Countries: Colombia, Indonesia, Iraq, Kuwait, Libya, Mexico, Myanmar, Nigeria, Saudi Arabia, Sudan, Uzbekistan, Vietnam, Yemen

TR-14-12 Advanced Field Devices and Control
October 9 – October 26, 2012

Lecturer: Shigeru Matsui

Content: Training of Instrumentation Engineering; Theoretical and Practical Training in Process Control; Training in the Latest Control System and Software; Training of Control Valve Engineering; Training of Emergency Shutdown System; Training in Vibration Measurements and Diagnosis; Training in Control System and Instrumentation Maintenance in Refinery; Training of the Latest Control System & Training and Practice in Control Valve; Training of Control Loop Design in Refinery



<14 countries / 15 participants>

Site visits: Yokogawa Electric Corporation (Mitaka Headquarters); Shinkawa Sensor Technology, Inc. (Hiroshima Factory); Idemitsu Kosan Co., Ltd. (Chiba Refinery); Oval Corporation (Yokohama Operation Center); Azbil Corporation (Fujisawa Technology Center & Shonan Factory)

Countries: Ecuador, India, Iraq, Kazakhstan, Libya, Mexico, Myanmar, Nigeria, Russia, Sudan, UAE, Uzbekistan, Vietnam, Yemen

JCCP Regular Courses Completed in October 2012 – March 2013

TR-15-12 Gas Processing for LNG October 30 – November 16, 2012

Lecturer: Tetsuji Kubota

Content: Outline of LNG Plant; Global LNG Market;
Steel Pipe Technologies;
Development and Production of LNG;
Natural Gas to New Energy Development DME,
GTL, IGCC;
LNG Vaporizer and Compressor Technologies;
Gas-Turbine Technologies; LNG Tank Technologies;
LNG Ship Technologies

Site visits: The Kansai Electric Power Co., Inc. (Himeji LNG
Station No. 1);
Osaka Gas Co., Ltd. (Himeji LNG Terminal);
Kobe Steel, Ltd. (Takasago Works);
Mitsubishi Heavy Industries, Ltd. (Takasago
Machinery Works);
IHI Corporation (Yokohama Factory);
Mitsui Engineering & Shipbuilding Co., Ltd. (Chiba Shipyard)

Countries: Ecuador, Indonesia, Malaysia, Myanmar, Nigeria, Papua New Guinea, Qatar, Thailand,
Timor-Leste, Uzbekistan, Vietnam



<11 countries / 14 participants>

TR-16-12 Material Problems and Their Countermeasures October 30 – November 16, 2012

Lecturer: Kenichi Morota

Content: Petroleum Industry in Japan;
Material and Inspection of Static Equipment;
Maintenance Management in Japanese Refinery;
Material of Pressure Vessels;
Estimation of Remaining Life of Static Equipment;
TPR (Total Plant Reliability) Activity;
Typical Case of Corrosion in Refinery;
Fundamentals of Welding; Metallurgy of
Welding;
The Latest Welding Technologies;
Typical Problems and Countermeasures of High
Tensile Steels;
Repair Technology of Tanks;
Tank Corrosion and Countermeasures;
Corrosion & Deterioration Problems of Materials in Refinery;
Typical Mechanical Damages in Refining Industry;
The Latest Welding Technology;
Corrosion of Metals in Oil & Gas Industries

Site visits: The Japan Steel Works, Ltd. (Muroran Plant);
JX Nippon Oil & Energy Corporation (Muroran Refinery);
Taseto Co., Ltd. (Fujisawa);
IHI Corporation (Production Engineering Center);
Shinko Plantech Co., Ltd. (Head Office);
Chiyoda Corporation (Head Office)

Countries: Iraq, Libya, Myanmar, Nigeria, Pakistan, Saudi Arabia, Thailand, Uzbekistan, Vietnam, Yemen



<10 countries / 14 participants>

TR-17-12 Information and Control Systems Utilized in Refineries
November 20 – December 7, 2012

Lecturer: Kazuhiro Suzuki

Content: Petroleum Industry in Japan; Outline of Distributed Control System (DCS); Trend of Information and Control Systems; Process Control Theory; Hands-on Training of Process Control; Operation Support System; Outline of Alarm Management; Modernization of Instrumentation

Site visits: Yokogawa Electric Corporation (Mitaka Headquarters); JX Nippon Oil & Energy Corporation (Marifu Refinery); Idemitsu Kosan Co., Ltd. (Chiba Refinery); Emerson Japan, Ltd. (Chiba Solution Center)

Countries: Indonesia, Iraq, Kazakhstan, Kuwait, Libya, Malaysia, Myanmar, Nigeria, Thailand, Uzbekistan, Vietnam, Yemen



<12 countries / 15 participants>

IT-1-12 Turnaround and Inspection
November 26 – December 7, 2012

Lecturer: Hiromitsu Saito

Content: Outline of Petroleum Industry in Japan; Maintenance Activities & Maintenance Management in Japanese Refineries; Advanced Inspection Technologies & Its Demonstration; Manufacture and Maintenance Technology of Screw, Centrifugal, Reciprocating Compressors; Maintenance and Repair Technology for Refining Equipment; Maintenance Management & Technology; Maintenance and Inspection Management System; Maintenance Planning & Scheduling in the Refinery; Maintenance Management & Technology as Contractor; Human Resource Development of Contractor

Site visits: Non-Destructive Inspection Co., Ltd. (Headquarters); Kobe Steel, Ltd. (Takasago Equipment Plant); Shinko Plantech Co., Ltd. (Headquarters); JGC Corporation (Yokohama Headquarters); Idemitsu Kosan Co., Ltd. (Chiba Refinery); Sankyu Inc. (Maintenance Center)

Countries: Indonesia, Iraq, Kuwait, Libya, Mexico, Myanmar, Peru, Qatar, Saudi Arabia, Thailand, Vietnam, Yemen



<12 countries / 16 participants>

IT-2-12 Finance & Accounting Management
November 27 – December 6, 2012

Lecturer: Masayuki Jimbo

Content: Petroleum Industry in Japan; Crude Oil Terminal; Refinery Shipping System of Petroleum Products; Distribution of Petroleum Products; Refinery Site Observation; Workshop for Business Skill Development: Corporate Negotiation, Financial Accounting, Procurement, Risk Management for Marketing and Trading, Oil Derivatives

Site visits: JX Nippon Oil & Energy Corporation (Mizushima Refinery); JX Nippon Oil & Energy Staging Terminal Corporation

Countries: Bahrain, Indonesia, Iraq, Kazakhstan, Oman, Qatar, Saudi Arabia, UAE, Vietnam



<9 countries / 18 participants>

TR-18-12 Development of New Energy Efficiency Projects
January 15 – February 1, 2013

Lecturer: Tetsuo Arii

Content: With the objective of developing capability for new project development, the course program is designed to start with basic technologies, analytical methodologies and financing schemes, followed by site visits to advanced manufacturing plants and energy industries. At the end, participants engage in a workshop to prepare for an actual project in their home countries.



<12 countries / 17 participants>

Carbon Management; Latest Process Technologies;
Pinch Technology; Advanced Equipment;
Fuel Cell and Solar Energy;
District Heating and Cooling;
Latest Motor Fuel Technology;
Latest Power Generation Technologies
(Gas Turbine, Steam Turbine, Wind Power, Super Critical Power Generation);
Carbon Finance; Workshop for Project Development

Site visits: Tokyo Gas Co., Ltd. (Shinjuku District Heating and Cooling Center);
JX Nippon Oil & Energy Corporation (Negishi Refinery);
Toyota Motor Corporation (Head Office and Plant);
Kawasaki Heavy Industries, Ltd. (Kobe & Akashi Works);
Mitsubishi Heavy Industries, Ltd. (Nagasaki Shipyard and Machinery Works);
Electric Power Development Co., Ltd. (J-Power; Matsuura Thermal Power Station);
Kitakyushu City (Eco-center)

Countries: Indonesia, Iraq, Kuwait, Libya, Myanmar, Nigeria, Pakistan, Saudi Arabia, Sudan, Thailand, UAE, Vietnam

TR-19-12 Inspection and Reliability Evaluation
January 15 – February 1, 2013

Lecturer: Kenichi Morota

Content: Petroleum Industry in Japan; Material and Inspection of Static Equipment; Maintenance Management System, Trouble Experiences and Countermeasures;
Material Characteristics of Pressure Vessels and Quality Control;
Material Characteristics of Pipes and Tubes and Quality Control;
Advanced Inspection Technologies;
Lecture and Practice on Newly Developed NDT;
Reliability Activities in the Refinery, Trouble Experiences and Countermeasures;
Maintenance Management in Japanese Refinery;
Maintenance and Repair Technologies of Refining Equipment;
Corrosion and Fouling Control for Petroleum Refining Plants;
Corrosion of Metals in Oil & Gas Industries



<12 countries / 16 participants>

Site visits: Cosmo Oil Co., Ltd. (Sakaide Refinery);
Kobe Steel, Ltd. (Takasago Works);
Nippon Steel & Sumitomo Metal Corporation (Steel Tube Works);
Non-Destructive Inspection Co., Ltd. (Head Office);
Showa Yokkaichi Sekiyu Co., Ltd. (Yokkaichi Refinery);
Shinko Plantech Co., Ltd. (Head Office)

Countries: Indonesia, Iraq, Kuwait, Libya, Malaysia, Nigeria, Qatar, Russia, Saudi Arabia, Sudan, Vietnam, Yemen

JCCP Regular Courses Completed in February – June 2013

TR-20-12 Quality Management of Refinery Products February 5 – February 22, 2013

Lecturer: Minoru Horike

Content: Quality Management; Quality Control in Japan; Environmental Strategy of Japanese Oil Companies; QC in the Refinery; ISO-9000; Clean Fuel in Japan; Product Planning by LP Model

Site visits: DKK TOA Corporation; Shimadzu Corporation; Idemitsu Kosan Co., Ltd. (Tokuyama Refinery); JX Nippon Oil & Energy Corporation (Negishi Refinery); Yokogawa Electric Corporation; Tanaka Scientific Limited

Countries: Indonesia, Iraq, Kuwait, Libya, Myanmar, Sudan, UAE, Uzbekistan, Vietnam, Yemen



<10 countries / 15 participants>

TR-21-12 Advanced Process Control on DCS February 5 – February 22, 2013

Lecturer: Teruhiko Sasaki

Content: Basic process control theories with practice using computer simulator and miniature-plant with applied to DCS; Practice of advanced process control theories and operation support system using DCS; Application for shutdown sequence system on DCS and practice of safety instrument system; Latest DCS related technologies and APC system

Site visits: Yokogawa Electric Corporation (Mitaka Headquarters); JX Nippon Oil & Energy Corporation (Marifu Refinery); Seibu Oil Co., Ltd. (Yamaguchi Refinery)

Countries: Indonesia, Iraq, Kazakhstan, Kuwait, Libya, Myanmar, Nigeria, Pakistan, Saudi Arabia, Sudan, Thailand, UAE, Uzbekistan, Vietnam, Yemen



<15 countries / 16 participants>

TR-22-12 Human Resource Development February 12 – March 1, 2013

Lecturer: Eiji Okuyama

Content: Petroleum Industry in Japan; Japanese-style Human Resource Management & Development; HRM & TPM at Refinery; Small Group Activity at Refinery; HRD of Engineering Company; Training Program Development; HRD of Oil Company; Rational Thought & Team Consensus Building

Site visits: Idemitsu Kosan Co., Ltd. (Tokuyama Refinery); Cosmo Oil Co., Ltd. (Sakai Refinery); JGC Corporation (Yokohama World Operation Center); Meisei University (Hino Campus); JX Nippon Oil & Energy Corporation (Head Office)

Countries: Indonesia, Kazakhstan, Kuwait, Libya, Malaysia, Myanmar, Pakistan, Papua New Guinea, Saudi Arabia, Thailand, Timor-Leste, UAE, Uzbekistan, Yemen, Vietnam



<15 countries / 17 participants>

TR-1-13 Petroleum Marketing
April 8 – April 25, 2013

Lecturer: Masayuki Jimbo

Content: Petroleum Industry in Japan; Refinery Shipping System of the Petroleum Products; On-site Observation of the Facilities; Endless Price War in Retail Market; Oil Flow to Mass Consumers; Latest Service Station Facilities; Integrated Refueling System; Facilities and Safety Refueling Operation; Distribution of Petroleum Products; Facilities and Safety Measures; New Automobile Fuel; Business Expansion to Non-Oil Field; Management by Rational Thinking Process; Workshop "Advanced Negotiation"; Workshop "Financial Accounting"; Workshop "Procurement"; Workshop "Oil Derivatives"



<14 countries / 20 participants>

Site visits: JX Nippon Oil & Energy Corporation (Mizushima Refinery); Fujitani Inc. (depot, service stations); San-ai Oil Co., Ltd. (Haneda Airport Branch); Tatsuno Corporation (Yokohama Plant); JX Nippon Oil & Energy Corporation (Head Office)

Countries: Bahrain, Cambodia, Ecuador, Indonesia, Iraq, Libya, Myanmar, Nigeria, Thailand, Timor-Leste, UAE, Uzbekistan, Vietnam, Yemen

TR-2-13 Future Advanced Technology for Petroleum Industry
April 8 – April 25, 2013

Lecturer: Bunsuke Kariya

Content: New Business Strategy of Japanese Oil Industry; Underground Microbial Carbon Recycling; Workshop for the Refinery Equipment Optimization Using Virtual Refinery; Research Activities at Cosmo Oil; Carbon Capture and Storage; Hydrogen Infrastructure; Solar Power Generation; Role of Car Manufacturer in Environmental Protection; Carbon Capture Technology in Power Company; Utilization of Heavy Fraction as Activated Carbon; Combined Renewable Energy System; Biofuel Production & Mega Solar; Energy Saving Type Sea Water Desalination; Hydrogen Filling Station & Fuel Cell Vehicle; World Energy Situation



<11 countries / 14 participants>

Site visits: Chugai Technos Corporation; Cosmo Oil Co., Ltd. (Central Research Laboratory); Toyota Motor Corporation; Kansai Electric Power Co., Inc.; Osaka Gas Co., Ltd.; Kawasaki Heavy Industries, Ltd.; Electric Power Development Company; Kitakyushu Water Plaza; Kitakyushu Hydrogen Town

Countries: Bahrain, Ecuador, Indonesia, Iraq, Kuwait, Libya, Nigeria, Qatar, Thailand, Uzbekistan, Vietnam

TR-3-13 DCS Fundamentals and Applications
April 8 – April 25, 2013

Lecturer: Kazuhiro Suzuki

Content: Petroleum Industry in Japan;
Outline of Distributed Control System (DCS);
Latest DCS; Process Control Theory;
Hands-on Training of Process Control;
Engineering Practice on DCS;
Advanced Process Control; Process Optimization;
Fieldbus Engineering;
Modernization of Instrumentation

Site visits: Azbil Corporation (Shonan Factory);
Emerson Japan, Ltd. (Mizushima Solutions Center);
Idemitsu Kosan Co., Ltd. (Tokuyama Refinery);
Yokogawa Electric Corporation (Mitaka Headquarters)

Countries: Indonesia, Iraq, Kuwait, Libya, Malaysia, Nigeria, Qatar, Uzbekistan, Vietnam, Yemen



<10 countries / 15 participants>

TR-4-13 Human Resource Management
May 7 – May 24, 2013

Lecturer: Taro Shoji

Content: Petroleum Industry in Japan; Japanese-style Human Resource Management & Development;
HRM of Oil Company; HRM & TPM at Refinery;
Small Group Activity at Refinery;
HRM of Transportation Company;
Energy Security by Japanese National Oil Stockpiling Base; Rational Thought & Team Consensus Building

Site visits: JX Nippon Oil & Energy Corporation (Negishi Refinery); Idemitsu Kosan Co., Ltd. (Aichi Refinery);
Cosmo Oil Co., Ltd. (Sakai Refinery);
JOGMEC (Shirashima Oil Stockpiling Base); Shin Shin Toitsu Aikido Kai (Headquarters)

Countries: Indonesia, Iraq, Malaysia, Myanmar, Pakistan, Papua New Guinea, Qatar, Saudi Arabia, Thailand, Timor-Leste, UAE, Uzbekistan, Vietnam



<13 countries / 17 participants>

TR-5-13 Upgrading Processes of Heavy Oil
May 7 – May 24, 2013

Lecturer: Takaaki Yuasa

Content: Outline of Upgrading of Heavy Oil;
Hydrotreating and Hydrocracking Catalyst;
Thermal Cracking Process; IGCC Technology and Selection of Heavy Oil Upgrading Process;
FCC & Resid-FCC Process Technology;
Hydrotreating and Hydrodesulfurization Process Technology; FCC Catalyst Reaction Theory;
Thermal Cracking (Delayed Coker, Flexi Coker) Unit and FCC Unit; Operation and Troubleshooting and Decreasing Effect in Heavy Oil Production;
Developed HDS & FCC Catalyst and its Theory;
Process and Characteristics of RFCC and VRHDS Unit; Evaluation Technology and its Results for HDS Catalyst & FCC Catalyst;
Process Simulator Practice of FCC Startup;
Linear Programming and Production Planning for Refinery

Site visits: JGC Catalysts & Chemicals Ltd. (Kitakyushu Operation Center);
JX Nippon Oil & Energy Corporation (Marifu Refinery);
Idemitsu Kosan Co. Ltd. (Aichi Refinery); Toa Oil Co. Ltd. (Keihin Refinery)

Countries: Indonesia, Iraq, Kuwait, Myanmar, Qatar, Sudan, Thailand, Timor-Leste, Uzbekistan, Vietnam



<10 countries / 15 participants>

TR-6-13 Petroleum Distribution
May 28 – June 14, 2013

Lecturer: Kazuo Kojima

Content: Petroleum Industry in Japan; Management by Rational Thinking Process; Jet Fuel Facilities & Refueling to Airplane at Airport; Petrol Dispensing Pump Manufacturing; Transportation of Oil Products; Shipping System & Maintenance at Refinery; Production & Maintenance of Pipelines; Stockpiling, Loading & Unloading at Oil Terminal; Distribution System at the Head Office of Oil Company; World Energy Situation & Challenges



<16 countries / 22 participants>

Site visits: San-ai Oil Co., Ltd. (Haneda Branch Office); Tatsuno Corporation (Yokohama Plant); Uyeno Kosan Ltd. (Kawasaki Field Office); Cosmo Oil Co., Ltd. (Yokkaichi Refinery); JFE Steel Corporation (West Works); JX Nippon Oil & Energy Staging Terminal Corporation (Kiire Base); Cosmo Oil Co., Ltd. (Head Office)

Countries: Bahrain, Brazil, Indonesia, Iraq, Kazakhstan, Kuwait, Libya, Myanmar, Nigeria, Qatar, Saudi Arabia, Sudan, Thailand, UAE, Uzbekistan, Vietnam

TR-7-13 Maintenance Management
May 28 – June 14, 2013

Lecturer: Hiromitsu Saito

Content: Petroleum Industry in Japan; Maintenance Management in Japanese Refineries; Maintenance Activities in Japanese Refineries; Manufacture and Inspection Technologies for Turbine and Boiler; Manufacture Technology and Material Characteristics of Stainless Steel Tubes & Pipes; Maintenance Management & Technology as Contractor; Reliability Management in the Refinery, Trouble Experiences and Countermeasures; Project Management, Maintenance Management, Risk & Reliability Management, Inspection Management System; Safety and Reliability of Aged Plants; Plant Life Cycle Engineering; Project Management Activities in a Japanese Refinery and Maintenance Management by TPM



<11 countries / 15 participants>

Site visits: Mitsubishi Heavy Industries, Ltd. (Nagasaki Shipyard & Machinery Works); Nippon Steel & Sumitomo Metal Corporation (Steel Tube Works); Sankyu Inc. (Maintenance Centre); Toa Oil Co., Ltd. (Keihin Refinery); JGC Corporation (Yokohama Headquarters)

Countries: Indonesia, Iraq, Kazakhstan, Kuwait, Myanmar, Nigeria, Pakistan, Saudi Arabia, Qatar, UAE, Vietnam

TR-8-13 Refinery Management
May 29 – June 12, 2013

Lecturer: Tetsuji Kubota

Content: Overview of the Oil Industry in Japan; Project Management / EPC Business / Plant Safety Design, Risk Management; An Example of Maintenance Management / Carbon Management / Energy Management; Safety Management / Environmental Management / Production Planning Management / Human Resource Management / Refinery Efficiency Improvement; Rational Thinking Management; Case Study



<12 countries / 17 participants>

Site visits: JGC Corporation (Yokohama World Operation Center); JX Nippon Oil & Energy Corporation (Mizushima Refinery)

Countries: Cambodia, Indonesia, Kuwait, Libya, Myanmar, Nigeria, Qatar, Sudan, Thailand, UAE, Uzbekistan, Vietnam

JCCP Regular Courses Completed in May – October 2013

TR-9-13 Practical Training for Young Instrumentation and Control Engineers May 28 – July 5, 2013

Lecturer: Shigeru Matsui

Content: Engineering Design for Instrumentation;
Plant Information System; Latest DCS & Related Systems (Hardware & Software);
Practice of Field Instrumentation (Transmitter, Level Meter, Flow Meter, Control Valve);
Practice of Operation Support System;
Practice in Building a Control System;
Practice of Model Predictive Control;
Wireless Instrument Systems;
Vibration Measurement & Diagnosis;
Refinery Information and Control System;
Engineering Work Flow for Instrumentation;
Latest Analyzer; Theoretical and Practical Training in Process Control; Safety Instrument System;
Instrument Engineering Using a Computer;
Discussion about the Maintenance of Instrumentation

Site visits: Yokogawa Electric Corporation (Mitaka Headquarters & Kofu Factory);
Endress+Hauser Yamanashi Co., Ltd. (Kofu Factory);
Azbil Corporation (Fujisawa Techno Center & Shonan Factory);
Oval Corporation (Yokohama Operation Center);
Emerson Japan Ltd. (Mizushima Solution Center);
Shinkawa Sensor Technology, Inc. (Hiroshima Factory);
DKK TOA Corporation (Tokyo Engineering Center)

Countries: Indonesia, Iraq, Kazakhstan, Libya, Nigeria, Pakistan, Saudi Arabia, Uzbekistan, Vietnam, Yemen



<10 countries / 15 participants>

TR-10-13 Safety Management for Refineries June 18 – July 5, 2013

Lecturer: Takaaki Yuasa

Content: Safety Management for the Refinery;
Environmental Control;
Safety Regulations and Disaster Prevention;
Safety Consideration for Plant Design and Risk Management;
Safety Management for Plant Maintenance;
Wastewater Treatment;
Case Study and Discussion

Site visits: JX Nippon Oil & Energy Corporation (Negishi Refinery);
Idemitsu Kosan Co., Ltd. (Tokuyama Refinery);
Sompo Japan Nipponkoa Risk Management Inc. (Shinjuku Head Office);
Yokogawa Electric Corporation (Mitaka Headquarters);
Swing Corporation (Fujisawa Research Center)

Countries: Indonesia, Iraq, Kazakhstan, Kuwait, Libya, Myanmar, Nigeria, Qatar, Saudi Arabia, Sudan, UAE, Uzbekistan, Vietnam



<13 countries / 19 participants>

TR-11-13 Diagnostic Techniques and Maintenance for Rotary Machinery
June 18 – July 5, 2013

Lecturer: Shintaro Miyawaki

Content: Outline of Petroleum Industry in Japan;
Reliability Enhancement and Maintenance for Rotary Machinery;
Operational Practices and Maintenance of Governors;
Various Technologies for Pumps and Steam Turbines;
Vibration Measurement and Control Systems;
Refinery Practices for Maintenance of Rotary Machinery;
Various Technologies for Gas Turbines;
Operational Practices and Maintenance of Mechanical Seals;
Instrumentation for High-efficiency Power Generation;
Water Management in Steam Turbine and Boiler Systems;
Vibration Measurement of Rotary Machinery

Site visits: Woods Corporation (Head Office and Works); Shin Nippon Machinery (Kure Factory);
Shinkawa Sensor Technology, Inc. (Hiroshima Factory);
JX Nippon Oil & Energy Corporation (Mizushima Refinery);
Mitsubishi Heavy Industries, Ltd. (Takasago Machinery Works);
Eagle Burgmann Japan Co., Ltd. (Niigata Factory);
Yokogawa Electric Corporation (Mitaka Headquarters)

Countries: Colombia, Indonesia, Iraq, Kuwait, Libya, Myanmar, Nigeria, Pakistan, Papua New Guinea, Qatar, Saudi Arabia, Sudan, Thailand, UAE, Uzbekistan, Vietnam, Yemen



<17 countries / 19 participants>

TR-12-13 Advanced Technology and Control System of Power Generation Facilities
August 27 – September 13, 2013

Lecturer: Teruhiko Sasaki

Content: Overview and Practice of Latest Power Generation Facilities;
Power Generation Facility-related Technologies (Water Treatment, Vibration Sensor and Governor Maintenance Technologies);
Latest DCS-related Technologies and APC System;
Control Systems for Actual Power Plants;
Other Related Technologies (Basic Process Control Theories with Practice Using a Computer Simulator, Optimization System and Dynamic Simulator Technology, Application for Safety Instrument system)

Site visits: Yokogawa Electric Corporation (Mitaka Headquarters and Kyushu Branch);
Tobata Co-operative Thermal Power Co., Inc.;
Shinkawa Sensor Technology, Inc. (Hiroshima Factory);
JX Nippon Oil & Energy Corporation (Marifu Refinery);
Woods Corporation; Invensys Process Systems Japan, Inc.

Countries: Indonesia, Iraq, Kazakhstan, Libya, Myanmar, Nigeria, Pakistan, Sudan, Thailand, Uzbekistan, Vietnam, Yemen



<12 countries / 16 participants>

TR-13-13 Environmental Management
September 17 – October 4, 2013

Lecturer: Bunsuke Kariya

Content: New Business Strategy of Japanese Oil Industry; Air Pollution Control in Refinery; Waste Water Reuse; Environmental Management in Japanese Refinery; Environmental Management in Showa Yokkaichi Sekiyu; Environment Monitoring Analyzer; High-efficiency Gas Turbine Technology; Monitoring of CO₂ in CCS Site; Industrial Waste Treatment; CCS Demonstration Site; CO₂ Supplier for CCS Demonstration; Waste Water Treatment in Japanese Oil and Gas Fields; Waste Water Treatment Technology; Case Study and Discussion of Environmental Problems in Each Country



<12 countries / 19 participants>

Site visits: Showa Yokkaichi Sekiyu; Shimadzu Corporation; Kawasaki Heavy Industries (Kobe Works); Mitsubishi Heavy Industries (Hiroshima Research Center); Chugai Technos Corporation; Hayakita Koei Co., Ltd.; Japan CCS Co., Ltd.; Idemitsu Kosan Co., Ltd. (Hokkaido Refinery); Japan Petroleum Exploration Co., Ltd. (Yufutsu Oil and Gas Field); Swing Corporation (Fujisawa Research Center)

Countries: Colombia, Indonesia, Iraq, Kuwait, Nigeria, Qatar, Saudi Arabia, Sudan, Thailand, UAE, Uzbekistan, Vietnam

TR-14-13 Project Management for Mechanical and Chemical Engineers
September 17 – October 4, 2013

Lecturer: Fumihito Tone

Content: To promote understanding of project management from the point of view of the owner side, and to improve the project management and leadership ability of mechanical and chemical engineers in the construction or maintenance department in oil refineries. In addition to achieving the above objective, participants will also discuss petroleum plant and petrochemical plant integration projects. The main topics are as follows:



<11 countries / 17 participants>

1. Project management activities in oil refineries in Japan
2. Engineering of EPC projects by utilizing IT
3. Project risk management and project contracts
4. Practical exercise and group discussion: "Problems in project management of your project and countermeasures"
5. Visits to: A refinery—to study project planning and management in the refinery; An engineering company—to study EPC project management; A high-pressure vessel manufacturer—to understand recent technologies for high-pressure vessel manufacturing; A boiler and turbine manufacturer—to study recent turbine and boiler technologies

Site visits: JGC Corporation (Yokohama World Operation Center); Idemitsu Kosan Co., Ltd. (Hokkaido Refinery); Hokkaido Joint Oil Stockpiling Co., Ltd. (Hokkaido Office); The Japan Steel Works, Ltd. (Muroran Plant); Non-Destructive Inspection Co., Ltd. (Headquarters); Mitsubishi Heavy Industries, Ltd. (Takasago Works)

Countries: Colombia, Indonesia, Iraq, Kuwait, Nigeria, Qatar, Sudan, Thailand, UAE, Uzbekistan, Vietnam



Human Resource Management

(TR-4-13: May 7 – May 24, 2013)

Mr. Abdulrehman A. Al-Sebaie (Superintendent, Riyadh Refinery Operation, Saudi Aramco)

I am honored and pleased to contribute a message to *JCCP NEWS* on behalf of 17 members from 13 great nations.

During the opening ceremony when I introduced myself, I mentioned that 18 Japanese members from Japan Steel Works, Ltd. (JSW) conducted inspection and maintenance work on hydrocracker unit reactors at Riyadh Refinery over a period of 20 days. All refinery employees were amazed at the quality and excellent execution of the critical job. Personally, I was eager to know the secret to their outstanding work, so I invited them to my house for dinner. However, wanting to know even more, I decided to attend this HR course.

Now, after attending this course, I can confidently say that I know the secret. It is because Japanese-style management differs from that of other nations. It is based on team and group contribution, rather than on individuals. I felt this from all companies we visited, which included JX Nippon, Uyeno Kosan, Idemitsu Kosan, Cosmo Oil and Shirashima National Stockpiling Base. We acquired many examples of HR programs at these companies, but here I shall cite the example at Idemitsu Kosan.

Idemitsu Kosan was founded by Sazo Idemitsu more than 100 years ago. It grew from a small store to a large corporation that now has 8,700 employees, 32 domestic offices, 34 overseas offices, and 4.5 trillion yen in sales. The most important factor of this success lies in the founder himself. He firmly stood by the concept of "respect for human beings," based on the following principles:

- Human beings are the main actors in economy and society, not materials and money.
- Discipline and education are important to make employees worthy of respect from society.
- Human power is gained through total cooperation.
- Do not be slave to money.

Did he mention anything about profit? Absolutely not. That is the secret. Idemitsu's management style completely differed from that in Western society, which tends to focus mainly on achieving profit.

To maximize the benefit of the course, the weekends were spent on gaining exposure to Japanese culture. We had the opportunity to visit many historic places, such as Hiroshima and a number of shrines and castles, and to have a taste of

various Japanese delicacies.

On behalf of the course participants, I would like to thank JCCP management for its outstanding organization of the course, from the first minutes of arriving at Narita Airport to the end of the course. We especially appreciated the orientation on how to use the public transportation system, which allowed us to visit many places of interest independently, and are grateful for the JCCP members' detailed response to each and every one of our questions.

I can confidently say that the course objective was met 100%, and assure you that we will take all that we learned back to our countries.

It is rare to have a course that is both practically meaningful and enjoyable, but it was achieved in this course by the outstanding efforts of our three lecturers, Mr. Shoji, Mr. Okuyama and Mr. Jimbo. They spent day and night developing the course program, and dedicated their full attention to our group over the entire duration of the course. They accompanied us throughout the course, but worked so seamlessly as a team that we completely gave ourselves over to enjoying the program without a clue as to who was in charge of what. This, precisely, was a real demonstration of Japanese HR management. Can you imagine managing a group of 20 individuals travelling a total distance of around 2,500 kilometers by foot, bus, taxi, train, boat and airplane, and checking in and checking out of 10 hotels, all smoothly and in an enjoyable atmosphere? I must say they were amazing.

Thank you, Arigato Gozaimas.



With 18 Japanese members of JSW and my family at my house in Saudi Arabia

Graduates' Voices



Mr. Mutlaq A. Al-Subaey
Superintendent, Southern Area Industrial Training Division,
Saudi Aramco

Graduate of regular courses on Human Resource Management (May 2010) and Training Management (October 2004)

I am delighted to contribute to JCCP NEWS as a JCCP graduate.

I am a superintendent at the Southern Area Industrial Training Division of Saudi Aramco in the Kingdom of Saudi Arabia. The Southern Area Industrial Training Division is a training organization under the Training & Development/Industrial Training Department at Saudi Aramco, mandated to train the future workforce of our company.

As a result of my participation in two JCCP regular courses on Human Resource Management (2010) and Training Management (2004), the training we deliver has been guided by the principles I have acquired in the courses. We strive to offer courses that pertain to the real needs or requirements of our customers, place top priority on the quality of our training and graduates rather than on quantity, consistently improve the skills and knowledge of our instructional employees in response to changing

demands for technologies, and provide a pleasant training environment to our trainees.

My participation in the two JCCP courses was a memorable experience from which I acquired general and up-to-date knowledge about human resource development and training management. However, what I found most interesting was learning about Japanese styles and perspectives for improving management skills for human resources and training. Field trips to successful business institutions in Japan were also highly meaningful, as they provided an opportunity to witness actual HRD practices and training in action and receive detailed explanations about the process of achieving success based on HRD and training management principles. Moreover, holding intercultural exchanges with participants from different countries through day-to-day training activities was a particularly invaluable experience.

I wish JCCP continued success and prosperity.

Graduates' Voices



Mr. Abdullah M. Niaz

Project Executive Engineer, Engineering Dept., Project Unit,
Petro Rabigh, Saudi Arabia

Graduate of a regular course on Maintenance Management
(January 2001)

It is always a pleasure to me to receive a copy of *JCCP NEWS*.

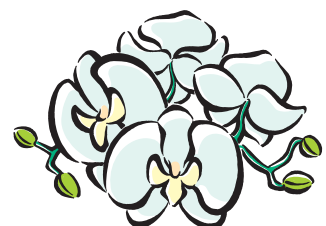
I wish to express my deepest appreciation to all JCCP staff for their time and effort in keeping in touch with large numbers of JCCP alumni. I understand that more than 20,000 people have participated in JCCP training courses during the past 20 years. This is not an easy feat, so it is particularly worth noting that Mr. Hiroaki Kudo, the training lecturer who was in charge of the course I attended 11 years ago, still continues to send me email messages. I would also like to thank Mr. Kazumasa Nakazawa for his patience in dealing with us both during the course and during his visit to Rabigh.

The 21 days I spent in Japan are unforgettable and remain firmly in my memory. I distinctly remember the moment the plane landed at Narita Airport in the snow, members of the JCCP staff welcoming us at the airport gate, the city tour of Tokyo we received before

training began, the welcome extended to us by Mr. Koichi Kujirai on the first day of training, and the visits made to Japanese cities and refineries to gain hands-on knowledge. The JCCP staff had indeed organized an excellent training program. It has been 11 years since I participated in a JCCP course, but I have never forgotten the JCCP staff, the enjoyable JCCP experience and the respectful kindness of the Japanese people. I pay my deepest respect to your hospitality and sincerity throughout and long after the training period, and also admire your politeness in all situations. These excellent Japanese attitudes are impressed on my mind. Frankly speaking, I miss the friends I made in Japan. I often long to see them again while glancing at old photos.

I wish to end my message by wishing all JCCP staff future success, and look forward to hearing from you again.

I wish you all the best.



Report on the Training Cooperation Program

—Saudi Aramco— in February 2011

A JCCP delegation paid visits to eight departments in Saudi Aramco to inquire about their needs for customized programs and to exchange views regarding training on two separate occasions, from February 22 to March 5, 2011 (including five days spent on implementing a CPO (customized program-overseas) on safety management at Jeddah Refinery), and from May 13 to 19, 2011. Among the meetings, that with the Professional Engineering Development Division (PEDD) yielded further progress in the agreement to incorporate a CPO in Saudi Aramco's Professional Engineering Development Program, as has been proposed by the Refining & NGL Fractionation Area and JCCP.

1. Refining & NGL Fractionation Area

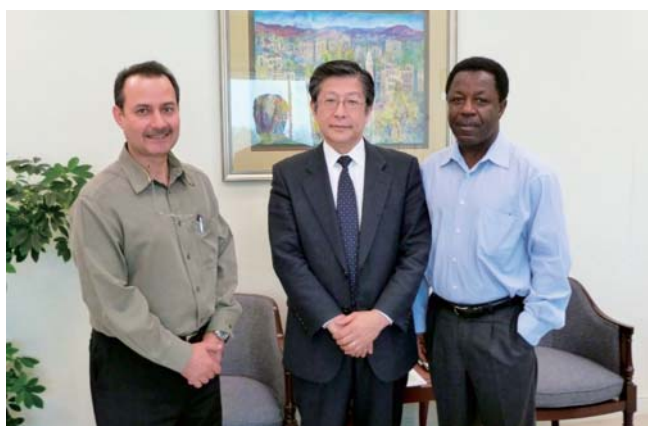
The JCCP members met with Mr. Sami A. Iskandrani, Assistant to the Vice President; and Mr. Lloydie Johnson, Former Assistant to the Vice President.

The Refining and NGL Fractionation Department expressed its wish to implement the Information Exchange and Training Program for Young Engineers again in fiscal 2011, following its successful implementation in fiscal 2010. It seems the department was thinking along the lines of implementing it from late May to the end of June as with last year's program, but they readily approved the JCCP side's request to implement it some

time after December due to the lingering impact of the recent earthquake disaster. JCCP will hereafter make the necessary preparations and adjustments with relevant departments through a counterpart office designated by the Saudi Aramco side.

2. Meeting with the New Director of the Ras Tanura Refinery

Through the good offices of Mr. Iskandrani in the Refining and NGL Fractionation Department, the JCCP delegation met with Mr. Abdulhakim A. Al-Gouhi, who newly assumed the post of General Manager of Ras Tanura Refinery in January 2011. The JCCP members gave an overview of JCCP and noted JCCP's contribution to training Saudi Aramco employees by showing Mr. Al-Gouhi a list of Saudi Aramco participants to JCCP courses since 1982. Mr. Al-Gouhi questioned the meaning of JCCP going so far as to shoulder 75% of the expenses to implement the courses, but expressed his understanding when the JCCP members explained that Japan is more than 98% dependent on foreign countries for oil, and that JCCP activities are aimed at promoting mutual understanding with oil-producing countries. He then responded agreeably to the JCCP side's request for the participation of Ras Tanura Refinery employees in JCCP courses. The JCCP members felt it is important to



Mr. Sami A. Iskandrani, Assistant to the Vice President (left); and Mr. Lloydie Johnson, Former Assistant to the Vice President (right)



(From the left) K. Saito, JCCP Lecturer; Mr. Iskandrani; F. Tone, JCCP Lecturer; and Mr. Abdulhakim A. Al-Gouhi, General Manager of the Ras Tanura Refinery

maintain and deepen ties with Mr. Al-Gouhi by making regular visits and also by inviting Mr. Al-Gouhi to visit Japan.

3. Yanbu Refinery

The JCCP delegation visited the Yanbu Refinery and met with Mr. Abdulsalam A. Ashi, Maintenance Superintendent, Yanbu Refinery Department. In a prior meeting, Mr. Ashi and members of the training department at Yanbu requested guidance on a hands-on approach to maintenance activities that would encourage refinery operators to strengthen their sense of ownership of their machines and plant. They said that promoting visualization, for example, might help operators change the attitude that they are in charge of operations only, and maintenance is the job of maintenance engineers. In response, the JCCP members took the occasion of this meeting to propose a training program and to exchange views with the refinery members. As the first part of the proposed training program, they suggested the implementation of a training course for supervisors and assistant supervisors in the operations, maintenance, and engineering departments, and as the second part, they proposed a training course on visualization activities for interested operators (or operators designated by their superiors). Mr. Ashi approved of this two-stage proposal, but he noted that the Yanbu Refinery has six divisions, and hence a large number of supervisor-class employees. Gathering them together in one training course would detract from the focused approach of the course, so he said he would like to implement the course several times with the participation of one or two supervisors, assistant supervisors, and key persons from each division. He said he would give consideration to the operator course after implementing the supervisor course. Mr. Ashi also



Mr. Abdulsalam A. Ashi, Maintenance Superintendent (right)

expressed his wish for practical training in a successful Japanese refinery sometime after implementation of the CPO, so that the participants can seal the knowledge they acquire in the CPO and apply it to future activities. JCCP will strive to realize these requests.

4. Jeddah Refinery

The JCCP delegation next met with Mr. Mazin A. Al-Najjar, Supervisor Training Unit; Mr. Ahmad A. Rajab, Senior Supervisor of Maintenance, Service Maintenance Div.; and other refinery officers. After mentioning that many employees from the Jeddah Refinery's Engineering Department would be participating in the upcoming CPO on TPM, the refinery side voiced its specific preference for practical field training rather than desk studies. The JCCP members proposed a program for initial cleanup and visualization of the refinery, whereby a model zone would be created in the refinery as a center for developing a sense of ownership of the plant among the employees. They also proposed a preliminary TPM course for supervisors before implementing it on a larger scale, because TPM activities could fail to deliver the intended result if the management class does not have proper knowledge of TPM. Mr. Rajab, on the other hand, said he would like to have shift supervisors take part in the course, so it was agreed that the specific content and date of implementation would be discussed with members of the training department at the Jeddah Refinery.



Mr. Mazin A. Al-Najjar, Supervisor Training Unit (left); and Mr. Ahmad A. Rajab, Senior Supervisor of Maintenance (second from right)

5. Southern Oil Operations Area, Training Center

The Training Center is responsible for training all new operators assigned to the Southern Oil Operations

Area, which manages the extensive area that includes the South Ghawar Oil Field. The meeting held here with the JCCP delegation was attended by Mr. Mutlaq A. Al-Subaey, Superintendent, Industrial Training Department/Southern Area Industrial Training Division, and 11 supervisors in charge of training in each division. Mr. Al-Subaey strongly requested the continued implementation of the TPM-based maintenance management course that JCCP and Saudi Aramco are initiating, as well as the regular implementation of a safety management course. The JCCP side agreed to hold discussions toward the regular implementation of these courses.



Discussion scene

6. Head Office in Dhahran, Training & Development Department

The JCCP delegation exchanged views on the renewal of JCCP training programs with Ms. Huda M. Al-Ghpson, General Manager, Training & Development; Mr. Raed H. Al-Rabeh, Director, Professional Development Department (chief executive of professional training for all Saudi Aramco employees); and Mr. Al-Subaey from Southern Oil Operations Area.

The JCCP delegation found that the implementation of JCCP training programs is documented in Saudi Aramco's record of employee development, and interpreted this to mean that JCCP training is accepted as part of the overall training system at Saudi Aramco. Ms. Al-Ghpson said that, to her understanding, JCCP training programs are mostly geared toward "hard" technical skills, but she expressed her desire for programs on enhancing "soft" administrative skills as well, with specific reference to skills relating to leadership, finance, business, and IT. Mr. Al-Rabeh requested JCCP's guidance for capacity building of young employees and in the implementation of training programs for developing team leader attributes and

hands-on leadership skills. Furthermore, in relation to Saudi Aramco's expansion of operations from oil refining to petrochemical operations, Mr. Al-Rabeh also noted that he would like to consider a training program in Japan for management-class employees in charge of petrochemical operations. The JCCP side agreed to create a draft program to discuss details of the course hereafter.



Mr. Raed H. Al-Rabeh, Director, Professional Development Department (second from left); Ms. Huda M. Al-Ghpson, General Manager, Training & Development (right); and Mr. Mutlaq A. Al-Subaey, Superintendent, Industrial Training Department/Southern Area Industrial Training Division (left)

7. Professional Engineering Development Department (PEDD), Engineering Service Department

PEDD develops and implements internal training programs with the objective of enhancing the skills of professional engineers in all operations at Saudi Aramco. With the participation of Dr. Awadh O. Al-Oadah, Division Head; Dr. Dahham M. Al-Anazi, Engineering Curriculum Design & Control; and eight staff members, the JCCP delegation discussed the feasibility of incorporating JCCP training programs into PEDD's training curriculum. Actually, this meeting took place as an extension of a discussion begun last year on the content of three CPOs (maintenance management, safety management, TPM-based maintenance management) that have been implemented at Saudi Aramco since 2008. In this meeting, the teaching materials and the implementation dates were discussed in detail toward implementation of the three courses that are under consideration, again by the end of this year. The course on TPM-based maintenance management, in particular,

is being promoted for its effectiveness in developing a sense of ownership and bringing a change in awareness among engineers. It was agreed that PEDD would continue to review the respective lecture materials and provide feedback on areas that need improvement. At the same time, PEDD has begun to explore potential program contents toward addressing its future aim of providing hands-on training in utility maintenance as sought by the Refinery Department, and has asked JCCP to consider whether there are any areas in which it could extend its cooperation.



Dr. Awadh O. Al-Oadah, Division Head (left); and Dr. Dahham M. Al-Anazi, Engineering Curriculum Design & Control (right)

8. Corporate Maintenance Support Division, Maintenance Council

The Corporate Maintenance Support Division acts as a supportive administrative arm of the Maintenance



Members of the meeting and Mr. Nezar Al-Shammasi, Director, Corporate Maintenance Support (third from right)

Council, a lateral organization composed of maintenance managers from all departments in Saudi Aramco, and is responsible for creating the syllabus of maintenance training programs implemented by PEDD. Mr. Nezar Al-Shammasi, Director, Corporate Maintenance Support, Saudi Aramco Maintenance Council, who met with the JCCP delegation along with seven staff members, explained that his division is seeking to incorporate JCCP's maintenance courses and programs into PEDD's curriculum. Toward that end, he requested JCCP to compress its 18-day regular course on maintenance to five days, and said he would like to contact JCCP again after his staff members extract the key items of the course.

9. Summary

JCCP activities are designed for the oil downstream sector. In recent years, however, JCCP's relationship with Saudi Aramco has gone beyond its refineries and related departments to include cooperation with preprocessing departments that handle operations that ensue after crude oil and gas drilling, as well as with diverse other departments. JCCP training has thus entered the phase of promoting company-wide activities at Saudi Aramco, with the exclusion of activities carried out by the crude oil and gas production departments. The recent visits to Saudi Aramco's departments have yielded progress in many areas. Of particular note is the formal incorporation of three CPOs into PEDD's training program for professional engineers across the company, beginning from this fiscal year. The JCCP delegation sees this development as the result of JCCP's 30-year history of receiving participants to its training programs since 1982. It can also be interpreted as a manifestation of the strong desire of past participants, who have assumed important positions in their respective departments, to provide their younger employees with the opportunity to participate in a JCCP training program to acquire knowledge of Japanese-style management practices that are based on technologies and experience deeply rooted in Japanese culture. Hereafter, JCCP will engage in discussions regarding the various requests the delegation received in the recent meetings with relevant counterparts, and devise appropriate schemes for their realization.

<by Fumihito Tone, Training Dept.>

Report on the Training Cooperation Program —Saudi Arabia and Qatar— in November 2011

A JCCP delegation visited five departments at Saudi Aramco (Training & Development Department in the Dhahran Head Office, Refining and NGL Fractionation, Jeddah Refinery, Professional Engineering Development Division, and Gas Operation) from November 10 to 17, 2011, and also visited Qatar Petroleum from December 12 to 15, 2011, to promote FY2012 JCCP regular courses and to seek needs and exchange views on the content of customized programs at these destinations. Another objective was to continue the survey regarding the renewal of JCCP training programs.

1. Saudi Aramco

(1) Training & Development Department, Dhahran Head Office

A meeting was held with Mr. Mohammad Al-Naghash, General Manager (Acting), Training & Development Department; Mr. Raed Rabeh, Director, Professional Development Department; and Mr. Hisham Kabbai, Director (Acting), Industrial Training Department. Although Ms. Huda M. Al-Ghpson, General Manager, was unfortunately not present, the JCCP delegation outlined the FY2012 regular course program and discussed expectations and requests of JCCP training programs with the above members at Saudi Aramco's head office.

Mr. Al-Naghash articulated his requests and expectations of JCCP training based on what he has heard from employees who have participated in a regular course and on their subsequent performance. He had two requests. One was for a scheme that would make it apparent to the superiors of regular course participants how the participants have changed after their participation in JCCP training and what differences the course has brought. The other was for a type of training that would clarify what is needed as Saudi Aramco expands into the petrochemical product business and aims to develop the petrochemical industry in Saudi Arabia.

Mr. Al-Naghash also expressed his expectations of JCCP, as follows: All departments at Saudi Aramco are seeking ways to laterally spread the results of JCCP training as the company strives to undergo a major

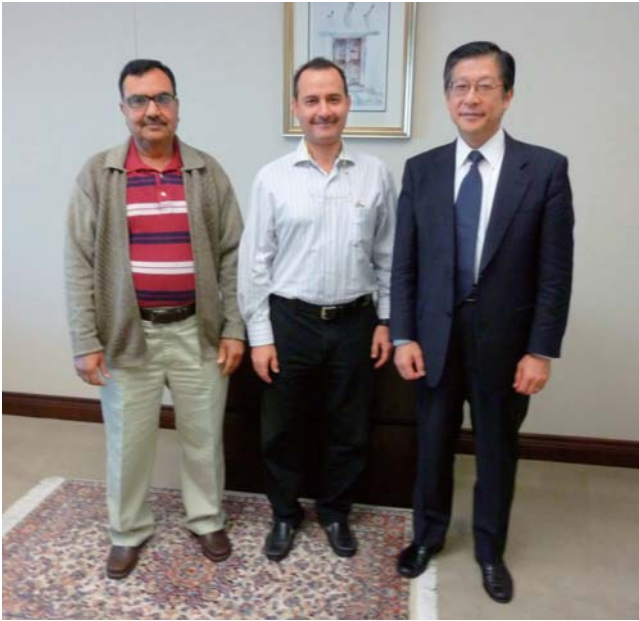
transformation, and expect JCCP to also keep up with this change and provide timely training. They have large expectations of JCCP. Saudi Aramco sends its employees to receive training in South Korea, China and Malaysia, but places priority on training in Japan. Why? This is because everyone buys Japanese products, knowing that they are of high quality and reliable. Saudi Aramco seeks the same assurance in JCCP training.

Mr. Kabbai requested JCCP to consider courses on operational training and training that pertains directly to the working level, to supplement his department's efforts in training not engineers but high-school-graduate technicians.

Mr. Rabeh added that he appreciates JCCP's early announcement of the annual program of regular courses each year, as it makes it easier to prepare the new annual budget.

(2) Refining & NGL Fractionation Administration Area

At the Refining & NGL Fractionation Administration Area, the JCCP delegation met with Mr. Sami A. Iskandrani, Assistant to the Vice President, to discuss JCCP's fiscal 2012 regular course program and customized programs. Upon listening to a description of two new courses slated to begin this year, namely a regular course on finance accounting management and a long course on instrumentation control, Mr. Iskandrani noted that the course on instrumentation control would be highly beneficial to his area, and would also be highly appreciated by the management level. The delegation also discussed the Information Exchange and Training Program for Young Engineers with Mr. Iskandrani. They explained that the young Japanese engineers who visited Saudi Arabia under the program in fiscal 2010 held a review with their supervisor a year after implementation of the program and evaluated the program as having been highly advantageous to building their career. In response, Mr. Iskandrani said he wishes to also hold a review on the Saudi Aramco side to confirm the relevance of the program and take the results to Mr. Mohammed A. Al-Omar, Vice President, for his consideration on implementing the program in the near future.



Mr. Sami A. Iskandrani, Assistant to the Vice President (center)

(3) Jeddah Refinery

The delegation held a meeting with Mr. Mazin A. Al-Najjar, Supervisor Training Unit; Mr. Rayyan S. Tayeb, Professional Development/Training Advisor; and Mr. Makram P. Allaggane, Supervisor (A), Technical Support Unit.

From Mr. Allaggane, there was a proposal to hold a general course on TPM for a group of around 20 members from Jeddah Refinery, followed by practical field training. The JCCP delegation and Jeddah Refinery agreed to make the necessary preparation to hold the program in November 2012.

In regard to fiscal 2012 regular courses, the refinery side said it hopes to encourage management-level personnel to attend the finance course, as it appears to be a highly beneficial course, and that the course on instrumentation control is a high-interest area that Saudi Aramco would like to pursue in cooperation with JCCP. In regard to the DCS course, the refinery members said they understand from the participants that a regular follow-up framework is in place that allows them to discuss and exchange views on various trouble cases with the instructors of the course even after its completion. The members said this type of follow-up in other courses as well would greatly enhance JCCP's value and significance. As measures for increasing the effectiveness of the courses, the refinery side requested JCCP to consider a scheme in which the objectives and scope of activities that could be applied to the participants' workplaces upon their return and specific trouble cases related to the participants' responsibilities

are clarified prior to each course and borne in mind during the training, so that participants could derive possible solutions during and after the course.

(4) Engineering Service Administration Area; Professional Engineering Development Division (PEDD)

The JCCP delegation met with Dr. Dahham M. Al-Anazi, Engineering Curriculum Design & Control, and reviewed the CPO seminar on total productive maintenance management (TPM) that was held in September 2011. Dr. Al-Anazi said he was in the process of analyzing the results of a questionnaire to participants of the seminar. Based on the comments provided in the questionnaire implemented by JCCP, the delegation proposed to create a course review jointly with PEDD toward improvement of subsequent seminars. JCCP would then take the new implementation plan to the management and seek its approval. The questionnaire by PEDD was implemented via the Web, and included important directions for improvement in addition to some critical remarks. Both opinions will be taken into consideration in making future improvements, including the establishment of appropriate criteria for the selection of participants.

The PEDD and JCCP sides also agreed to jointly implement customized programs on safety management and TPM in fiscal 2012. The two programs will be held simultaneously in early September after Ramadan.

(5) Gas Operation Administration Area

The meeting with the Gas Operation Administration Area was realized on short notice by introduction from Mr. Iskandrani as an important department that could help JCCP to expand its future activities. The meeting was held with Mr. Emad A. Al-Johar, Assistant to the Vice President, and Mr. Mohammed A. Al-Abdulqader, Superintendent, HRD.

The JCCP delegation gave an overview and explanation of JCCP's training programs and discussed the possibility of extending cooperation to Gas Operation, based on the understanding that the department most seeks basic and comprehensive training for its young engineers. Behind this need is a situation where technical transfer within the company has been hindered by a surge in new employees accompanying rapid business expansion and a rise in the early retirement of employees in their 50s. As a result, Gas Operation has found it necessary to depend on external training programs



Mr. Emad A. Al-Johar, Assistant to the Vice President (left)

to supplement its existing training system, which has suddenly come up short. It particularly seeks training at three levels, namely for technicians, senior operators and specialist engineers, with a large weight on training for technicians. The Gas Operation Administration Area therefore focused on the regular course on practical instrumentation control for young engineers. It requested a customized program on the same theme, and agreed to submit to JCCP a proposal for a program intended for board operators.

2. Qatar Petroleum

(1) Gas Operations Department (Mesaieed)

At the Gas Operations Department at Qatar Petroleum, the JCCP delegation met with Mr. Salem Hassan Al-Wadaani, Manager, Operation Engineering, who is himself a JCCP graduate and an avid supporter of JCCP activities. During last fiscal year's survey for future renewal of JCCP courses, Mr. Al-Wadaani was instrumental in gathering members from the Corporate Training Department, HR Department, and other principal training-related departments in a meeting in which they promised their cooperation in sending participants to JCCP training courses. The recent meeting with Mr. Al-Wadaani was therefore held to confirm the status of the situation and possible measures for improvement.

With respect to new courses, Mr. Al-Wadaani requested a new course on gas desulfurization technologies for the gas department, and expressed his approval of case

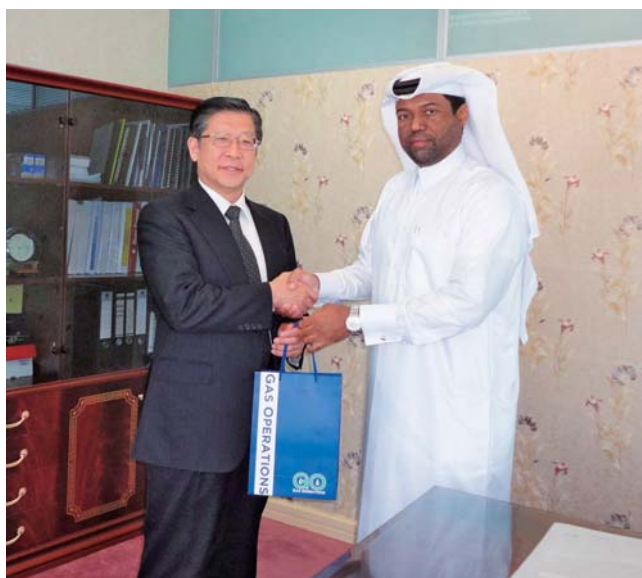
studies as an effective component of regular courses based on his experience. He also said he understands that JCCP strives to improve its courses every year by incorporating participants' feedback, and that he realizes that the content of a course may not be the same even if the course name remains the same. Furthermore, he noted that visits to refineries and relevant companies throughout Japan in addition to classroom lectures and single-venue training were especially beneficial.

Among the regular courses in the FY2012 course program, Mr. Al-Wadaani expressed interest in the courses on Diagnostic Techniques and Maintenance for Rotary Machinery (TR-10-12), Advanced Process Control on DCS (TR-21-12), turnaround and inspection and LNG, and the long course on Practical Training for Younger Instrument and Control Engineers (TR-8-12). He also expressed his approval and support of the Information Exchange Program for Young Engineers as a meaningful and important program to the Gas Operations Department.

(2) Corporate Training Department

The meeting at the Corporate Training Department was arranged by Mr. Al-Wadaani with the thought that the JCCP delegation's objectives should also be communicated to the department. The JCCP delegation therefore met with Ms. Fatima Al-Mansouri, Acting Manager, and Mr. Hermeregildo Lingat, Programme Development Supervisor.

When asked why QP has not sent participants to JCCP training since 2008, Ms. Fatima gave the following



Mr. Salem Hassan Al-Wadaani, Manager, Operation Engineering

four reasons: (1) The content of some courses is rather general; (2) Visits to Japan were postponed in 2008 due to the swine flu outbreak; (3) During 2009 to 2010, internal confusion in QP prevented the Corporate Training Department from giving heed to external training programs; and (4) Circumstances improved in 2011 and the Corporate Training Department was set on nominating several participants to the first half-year's JCCP regular courses, but the JCCP courses were canceled due to the earthquake disaster in Japan, and the department has since ceased nominating participants. The JCCP delegation emphasized that the situation in Japan has improved and JCCP operations have returned to normal, and received the Corporate Training Department's understanding.

However, the JCCP delegation was told that JCCP's annual course program has been distributed to each department in QP, and the Corporate Training Department is now waiting to receive lists of candidate participants from each department so that it could make the final selection in conjunction with the HR Department. The delegation asked the Corporate Training Department members to give them at least three months' notice if more than five or six members wish to participate, and if so, the program would be designed as a customized program. Then, in response to the delegation's request for QP's active participation in fiscal 2012 courses, the QP side promised to give the matter its positive consideration.

The QP side also expressed its wish to submit a request for a course on a specific topic as a customized program. In that vein, the JCCP delegation introduced the program on Information Exchange and Training for Young Engineers and elicited strong response from the QP side that it is precisely what QP and the HRD Department have been seeking. The QP members said they would study the proposal and hold a meeting with the HRD Department at the earliest possible time.

3. Summary

JCCP's activities are originally oriented to the oil downstream sector, but in recent years, there has been an increase of expectations for JCCP activities in a wider range of sectors in addition to the refinery and refinery-related sectors, such as the pre-processing sector that engages in processes following crude oil and gas drilling.

At Saudi Aramco, in particular, the scope of negotiations has expanded as a result of proposals

directed to JCCP from the company's departments, such that expectations of JCCP have grown stronger from departments across the board. Furthermore, there are also increasing expectations of innovative changes to JCCP training arising from Saudi Aramco's rapid business expansion, its recent announcement of a joint venture with Dow Chemical, and other developments toward its advancement in the petrochemical field.

Qatar Petroleum's Gas Operation Department showed an understanding of JCCP training programs, and hopes to more actively participate in them. The Corporate Training Department expressed strong interest in the information exchange program for young engineers, and said it would give serious consideration to its implementation. QP members were also positive about resuming once again sending participants to JCCP regular courses.

Based on the above, JCCP intends to consider incorporating the following perspectives in future training programs.

(1) Switch from oil refining to high value-added industries

Based on the understanding that oil refining alone is insufficient to improve the demand-supply balance and the employment environment in a country, efforts will be made to include topics related to the integration of the gas operations, petrochemical and electric power businesses and other trends toward high added value in future courses.

(2) Technical tradition

The transfer of technologies from older to younger engineers is becoming a pressing issue given the mass retirement of skilled engineers, and is increasing needs to learn about the tradition of knowledge and skills in Japan through a study of actual examples. Aside from upgrading the courses, consideration will also be given to the feasibility of incorporating on-the-job training at offsite facilities by mentors and hands-on field training.

(3) Follow-up of training objectives and results

Consideration will be given to creating a scheme that would make it apparent to the superiors of regular course participants what differences the course has brought. For example, it is perhaps worth considering a scheme in which the objectives and scope of activities that could be applied to the participants' workplaces upon their return, and specific trouble cases related to the participants'

responsibilities, are clarified prior to each course and borne in mind during the training, so that participants could create effective action plans.

With the awareness that steady negotiation efforts and efforts to strengthen personal connections still need to be continued, JCCP hopes to make regular visits to counterparts in oil-producing countries with the immediate purpose of maintaining its personal relationships with relevant departments.

<by Fumihito Tone, Training Dept.>



Report on the Training Cooperation Program

—Saudi Arabia— in November 2012

A JCCP delegation visited four departments at Saudi Aramco from November 8 to 14, 2012, to promote the FY2013 JCCP Annual Program, adjust the content of customized programs, and seek requests for JCCP assistance in Saudi Aramco's training programs.

1. Dhahran Head Office: Professional Development Department, Training & Development

The delegation met with Mr. Raed H. Al-Rabeh, Director, Professional Development Department, who oversees the development of human resources who can fully demonstrate not only their technical expertise, but also their management potential in all fields and departments.

Mr. Al-Rabeh said the following: Saudi Aramco is engaging in technical development as a long-term strategy, and is placing particular emphasis on energy-saving technologies, power generation technologies and technologies for improving energy saving and efficiency in buildings. Recognizing that human resource development is essential to achieving this technical development over the long term, the company is directing urgent efforts to cultivating advanced professional skills among its employees. Giving priority to improving personal qualities, it is providing training beginning with an overview of Saudi Arabian culture and the history of Saudi Aramco's culture and education. Saudi Aramco is

also concentrating on developing human resources in the chemical field, as it aims to achieve integration with the chemical department.

Within JCCP's FY2013 course program, Saudi Aramco has taken notice particularly of courses on renewable energies, new technologies for a hydrogen society, and heavy oil upgrading, as they are important issues related to the petrochemical field. It has also expressed interest in the environmental management course, as its content has been significantly improved.

As a characteristic of Saudi Aramco's human resource development effort concerning its female employees, the company has set a target of increasing the advancement rate of its female employees to 20%. The JCCP delegation offered its support of women's advancement in Saudi Aramco by implementing a customized program specifically for women, if so requested.

2. Professional Engineering Development Division (PEDD)

PEDD is responsible for examining and providing internal training programs to professional engineers in all sectors at Saudi Aramco, with the objective of further improving their expertise.

JCCP approached PEDD for the first time in 2009, and implemented its first course (total productive maintenance management (TPM)) under PEDD in September 2011.

In the recent meeting, the JCCP delegation met with Dr. Thurston M. Williams, Program Developer & Evaluation Analyst, and Dr. Dahham M. Al-Anazi, Head of PEDD (A), to discuss PEDD needs and possible themes for JCCP cooperation. First of all, in regard to programs related to chemical issues, the JCCP delegation recommended the regular course on heavy oil upgrading, and explained how the participation of PEDD engineers in this field would be effective. The PEDD members showed strong interest in the educational materials on refinery maintenance management (three categories) that were introduced by the Japan Petroleum Institute, and said consideration will be given to including them in PEDD's 2014 training program.



Mr. Raed H. Al-Rabeh, Director, Professional Development Department (right)

3. Refining & NGL Fractionation Administration Area

The JCCP delegation met with Mr. Sami A. Iskandrani, Assistant to the Executive Director of Refining & NGL Fractionation.

Mr. Iskandrani first explained that there was a company-wide reshuffling of employees as of October 1, 2012, with particularly large movements in the downstream departments. Mr. Mohammed A. Al-Omar, Vice President, who had a good grasp of JCCP personnel development activities, was replaced by Mr. Omar S. Bazuhair, Executive Director. Additionally, the Chemicals Operations Department was newly established in the downstream business area, vested with the responsibility of overseeing joint projects with chemical companies. Under this situation, the JCCP delegation recommended the course on heavy oil upgrading as an ideal approach to establishing cooperation with the chemical industry, and offered to consider a customized course, if so required.

In regard to the FY2013 JCCP course program, the delegation pointed out the new offerings and explained the significant changes that have been made from the previous program. Mr. Iskandrani listened to the explanation with approval, and requested the enhancement of two courses: a course that focuses on the corrosion of static and dynamic equipment and countermeasures, and a course dedicated to facility reliability. He was aware that there are courses that cover the relevant themes, but desired more emphasis on the technical aspects of those themes. (The delegation later found out that Mr. Iskandrani took early retirement and left the company on November 28.)



Mr. Sami A. Iskandrani, Assistant to the Executive Director of Refining & NGL Fractionation (right)

4. Training & Development Administration Area

The objective of the recent meeting at the Training & Development Administration Area was to inform the department that the views and requests received in response to a previous survey for renewal of JCCP training programs have been incorporated in the FY2013 course program. Through an introduction from Ms. Huda Ghoson, Executive Director, Employee Relations & Training, the JCCP delegation met with Mr. Nasser A. Al-Nafisee, General Manager, Training & Development, who took over Ms. Ghoson's previous position. At the beginning of the meeting, the JCCP delegation thanked him for participating in the FY2012 JCCP International Symposium and giving a special speech.

The JCCP members explained the FY2013 JCCP course program and its four new themes, and recommended the course on heavy oil upgrading as a chemistry-related theme suited to Saudi Aramco's needs. They also noted that a customized course could be organized, with a special focus on important processes that use chemical raw materials.



Mr. Nasser A. Al-Nafisee, General Manager, Training & Development (center)

5. Summary

The JCCP delegation's recent visit revealed that major personnel changes were made in Saudi Aramco's downstream departments as of October 1, 2012 and a new administration has been established. JCCP is thus preparing to build new relationships in the company at an early stage.

Accompanying these changes, a change has also been made in regard to counterpart departments of JCCP

training activities in Saudi Aramco. Up to now, JCCP has been sending annual programs and individual course programs separately to the head of the Downstream Administration Area, the training center in each refinery and the Training & Development Department. However, in the meeting, it was agreed that JCCP would maintain its relationship with the Downstream Administration Area as before, but will send all training-related

documents intended for Saudi Aramco as a whole to Mr. Al-Rabeh, as proposed by Mr. Al-Rabeh himself. As his department has overall control of professional training, centralized responses to JCCP training would be ensured.

The various requests received from Saudi Aramco will be discussed among all relevant parties and specifically addressed hereafter.

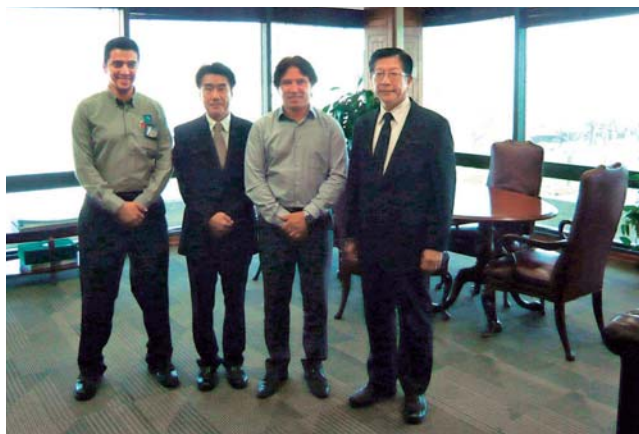
<by Fumihiro Tone, Training Dept.>

Report on the Training Cooperation Program —Saudi Arabia— in September 2013

A JCCP delegation visited Saudi Arabia from August 27 to September 7, 2013, under the Training Cooperation Program, which aims to strengthen relations with major oil-producing countries and provide cooperation in human resource development. More specifically, Eiji Okuyama from the Operations Department and Fumihito Tone from the Training Department visited Saudi Aramco and its subsidiaries and met with key persons in relevant departments to present the FY2014 schedule of regular courses, discuss JCCP's assistance in Saudi Aramco's educational programs, and explain about the alumni meeting JCCP is planning to hold in Saudi Arabia next year.

1. Jeddah Refinery

The JCCP delegation held a meeting regarding training issues with Mr. Khalid Al Sanie, Supervisor (A), Training Unit, and Mr. Rayyan S. Taybe, Training Coordinator, Training Unit. They first introduced new JCCP regular courses that will be offered in fiscal 2014, and gave a description of each course and improvements that have been made. They also noted that course names have been reviewed and the content of some of the courses has been significantly upgraded during the past two years, to respond to needs in each country and present-day situations. The members of Jeddah Refinery showed strong interest in the new course on strategic management for managers, and advised the JCCP members that courses for managers should be strengthened, as managers have the power to make business decisions. In regard to customized programs (CPO), the JCCP delegation proposed a seminar that combines visualization activities in the refinery, safety training, and an onsite HAZOP study, based on the previous refinery manager's request for a CPO on improvement of behavior patterns for enhancement of safety, made on the occasion of a previous visit to the Jeddah Refinery by Mr. Masataka Sase, Executive Director of JCCP. After receiving a tour of the refinery, the JCCP delegation met with Mr. Yahya A. Abu Shal, Jeddah Refinery Manager, to give an overview of the foregoing meeting.

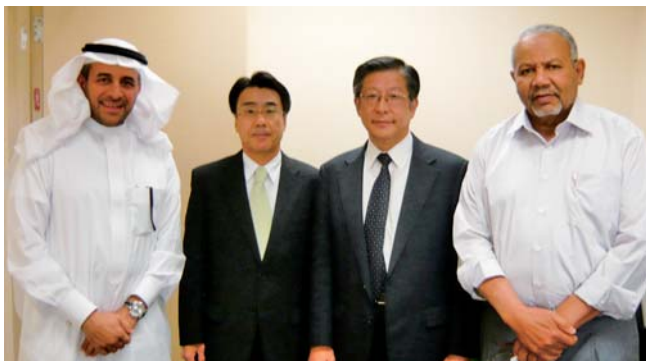


*At Jeddah Refinery:
Mr. Yahya A. Abu Shal, Jeddah Refinery Manager (second
from right) and Mr. Khalid Al Sanie, Supervisor (A),
Training Unit*

2. Petro Rabigh

At Petro Rabigh, the JCCP delegation met with Mr. Hisam H. Azzouz, Manager, Employee Relations & Training Department, and Mr. Mohammed O. Mehani, Section Head ER&T/T&CD. Showing primary interest in JCCP customized programs, the Petro Rabigh members strongly requested the implementation of a CPO seminar by JCCP experts. In regard to content, the JCCP delegation explained that JCCP could accommodate seminars on themes that are covered in regular courses, and recommended Petro Rabigh to come up with an appropriate theme at a later date. The Petro Rabigh members also expressed positive response to implementing a seminar on visualization activities, so the two sides agreed to hold continued talks in that regard. Furthermore, they favorably accepted the improvements made to FY2014 regular courses, and said they wish to continue sending their employees to participate in the courses next year. They also expressed interest in participants' feedback of the results of their training, with Mr. Azzouz pointing out that a feedback mechanism should be established. The JCCP delegation explained that after each course, all participants are required to write a brief report on their initial expectations of JCCP training, impressions after attending the course, and a future plan of action, to clarify what they have learned and be consciously aware of how it may contribute to

their present jobs. The Petro Rabigh members agreed to the delegation's proposal to send these reports along with the evaluation of participants that is sent out after each course, so that Petro Rabigh could provide its feedback to JCCP about the results of training.



At Petro Rabigh: Mr. Hisam H. Azzouz, Manager, Employee Relations & Training Dept. (left), and Mr. Mohammed O. Mehani, Section Head ER&T/IT&CD (right)

3. Yanbu Refinery

At Yanbu Refinery, the JCCP delegation met with the following members: Mr. Adel Misfer Al-Ghamdi, Yanbu Refinery Head; Mr. Basim A. Zarie Superintendent, Planning & Training Division (participated in a regular course on maintenance management in 2008); Mr. Saleh S. Al-Nahdi, Superintendent Maintenance Division; Mr. Fahd E. Shetairi, Superintendent Operations Division; Mr. Hasan M. Asiri, Superintendent Engineering Division; and previous participants of a JCCP seminar.

Based on the understanding that the management of Yanbu Refinery has an interest in practical training, the JCCP delegation proposed Part 3 of a seminar on visualization activities, following two that have previously been implemented at Yanbu Refinery. As the Yanbu management is focused on improving employee mindset and behavior patterns, it requested the continued implementation of the seminar with the awareness that it is an important theme, particularly given the increasing number of young employees in the company.

Mr. Al-Ghamdi noted that the program includes a lecture on accident examples in Japan and said it would be highly beneficial, but also requested the inclusion of an explanation of problems experienced at Yanbu Refinery and discussions with the instructor. He said that since approximately half of the staff at the refinery are engineers with less than five years' experience, having them acquire practical skills on site is more important than providing book knowledge, and asked what is needed to change their mindset so they become capable of making

independent, active efforts within the proposed five days of the seminar. The JCCP delegation responded that particularly necessary are the proper understanding and change in mindset of superintendents and supervisors, the adaptation and application of TPM to Saudi Arabian culture as a means for understanding Saudi Aramco's culture, and follow-up of activities through ongoing efforts and diverse other means including email. In these ways, the meeting provided a good opportunity to deepen mutual understanding between Yanbu Refinery and JCCP. On a final note, Mr. Al-Ghamdi expressed his opinion that the proposed seminar would be highly meaningful, and would like JCCP to continue its implementation.

After the management made their exit, the JCCP members held a feedback meeting with the participants of a previous JCCP seminar. They said training is meaningless unless it is implemented in a manner that is easily understood by all participants, and in this respect, they rated the JCCP seminar on visualization as having been extremely easy to understand. They also explained that previous participants of the seminar are making ongoing efforts to implement visualization activities in their respective workplaces under the leadership of Mr. Mohammed S. Aidarous, YR Training Unit Supv P&T Division. Additionally, Mr. Yousef Saleh Al Ghamdi, Frmn Multicraft Maintenance, who attended a CPJ information exchange seminar for young engineers, talked about how his Japanese experience triggered a change in himself, and about how he was struck throughout the course of the seminar by the Japanese people's way of life that highly values use of time. He also mentioned that Japanese culture has become a topic of interest after being featured in a program broadcast in Saudi Arabia titled "Khawater" (literally meaning "thought" or "insight"). ("Khawater Japan" can be searched on YouTube.)



At Yanbu Refinery: Mr. Adel Misfer Al-Ghamdi, Yanbu Refinery Head (second from right), Mr. Mohammed S. Aidarous, YR Training Unit Supv P&T Div. (far right), and Mr. Mustafa M. Almahdi, Manager, Yanbu Refinery (center)



Participants of a previous JCCP seminar

4. Training & Development Administration Area

At the Training & Development Administration Area, the JCCP delegation met with Mr. Nasser A. Al-Nafisee, General Manager Training & Development, and Mr. Dandany F. Jamil, Director, Educational Partnerships Department, to introduce the FY2014 schedule of JCCP regular courses and seek continued support of JCCP activities. Mr. Al-Nafisee thanked JCCP for its cooperation and expressed his wish to continue receiving and drawing on JCCP's far-sighted support to benefit employee training at Saudi Aramco. Junichi Kasuya, General Manager of the JCCP Riyadh Office, then joined the meeting to discuss the planning and implementation details of the JCCP alumni meeting scheduled to be held in Saudi Arabia next year.

5. Professional Engineering Development Division (PEDD)

PEDD is responsible for developing and implementing in-house training programs on carefully selected technologies to enhance the expertise of professional engineers in all sectors at Saudi Aramco. In a meeting held last year, PEDD showed interest in the educational materials on refinery maintenance management that were compiled by the Japan Petroleum Institute and translated by JCCP, and requested a customized seminar on inspection based on the materials. PEDD and JCCP thus mutually examined the possibility of its implementation.

In this year's meeting, JCCP members met with Dr. Thurston M. Williams, Supervisor Engineering Curriculum Design (A), and Mr. Rasid K. Rahman, Engineer III, to verify the content of the seminar and discuss dates for implementation. As a result, the

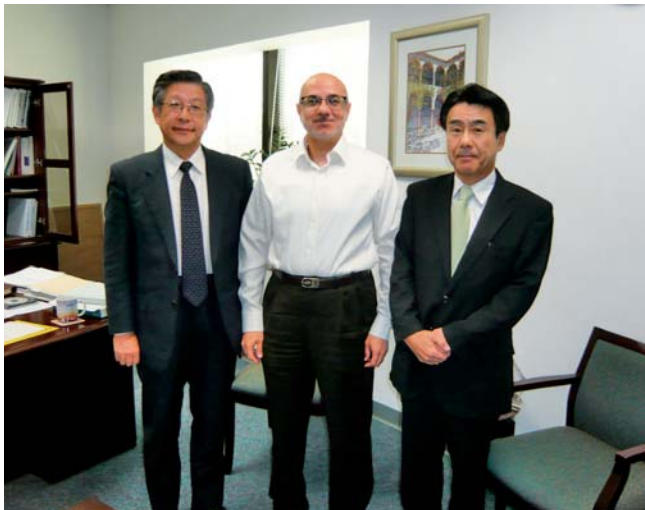
seminar was decided to be held from February 9 to 13, 2014, according to the program proposed by PEDD. Furthermore, as a new initiative, it was agreed that a mini-test would be held at the end of each day to verify the participants' degree of understanding. Through such initiatives, PEDD and JCCP agreed to continually implement programs that probe deep into various technologies.



*At PEDD:
Dr. Thurston M. Williams, Supervisor (right), and
Mr. Rasid K. Rahman, Engineer III (left)*

6. Dhahran Head Office: Professional Development Department, Training & Development

At the Dhahran Head Office, the JCCP delegation met with Mr. Raed H. Al-Rabeh, Director, Professional Development Department, to discuss training programs for fiscal 2014. They explained that the regular course on refinery management has been replaced by a new course entitled "Strategic Management," designed to promote strategic thinking about future corporate activities among current and future management personnel of business planning departments in oil companies. Mr. Al-Rabeh said he thinks the course would greatly benefit Saudi Aramco, as the company strives to operate based on long-term strategies, and shared his view that it is extremely important to seek added value in petrochemical business based on an analysis of market needs and future trends. Besides the chemical departments in which Saudi Aramco is currently expanding its business, Mr. Al-Rabeh explained that the company's main concerns lie in maximizing added value through the efficient utilization of energy, conserving the use of oil for combustion purposes through the use of alternative energy sources, and optimizing the sale of products, and said JCCP courses offer important value by



*At Dhahran Head Office:
Mr. Raed H. Al-Rabeh, Director, Professional Development
Department (center)*

providing an opportunity to study the interrelationship of various topics from a wide perspective instead of from a single field only. Furthermore, he stated that the course is precisely what Saudi Aramco and companies in the GCC countries have been seeking.

The JCCP delegation also received an important assignment, to give due consideration to responding to greater expectations of the new course and to design a seminar that addresses the following issues: (1) In what areas should future investments be made? (2) What is the ideal unit configuration in a refinery? As it is becoming necessary to create production plans that meet product demand, a course that can satisfy this need is sought; (3) Cooperation with related business fields, particularly in the supply of raw materials for products; (4) Importance of enhancing energy efficiency, not independently, but as a collective effort through joint ventures and projects; (5) Alternative industrial energies and the establishment of a value chain in which oil products are not only burned but are given added value as feedstock for petrochemical products; and (6) How can efficient and effective operations be achieved in the chemical field?

In regard to JCCP activities as a whole, Mr. Al-Rabeh emphasized that they are extremely effective in helping build human networks. He described how he met Ms. Salma Al Hajjaj, then Director, Center for Leadership Development, KNPC, while participating in a JCCP International Symposium, and later invited her to Saudi Aramco to give a lecture on female initiatives in companies. He said the undertaking was so popular that they have maintained their ties, and thanked JCCP for the opportunity to participate in the international symposium and acquire such an important relationship.

7. Refining & NGL Fractionation Administration Area / Ras Tanura Refinery Training Unit

There had been no participants to JCCP regular courses from the Ras Tanura Refinery for the past few years, but the JCCP delegation created an opportunity to meet with Mr. Omer Al-Ghamdi, HRDU Supervisor (scheduled to participate in a regular course on HRD in FY2013), and Mr. Yahya Q. Dagheriri, HRD Supervisor (participated in a regular course on human resource management in FY2009).

The JCCP members first introduced the FY2014 schedule of regular courses, explaining that a course on strategic management had been newly launched in place of the refinery management course. The refinery members said they will consider the participation of management level personnel from Ras Tanura.

The meeting next moved on to a discussion of onsite visualization activities as part of a customized program. The Ras Tanura Refinery was well aware of the results of training programs implemented at the Yanbu Refinery to date, and thus requested a seminar at Ras Tanura as well, saying they would contact JCCP at a later date about their preferred number of participants and suggested improvements to the content of the seminar.

Ras Tanura Refinery members explained that, for the refinery, the advantages of JCCP regular courses are that they offer participants an opportunity to interact with people from other countries and to acquire an awareness of diverse issues that lie beyond the course. By participating in a regular course, Mr. Dagheriri said he personally learned a great many things in Japan, including not only about how to work efficiently, but also about ways of life, proper conduct and behavior,



*At the Refining & NGL Fractionation Administration Area:
Mr. Omer Al-Ghamdi, HRDU Supervisor (right), and
Mr. Yahya Q. Dagheriri, HRD Supervisor (left)*

mentality, and how people are objectively viewed by others. He said he has never forgotten his JCCP experience, as it underlies the motivation for all of his activities. Mr. Daghriri's words that JCCP regular courses have special meaning by offering a forum for cooperation and networking and not merely for training, and that he wishes the courses will continue to manifest this meaning in their implementation, left a particularly strong impression on the JCCP members.

8. Southern Area Industrial Training Division

The JCCP delegation met with Mr. Muhammad S. Al-Muraikhi, Superintendent (A), and 14 staff members from three training centers for upstream operations (branch organizations of the Head Office Industrial Training Division in charge of developing operators and technicians) located in the southern area of Abqaiq, where the center of Saudi Aramco's Ghawar Oilfield lies. After receiving a general introduction of the training division, the JCCP members introduced JCCP, presented the FY2014 regular course schedule, and proposed the implementation of practical training in the form of a Customized Program-Overseas (CPO).

The JCCP delegation's presentation met with a favorable response on the whole, and elicited a variety of questions. Given the nature of the training division, the presentation seemed to provide useful information for considering the participation of their staff members in JCCP courses. The JCCP members also introduced a record of customized programs implemented at Saudi Aramco to date while noting that no seminars have been held in the Southern Area since a CPO for maintenance departments was implemented in fiscal 2010, and urged the future implementation of a seminar.



With staff members of the Southern Area Industrial Training Division

9. Summary

By introducing the FY2014 regular course schedule and discussing possible customized programs for Saudi Aramco, the JCCP delegation achieved the intended objectives of its recent visit. With respect to regular courses, the meetings with relevant personnel revealed a high level of expectation in the course on strategic management that will be newly offered in place of the course on refinery management. The JCCP delegation also received positive responses toward the course improvements and the changes in course titles that were made to more closely correspond to the content of each course. In regard to customized programs, the JCCP delegation received formal requests for implementation of the same practical training on visualization that was held at the Yanbu Refinery, also at the Jeddah Refinery, Ras Tanura Refinery and Petro Rabigh. Detailed meetings on the content and dates for their implementation are planned to be held hereafter. As a follow-up to regular courses, the JCCP members informed the Saudi Aramco side that JCCP will launch a new initiative to promote further understanding and cooperation by JCCP counterpart departments, by having regular course participants write a review of their course and sending these reports to the counterpart department along with the participant evaluations that are sent out after each course. This initiative was met with strong approval by all departments. In the meantime, JCCP will make ongoing preparations toward the organization of an alumni meeting in Saudi Arabia next year.

<by Fumihiko Tone, Training Dept.>

FY2012 JCCP Program Seminar

The JCCP Program Seminar was held for the second time this year, over an eight-day period from February 27 to March 6. The seminar invites to Japan managers of human resource departments from oil companies in oil-producing countries who act as JCCP counterparts, to personally experience the training program that JCCP regular course participants attend, and to individually discuss and exchange views about JCCP activities with JCCP staff for improvement of future training programs.

The seminar was held twice this fiscal year, in consideration of the fact that expectations and requests of JCCP differ among regions and countries. This time, the seminar was offered to the Middle East and GCC countries, while the previous seminar held last July was offered to other oil-producing countries.

1. Participants

A total of six participants from four Middle East/GCC oil-producing countries, namely Iraq, Oman, UAE and Saudi Arabia, attended the seminar.

2. Seminar Content

(1) Regular course experience

The seminar provided an opportunity for the participants to experience the main activities of a regular course (preliminary orientation session, opening ceremony, administrative guidance, lectures at JCCP, offsite training, exposure to Japanese culture and history, closing ceremony, etc.) and deepen their understanding of JCCP regular courses.

(2) Lecture on Japanese-style management methods (Kaizen, Total Productive Management (TPM), etc.)

A lecture was given on Kaizen, TPM, small-group activities, and other such management practices to provide deeper understanding of these subjects and elicit training requests from the participants. Part of an actual program was also implemented for the experience.

The participants also experienced offsite training by visiting Idemitsu Kosan Co., Ltd.'s Tokuyama Refinery and observing small-group activities implemented at the refinery.



Seminar participants and JCCP staff

(3) Presentations by the participants and hearing of requests

The participants each gave a presentation on the status of human resource development in their respective countries and what they expect of JCCP, and mutually exchanged views on the presented topics. This session provided an understanding of human resource development in each country, as well as eliciting general requests for future JCCP courses.

3. Summary

As mentioned above, this Program Seminar was held for JCCP counterparts from Middle East oil-producing countries, which together account for 90% of Japan's crude oil imports. As a result, it not only benefited the participants, but also shed light on issues common to countries in the region.



At Idemitsu Kosan's Tokuyama Refinery

JCCP hopes the participants will widely share their knowledge of JCCP upon returning to their countries and thereby contribute to increasing the number of participants to JCCP regular courses.

<by Koichi Ito, Operations Dept.>

	Organization & Country	Name	Position
1	Iraq Ministry of Oil / Iraq	Mr. Jasim Mohammed Hameed	Expert, Manager of Technical Division, Deputy of D.G., Technical Division
2	Iraq Ministry of Oil / Iraq	Mr. Saad Ahmed Abdulkhaleq	Chief of Senior Physicist, Training & Human Resources Development Dept., Daura Refinery
3	Orpic / Oman	Mr. Ali Said Al Mahrouqi	Team Leader, Training Logistics Services, HR Services Div.
4	Orpic / Oman	Mr. Sultan Mohammed Sulaiman Al-Alawi	Sr. HR Performance & Development, HR Support-Performance & Development Dept.
5	ADNOC / UAE	Mr. Zayed Mohamed Taher Lahdan Al Shuaibi	Head, Reception & Travel Department, Public Relations-Human Resources
6	Saudi Aramco / Saudi Arabia	Mr. Abdullah A. Al-Mustaneer	Career Counselor, Career Planning & Consultation Division, Professional Development Department

Completion of Phase I of the Technical Cooperation Project on Enhancement of FCC Catalyst Evaluation in Saudi Arabia

A JCCP Technical Cooperation Project on “Enhancement of FCC Catalyst Evaluation in Saudi Arabia” was jointly implemented with King Fahd University of Petroleum & Minerals (KFUPM) over a three-year period beginning in fiscal 2008, in response to a strong request by Saudi Aramco, Saudi Arabia’s state-owned oil company. The goal of the project was to develop KFUPM’s capacity for evaluation and development of catalysts that could be used in fluid catalytic cracking units (FCCs) that many countries in the Middle East have begun to construct as a central equipment in their refineries.

All activities that were initially planned (Phase I) have been completed as summarized below, and the project has entered Phase II.

1. Background to the Project

An FCC unit is an equipment in which powdered catalyst reacts with heavy oil at high temperatures by fluid reaction and breaks the heavy oil feedstock into light fractions to produce more valuable LPG, gasoline, and middle distillates. It is a cracking unit that is widely acknowledged by the oil industry and considered a core equipment in many refineries. In fact, Saudi Aramco has built a high olefin fluid catalytic cracking unit (HOFC) at Rabigh in response to the recent increase in demand for petroleum and petrochemical products, and is also planning or otherwise already building FCC units in some of its export-oriented refineries. Under this situation, Saudi Aramco recognized the urgent need for its refineries to acquire FCC catalyst evaluation and development technologies, and requested KFUPM to play a role in their acquisition. Against this background, JCCP launched a technical cooperation project in fiscal 2008 to develop the capacity for FCC catalyst evaluation and development in KFUPM.

2. Overview

- 1) Implementation period: April 1, 2008 – March 31, 2011 (three years)
- 2) Counterpart: KFUPM
- 3) Participating companies: JX Nippon Research Institute Ltd., JX Nippon Oil & Energy Corporation, JGC Catalysts and Chemicals Ltd.
- 4) Activities: The following activities were implemented toward the development of FCC catalyst evaluation and development technologies at KFUPM.
 - (1) Introduce an advanced cracking evaluation (ACE) unit, the newest type of FCC catalyst evaluation unit available, to KFUPM.
 - (2) Provide training in the operation of the ACE unit and guidance for the analysis of operating data acquired from the ACE unit, as means of transferring FCC catalyst evaluation technology to KFUPM
 - (3) Provide lectures and seminars to KFUPM researchers, and invite engineers to Japan for hands-on training in the procedures and methods of FCC catalyst development

The ACE unit was manufactured in fiscal 2008 and delivered and installed in KFUPM in fiscal 2009. The series of technical assistance activities thereafter consisted of the following.

It is worth noting that, after introduction of the ACE unit to KFUPM, KFUPM researchers have begun engaging in the evaluation of catalysts by operating the ACE unit themselves.

- (1) Prior to introducing the ACE unit to KFUPM, KFUPM researchers were invited to the Research and Development Institute of JX Nippon Oil & Energy Corporation to receive training in the operation and function of the ACE unit using the unit installed in the research institute, as well as training in the evaluation and analysis of FCC catalysts.



ACE training at the Research and Development Institute of JX Nippon Oil & Energy Corporation: (from the right) Mr. Rahat, Mr. Ramzi, Mr. Yoshihara

- (2) Explanations and instructions were given regarding the pseudo deactivation of FCC catalysts, which is necessary for the evaluation of fresh FCC catalysts, using technology that can accurately simulate the pseudo deactivation of FCC catalysts in the laboratory.
- (3) KFUPM researchers were invited to the Kitakyushu Operation Center of JGC Catalysts and Chemicals Ltd. to study the basic properties of zeolite catalysts and the effect of additives on catalysts through actual examples, and to receive technical training.
- (4) In fiscal 2010, an X-ray diffraction (XRD) unit was installed to allow for structural analysis of zeolite that is necessary for catalyst development, and technical guidance was provided for the structural analysis of zeolite and other technologies relevant to FCC catalyst development.

Through introduction of the ACE unit and XRD unit, operational training of the units, and technical guidance for analyzing data acquired from the evaluation unit,



Article and picture of the project featured in Al-Yaum, a local newspaper

as discussed above, the foundation for FCC catalyst evaluation and development has begun to take shape at KFUPM.

At a project achievement meeting held at KFUPM on February 1, 2011, the KFUPM side gave a report on two studies on the status of FCC unit introduction in the Middle East countries and on FCC catalyst evaluation and structural analysis using the ACE and XRD units. The Japanese side presented the results of an economic assessment of feeding the light cycle oil that is produced in the FCC unit back to the FCC unit.

At the end of the meeting, Dr. Sulaiman S. Al-Khattaf, Director of KFUPM and the responsible authority of the project on the KFUPM side, thanked JCCP for its support and assistance in the project.

3. Observations

As mentioned earlier, this project aimed to establish an R&D system for FCC catalysts within KFUPM by providing technical guidance to KFUPM researchers on the evaluation and development of FCC catalysts to be used in FCC units. The initial goal of the project was considered achieved when KFUPM researchers acquired the necessary technologies for the operation and data analysis of the ACE unit. The unit has quickly become a standard FCC catalyst evaluation unit in many refineries, but when it was introduced for the first time in this project in the Middle East, the local newspaper carried an article about it, and the project garnered strong attention from many relevant institutions.

The project will be ultimately reviewed and evaluated by an Ex-post Evaluation Committee composed of external experts.

As an increase in future demand for polypropylene is anticipated in the coming years, a study on “Development of High Olefin Yield FCC Catalysts” has been launched in fiscal 2010 as Phase II of the project, with the aim of developing a new catalyst that can provide a high yield of olefin from the FCC unit.

Through joint cooperation projects with KFUPM such as this particular project, JCCP hopes and expects to further strengthen and expand ties between Saudi Arabia and Japan.

<by Takeyoshi Haishima, Technical Cooperation Dept.>

Signing Ceremony with KFUPM for the Project on “Development of High Olefin Yield FCC Catalyst”



Signing ceremony:

(Front row, from left) Dr. Mohammad Al-Homoud, Vice Rector for Academic Affairs, KFUPM; and Mr. Morihiro Yoshida, Managing Director of JCCP

(Back row, from left) Dr. Sulaiman Al-Khattaf, Director of KFUPM Center for Refining and Petrochemicals; and Mr. Masaki Ikematsu, Senior Vice President, JX Nippon Research Institute, Ltd.

On September 14, 2011, JCCP and King Fahd University of Petroleum and Minerals (KFUPM) held a contract signing ceremony for implementation of the joint research on “Development of High Olefin Yield FCC Catalyst” at KFUPM in Saudi Arabia. In the presence of Mr. Mitsuru Murase, Counsellor at the Embassy of Japan in Saudi Arabia, the contract was signed by Dr. Mohammad Al-Homoud, Vice-Rector for Academic Affairs, who stood in for Dr. Sahel N. Abdul-Jauwad, Vice-Rector for Applied Research; and Mr. Morihiro Yoshida, Managing Director of JCCP. Also present were Mr. Masaki Ikematsu, Senior Vice President, JX Nippon Research Institute, Ltd., and Mr. Yasuharu Furukawa, Managing Director, JGC Catalysts & Chemicals Ltd., representing the participating companies on the Japanese side. News about the ceremony and details of the project was published in a number of local newspapers.

In his opening speech, Dr. Al-Homoud described that KFUPM has developed excellent ties with JCCP and other partners in Japan over the past two decades, and the joint research on FCC catalysts is a continuation of the success story of the fruitful collaboration with JCCP in

this important area. He also thanked all parties concerned for their unified cooperation to achieve the goal of enhancing KFUPM’s capability and expertise in catalyst design for increased olefin production, and expressed his expectation that the new project would deepen mutual understanding, ties, and friendship and further expand collaboration between the two organizations into a broader range of other areas of mutual interest.

Mr. Murase commented on Saudi Arabia and Japan’s mutually important relationship, and said the KFUPM-JCCP joint study is expected not only to contribute to Saudi Aramco’s intent and vision for 2020 by increasing production of olefin, but also to strengthening the general friendship of the two countries, including their complementary relationship in the energy sector.

Mr. Yoshida expressed his heartfelt gratitude for the message of warm sympathy extended by the people of Saudi Arabia after the March 11 earthquake and tsunami, saying that their support and encouragement gave Japan courage to overcome the disaster. He then talked about the joint studies that JCCP and KFUPM have implemented over the 18 years since 1993. In regard to

the study of FCC catalysts for high olefin production, he explained that while a previous project, which was implemented from 2008 to 2010, placed emphasis mainly on how to evaluate FCC catalysts, the new project that begins in 2011 will aim to enhance the technical level of FCC catalysts to increase the production of olefins not only from heavier feed oil but also from lighter feed oil, naphtha. Project activities include supplying a micro-activity test (MAT) unit for naphtha trial order for FCC test catalysts, and basic research up to the practical research on the correlation between the design specification of FCC catalyst and olefin yield.

Mr. Yoshida also said he hoped the project would be conducted successfully as well, with the effort and cooperation of all parties involved, and reaffirmed JCCP's commitment to build a firm and reliable relationship between Saudi Arabia and Japan by conducting the joint technical projects.

Messrs. Ikematsu and Furukawa introduced their respective companies, JX Nippon Research Institute and JGC Catalysts and Chemicals, and expressed enthusiasm for their participation in the project.

Project Overview

1. Background

In recent years, Saudi Aramco has experienced an increasing demand for olefins such as polypropylene. Therefore, in order to increase olefin production, it has

asked KFUPM to conduct a study on FCC catalysts that would provide a higher yield of olefins from naphtha, light oil, etc. compared with conventional catalysts.

Under such circumstances, KFUPM and JCCP have agreed to carry out a joint R&D project on FCC catalysts for high olefin yield from fiscal 2011 to 2013, based on the results of a previous project on "Enhancement of FCC Catalyst Evaluation," which was implemented from fiscal 2008 to 2010.

The new project aims to enhance KFUPM's technical capability to an adequate level for designing FCC catalysts for high olefin production by assessing the correlation between FCC catalyst composition and olefin yield by using vacuum gas oil feed and naphtha feed.

2. Overview of the Previous Project

The new project is based on the results of a previous project that was implemented over the past three years with a focus on the introduction of FCC catalyst performance evaluation technologies. In that project, an advanced cracking evaluation unit (ACE unit) was introduced to KFUPM to evaluate FCC catalysts for gas oil and other heavy oil feedstock, and operational training of the unit was provided at the Central Technical Research Laboratory of JX Nippon Oil & Energy Corporation. Additionally, lectures on FCC catalyst evaluation methods were provided by researchers from JGC Catalysts and Chemicals Ltd. The project came to a successful conclusion after achieving the intended results



*Members of the signing ceremony:
 (Front row, from left) Mr. Yasuharu Furukawa, Managing Director, JGC Catalysts & Chemicals Ltd.;
 Mr. Mitsuru Murase, Minister at the Japan Embassy in Saudi Arabia;
 Dr. Mohammad Al-Homoud, Vice Rector for Academic Affairs, KFUPM;
 Mr. Morihiro Yoshida, Managing Director of JCCP;
 Dr. Sulaiman Al-Khattaf, Director of KFUPM Center for Refining and Petrochemicals;
 Mr. Masaki Ikematsu, Senior Vice President, JX Nippon Research Institute, Ltd.; and
 Mr. Kenji Nita, General Manager, JCCP Riyadh Office*

in introducing FCC catalyst evaluation technologies for gas oil and other heavy oil feedstock.

3. New Project

The new project that begins in fiscal 2011 will take Saudi Aramco and KFUPM's requests into consideration and will focus on technologies for the development of FCC catalysts that would produce high yields of propylene and other olefins not only from gas oil and other heavy oil feedstock, but also from light naphtha feedstock. For this purpose, a naphtha micro-activity test unit (MAT unit) will be installed at KFUPM.

The following is the basic outline of the project.

FY2011:

An FCC catalyst design for high olefin production will be created, and the test production of the catalyst will be outsourced to a specified manufacturer. The performance of the test-produced catalyst will then be evaluated, and basic research relating to the correlation between FCC catalyst design and olefin yield will be studied.

FY2012:

Based on the results of the above, the applied research

phase relating to the correlation between FCC catalyst design and olefin yield will be studied.

FY2013:

Based on the results acquired in FY2011 and FY2012, the practical research phase for applying the FCC catalyst to high olefin production will be studied.

4. Future Prospects

If the new three-year R&D project achieves the intended result in laying the foundation for creating an FCC catalyst design that could be applied to a commercial FCC unit for high olefin yield, an order for the production of novel FCC catalysts will be placed with a specified manufacturer, and the catalysts will be applied to FCC units in Saudi Aramco's refineries. Then, by evaluating the performance of equilibrium catalysts, improvements will be made to the cracking performance and physical properties of the FCC catalysts. Ultimately, it would be possible to develop novel commercial FCC catalysts that deliver stable cracking performance and physical properties for higher yields of propylene and other olefins compared with conventional catalysts, and thereby contribute a great deal to Saudi Aramco's refineries for yielding large profits.

<by Hironao Naganuma, Technical Cooperation Dept.>

KACST-JCCP 1st Joint International Workshop Held at KACST in Riyadh



(Left) Speakers and relevant members of the workshop
(Right) H.H. Prince Dr. Turki bin Saud bin Mohammad Al-Saud, KACST Vice President for Research Institute, speaking at the opening ceremony

1. Background

JCCP is presently engaged in a joint project with King Abdulaziz City for Science and Technology (KACST) under the theme of “Application of ground deformation monitoring technologies towards preserving the natural resources infrastructure’s potential of Saudi Arabia” with the cooperation of NTT Data CCS Corporation.

As part of this project, KACST and JCCP held the 1st Joint International Workshop for the Earth’s Surface and Subsurface 4D Monitoring from January 8 to 11, 2012, with the aim of exchanging the latest monitoring technologies.

2. Overview

The workshop was launched on January 9 in the presence of Dr. Mohammed Ibrahim Al-Suwaiyel, KACST President; H.H. Prince Dr. Turki bin Saud bin Mohammad Al-Saud, KACST Vice President for Research Institutes; and Mr. Shigeru Endo, Ambassador of Japan in the Kingdom of Saudi Arabia. Also attending were 26 advanced researchers and experts representing diverse fields of academia and industry from such countries as Japan, Saudi Arabia, the United States, Australia, Canada, China, Russia, and the Czech Republic, who would be acting as lecturers in the workshop, and some 200 other participants. H.H. Prince

Dr. Turki, Ambassador Endo and Mr. Morihiro Yoshida, Managing Director of JCCP, inaugurated the workshop by giving opening speeches.

In their speeches, they stressed the significance of holding the workshop in Saudi Arabia with the participation of selected world experts in fields of monitoring subsurface changes and exploring subsurface natural resources. They also expressed their hope that discussions among the participating experts would produce positive results and lead to the future demonstration of subsurface monitoring technologies that are presently under development in collaboration between KACST and JCCP. The Japanese members made particular mention of the Great East Japan Earthquake that occurred last year, and expressed their deep appreciation to the GCC countries for their heartfelt messages of support and solidarity.

Two days of lectures and poster sessions followed the opening ceremony. Dr. Andrey V. Bakulin, Geophysical Specialist at Saudi Aramco, and Dr. Michael S. Zhdanov, Professor of Geophysics at the University of Utah, gave keynote presentations as part of the program that featured 28 presentations by the 26 lecturers and 12 poster sessions.

The presentations focused on the latest technologies for monitoring time-lapse changes in subsurface conditions (4D monitoring technologies), such as subsurface change monitoring, exploration of subsurface resources, and



Commemorative photo taken after the opening ceremony



Exchange of commemorative gifts in the opening ceremony

continuous monitoring of the CCS (carbon capture and storage) technology for capturing carbon dioxide and storing it underground as a countermeasure to global warming. These topics elicited active exchanges of views between the lecturers and audience.

On the Japanese side, Dr. Junzo Kasahara, Senior Advisor in the Scientific Systems Solutions Division at NTT Data CCS Corporation (and Professor of Emeritus, The University of Tokyo), introduced the ACROSS continuous seismic monitoring system, which is a Japanese 4D monitoring technology that KACST and JCCP are presently developing and testing in a joint project, and called attention to the effective and outstanding aspects of the technology.

In a final panel session, Dr. Zhdanov and Dr. Kasahara discussed future technologies and goals in the field of seismic monitoring and wrapped up the presentation sessions of the workshop.

On January 11, the last day of the workshop, most of the lecturers, KACST members and some 50 participants traveled to Al-Wasia, a city located approximately 120 km from Riyadh, and visited the water abstraction site where an ACROSS unit and a monitoring station are installed and being tested. They received detailed explanation of the ACROSS technology from relevant

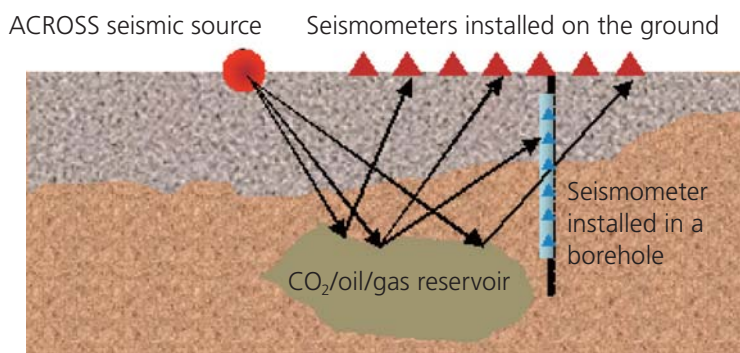
members from KACST and NTT Data CCS while observing the actual unit under test operation. This completed the agenda of the workshop, which concluded amid much appreciation and satisfaction.

3. Conclusion

The workshop provided a highly interactive forum for exchanging information and views on innovative technologies in the field of subsurface change monitoring. It also elicited widespread interest and inquiries about the JCCP technical cooperation project in Saudi Arabia and the ACROSS technology after an overview of the project and the workshop were introduced in a local newspaper and also broadcast on the NHK “Biz Spot” program in the evening on January 16.

The workshop was also extremely successful in the respect that it stimulated strong interest in the KACST-JCCP joint project (ACROSS demonstration test) among international experts who participated in the workshop from around the world, and that it elicited feedback hoping for the continuance of an enhanced workshop as a forum for information exchange and technical transfer toward development of technologies in the field of surface and subsurface monitoring.

<by Toshifumi Amemiya, Technical Cooperation Dept.>



Schematic diagram of a continuous monitoring system

Project on Mild Hydro-cracking of LCO & Evaluation of Gas Oil HDS Catalysts in Saudi Arabia

JCCP and King Fahd University of Petroleum and Minerals (KFUPM) in Saudi Arabia implemented the Project on Mild Hydro-cracking of LCO & Evaluation of Gas Oil HDS Catalysts over a three-year period, from fiscal 2009 to 2011, as follows.

1. Background

The project aimed to achieve two objectives. One was to develop an evaluation technology for catalysts that are used to produce ultra-low-sulfur diesel fuel with a sulfur content of less than 10 ppm from Saudi Arabian heavy crude oil, as an effective utilization of the crude oil. In Japan, ultra-low-sulfur diesel fuel has been produced from relatively light crude oils since more than 10 years ago. However, in addition to a high sulfur content, heavy crude oil was also expected to contain substances that are difficult to remove by hydro-desulfurization (HDS). Therefore, also included in this first objective was the transfer of analysis technology for identifying compounds contained in light gas oil fractions.

The other objective was to lay the basic groundwork for development of mild hydro-cracking technology as a means for the effective utilization of the surplus of light cycle oil (LCO) that is expected to be generated in a fluid catalytic cracking unit (FCC). Since LCO has a high

content of polycyclic aromatics, mixing it with diesel fuel might degrade the exhaust gas of diesel vehicles. Based on this understanding, the project explored catalysts that could be used in a mild hydro-cracking process to convert polycyclic aromatics into xylene to be used as a petrochemical feedstock.

With the participation of a Japanese university in a JCCP technical cooperation project for the first time ever, this project in effect became a joint study effort between a Saudi Arabian university and a Japanese university.

2. Overview

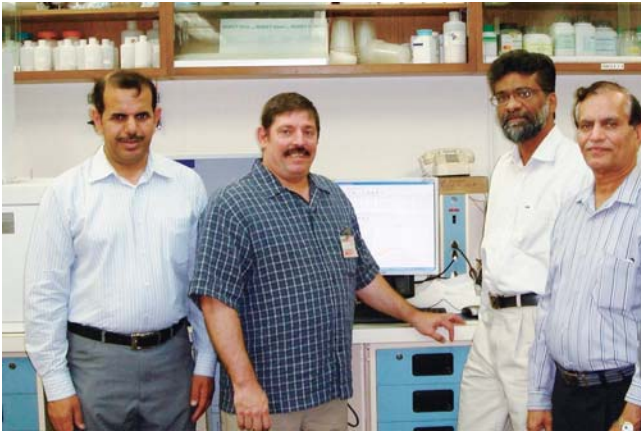
1. Implementation period: April 1, 2009 – March 31, 2012 (three years)
2. Overseas counterpart: KFUPM
3. Participating companies: JX Nippon Research Institute, Ltd.; Kyushu University
4. Activities: The following activities were implemented to provide technical cooperation for the development of basic technologies for catalyst evaluation and compositional analysis of feed oil and oil products at KFUPM.
 - (a) Introduction of a micro-testing unit to be used for hydro-desulfurization tests and hydro-cracking tests
 - (b) Provision of support for catalyst evaluation



Practical training (I) for invited researchers



Practical training (II) for invited researchers



Operational training on the GC-AED



Micro-reactor

technology through operational training of the micro-testing unit and guidance for analysis of data acquired from the unit

- (c) Introduction of a gas chromatograph with atomic emission detector (GC-AED) and a high-performance liquid chromatograph (HP-LC) to allow for close identification of the composition of light gas oil fractions; and analysis of feed oil for the micro-testing unit and the oil produced in the unit, through the combination of GC-AED and HP-LC and technical guidance on an analysis method proposed by Kyushu University

The micro-testing unit was delivered and installed in KFUPM in fiscal 2009, and the GC-AED and HP-LC, in fiscal 2010. Details of the technical guidance provided were as follows.

- (a) The micro-testing unit was manufactured in Japan, and KFUPM researchers were invited to Japan to learn about the unit and receive operational guidance in advance of introducing it to KFUPM.
- (b) After introduction of the micro-testing unit to KFUPM, researchers from JX Nippon Research Institute and Kyushu University were sent to KFUPM to provide guidance in conducting a catalyst evaluation test using an actual sample.

- (c) The GC-AED and HP-LC were introduced to KFUPM for analyzing the actual feed oil for the micro-testing unit and the oil produced in the unit.

3. Observations

Through this project, a general concept began to take shape at the laboratory level of a catalyst that could be used to produce ultra-low-sulfur diesel fuel from Saudi Arabian heavy crude oil. Additionally, although various types of light cycle oils exist according to the operational conditions of the FCC unit, a mild hydro-cracking method for polycyclic aromatics was discovered through repeated tests.

The KFUPM side presented part of the results of this project at the 20th annual Saudi-Japan symposium on catalysts, which was held on December 5 and 6, 2010 under the joint sponsorship of KFUPM, JCCP and the Japan Petroleum Institute (JPI). Furthermore, a paper was submitted to an academic journal during the project period, and even today after completion of the project, KFUPM and Kyushu University are preparing other papers for submission to academic publications. It is hoped that these cooperative activities between the two universities will further deepen the friendly relationship between Saudi Arabia and Japan.

<by Hiroaki Hara, Technical Cooperation Dept.>

Study on Hydrogen Pilot Unit Demonstration (HyPUD) for Integration to H2 Station in Saudi Arabia

Over a period of two years, from fiscal 2010 to 2011, JCCP and Saudi Arabian Oil Company (Saudi Aramco) implemented a joint technical cooperation project called “Study on Hydrogen Pilot Unit Demonstration (HyPUD) for Integration to H2 Station.”

1. Background

Saudi Aramco, in anticipation of the possible widespread use of hydrogen to fuel automobiles in the future, is directing efforts to the development of a hydrogen station capable of producing hydrogen fuel from oil and dispensing the fuel to fuel cell vehicles (FCV). It is also pursuing the development of a reforming catalyst for producing hydrogen.

Meanwhile in Japan, a national project is already under way for a demonstration test of an onsite hydrogen station that uses city gas, LPG, naphtha, kerosene and methanol as feedstock, and efforts are being made toward the diffusion of FCVs in fiscal 2015.

Against this backdrop, in fiscal 2009, Saudi Aramco’s R&D Center requested JCCP’s cooperation in the research and development of a hydrogen station capable of producing hydrogen from oil and dispensing the fuel to FCVs. Acknowledging Japan’s advanced technologies and particularly wishing to introduce Japan’s onsite hydrogen station to Saudi Arabia, Saudi Aramco strongly requested support for the construction of a pilot demonstration plant and the development and evaluation of relevant catalysts.

In response to Saudi Aramco’s request, JCCP launched the technical cooperation project on “Study on Hydrogen Pilot Unit Demonstration (HyPUD) for Integration to H2 Station” as follows.

2. Overview

- (1) Implementation period: April 1, 2010 – March 31, 2012 (two years)
- (2) Overseas counterpart: Saudi Arabian Oil Company (Saudi Aramco)



With project members in front of Saudi Aramco’s R&D Center office building

- (3) Participating companies: Mitsubishi Kakoki Kaisha, Ltd.; JGC Corporation; JGC Gulf International Co., Ltd.

(4) Activities:

- 1) In fiscal 2010, a project finding study was conducted, which included a FEED (front-end engineering design) study as the first step toward construction of the pilot-scale hydrogen unit and studies of technical issues and preliminary cost estimation. The study was also made in regard to reforming catalysts that would be used in the actual hydrogen unit.
- 2) In fiscal 2011, the FEED study was continued as a joint technical cooperation project, and case studies of cost reduction were studied to provide the necessary information that would allow Saudi Aramco to make a final decision on whether it wishes to embark on the construction of the pilot plant.

3. Summary

At the beginning of this year, Saudi Aramco decided not to go through with the construction of the hydrogen station pilot plant at this time, and the project was therefore brought to a close at the end of fiscal 2011.

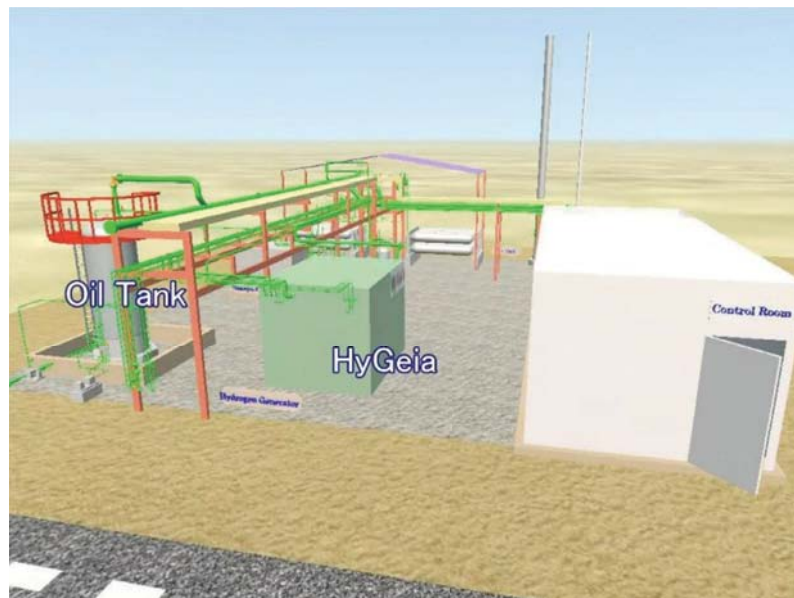
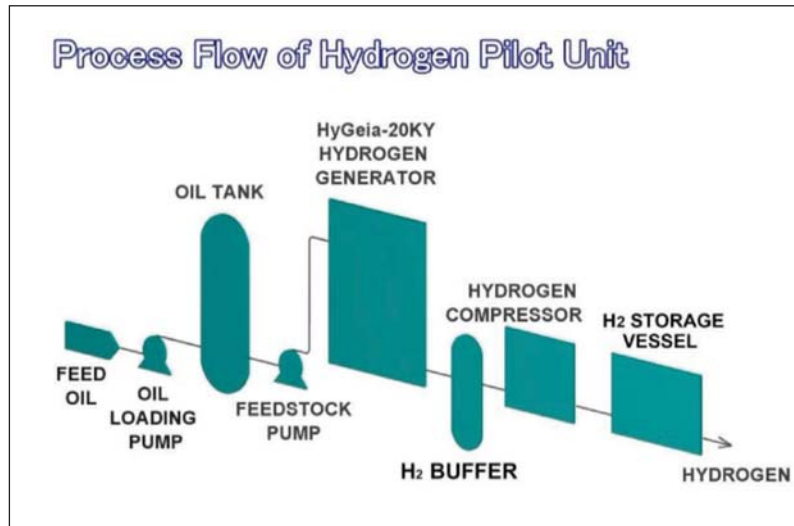
Nevertheless, the project played a significant role

in introducing Japan's advanced technologies in the relevant field to Saudi Aramco, as well as in garnering praise from Saudi Aramco in regard to the excellent quality of the detailed considerations and results of the FEED study conducted by the Japanese side, and in

strengthening the relationship of trust between Saudi Aramco and JCCP.

We hope to continue to deepen the relationship between our two countries through the implementation of similar technical cooperation projects.

<by Toshifumi Amemiya, Technical Cooperation Dept.>



Study on the Application of Ground Deformation Monitoring Technologies towards Preserving the Natural Resources Infrastructure's Potential in Saudi Arabia



KACST-JCCP 1st Joint International Workshop for the Earth's Surface and Subsurface 4D Monitoring

JCCP and King Abdulaziz City for Science & Technology (KACST) implemented a study on Application of Ground Deformation Monitoring Technologies towards Preserving the Natural Resources Infrastructure's Potential in Saudi Arabia over a period of four years, from fiscal 2009 to 2012.

1. Background

In Saudi Arabia's oil fields, ground subsidence is occurring as a result of changes in the subsurface structure brought about by many years of crude oil production and injection of seawater, thereby raising concerns about the impact of ground subsidence and induced earthquakes on refineries, pipelines and other oil facilities.

In response to this situation, the study was implemented to preserve the potential of oil-related infrastructures in Saudi Arabia by detecting any impact of ground subsidence and induced earthquakes in advance. More specifically, the study aimed to examine the feasibility of risk management using induced earthquake analysis

technology and active earthquake exploration technology to monitor changes in the subsurface structure.

2. Overview

- 1) Implementation period: April 1, 2009 – March 31, 2013 (four years)
- 2) Overseas counterpart: King Abdulaziz City for Science and Technology (KACST)
- 3) Participating companies: NTT Data CCS Corporation
- 4) Activities: The following activities were implemented through a joint effort between JCCP and KACST based on the main theme of establishing ground deformation monitoring technologies by applying the ACROSS continuous seismic monitoring system (accurately controlled routine-operated signal system) and analysis technology. Developed in Japan, the ACROSS system uses accurate sinusoidal waves to monitor seismic motion, and has been applied to various studies in the earth sciences field.
 - Analysis of induced earthquakes
 - Development of seismic analysis tools

- Installation and operation of seismometers
- Training in seismic analysis
- Installation and operation of the ACROSS system and analysis of the data obtained
- Monitoring of ground deformation in oil fields
- Technical examination of the integrated analysis of ground subsidence and seismic analysis

3. Observations

In the study, the ACROSS seismic source was applied to geophysical exploration, and a test was performed to monitor ground deformation using its high reproducibility. Additionally, an air injection test was performed in Awaji Island, in which the location of air spaces and their movement were successfully assessed by injecting air into the strata. Furthermore, a monitoring test was performed at a water pumping field in Saudi Arabia, with results indicating that time-lapse changes in the locations of the water table could be monitored over time.

In January 2012, KACST and JCCP held the 1st Joint International Workshop for the Earth's Surface

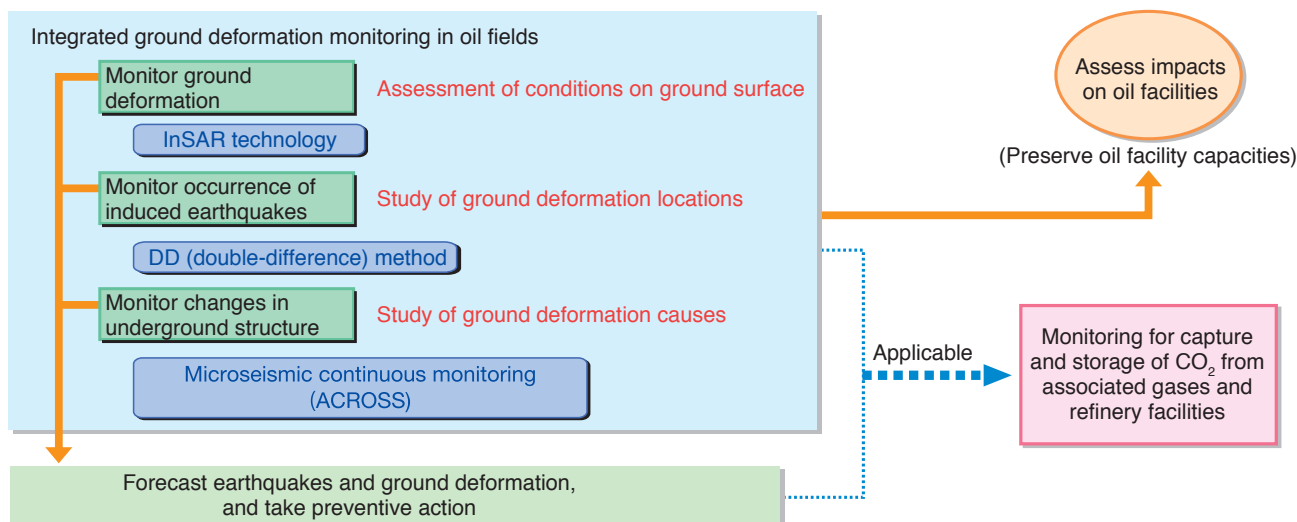
and Subsurface 4D Monitoring at KACST in Riyadh. Attended by experts related to surface and subsurface deformation monitoring and resource exploration and as many as 300 visitors, the workshop captured the strong attention of geophysics experts to the ACROSS system and its analysis method.

The ground deformation monitoring technologies deliver an extremely high level of reproducibility, and are suited to hourly monitoring of subsurface changes in such places as oil and natural gas reservoirs and CO₂ underground storage. For this reason, the technologies are also garnering strong attention for their potential to contribute to carbon capture and storage (CCS), which has become a focus of widespread attention as a core technology for environmental conservation, by monitoring storage conditions before CO₂ generated from oilfield-produced gas and oil refining facilities could be stored in underground sealed layers. A demonstration test of the results of the study will be launched as a new project next fiscal year.

JCCP hopes to further deepen ties between Saudi Arabia and Japan in the future through technical cooperation such as this study.

<by Toshifumi Amemiya, Technical Cooperation Dept.>

Ground deformation monitoring technologies



Source: NTT Data CCS Corporation

Feasibility Study for Hydrogen Production (Organic Chemical Hydride Method) and Storage, Transportation, Utilization in Saudi Arabia

JCCP and Saudi Aramco jointly implemented the Feasibility Study for Hydrogen Production (Organic Chemical Hydride Method) and Storage, Transportation, Utilization in Saudi Arabia over a period of two years, from fiscal 2011 to 2012.

1. Background

Combating global warming through CO₂ reduction is an important issue in Japan. As a measure for addressing this issue, policies are being implemented to promote the dissemination of hydrogen fuel cell vehicles that do not release CO₂.

Japan has succeeded in developing and commercializing a technology for long-distance mass transportation of hydrogen for the first time in the world. It is garnering particular attention for its organic chemical hydride method, which adds hydrogen to aromatics to convert it to a saturated ring compound (organic chemical hydride) so that the hydrogen can be transported in liquid state at ordinary temperatures and pressures. Since this method utilizes existing infrastructure and know-how for the storage and distribution of oil products, it has the potential to become a promising energy transportation method in the near future.

Meanwhile, in oil-producing countries, various sources of hydrogen are available, including hydrogen produced from fossil resources such as naphtha and natural gas, hydrogen generated from associated gases that have been used as fuel up to now and by-product hydrogen from refineries. When using these hydrogen sources, the CO₂ generated in the process of producing hydrogen from fossil materials could be efficiently treated by carbon capture and storage (CCS) and enhanced oil recovery (EOR) technologies.

By utilizing clean hydrogen as a new energy product, Japan could make a significant contribution to preventing global warming, as well as expand energy options in



With members of Saudi Aramco

society after the Great East Japan Earthquake in 2011.

By the same token, oil-producing countries could engage in the export of new energy products that contribute to global warming prevention, and could also deepen cooperative relationships with Japan, as the realization of hydrogen production from solar energy and other alternative energy sources in the future would allow them to export energy using the same infrastructure on a permanent basis.

2. Overview

- 1) Implementation period: April 1, 2011 – March 31, 2013 (two years)
- 2) Overseas counterpart: Saudi Aramco
- 3) Participating companies: Chiyoda Corporation
- 4) Activities: The following studies were conducted to examine the business feasibility of efficient hydrogen production in oil-producing countries, the organic chemical hydride production process, and hydrogen supply to Japan.
 - (1) Study on the hydrogen production process (hydrogen production using fossil fuels and renewable energy sources)
 - (2) Study on business feasibility related to the hydrogen storage and transportation technology

- based on the organic chemical hydride method
- (3) Study on the utilization of hydrogen (large plants, hydrogen stations)
 - (4) Conceptual design of a plant (case study)

3. Observations

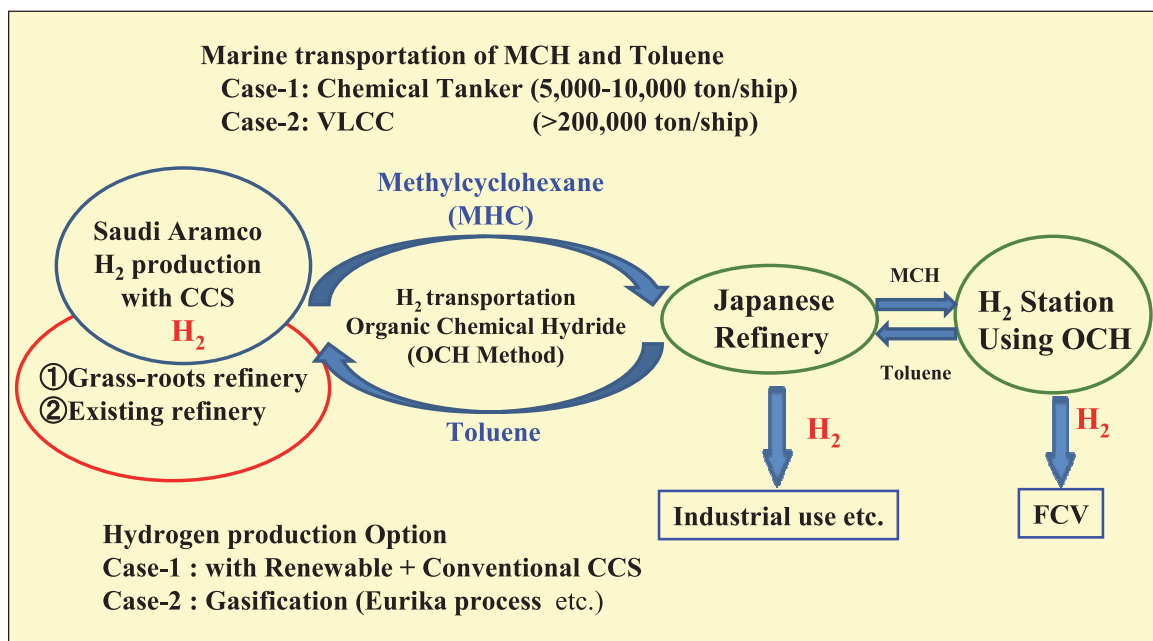
Through this study, Japan's advanced technologies in the relevant field were introduced, the potentials

of hydrogen as a new energy source were jointly examined by the parties involved, and the feasibility of commercializing the relevant technologies was verified. In this respect, the study had significant meaning, and has helped strengthen the relationship of trust between members of Saudi Aramco and JCCP.

JCCP hopes to further deepen ties between Saudi Arabia and Japan in the future through technical cooperation such as this study.

<by Toshifumi Amemiya, Technical Cooperation Dept.>

Organic hydride supply chain



Source: Chiyoda Corporation

Project Finding Program for Development of a Refinery Maintenance System in Saudi Arabia

During the 1970s and 1980s, Japanese companies engaged in the construction of numerous oil refinery facilities in the Middle East region. After supporting many years of operations, however, the maintenance of these refineries has become a focus of concern among national oil companies in Middle East oil-producing countries. As JCCP has commenced a technical cooperation project on maintenance of oil refinery facilities in Kuwait and has received high praise for it, possibilities for its lateral expansion were sought.

With the aim of expanding its implementation of technical cooperation projects, JCCP approached Saudi Aramco and discussed preparations for launching a technical cooperation project on the maintenance of refineries and oil refinery facilities. Following these preparations, JCCP commenced the “Project Finding Program for Development of a Refinery Maintenance System in Saudi Arabia” as part of the FY2013 project finding program.

To enhance efficiency, JCCP is implementing the program in consultation with Saudi Aramco’s Inspection and Corrosion Best Practice Committee, as well as with Aramco Asia Japan K.K.

The program features risk-based inspection (RBI) technology. In RBI, the risk of plants and plant equipment is analyzed in blocks, and inspection and repairs are performed in accordance with the analysis. This inspection method has begun to be used by the plants of major oil companies, and is also being adopted by petrochemical and power plants. Given the worldwide dissemination of the technology, it has been introduced

to general refinery facilities at Saudi Aramco as well.

As RBI is based on examples of statistical analysis and accident cases, it is not applicable to LNG and LPG facilities, at which accidents very rarely occur. Additionally, LNG and LPG facilities are not legally subject to overhaul inspection in many countries, so it is common practice around the world not to conduct overhaul inspection even after 20 to 30 years of operation after construction.

However, from the perspective of facility management, it is unsafe not to subject tanks to overhaul inspection. Therefore, the introduction of an inspection method to take the place of overhaul inspections was sought. Meanwhile, Japanese companies have developed an RBI system for LNG and LPG tanks and related facilities, and have begun to introduce the system in Japan.

After consulting with the Inspection and Corrosion Best Practice Committee about introduction of the RBI technology, arrangements were begun for its introduction to propane and butane tanks at the LPG shipping terminal in Juaymah.

In fiscal 2013, a kick-off meeting was held with engineers from Saudi Aramco’s Juaymah LPG Terminal in May, followed by subsequent meetings in July and September. JCCP took the occasion to explain the main features of the RBI technology, in addition to clarifying the objective and providing an overview of the planned project.

At the LPG terminal, propane and butane tanks are subject to overhaul inspection every ten years, as the structure of the tanks differ from those in Japan, but an



Discussion at the Jeddah Refinery



Discussion at the Juaymah LPG Terminal

efficient inspection method was sought to ensure safe operation of tanks that have been used for more than 30 years. Saudi Aramco engineers thus showed strong interest in applying the RBI technology to LPG tanks, as proposed by JCCP.

As a result of repeated consultation with engineers from the Juaymah LPG Terminal, JCCP received a request not only for the application of RBI to LPG tanks, but also for technologies to inspect corrosion under insulation (CUI), a problem plaguing LPG shipping pipelines.

The schedule hereafter includes the implementation

of the title program beginning in fiscal 2014 as a joint undertaking between Saudi Aramco and JCCP, and the signing of an agreement on implementation of the actual project with Saudi Aramco.

At a recent meeting with Saudi Aramco, a graduate of a JCCP regular course, who was among the members of the meeting, helped lead the discussion on promoting the technical cooperation project. Taking a cue from this, JCCP plans to organically combine its training program and technical cooperation program for greater promotion of both operations.

<by Yukio Nobayashi, Technical Cooperation Dept.>

FY2010 Long-term Researcher Dispatch Program

Since 2007, JCCP has been implementing a program of dispatching Japanese researchers to engage in advanced research and guidance at King Fahd University of Petroleum and Minerals (KFUPM), Saudi Aramco and Kuwait Institute for Scientific Research (KISR), as an initiative that combines JCCP programs (International Joint Research Scheme and Technical Cooperation Program). On September 5, a FY2010 briefing meeting was held with the attendance of some thirty members. Three researchers are currently engaged in research and guidance at the three institutions, and are contributing to strengthening cooperation with oil-producing countries through technical transfer and personnel exchange. The profiles of the three researchers are provided below.

1. Dr. Hideshi Hattori

(Professor Emeritus, Hokkaido University)

(1) Host institution

Center for Refining & Petrochemicals Research Institute, King Fahd University of Petroleum and Minerals, Saudi Arabia

(2) Research theme

R&D of solid acid and solid base catalysts for petroleum refining and petrochemical applications

(3) Summary of activities

Dr. Hattori has been conducting research and guidance at KFUPM's Center for Refining & Petrochemicals Research Institute since commencement of the Long-term Researcher Dispatch Program in 2007. In fiscal 2010, he provided counsel and proposals regarding his research theme, such as for the establishment of research policies and installation of devices, and prepared a research plan for "development of catalysts for styrene and ethylbenzene production through toluene side chain alkylation" that will be submitted to King Abdulaziz City for Science and Technology (KACST) for application for grant funding. Dr. Hattori also presented part of the results of his study on "catalysts for alkane isomerization and aromatic transformation reactions for high-quality gasoline" at the TOCAT6/APCAT5 conference held in July as the only oral presentation from Saudi Arabia.



*Dr. Katsuomi Takehira (front row, second from left)
Dr. Hideshi Hattori (front row, third from left)
Dr. Hidehiro Higashi (front row, third from right)*

2. Dr. Katsuomi Takehira

(Professor Emeritus, Hiroshima University)

(1) Host institution

KAUST Center-in-Development (KCID) on Transformative Research in Petrochemicals and Polymers Project Center, King Fahd University of Petroleum and Minerals, Saudi Arabia

(2) Research theme

R&D of catalysts for petrochemical feedstock production by dehydrogenation

(3) Summary of activities

Dr. Takehira has been providing research guidance on the development of styrene production catalyst by ethylbenzene dehydrogenation at KFUPM since fiscal 2009. His study has been published in four separate papers in *Applied Catalysis A: General*, and is highly acclaimed both inside and outside of Saudi Arabia. Additionally, a KFUPM researcher submitted to the academic journal *Chemical Engineering Journal* a paper on the results of a reaction engineering analysis of ethylbenzene dehydrogenation in a riser simulator using a catalyst prepared and structurally analyzed by Dr. Takehira and his students, along with data from the structural analysis of the catalyst, and acknowledged Dr. Takehira's profound achievement.

3. Dr. Hidehiro Higashi
(formerly from JGC Catalysts and Chemicals Ltd.)

- (1) Host institution
Kuwait Institute for Scientific Research (KISR)
- (2) Research theme
Research assistance on enhancement assessment performance of pilot tests on direct desulfurization catalysts and improvement of refinery operations
- (3) Summary of activities

Dr. Higashi has been active in improving the issue in Kuwait where the reactors of existing direct desulfurization units are extremely difficult to control, and there is strong need for operational improvement measures. He has begun making preparations for the construction of a cold flow simulator model that would allow replication of flows inside the reactor, examining flows inside a reactor equipped with a tracking device, and examining the application of the nanobubble technology to refinery wastewater treatment unit. Dr. Higashi also engages in a wide range of



Briefing meeting held on Sept. 5

activities for improving refinery operations, such as by assisting KISR researchers, providing advice on test and analysis methods, offering decisions on the selection and combination of catalysts for actual operations, and promoting greater understanding of catalyst performance.

<by Sadao Wada, Technical Cooperation Dept.>



FY2011 Long-term Researcher Dispatch Program

JCCP's technical cooperation programs include a program for dispatching Japanese experts to oil-producing countries. So far since 2007, JCCP has dispatched researchers to provide assistance on advanced studies at King Fahd University of Petroleum and Minerals (KFUPM), Saudi Aramco and Kuwait Institute for Scientific Research (KISR). An overview of the reporting meeting that was held at JCCP on May 17, 2012 is provided below.

In fiscal 2011, the following researchers engaged in research and guidance at their respective host institutions.

1. Dr. Hideshi Hattori, Professor Emeritus of Hokkaido University

(1) Host institution:

Center for Refining & Petrochemicals, Research Institute (CRPRI), KFUPM

(2) Field of research assistance:

Support for research of solid acid and solid base catalysts for petroleum refining and petrochemical applications

Dr. Hattori has been conducting research and guidance at KFUPM's Center for Refining & Petrochemicals, Research Institute since this Long-term Researcher Dispatch Program was launched in fiscal 2007. In fiscal 2011, he provided counsel and proposals regarding studies being pursued or planned at CRPRI.

For example, in fiscal 2011 Dr. Hattori commenced and provided his support in the project on "Development of catalysts for styrene and ethylbenzene production through toluene side chain alkylation," which was submitted for a research grant in fiscal 2010 as a project of King Abdulaziz City for Science and Technology (KACST) and was accepted for the grant in fiscal 2011. Dr. Hattori also provided guidance to a graduate student writing a master's thesis on the project.

Additionally, Dr. Hattori provided retraining in infrared spectroscopic measurement of adsorbed pyridine, a solid acid property measurement method he transferred to KFUPM after designing and producing the device last fiscal year, and supported the technical

transfer of infrared measurement of carbon dioxide adsorption based on the measurement of solid base properties. He also provided research assistance by giving advice in an Aramco project on solid acid catalysts announced by KFUPM.

Furthermore, in the first workshop that was held between KAUST'S Catalysis Center (KCC) and KFUPM's CRPRI, Dr. Hattori gave a lecture on solid acid catalysts.

In the reporting meeting held on May 17, Dr. Hattori summarized his research activities in fiscal 2011 as follows: (1) Continuous support of the KACST project (on solid base catalysts and styrene production) and guidance for a master's thesis; (2) Support for the formulation of an Aramco project (butene hydration) and an SABIC project (styrene synthesis); (3) Transfer of catalyst research technologies (IR measurement, TPD measurement, reactor); and (4) Promotion of research exchange between KFUPM and KAUST.

2. Dr. Katsuomi Takehira, Professor Emeritus of Hiroshima University

(1) Host institution:

KAUST Center-in-Development (KCID) on Transformative Research in Petrochemicals and Polymers established in KFUPM

(2) Field of research assistance:

R&D of catalysts for petrochemical feedstock production by dehydrogenation

Dr. Takehira's research continued on the progress made last year and examined an iron oxide catalyst derived from Mg-Al hydrotalcite for the development of styrene production catalyst by ethylbenzene dehydrogenation. By evaluating the activity of various catalysts and conducting an FT-IR measurement of ethylbenzene and pyridine adsorbed species on the catalyst surface, he clarified the ethylbenzene dehydrogenation reaction mechanism on the surface of a highly active Fe-Co/Mg(Al)O catalyst. Dr. Takehira presented a part of these results at the EUROPACAT X congress that was held in Glasgow, Scotland from



Reporting meeting held at JCCP on May 17, 2012

August 28 to September 2, 2011, and in two papers published in *Applied Catalysis A*, in addition to the two papers that were published last fiscal year in the same journal.

In the reporting meeting held on May 17, Dr. Takehira reported the results of his three-year research assistance, from 2009 to 2011, as follows: (1) Development of a new catalyst for styrene production by ethylbenzene dehydrogenation (preparation of a new iron oxide catalyst derived from Mg-Al hydrotalcite); (2) Catalyst preparation and characterization; (3) Results and observations of a test for development of a new Fe/Mg(Al)O catalyst for steam-less dehydrogenation; and (4) Summary of the research on development of a new Fe/Mg(Al)O catalyst for steam-less dehydrogenation.

3. Dr. Hidehiro Higashi (former researcher at JGC Catalysts and Chemicals Ltd.)

(1) Host institution:

Kuwait Institute for Scientific Research (KISR)

(2) Field of research assistance:

“Operational improvement of the up-flow reactor using a cold-flow model” and “Study on the application of air nanobubbles to refinery facilities”

In fiscal 2011, Dr. Higashi launched a three-year project for the construction of a cold-flow simulator that would attach a tracking device to the reactor so that flows inside the reactor could be observed. By allowing the interior of the reactor to be seen, the project aims to

address the current situation in which the existing bottom oil desulfurization unit is extremely difficult to operate and is creating urgent needs for operational enhancement and improvement measures.

Dr. Higashi also commenced studies on the separation of water and oil using nanobubbles in a dissolved air flotation (DAF) unit for refinery wastewater, and on the application of a Maalox (mercaptan oxidation) unit, which is normally used for removal of sulfur content from naphtha and kerosene, to the recycling of treated water.

In addition to the above, Dr. Higashi continued his ongoing initiative to provide operational guidance for the pilot plants at KISR; supported the study conducted by KNPC and KISR on preventing drifts and differential pressure increases in the Guard Reactor (G.Rx) of a direct desulfurization unit; constructed three high linear velocity (HLV) pilot plants; and contributed to the modification of existing pilot plants.

In the reporting meeting held on May 17, Dr. Higashi reported on the following: (1) KISR’s future vision; (2) KISR’s joint projects with KNPC; (3) Measures for prevention of Dela-P increases and drifts in the direct desulfurization unit; and (4) Research on the combined use of catalysts from various catalyst makers.

By continuing to send advanced Japanese researchers to oil-producing countries to engage in research and provide research assistance, JCCP hopes to contribute to strengthening relationships between oil-producing countries and Japan in the areas of technical transfer and personnel exchanges.

<by Sadao Wada, Technical Cooperation Dept.>

FY2012 Long-term Researcher Dispatch Program

As part of its international research cooperation, since 2007, JCCP has dispatched researchers to provide assistance on advanced studies at King Fahd University of Petroleum and Minerals (KFUPM) and Saudi Aramco in Saudi Arabia, and Kuwait Institute for Scientific Research (KISR) in Kuwait. Some of their achievements and a glimpse of the report meeting were given at JCCP on June 17, 2013.

In fiscal 2012, the following researchers engaged in research and guidance at their respective host institutions.

1. Dr. Hideshi Hattori, Professor Emeritus, Hokkaido University

(1) Host institution:

Center for Refining & Petrochemicals, Research Institute (CRPRI), KFUPM

(2) Field of research assistance:

Support for research of solid acid and solid base catalysts for petroleum refining and petrochemical applications

Dr. Hattori has been conducting research and guidance at KFUPM's CRPRI since the program was launched in 2007. In fiscal 2012, he provided advice and proposals regarding research themes that are being pursued or planned at CRPRI.

Among his achievements, Dr. Hattori applied for a research grant from King Abdulaziz City for Science and Technology (KACST) for the project on "Development of catalysts for styrene and methylbenzene production through toluene side chain alkylation" in 2010, and received acceptance for the grant in the same year. In 2012, he continued the KACST project on "Styrene production through toluene side chain alkylation" he pursued in 2011 to elucidate the reaction mechanism and improve catalyst performance by modification. He also made a presentation at a scientific meeting and submitted a scientific paper. Furthermore, he provided counsel and research guidance at CRPRI, including the chain alkylation of aromatics, metathesis of butane, hydration of butane, and measurement of the IR spectra of adsorbed pyridine.

2012 was Dr. Hattori's last year of his work at KFUPM under the JCCP program. In the report meeting held at JCCP, he concluded his report by expressing his satisfaction at being able to introduce certain new types of catalysts—a solid-acid catalyst (Pt/WO₃/Zr₂) and solid base catalyst (Cs-X zeolite)—and transfer them to KFUPM's research institute, and thereby contribute to boosting technology exchange and building a relationship of trust.

2. Dr. Sachio Asaoka, formerly a Professor (Project) at the University of Kitakyushu, presently a part-time instructor at Kogakuin University

Dr. Asaoka has been dispatched to KFUPM in fiscal 2012 to take the place of Dr. Katsuomi Takehira, Professor Emeritus at Hiroshima University.

(1) Host institution:

Center for Refining & Petrochemicals, Research Institute (CRPRI), KFUPM

(2) Field of research assistance:

KFUPM and its affiliated Research Institutes and Centers of Research Excellence work in close cooperation with Saudi Aramco in the development of oil-related technologies. Bearing this cooperative relationship in mind, Dr. Asaoka engaged in research counseling at KFUPM in fiscal 2012 with a view to establishing a new research project that addresses Saudi Aramco's needs on the premise of practical application, by combining catalyst chemistry and process chemistry.



Scenes from the report meeting



Scenes from the report meeting

He also aimed to further promote the effective utilization of the fully automatic fixed-bed flow reaction testing and physical property measuring device (BELCAT) which JCCP introduced to CRPRI, by strengthening the technical transfer, guidance and re-training of reaction testing methods and measuring methods.

More specifically, Dr. Asaoka assisted in research on solid catalysts such as zeolite, complex oxides and metals by providing guidance on practical and process-oriented solutions, and by transferring the expertise for selecting measuring methods and analysis techniques needed in the research. He also assisted in creating a scenario for the development of propylene production techniques, provided guidance for a study on the production of butadiene, and provided his assistance in the Saudi Aramco Project being pursued by KFUPM.

In the meeting at JCCP, Dr. Asaoka presented a technical overview map featuring the conversion of C_4 fractions as one of the main achievements of his research at KFUPM in fiscal 2012. The map was prepared to propose new research on the conversion of C_4 fractions based on broad surveys that took in the discussions made on the feedstock situation in Saudi Arabia, the status of petroleum and petrochemical processes, and related research themes. The map proposed to achieve effective utilization of gas resources not limited to C_4 fractions (BB fractions) in refineries, including gas condensates in oil-producing countries. Particularly by evaluating the conversion to petrochemical feedstock by catalytic processes against prospective reactions that have been, are being, or have the potential of being developed, the map presents significant, wide-ranging and comprehensive significance not only for academic applications, but for commercial and industrial applications as well.

Following the presentations by the two researchers

who were dispatched to KFUPM, two letters of appreciation, written by Dr. Sahel Abduljawad, Vice Rector of KFUPM, addressed to JCCP and the two researchers were shown to the audience.

3. Dr. Hidehiro Higashi, former researcher at JGC Catalysts and Chemicals Ltd.

(1) Host institution:

Kuwait Institute for Scientific Research (KISR)

(2) Field of research assistance:

“Operational improvement of the up-flow reactor using a cold-flow model” and “Study on the application of air nanobubbles to refinery facilities”

In 2011, Dr. Higashi launched a three-year project for the construction of a cold-flow simulator that would attach a tracking device to the reactor so that flows inside the reactor could be observed. By allowing the interior of the reactor to be seen, the project aims to address the need for operational enhancement and improvement of the existing bottom oil desulfurization unit that has become extremely difficult to operate in its current state.

Dr. Higashi also started a study on the separation of refinery wastewater into water and oil using nanobubbles in a dissolved air flotation (DAF) unit, and on the application of a Maalox (mercaptan oxidation) unit, which is normally used for removal of sulfur content from naphtha and kerosene, to the recycling of the treated water.

In addition to the above research assistance, in fiscal 2012 Dr. Higashi began a study on measures for preventing drifts and differential pressure increases in the guard reactor (Guar. Rx) of a direct desulfurization unit at the Al-Ahmadi Refinery. He also made a study on the impact of the shale gas revolution on refineries in oil-producing countries and measures to be taken by refineries, and a study on processes and catalysts that could separate heavy oil fractions into diesel fuel, kerosene and gasoline to the greatest extent possible.

The characteristics of solvent de-asphalted oil (SDA) and its reactivity are commonly known and antiquated, but it has been used mainly for the production of lubricant base oil and fluid catalytic cracking (FCC) feed oil, and seldom used for the production of feed oil for the desulfurization unit. It has been assumed that fixed-bed processing of DAO quickens the deactivation of catalysts, is unprofitable, and degrades the property of bottom oil, but Dr. Higashi began a study to actually identify their causes. As the increase in SDA yield from vacuum residue

(VR) also causes an increase in impurities and quickens the deactivation of catalysts, he hopes to investigate the cause and provide momentum for launching a project on applicable catalysts and hydrotreatment processes.

In the report meeting held on June 17, Dr. Higashi reported his plans for the future: (1) To propose a study that addresses the US-led shale gas revolution to KPC/KNPC; (2) To provide support for the successful completion of the test to be conducted at the University of Missouri (USA) in the final year of the CFM project, and strengthen exchanges with KISR and KNPC researchers and engineers; (3) To demonstrate

the proprietary nature of the bottom oil hydrorefining process; (4) To demonstrate and collect data from the application of air nanobubbles to the DAF facility at KNPC's Mina Abdulla Refinery; and (5) To launch a research project on the relevance of adding water to desulfurized bottom feed.

JCCP will contribute to strengthening relationships with oil-producing countries in the areas of technical transfer and personnel exchanges by stationing advanced Japanese researchers in oil-producing countries to engage in research and research assistance into the future.

<by Sadao Wada, Technical Cooperation Dept.>

FY2011 Researcher Invitation Program

As part of JCCP's FY2011 Researcher Invitation Program, three researchers from King Fahd University of Petroleum and Minerals (KFUPM) were invited to Japan and engaged in the following studies under the cooperation of the Japan Petroleum Institute and Japanese universities.

**1. Dr. Mohammad Shamsuzzoha,
Assistant Professor, Chemical Engineering
Department, KFUPM**

Dr. Shamsuzzoha studied "process control of divided wall distillation" under the guidance of Dr. Hiroya Seki, Associate Professor, Chemical Resources Laboratory, Tokyo Institute of Technology, from June 30 to August 15. He visited JCCP on August 9 to present his study results.



Dr. Mohammad Shamsuzzoha

**2. Dr. Nabil Al-Yassir, Assistant Professor,
Center of Research Excellence in Petroleum and
Refining & Petrochemicals, Research Institute,
KFUPM**

Dr. Al-Yassir studied "materials design of complex metal oxide catalysts" under the guidance of Dr. Wataru Ueda, Professor, Catalyst Research Center, Hokkaido University, from July 11 to August 19. He visited JCCP on August 22 to present his study results.



Dr. Nabil Al-Yassir

**3. Dr. Oki Muraza, Assistant Professor,
Center of Research Excellence in
Nanotechnology, Chemical Engineering
Department, KFUPM**

Dr. Muraza studied "zeolite nanocrystals as building blocks for improved refining catalysts" under the guidance of Dr. Takao Masuda, Professor, Graduate School of Engineering, Hokkaido University, from July 11 to August 25. He visited JCCP on August 26 to present his study results.



Dr. Oki Muraza

In future, JCCP has plans to invite researchers from Venezuela, Iraq and Kuwait to conduct studies in Japan.

<by Sadao Wada, Technical Cooperation Dept.>

FY2012 Researcher Invitation Program

1. Dr. Mohammad Shamsuzzoha

King Fahd University of Petroleum and Minerals (KFUPM)

Date of visit: July 26, 2012

Dr. Shamsuzzoha from KFUPM came to Japan at the beginning of June under the FY2012 Researcher Invitation Program and engaged in research on “design and optimization of a divided-wall distillation column (DWC)” until the end of July under the guidance of Dr. Hiroya Seki, Associate Professor, Chemical Resources Laboratory, Tokyo Institute of Technology. DWC is a breakthrough technology that simultaneously realizes energy conservation and reduced construction cost, and in recent years is being constructed or renovated at rapid speed in countries abroad. The very concept of DWC was originally proposed by Dr. Richard Wright in 1949, but because a reliable design method had yet to be established and there were uncertainties about its ability to control reactions inside the column, the concept did not catch on. Thereafter, however, the experience of the two oil crises in the 1970s prompted the development of DWC technology in the 1980s. Ever since the construction of the world’s first commercial DWC by the chemical company BASF in 1985, more than 100 DWCs have been built and are now in operation around the world.

A DWC has dividing walls inside the column that make it possible to separate three or more fractions in a single column, where two or more columns have conventionally been needed. This technology reduces



Presentation by Dr. Mohammad Shamsuzzoha

the cost of constructing and operating the distillation column, as well as shortens construction time.

According to Dr. Shamsuzzoha, the advantages of a DWC are that it delivers (1) a high purity and (2) high yield of intermediate fractions with (3) relatively uniform volatility. However, a disadvantage lies in its difficulty in controlling pressure and temperature inside the column. Extreme interior pressure and temperature fluctuations have prevented the widespread introduction of DWCs.

In his research, Dr. Shamsuzzoha simulated four different designs (extreme design, optimal design, etc.) of the most basic DWC having three dividing walls by changing tray numbers and positions, and studied the yields of benzene, toluene and xylene and energy efficiency of each design. As a result, he found the column design that uses the Fenske-Underwood equation to be valid.

Dr. Shamsuzzoha said his recent research was made possible by JCCP cooperation, and expressed his deep gratitude to JCCP.

2. Mr. Mohammed Laffai M. Alotaibi

King Abdulaziz City for Science and Technology (KACST)

Date of visit: July 17, 2012

Mr. Alotaibi from KACST came to Japan in mid-June under the FY2012 Research Invitation Program and, until mid-July, engaged in research under Dr. Shukuji Asakura, Professor Emeritus at Yokohama National University and President of Venture Academia Co., Ltd.

KACST is a scientific research organization that reports directly to the Prime Minister of Saudi Arabia. There, Mr. Alotaibi engages in research in the corrosion and corrosion protection of metal materials.

Venture Academia is a venture business affiliated with Yokohama National University. It was founded in 2004 with the Asakura Laboratory in the Faculty of Engineering as its parent organization. Its main objective is to advance and support research on independent test methods such as through re-enactment of special environments, in addition to conducting corrosion tests and electrochemical tests based on industrial standards such as JIS, ASTM and NACE. The venture company

therefore closely coincided with Mr. Alotaibi's research theme.

Mr. Alotaibi visited JCCP Headquarters and said that his recent opportunity to study in Japan has greatly benefitted his second year of research at KACST as a milestone toward achieving his goal.

JCCP holds great expectations of future accomplishments by both researchers.

<by Sadao Wada, Technical Cooperation Dept.>



Mr. Mohammed Laffai M. Alotaibi (left)



FY2013 Researcher Invitation Program

The FY2013 JCCP Researcher Invitation Program was rendered to the following three researchers, who arrived in Japan by the end of September to pursue their respective research projects with the cooperation of the Japan Petroleum Institute and universities in Japan.

1. King Abdulaziz City for Science and Technology (KACST) / Saudi Arabia

Researcher:

Mr. Mohammad Abdulrahman Alowirdy, Chemical Engineer, Petrochemicals Research Institute, KACST (third from left)

Host institution:

Graduate School of Engineering, Hiroshima University
Dr. Takeshi Shiono

Study period:

June 11 – July 25, 2013

Research theme:

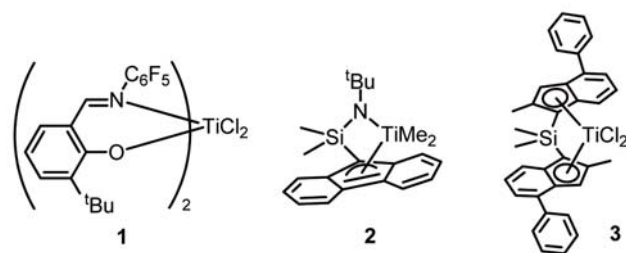
“Olefins polymerization”

Mr. Alowirdy's research is on methylaluminoxane (MAO), a condensation product of trimethylaluminum and water that can be utilized to activate various single-site olefin polymerization catalysts. It is not an exaggeration to say that the study of group 4 metallocene catalysts brought dramatic progress to the development of MAO, and MAO has been utilized as an activating agent in most cases of olefin polymerization using post-metallocene catalysts.

MAO is composed of a complex equilibrium mixture, and is therefore difficult to analyze in detail. However, recently there has been an increase in studies on changing the promotion effect of MAO by reduced-

pressure drying and the addition of a denaturant. Amid this backdrop, Prof. Vincenzo Busico and his team in Italy discovered that combining an MAO promoter doped with the bulky 2,6-di-tert-butylphenol with bis (phenoxy-imine) titanium complex (1) enables living propylene polymerization.

Prof. Shiono's laboratory also found that controlled polymerization of propylene is enabled by combining MAO (MMAO), 2,6-di-tert-butyl-4-methyl-phenol (BHT) and fluorenyl-amide titanium complex (2). These results could be explained by the understanding that when bulky phenols such as BHT react with the trialkylaluminum remaining in the MAO, the chain transfer reaction from the transition metal center to trialkylaluminum is controlled. However, in order to more deeply understand the effects of BHT, it is necessary to examine its effect on other metallocene catalysts and accumulate more data.



In Japan, Mr. Alowirdy received research guidance on combining an iso-specific titanocene catalyst (3) with MAO and BHT to enable ethylene and propylene polymerization, and examining how the polymerization behavior of the iso-specific titanocene catalyst (3) changes when MAO is denatured using BHT. The research guidance also aimed to provide Mr. Alowirdy with knowledge of laboratory techniques for olefin polymerization.

Although short, Mr. Alowirdy, during a study period of roughly one and a half months, performed the necessary experiments for initiating a polymerization reaction using an early transition metal catalyst, which requires a rigorous and strict environment. The techniques and knowledge he acquired are certain to be useful in his future pursuit of advanced research and education in the olefin polymerization field. Mr. Alowirdy is believed to have the potential to make a significant contribution to the future development of polymer chemistry in Saudi Arabia.



2. UAE University (UAEU)

Researcher:

Dr. Naeema Ibrahim Karam Aldarmaki, Assistant Professor, Chemical & Petroleum Engineering Department, UAEU (front row, second from right)

Host institution:

Graduate School of Environmental Studies, Tohoku University

Prof. Richard Smith

Study period:

June 24 – August 1, 2013

Research theme:

“Development of a hydrate calculation program”

Dr. Aldarmaki is an associate professor of chemistry and petroleum engineering at UAEU, pursuing research on the development of alternative resources that could replace oil, and energy conservation technologies. She was awarded JCCP’s research program to pursue her research on methane hydrates as part of the UAE-Japan researcher exchange program.

It is well known that the production of nonconventional crude oils is expected to increase in the future, but these mostly contain heavy components. For effective utilization of crude oils containing a high ratio of heavy components and heavy oils in the future, there is strong need for technologies that reduce the viscosity of heavy components that behave like a highly viscous liquid or even like a solid.

Against this backdrop, research and development is being conducted throughout the world on the enhanced oil recovery (EOR) method. As a technique that can be used at the wellhead of production sites, it uses CO₂ and water as a plasticizing agent or diluent.

In the EOR method, it is necessary to create a supercritical state by injecting CO₂, and to make sure crude oil and CO₂ fully mix together by setting conditions as appropriate to the composition of the injected gas and crude oil component. In doing so, it is important to assess the phase equilibrium in a state where tens of different types of components are present, but to assess phase equilibrium, it is necessary to develop and establish a correlation equation or predictive equation based on actual measurement obtained in a test.

Dr. Aldarmaki has heretofore engaged in experimental studies on separation and extraction in systems that contain natural products such as palm oil, so she possessed sufficient experimental skills, and knew that at this stage,



she needed to acquire a correlation method or predictive method to apply that knowledge to natural products and oil processes. Thus, at the Tohoku University graduate school, Dr. Aldarmaki studied calculation skills related to phase equilibrium under Prof. Smith.

Dr. Aldarmaki first studied the basics of thermal dynamics and engaged in research on the physical properties of CO₂. She then focused on the hydrate (solid) formed by CO₂ and water molecules in Prof. Smith’s laboratory, and calculated the equilibrium property of CO₂ in the hydrate phase, as a system applicable to reducing the viscosity of heavy components.

More specifically, Dr. Aldarmaki created a model for calculating the physical property of CO₂ using an equation of state that applies to both gases and liquids, and calculated the physical property in a state of equilibrium by changing the initial value of the compression factor, which is a dimensionless number that expresses the difference from the ideal gas. By taking into consideration the stability of the gas-phase CO₂ and internal solid-phase CO₂ from the perspective of interaction between each of the components, it became possible to calculate the amount of CO₂ that is absorbed in the solid-phase hydrate. Producing interactions between dissimilar molecules and calculating the stability of the molecules can be said to be a methodology that is necessary not only for water and CO₂, as utilized in this study, but also for mixtures of water, CO₂ and carbon hydride (crude oil).

Through her studies in Japan, Dr. Aldarmaki says she has gained essential understanding of phase equilibrium and calculation of physical property, and acquired skills for performing calculations herself. She was able to further enhance the skills she has acquired in Japan and more widely apply them to diverse applications by pursuing her research not only in the measurement

of physical properties such as phase equilibrium and viscosity, but also in reaction processes in continued cooperation with Tohoku University. It is hoped that this type of partnership will bring useful knowledge to research groups in UAE and Japan, as well as to the entire oil industry in the future.

3. King Fahd University of Petroleum and Minerals (KFUPM)

Researcher:

Dr. Muhammad Atiqullah, Full Professor, Center for Refining & Petrochemicals, KFUPM (third from left)

Host institution:

School of Materials Science, Japan Advanced Institute of Science and Technology (JAIST)
Prof. Minoru Terano

Study period:

July 19 – August 28, 2013

Research theme:

“Supported polyolefin catalyst research”

Dr. Atiqullah came to Japan to gain basic knowledge about the supported Ziegler-Natta catalyst, a catalyst used in the synthesis of polyolefin, the largest group of plastics that accounts for roughly half the world’s production of plastics.

The catalyst has high industrial importance, and its unique characteristics are attracting attention as research subjects in catalyst chemistry and surface chemistry. In Dr. Atiqullah’s home country of Saudi Arabia as well, the importance of the catalyst is increasing in these industries, particularly given the construction of a number of large polyolefin plants in the country.

Against this backdrop, Dr. Atiqullah engaged in research with a focus on the following four activities.

- To evaluate polyolefin research facilities in Saudi Arabia based on facilities in JAIST as a benchmark
- To engage in deep discussion on the Ziegler-Natta catalyst
- To consider a scheme of cooperation with JAIST
- To perform leading-edge research on supported polyolefin catalyst

While in Japan, Dr. Atiqullah also gave a presentation titled “Polyolefin Catalysis and Application – Activity Overview and Research at CRP.”



JCCP will continue to send advanced Japanese researchers to oil-producing countries to engage in research and study guidance in order to further strengthen relationships with oil-producing countries in the areas of technical transfer and personnel exchanges in the future.

<by Sadao Wada, Technical Cooperation Dept.>

The 20th Saudi Arabia-Japan Joint Symposium

On December 5 and 6, 2010, a Saudi Arabia-Japan joint symposium on oil refining and petrochemical catalyst technologies was implemented by the Japan Petroleum Institute (JPI) under the sponsorship of JCCP and King Fahd University of Petroleum and Minerals (KFUPM) in Saudi Arabia. To commemorate the milestone marking the 20th holding of the joint symposium, this year's symposium featured a special speech by a Nobel Laureate and a commemorative reception, in addition to the usual presentations, which included presentations of the latest R&D results by six Japanese researchers.

At the opening ceremony on December 5, Dr. Sahel Abduljawwad, Vice Rector of KFUPM, read a message from H.E. Dr. Khaled S. Al-Sultan, Rector. Mr. Koichi Eguchi, leader of the Japanese speakers, and Mr. Morihiro Yoshida, Managing Director of JCCP, also gave opening greetings.

The presentations covered topics related to the latest catalyst production technologies and trends in the oil refining and petrochemical sectors. The Japanese side gave nine presentations, including those related to JCCP technical cooperation projects, the Saudi Arabian side also gave nine presentations, and members from other countries gave four presentations, for a total of 22 presentations. The auditorium was filled with more than 80 participants. The special speech by Dr. Robert Grubbs, professor at the California Institute of Technology who



Dr. Robert Grubbs (2005 Nobel Laureate in chemistry)

won the 2005 Nobel Prize in Chemistry, was a landmark event.

In celebration of the commemorative symposium, a reception was held on the day before the symposium at a hotel in Al Khobar City, with the attendance of many key figures representing the oil industry in Saudi Arabia. They included H.E. Dr. Al-Sultan, Rector of KFUPM; Mr. Abdullah S'aadan, Vice President of Saudi Aramco; Mr. Omar Abdulhamid, Manager R&D; and H.E. Mr. Yahiya J. Shinawi, Director General, Ministry of Petroleum and Mineral Resources, Eastern Province Branch. Members on the Japanese side included H.E. Mr. Shigeru Endo, Japanese Ambassador to Saudi Arabia, and relevant parties from Japanese companies in Saudi Arabia. Ambassador Endo delivered a congratulatory speech on the 20th holding of the joint symposium, and expressed his expectations that Japan and Saudi Arabia will continue to strengthen and develop their mutual relationship in the future.

JCCP also hopes this symposium will continue to serve an important role in providing opportunities for the transfer of useful information to Saudi Arabian researchers, and in strengthening technical cooperation between Japan and Saudi Arabia.

The names and presentation themes of the Japanese researchers are as follows.

- 1) Dr. Koichi Eguchi, Graduate School of Engineering, Kyoto University
Presentation theme: Development of solid-oxide fuel cells and catalytic reaction for fuel flexibility



H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM, and Ambassador Shigeru Endo at the commemorative reception

- 2) Dr. Takayuki Komatsu, Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology
Presentation theme: Catalytic cracking of paraffins on zeolite catalysts for the production of light olefins
- 3) Dr. Junji Muramatsu, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University
Presentation theme: Preparation of well-crystallized Pd₂₀Te₇ alloy nanoparticulate catalyst highly active for 1,4-DABE synthesis by butadiene acetoxylation
- 4) Dr. Atsushi Ishihara, Graduate School of Engineering, Mie University
Presentation theme: Reactivity of amorphous silica-alumina prepared by the sol-gel method as a matrix in catalytic cracking
- 5) Mr. Noriyuki Shintani, Researcher, Research Institute, Cosmo Oil Co., Ltd.
Presentation theme: Techniques for octane number enhancement in FCC gasoline



Courtesy visit to Dr. Sahel Abduljawwad, Vice Rector of KFUPM (right: Mr. Morihiro Yoshida, Managing Director of JCCP; center: Mr. Koichi Eguchi, leader of the Japanese speakers)

- 6) Mr. Satoshi Takasaki, Researcher, Fuel Research Laboratory, Central Technical Research Laboratory, Research & Development Division, JX Nippon Oil & Energy Corporation
Presentation theme: FCC gasoline desulfurization reducing octane number loss

<by Koichi Ito, Technical Cooperation Dept.>

The 21st Saudi Arabia-Japan Joint Symposium

On November 27 and 28, 2011, JCCP and King Fahd University of Petroleum and Minerals (KFUPM) organized the 21st Saudi Arabia-Japan Joint Symposium on oil refining and petrochemical catalyst technologies, with the participation of the Japan Petroleum Institute (JPI).

The 21st symposium was held over two days, featuring eight sessions, such as on hydroprocessing and olefin production processes, etc. On the Japanese side, seven researchers gave presentations on their latest R&D achievements.

The symposium opened on November 27 with an opening statement by Dr. Khaled S. Al-Sultan, Rector of KFUPM, followed by words of greetings from Dr. Takashi Tatsumi from JPI, who acted as leader of the group of Japanese speakers, and Mr. Hideki Nomura, General Manager of the JCCP Technical Cooperation Department, representing JCCP.

The presentations covered topics related to the latest catalyst production technologies and trends in the oil refining and petrochemical sectors. The Japanese side gave seven presentations, including those related to JCCP technical cooperation projects, the Saudi Arabian

side gave nine presentations, and members from other countries gave four presentations, for a total of 20 presentations in all. Dr. Hideshi Hattori, Professor Emeritus at Hokkaido University, and Dr. Katsuomi Takehira, Professor Emeritus at Hiroshima University, who both engaged in providing research and guidance at KFUPM under a JCCP dispatch program, were among the audience of some 80 who attended the symposium.

Dr. Robert Grubbs, professor at the California Institute of Technology, who won the 2005 Nobel Prize in Chemistry, gave a special speech for the second year in a row, and members from Université Pierre-et-Marie-Curie in France and Technische Universität München in Germany also gave presentations at this year's symposium. Participation of these foreign researchers was an indication that the symposium is gradually acquiring international recognition.

Through its presentations and discussion sessions, the symposium offers an important opportunity for providing useful information to researchers in Saudi Arabia, and will continue to play an important role in strengthening technical cooperation between Saudi Arabia and Japan.

<by Sadao Wada, Technical Cooperation Dept.>

Session themes

Day 1	
Session 1	Hydroprocessing
Session 2	Aromatics and Oil Modeling
Session 3	Olefins Production/Processing
Session 4	Catalytic Cracking

Day 2	
Session 5	Novel Catalytic Applications
Session 6	Nanocrystals and Gas Adsorption
Session 7	Metathesis and Organometals
Session 8	Polymerization and Esterification



Registration and reception at KFUPM Research Center



(From the third person from the left in the front row)
Mr. Nomura, General Manager of the JCCP Technical Cooperation Dept.; Mr. Takashi Tatsumi, JPI;
Dr. Khaled S. Al-Sultan, KFUPM Rector

Japanese speakers and their presentation themes (in random order)

1	Dr. Sachio Asaoka University of Kitakyushu	Catalytic Roles of Nano-sized Oxides Composed with Zeolite for Hydrocracking, Catalytic Cracking and Reforming
2	Dr. Koichi Segawa Sophia University	Catalyst Developments for Production of Sulfur-free Fuels: Effect of Ni Promoter & Chelating Reagent on Ni-MoS ₂ HDS Catalysts
3	Dr. Takahiro Torii Idemitsu Kosan Co., Ltd.	Detailed Compositional Analysis for Kinetic Modeling of Heavy Oils
4	Dr. Takashi Tatsumi Tokyo Institute of Technology	Improvement of Performance of ZSM-5 Catalysts for Cracking of Naphtha
5	Mr. Takahisa Horie JGC Catalysts and Chemicals Ltd.	Upgraded Technology of Residue FCC Catalyst
6	Dr. Toshimitsu Suzuki Kansai University	New Catalyst Support Material for Fischer-Tropsch Synthesis
7	Dr. Mikio Miyake Japan Advanced Institute of Science & Technology	Preparation of Shape and Size Controlled Metal Nanocrystals and Their Application as Novel Model Catalysts



The 22nd Saudi Arabia-Japan Joint Symposium

On November 25 and 26, 2012, JCCP and King Fahd University of Petroleum and Minerals (KFUPM) sponsored the 22nd Saudi Arabia-Japan Joint Symposium on oil refining and petrochemical catalyst technologies with the participation of the Japan Petroleum Institute (JPI). The symposium has been held annually at KFUPM since 1992.

This year, the two-day symposium featured 21 presentations in seven sessions on topics such as desulfurization, applied refining processes, and catalytic cracking/conversion, including presentations by seven Japanese researchers on their latest R&D achievements.

On November 24, the day prior to the symposium, Mr. Morihiro Yoshida, Managing Director of JCCP, and members from JPI paid a visit to H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM, to explain the symposium and its significance. The Rector and Vice Rector noted that among the various activities implemented by KFUPM, the Saudi Arabia-Japan Joint Symposium is a highly regarded undertaking that has continued for 22 years, and expressed their expectations for the symposium's further development, including the incorporation of state-of-the-art biotechnology and other frontier themes.

At the opening ceremony (Nov. 25), Dr. Al-Sultan gave an opening speech, stating once again that no project other than this symposium has continued for as long as 22 years, and expressed his hopes for further development and greater focus. On the Japanese side, Mr. Yasunari Morino, Charge d' Affaires, Embassy of Japan in Saudi Arabia, gave a greeting that commended JCCP



Courtesy call on H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM (center)

and JPI for their role in promoting bilateral exchanges between Saudi Arabia and Japan. In response, Mr. Yoshida articulated JCCP's commitment to continue doing its part in promoting technical exchanges between the two countries. Dr. Takao Masuda, Head of the Japanese Delegation, JPI (Professor at Hokkaido University), extended his appreciation to the Saudi Arabian government and the people of Saudi Arabia for their quick offer of support in the wake of the Great East Japan Earthquake.

A total of 21 presentations were given, which covered topics related to the latest catalyst production technologies in the oil refining and petrochemical fields. The Japanese side gave seven presentations, including one related to a JCCP technical cooperation project. On the Saudi Arabian side, KFUPM gave four presentations (including a presentation by Dr. Oki Muraza, Assistant



Opening statement by Mr. Yasunari Morino, Charge d'Affaires, Embassy of Japan in Saudi Arabia



Dr. Takao Masuda, Head of the Japanese Delegation



Closing remarks by Mr. Morihiro Yoshida, Managing Director of JCCP



Audience listening to a lecture by KFUPM Research Institute

Professor, Chemical Engineering Dept., KFUPM, who engaged in research at Hokkaido University under the JCCP Research Invitation Program); Saudi Aramco gave four presentations, and Saudi Basic Industries Corporation (SABIC) and King Abdulaziz City for Science and Technology (KACST) gave one presentation each. There were also four presentations from Cambridge University and other foreign institutions.

An article and photo of the symposium appeared in two local Arabic newspapers (*Al-Watan* and *Al-Sharq*), and an article that featured a summary of the speeches by the guest of honors appeared in the English-language *Saudi Gazette*.

The presentations and discussions clearly showed that the symposium provides an important opportunity for sharing and exchanging useful information to researchers in Saudi Arabia and Japan, and plays a significant role in strengthening technical cooperation between the two countries.

<by Sadao Wada, Technical Cooperation Dept.>



(From the left in the first row)
Dr. Masuda, Dr. Al-Sultan, Mr. Morino

Session Themes

Day 1	
Session 1	Oil Desulfurization
Session 2	Bio Based Chemicals
Session 3	Process and Applications
Session 4	CO ₂ Capture/Separation

Day 2	
Session 5	Catalytic Cracking/Conversion
Session 6	Catalysis & Adsorption
Session 7	FT/Polymerization

Japanese Speakers and Their Presentation Themes (in order of their presentation)

1	Dr. Masayoshi Soga JX Nippon Research Institute, Ltd.	Examination of conversion strategy of the combusted crude to valuable petroleum products by using 'desulfurization technology on long residue' in the world
2	Dr. Hiroshi Kimura Cosmo Oil Co., Ltd.	Development and evaluation of catalyst (system) for heavy oil hydroprocessing
3	Dr. Takao Masuda Hokkaido University	Conversion of inedible biomass wastes to petroleum-related useful chemicals using iron oxide catalysts
4	Dr. Keiichi Tomishige Tohoku University	Production of biomass-derived chemicals by catalytic hydrogenolysis
5	Dr. Hiroya Seki Tokyo Institute of Technology	Process design and control of dividing wall columns
6	Mr. Shigeyuki Nagano JGC Catalysts and Chemicals Ltd.	Technologies of rare earth free/less for FCC catalysts
7	Dr. Takeshi Shiono Hiroshima University	Precise synthesis of cycloolefin copolymers with novel Ti-based catalysts

Program

Day One, Sunday, November 25, 2012		
OPENING REMARKS SESSION		
7:45		Registration & Coffee Break
8:00		Opening Remarks
	1	<i>H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM</i>
	2	<i>Mr. Yasunari Morino, Chargé d'Affaires of Japan</i>
	3	<i>Mr. Morihiro Yoshida, Managing Director, JCCP</i>
	4	<i>Dr. Takao Masuda, Head Japanese Delegation, JPI</i>
SESSION ONE: OIL DESULFURIZATION		
8:30	1	Examination of conversion strategy of the combusted crude to valuable petroleum products by using 'desulfurization technology on long residue' in the world, <i>Dr. Masayoshi Soga, JX Nippon Research Institute, Ltd. Japan</i>
9:00	2	Traditional catalysts to achieve future sulfur regulations in diesel, <i>Dr. Bandar Al-Solami, Saudi Aramco R&DC, Dhahran</i>
9:30	3	Development and evaluation of catalyst (system) for heavy oil hydroprocessing, <i>Dr. Hiroshi Kimura, Cosmo Oil Co., Ltd., Japan</i>
10:00		Coffee Break
SESSION TWO: BIO BASED CHEMICALS		
10:30	4	Conversion of inedible biomass wastes to petroleum-related useful chemicals using iron oxide catalysts, <i>Dr. Takao Masuda, Hokkaido University, Japan</i>
11:00	5	Biocatalysis of crude oil streams for conversion of S-containing compounds into chemicals of industrial interest, <i>Dr. Magdy M. Gad, Saudi Aramco R&DC, Dhahran</i>
11:30	6	Production of biomass-derived chemicals by catalytic hydrogenolysis, <i>Dr. Keiichi Tomishige, Tohoku University, Japan</i>
12:00		Prayer & Lunch Break
SESSION THREE: PROCESS AND APPLICATIONS		
13:00	7	Process design and control of dividing wall columns, <i>Dr. Hiroya Seki, Tokyo Institute of Technology, Japan</i>
13:30	8	Bifunctional metals supported on heteropoly Cs salts for hydrogenation reactions, <i>Dr. Raja Al-Otaibi, Petrochemical Research Institute, KACST, Riyadh</i>
14:00	9	Novel applications in surface science: a new potential for catalysis research, <i>Dr. Jan Grabowski, SPECS Surface Nano Analysis, Germany</i>
14:30		Prayer Break
SESSION FOUR: CO ₂ CAPTURE/SEPARATION		
14:45	10	Study of integrated biomass gasification and chemical-looping combustion for CO ₂ capture, <i>Dr. Mozahar M. Hossain, KFUPM/Chemical Engineering</i>
15:15	11	Preparation of hydrothermally stable γ -alumina-based composite mesoporous membranes & their gas separation behavior, <i>Dr. Md. Hasan Zahir, KFUPM Chemistry</i>
15:45		Day One Ends
Day Two, Monday, November 26, 2012		
SESSION FIVE: CATALYTIC CRACKING CONVERSION		
7:45		Registration & Coffee Break
8:00	12	Nanosized of zeolites with one-dimensional pore system and their applications in catalytic cracking, <i>Dr. Oki Muraza, KFUPM/Chemical Engineering</i>
8:30	13	Technologies of rare earth free/less for FCC catalysts, <i>Mr. Shigeyuki Nagano, JGC Catalysts and Chemicals Ltd. Japan</i>
9:00	14	Framework materials for acid-catalyzed hydrocarbon conversion: understanding coke deposition & enhancing catalyst lifetime, <i>Dr. James McGregor, University of Cambridge, UK</i>
9:30		Coffee Break
SESSION SIX: CATALYSIS & ADSORPTION		
10:00	15	Two-dimensional crystals: new materials for catalysis and other applications, <i>Dr. Robert Young, University of Manchester, UK</i>
10:30	16	The nature and role of carbonaceous over-layers in ethylbenzene dehydrogenation over alumina supported catalysts, <i>Dr. Liam McMillan, University of Cambridge, UK</i>
11:00	17	Modeling of activated carbons for gas adsorption/methane adsorptive storage, <i>Mr. Mohammed Hashim, Saudi Aramco R&DC, Dhahran</i>
11:30	18	Nitrogen and methane separation by Molecular Gate™ Adsorbent, <i>Mr. Hassan Aljama, Saudi Aramco R&DC, Dhahran</i>
12:00		Prayer & Lunch Break
SESSION SEVEN: FT/POLYMERIZATION		
13:00	19	Genesis of catalyst attrition for slurry phase Fischer-Tropsch synthesis (FTS) and its implication in FTS catalyst design, <i>Dr. Jin Yaming, SABIC T&I Center, Riyadh</i>
13:30	20	Ethylene-1-hexane copolymerization: new perspective through modeling of supported catalyst active center distribution & microstructure characterization, <i>Dr. Muhammad Atiqullah, KFUPM/CRP</i>
14:00	21	Precise synthesis of cycloolefin copolymers with novel Ti-based catalysts, <i>Dr. Takeshi Shiono, Hiroshima University, Japan</i>
14:30		Closing Remarks, Symposium Ends

The 29th JCCP International Symposium

(Preliminary Report)

Sustainable Development of Oil Downstream Industry —For Energy Supply Security—

The 29th JCCP International Symposium was held on January 26 and 27, 2011 at Hotel Okura Tokyo under the auspices of the Ministry of Economy, Trade and Industry (METI). Some 400 visitors from METI, oil-producing countries, foreign embassies in Japan, government offices, and domestic firms and organizations attended the event. A preliminary report is provided below, to be followed by details of the panelists' presentations in the next issue of *JCCP NEWS*.

1. First Day (January 26): Opening Ceremony

A ceremony marked the opening of the symposium at 2:00 p.m. on January 26. Mr. Yaichi Kimura, President of JCCP, gave an opening address, and Mr. Hisayoshi Ando, Director-General of the Natural Resources and Fuel Department, METI, delivered words of greeting as the guest of honor. These were followed by keynote speeches by H.E. Mr. Arne Walther, Ambassador, Royal Norwegian Embassy in Japan, and H.E. Mr. Ahmed A.A. Al-Shamma, Deputy Minister for Refining and Gas Processing, Ministry of Oil-Iraq.

In his speech, Mr. Yaichi Kimura noted that the

world population is continuing to grow, and many more people will be born into this world in the future, so that petroleum will become even more important as a resource that supports human activities. He also said that petroleum could bring diverse opportunities that other resources cannot, but since it is itself a limited resource, people who work in the oil downstream sector must make an effort to develop technologies for even more advanced utilization of petroleum and strive to create a future where the next generation can build affluent lifestyles. Mr. Kimura then explained the theme of this year's symposium, emphasizing that ongoing efforts to address new technology challenges and develop leaders who can initiate changes in the future are the two most important responsibilities of managers in the oil downstream sector.

Representing the Japanese government, Mr. Hisayoshi Ando from METI began his speech by thanking the oil-producing countries for maintaining friendly relations with Japan over many years and contributing to oil security in Japan. He then mentioned that the global oil situation is rapidly changing, and that we must now focus on responding promptly and properly to the slowdown of economic activities, the global warming



The guest of honor, chairpersons, and speakers of the symposium, and Mr. Yaichi Kimura, President of JCCP (center)

issue, and changes in the demand-supply structure. Given this situation, Mr. Ando said that this international symposium is an ideal forum for exchanging views among oil-producing and oil-consuming countries, cultivating mutual understanding, and deepening relationships, and expressed his hopes that it would contribute to stabilizing global oil supply.

The opening ceremony also featured special lectures by a number of authorities in the global oil industry. They included Dr. Fereidun Fesharaki, Chairman, FACTS Global Energy Inc.; Mr. Abdulaziz Alattar, Head of Houston Office, Kuwait Petroleum Corporation; Ms. Huda M. Al-Ghpson, General Manager, Training and Development, Saudi Aramco; and Mr. Masakazu Toyoda, Chairman and CEO, The Institute of Energy Economics, Japan.

2. Second Day (January 27): Discussion Sessions

The second day featured two discussion sessions: Session 1 in the morning, chaired by Mr. Misao Hamamoto (Executive Officer, Manufacturing Division, Showa Shell Sekiyu K.K.); and Session 2 in the afternoon, chaired by Mr. Shogo Shibuya (Managing Executive Officer, Technology & Engineering, Chiyoda Corporation). In Session 1, panelists from Mexico, Malaysia, Nigeria, Kuwait, and Japan discussed “leadership development,” and introduced their country’s initiatives in that area. In Session 2, panelists from Vietnam, Saudi Arabia, and Japan discussed “technical development,” also in reference to challenges being addressed in their countries.

As chairperson of Session 1, Mr. Misao Hamamoto summarized Session 1 discussions as follows: The oil downstream sector in all countries is facing severe international competition. Unless efforts are made to innovate technology and management toward creating competitive companies, the oil downstream sector cannot fulfill its social responsibility of providing stable supplies of oil. The key to building a strong company lies in human resources and their development. In other words, companies can grow only by developing their human resources.

Mr. Shogo Shibuya, chairperson of Session 2,



Scene from the symposium

summarized the discussions of the session as follows: Oil-producing countries are actively engaging in heavy oil cracking processes to transform heavy oil into petrochemical materials. Active efforts are also being made to promote biofuels. Furthermore, oil-producing countries and Japan are striving to innovate oil refining and petrochemical technologies so that humanity may continue to enjoy the benefits of the limited resources as long as possible. Although they may have different standpoints, oil-producing and oil-consuming countries share a common commitment to utilize oil and natural gas in even more advanced and effective ways, and should therefore mutually share their experience and technologies toward reforming the oil downstream sector.

At the end of the two days of discussions, Mr. Masataka Sase, Executive Director of JCCP, took the podium for a closing speech. He said that the structure of the oil industry itself is undergoing a major change and is calling for a need to develop leaders to promote this change, and given this situation, we need to develop outstanding leaders by drawing out their fullest potentials and usher in a new era for the oil industry.

Based on lectures and presentations by people at the front line of technical innovation and human resource development in oil-producing countries and Japan, the symposium provided a valuable opportunity for active exchanges of views among all panelists and participants. JCCP will continue to offer such forums for interactions between oil-producing countries and Japan, to further promote mutual understanding among all parties in the oil industry.

<by Hisayoshi Tanda, Administration Dept.>

* The presentation materials from the 29th JCCP International Symposium are available on our website (<http://www.jccp.or.jp>).

The 29th JCCP International Symposium

“Sustainable Development of Oil Downstream Industry: For Energy Supply Security”

The 29th JCCP International Symposium was held on January 26 and 27, 2011 under the auspices of the Ministry of Economy, Trade and Industry (METI). Some 400 people from METI, oil-producing countries, foreign embassies in Japan, government offices, domestic firms, and organizations filled the room reserved for the symposium in Hotel Okura, Tokyo.

1. Theme and Objective

The theme of this year’s symposium was “Sustainable Development of Oil Downstream Industry: For Energy Supply Security.” Worldwide population is on the rise, and oil consumption is increasing particularly in emerging countries such as China and India. To save precious oil resources for the next generation, companies and organizations working in the oil downstream sector must strive to use oil efficiently by constantly improving technologies and management.

Based on this common awareness, leading authorities from oil-producing and consuming countries exchanged views on the sustainable development of the oil downstream industry in this year’s symposium.

2. Overview

(1) First Day (January 26): Opening Ceremony

The symposium began at 2:00 p.m. on January 26 with an opening ceremony. Mr. Yaichi Kimura, President of JCCP, delivered an opening address, followed by a greeting from the guest of honor, Mr. Hisayoshi Ando, Director-General of the Natural Resources and Fuel Department, METI.

In his speech, Mr. Kimura reiterated the theme of this year’s symposium and presented a perspective on the issue. He said that the world population is continuing to grow, and petroleum is becoming an increasingly important resource to support the daily lives of this growing number of people. Amid this trend, he said that those of us who work in the oil downstream sector must work hard to develop relevant technologies that would



Mr. Hisayoshi Ando, Director-General of the Natural Resources and Fuel Department, METI, giving a speech as the guest of honor

allow even more efficient use of petroleum so that the future generations of people can also enjoy the wealth produced by oil and lead affluent lifestyles. Mr. Kimura then emphasized that managers in the oil downstream sector have a critical responsibility to do two things—to meet the technological challenges presented in the industry and to develop human resources who will lead our endeavors in the future.

Mr. Ando from METI took the podium next. He said that the long-standing friendship between oil-producing countries and Japan has been instrumental to Japan’s oil security, and expressed his gratitude to all oil-producing countries for their cooperation. He also said that the global oil situation is undergoing major changes and is necessitating prompt and precise responses to such issues as the global economic slowdown, global warming, and changes in the supply-demand situation. Given this situation, he expressed his expectations that relevant parties from both oil-producing and oil-consuming countries will engage in active discussions in this symposium to deepen mutual understanding and relationships, and thereby contribute to ensuring global oil security.

(2) Keynote Speeches

Keynote speeches were given by two speakers. H.E. Mr. Arne Walther, Ambassador, Royal Norwegian



*Dr. Fereidun Fesharaki,
Chairman, FACTS Global
Energy Inc.*



*Ms. Huda M. Al-Ghpson,
General Manager,
Training and Development,
Saudi Aramco*



*Mr. Abdulaziz Alattar,
Head of Office,
KPC Houston, Kuwait
Petroleum Corporation*



*Mr. Masakazu Toyoda,
Chairman and CEO,
The Institute of Energy
Economics, Japan*

Embassy, spoke on “Global Energy Dialogue”; and H.E. Mr. Ahmed A. A. Al-Shamma, Deputy Minister, Ministry of Oil-Iraq, gave a presentation entitled “Refining in Iraq—Present and Future.”

Mr. Walther spoke from his experience as the first Secretary General of the International Energy Forum (IEF), and said that deepening mutual understanding through formal and informal dialogues among producers and consumers of oil is an important key to maintaining a stable energy balance in the future. Mr. Al-Shamma shared Iraq’s future vision of constructing refineries capable of producing Euro-IV compatible oil products through advanced catalytic cracking and establishing a domestic and international supply framework. Summaries of the two keynote speeches are provided on pages 9 to 13 in this issue of *JCCP NEWS*.

(3) Special Lectures

The keynote speeches were followed by four special lectures. Dr. Fereidun Fesharaki, Chairman, FACTS Global Energy Inc., gave a lecture entitled “Future of the Refining Industry in the East of Suez,” and described the future supply-demand balance of crude oil and oil products in the Middle East and Asia-Pacific regions. Mr. Abdulaziz Alattar, Head of Office, KPC Houston, Kuwait Petroleum Corporation, gave a lecture entitled “Future Prospects of Oil Balance in Asia and International Cooperation for the Best Energy Supply Mix of the Future.” He described Kuwait’s commitment to expanding oil supply capacities in the future and its efforts toward achieving the best energy supply mix of the future based on initiatives that address global environmental issues and future prospects of renewable energy sources. Ms. Huda M. Al-Ghpson, General

Manager, Training and Development, Saudi Aramco, gave a lecture entitled “Leadership Development in Saudi Aramco—An Enduring Legacy,” in which she emphasized that human resource development is an important strategic issue that has direct bearing on Saudi Aramco’s development, and that Saudi Aramco will invest generously in discovering and developing outstanding personnel. Lastly, Mr. Masakazu Toyoda, Chairman and CEO, The Institute of Energy Economics, Japan, gave a lecture entitled “Global Energy Outlook and the Importance of Petroleum from the Perspective of Global Warming and Energy Security.” He said that oil will continue to be the most important source of energy in the future, and emphasized that potential risks must be minimized to maintain a stable supply-demand balance through cooperation between oil-producing and -consuming countries, particularly in addressing global warming countermeasures and energy safety and security measures.

(4) Second Day (January 27): Discussion Sessions

The second day featured Discussion Session 1 in the morning, chaired by Mr. Misao Hamamoto, Executive Officer, Manufacturing Division, Showa Shell Sekiyu K.K.; and Discussion Session 2 in the afternoon, chaired by Mr. Shogo Shibuya, Managing Executive Officer, Technology & Engineering, Chiyoda Corporation.

Session 1 panelists each gave a presentation on the theme of “Leadership Development.” Dr. Luis Miguel Rodríguez Otal (Assistant Manager, Process Engineering Division, PEMEX Refinación) spoke about “Managing and Leading a Sustainable Refining Company”; Ms. Juniwati Rahmat Hussin (Vice President, Human Resource Management Division, Petroliam Nasional



Session 1



Session 2

Berhad (PETRONAS)) about “Talent Development—the PETRONAS Experience”; Mr. Andrew Laah Yakubu (Managing Director, Warri Refining and Petrochemical Company (WRPC)) about “Future Vision of NNPC for Comprehensive Hydrocarbon Industry”; Mr. Fahed Fahhad Al-Ajmi (Deputy Managing Director for Finance and Administration, Kuwait National Petroleum Company) about “Structured On-Job Training (S-OJT) Program at KNPC”; and Mr. Yoshitaka Furumatsu (Manager, Training & Business Efficiency Promotion (Group), TOA OIL Co., Ltd.) about “Corporate Innovation and Development of Leaders.”

As chairman of the session, Mr. Hamamoto summarized the panelists’ presentations as follows: All countries are facing severe international competition in the oil downstream sector. Unless efforts are made to innovate technology and management toward creating competitive companies, the oil downstream sector cannot fulfill its social responsibility of providing stable oil supplies. The key to building a strong company lies in human resources and their development. In other words, only by developing human resources can companies achieve growth.

Session 2 panelists each gave a presentation on the

theme, “Technical Management.” Dr. Nguyen Anh Duc (Deputy General Director, Vietnam Petroleum Institute-Petrovietnam) spoke about “Current Status and Future Vision of the Petroleum Refining and Petrochemical Industry of Vietnam”; Dr. Sahel N. Abduljawwad (Professor of Civil Engineering and Vice Rector for Research, King Fahd University of Petroleum and Minerals (KFUPM)) about “Saudi Arabia’s Strategy in Higher Education and R&D for the Future of Hydrocarbon Processing Industry”; and Mr. Kazuo Matsuda (General Manager, Energy Frontier Business Development Office, Strategic Business Development Division, Chiyoda Corporation) about “Energy Saving by Pinch Technology—From Single Site to Multiple Sites.”

As chairman of Session 2, Mr. Shibuya gave a summary of the presentations as follows: Oil-producing countries are currently striving to convert heavy oil into petrochemical feedstock. They are also actively promoting the production of bio-fuels. To allow humanity to enjoy the benefits of Earth’s limited resources for as long as possible, oil-producing countries and Japan are pursuing technical innovations in oil refining and petrochemical processes. Despite the differences between oil-producing



Plenary session of the 29th JCCP International Symposium

and -consuming countries, they nevertheless share a common commitment to utilize oil and natural gas in even more advanced and effective ways. By sharing experience and technologies, all countries should come together to reform the oil downstream sector.

3. Summary

Mr. Masataka Sase, Executive Director of JCCP, closed the symposium with a message saying that the oil industry is undergoing a major transformation and is in urgent need of leaders who will lead the change. He said that we must draw out the full potential of human

resources and make outstanding leaders of them to usher in a new era for the oil industry.

In the symposium, speakers and panelists from oil-producing countries and Japan gave insightful presentations about technical innovations and human resource development, and laid the foundation for active exchanges of views. Through such forums as this symposium, JCCP hopes to continue promoting mutual understanding between oil-producing countries and Japan.

Please also visit JCCP's website (<http://www.jccp.or.jp>) to view the presentation materials prepared by the speakers and panelists.

<by Hisayoshi Tanda, Administration Dept.>

The 29th JCCP International Symposium Program "Sustainable Development of Oil Downstream Industry: For Energy Supply Security"

Date	Time	Proceedings
Jan. 26 (Wed)	14:00 – 15:20	Opening ceremony Opening address: Mr. Yaichi Kimura, President of JCCP Guest-of-honor speech: Mr. Hisayoshi Ando, Director-General, Natural Resources and Fuel Department, Agency for Natural Resources and Energy, METI Keynote speeches: H.E. Mr. Arne Walther, Ambassador, Royal Norwegian Embassy H.E. Mr. Ahmed A. A. Al-Shamma, Deputy Minister, Ministry of Oil-Iraq
	15:35 – 17:40	Special lectures (1) Dr. Fereidun Fesharaki, Chairman, FACTS Global Energy Inc. (2) Mr. Abdulaziz Alattar, Head of Office, KPC (WH) Houston, Kuwait Petroleum Corporation (WH) (3) Ms. Huda M. Al-Ghpson, General Manager, Training and Development, Saudi Aramco (4) Mr. Masakazu Toyoda, Chairman and CEO, The Institute of Energy Economics, Japan
	18:00 – 20:00	Reception
Jan. 27 (Thu)	9:30 – 12:00	Session 1 "Leadership Development"
	13:30 – 16:00	Session 2 "Technical Development"
	16:00 – 16:10	Closing address: Mr. Masataka Sase, Executive Director of JCCP

Keynote Speeches

Country	Speaker	Speech Title
Norway	H.E. Mr. Arne Walther Ambassador, Royal Norwegian Embassy	Global Energy Dialogue
Saudi Arabia	H.E. Mr. Ahmed A. A. Al-Shamma Deputy Minister, Ministry of Oil-Iraq	Refining in Iraq—Present and Future

Special Lectures

Country	Speaker	Speech Title
United States	Dr. Fereidun Fesharaki Chairman, FACTS Global Energy Inc.	Future of the Refining Industry in the East of Suez
Kuwait	Mr. Abdulaziz Alattar Head of Office, KPC (WH) Houston, Kuwait Petroleum Corporation (WH)	Future Prospects of Oil Balance in Asia and International Cooperation for the Best Energy Supply Mix of the Future
Saudi Arabia	Ms. Huda M. Al-Ghosen General Manager, Training and Development, Saudi Aramco	Leadership Development in Saudi Aramco —An Enduring Legacy
Japan	Mr. Masakazu Toyoda Chairman and CEO, The Institute of Energy Economics, Japan	Global Energy Outlook and the Importance of Petroleum from the Perspective of Global Warming and Energy Security

Session 1: Leadership Development

Chairman: Mr. Misao Hamamoto, Executive Officer, Manufacturing Division, Showa Shell Sekiyu K.K.

Country	Speaker	Speech Title
Mexico	Dr. Luis Miguel Rodríguez Otal Assistant Manager, Process Engineering Division, PEMEX Refinación	Managing and Leading a Sustainable Refining Company
Malaysia	Ms. Juniwati Rahmat Hussin Vice President, HRM Division, Petroliaam Nasional Berhad (PETRONAS)	Talent Development—The PETRONAS Experience
Nigeria	Mr. Andrew Laah Yakubu Managing Director, Warri Refining and Petrochemical Company (WRPC)	Future Vision of NNPC for Comprehensive Hydrocarbon Industry
Kuwait	Mr. Fahed Fahhad Al-Ajmi Deputy Managing Director for Finance and Administration, Kuwait National Petroleum Company	Structured On-Job Training (S-OJT) Program at KNPC
Japan	Mr. Yoshitaka Furumatsu Manager, Training & Business Efficiency Promotion (Group), TOA OIL Co., Ltd.	Corporate Innovation and Development of Leaders

Session 2: Technical Development

Chairman: Mr. Shogo Shibuya, Managing Executive Officer, Technology & Engineering, Chiyoda Corporation

Country	Speaker	Speech Title
UAE	Mr. Salem Obaid Al Dhaheri Engineering & Technical Support Division Manager, Abu Dhabi Oil Refining Company (TAKREER) * Mr. Al Dhaheri could not make it to the symposium, but his presentation material has been posted on the JCCP website.	Business Development at Abu Dhabi Oil Refining Co. (TAKREER)—The Ruwais Refinery Expansion (RRE) Project
Vietnam	Dr. Nguyen Anh Duc Deputy General Director, Vietnam Petroleum Institute – Petrovietnam	Current Status and Future Vision of the Petroleum Refining and Petrochemical Industry of Vietnam
Saudi Arabia	Dr. Sahel N. Abduljauwad Professor of Civil Engineering and Vice Rector for Research, King Fahd University of Petroleum and Minerals (KFUPM)	Saudi Arabia's Strategy in Higher Education and R&D for the Future of Hydrocarbon Processing Industry
Japan	Mr. Kazuo Matsuda General Manager, Energy Frontier Business Development Office, Strategic Business Development Division, Chiyoda Corporation	Energy Saving by Pinch Technology —From Single Site to Multiple Sites

The 30th JCCP International Symposium

“Dialogue for Sustainability of Oil Supply and Consumption”



Mr. Yaichi Kimura, President of JCCP (center), and the guest of honor, chairmen, and panelists of the symposium

The 30th JCCP International Symposium was held over two days, from January 25 to 26, 2012, under the auspices of the Ministry of Economy, Trade and Industry (METI), and with the attendance of approximately 300 people from METI, oil producing countries, foreign embassies in Japan, government offices, domestic firms and organizations.

1. Theme

This year's symposium was themed, “Dialogue for Sustainability of Oil Supply and Consumption.” Following the keynote speeches and special lectures given on the first day, two discussion sessions explored the theme in detail on the second day, from the perspectives of “Leadership for Innovation” and “Best Practice for Innovation.”

Oil is an important source of energy that provides 40% of Japan's and 33% of the world's primary energy

supply. As securing a stable supply of oil long into the future is therefore a common priority issue among oil producing and consuming countries, both sides need to deepen mutual understanding through dialogue and cooperate toward establishing a sustainable oil energy system. Based on this awareness, the symposium focused on introducing corporate innovation initiatives being made in each country from the perspectives of leadership development and best practices, and provided an opportunity to establish cooperation.

2. Overview

(1) First Day (January 25): Opening Ceremony

An opening ceremony officially launched the symposium at 2:00 p.m. on January 25. Mr. Yaichi Kimura, President of JCCP, gave an opening address, followed by a greeting from the guest of honor, Mr. Hisayoshi Ando, Director-General of the Natural

Resources and Fuel Department at METI.

Mr. Kimura presented a perspective on this year's symposium as follows: "On March 11th last year, Japan was hit by a major earthquake that left tremendous damage in its wake. From immediately after the earthquake, we received warm words of condolence and relief supplies from our friends in oil producing countries, as well as their help in securing petroleum, LPG, and natural gas supplies. We have no words that can fully express how strong an encouragement this was to us.

"The earthquake has made us realize anew the preciousness of personal relationships between oil producing countries and Japan, and the necessity of petroleum, LPG and other forms of energy to our everyday lives. It has also highlighted the importance of dialogue between oil producing and consuming countries to deepen mutual understanding and to make innovative changes that allow us to fulfill our responsibility of providing a stable supply of oil."

Following Mr. Kimura, Mr. Ando gave an opening greeting, firstly reflecting back on the Great East Japan Earthquake and expressing his deepest gratitude to all stakeholders and oil producing countries in the oil industry for the tremendous support they have given Japan in the wake of the disaster. He also stated that the earthquake has spurred a sweeping review of energy policies in Japan and has ignited a renewed awareness of the importance of oil. Given this situation, he said holding this international symposium on dialogue for sustainability of oil supply and consumption is highly significant, and hopes vigorous and fruitful discussions ensue.

(2) Keynote Speeches

Two keynote speeches were given: "Thoughts for Your Energy" by Dr. Ing. Jeroen van der Veer, Chairman of the Supervisory Board at ING Group N.V. and former CEO of Royal Dutch Shell PLC; and "Global Oil Outlook & Future Challenges" by Dr. Hasan M. Qabazard, Director of the Research Division at OPEC-Organization of the Petroleum Exporting Countries.

In their speeches, both Dr. van der Veer and Dr. Qabazard talked about how new technological developments have expanded the production of shale oil and have greatly increased the world's capacity for oil supply. They emphasized that oil can still contribute to development of the global economy as a source of energy, that technology offers infinite possibilities, and that we must continue our challenge to develop

new technologies. Dr. van der Veer also stated that in a society that is becoming increasingly complex, making decisions concerning policies for stable oil supply is extremely difficult, but leaders have the responsibility to make the right decisions and to lead other companies in any circumstances. To do so, he explained that leaders must adhere to three basic principles; that is, they must (1) constantly acquire the latest technologies, as technologies offer infinite possibilities; (2) have the capacity to lead and to take responsibility even on large complex projects; and (3) have reliable partners who can provide cooperation in realizing large energy development projects.

Dr. Qabazard stated that oil producers have a responsibility to ensure stable oil supply, and that well-timed investments will play a critical role in the development and broader application of new oil resources. He then called on all oil producers and consumers to cooperate in taking a responsible approach, saying that the research, development, and deployment of technology have a cost and require significant investments, and that a proper environment needs to be created that would allow oil producers to continue making upstream investments with a commitment to satisfying oil demands in the future.

Summaries of the two keynote speeches are provided on pages 13 to 18 in this issue of *JCCP NEWS*.

(3) Special Lectures

The keynote speeches were followed by three special lectures.

Dr. Fereidun Fesharaki, Chairman of FACTS Global Energy, Inc., gave a lecture on "Asia and Middle East Oil Markets Post Fukushima," and discussed the demand-supply balance of crude oil and oil products in Asia and



Dr. Fereidun Fesharaki, Chairman, FACTS Global Energy Inc.



Mr. Abdulhakim A. Al-Gouhi, General Manager, Ras Tanura Refinery, Saudi Aramco



Ms. Salma Al Hajjaj, Director, Center for Leadership Development, Kuwait Petroleum Corporation (KPC)

the Middle East as a whole, mainly in reference to the major changes that have occurred in the global oil supply-demand structure owing to the development of shale oil, and the changing structure of the global oil industry accompanying economic growth in Asian countries.

Mr. Abdulhakim A. Al-Gouhi, General Manager of Ras Tanura Refinery, Saudi Aramco, gave a lecture on “Saudi Aramco Ras Tanura Refinery Best Practices,” and introduced Saudi Aramco’s initiatives to improve the environmental quality of its oil products through the application of best practices and to increase added value by making effective use of distillates.

Lastly, Ms. Salma Al Hajjaj, Director of the Center for Leadership Development at Kuwait Petroleum Corporation (KPC), gave a lecture on “Coaching: An Innovative Way to Sustainability,” in which she discussed KPC’s various initiatives and future issues. She explained that KPC is making Group-wide efforts to integrate its upstream and downstream businesses to increase the Group’s added value, and is taking active steps to develop leaders under the direct supervision of the CEO, based on the recognition that the development of human resources capable of leading the innovation is essential realizing its goal. She also stated that KPC’s greatest challenge lies in creating a corporate culture where current leaders take the initiative in fostering the next generation of leaders based on their own experience.

(4) Reception

After listening to the keynote speeches and special lectures, all participants and guests were invited to join a reception hosted by JCCP. Following a brief greeting by Mr. Hisayoshi Ando from METI, Mr. Bakheet Sh. Al Rashidi, Deputy Managing Director at Kuwait

National Petroleum Company (KNPC), also gave a few words of greeting on behalf of the representatives from oil producing countries, and Mr. Mitsunori Takaogi, President of JX Holdings, Inc., made a toast.

In his greeting, Mr. Al Rashidi stressed the precious value of oil as a finite resource, and said we must make the most of it for the benefit of humanity. Toward this end, he emphasized the need for oil producing and consuming countries to fulfill their respective responsibilities and mutually cooperate with each other.

(5) Second Day (January 27): Discussion Sessions

The program for the second day was divided into two discussion sessions: Session 1 in the morning (chair: Mr. Mitsutoshi Hamamura, Director/Senior Executive Officer, Toyo Engineering Corporation), and Session 2 in the afternoon (chair: Mr. Hiroji Adachi, Executive Officer and General Manager, JX Nippon Oil & Energy Corporation).



Mr. Bakheet Sh. Al Rashidi, Deputy Managing Director, Kuwait National Petroleum Company (KNPC)



Session 1



Session 2

1) In Session 1, themed “Leadership for Innovation,” four panelists each gave a presentation on initiatives taken at their company to develop the next generation of leaders. Ms. Premhatai Napalai (Vice President, Leadership & Talent Management Development, PTT Public Company Limited) gave a presentation on “Building and Harnessing Executive Bench Strength — Realizing PTT Group’s Goal of Becoming a Fortune 100 Company by 2020”; Mr. Raed H. Al-Rabeh (Director, Professional Development Dept., Saudi Aramco) on “Young Leadership Development”; Prof. Dr. Hamed Al Dhahab (HRS General Manager, Human Resource Services, Oman Oil Refineries and Petroleum Industries Co. (Orpic)) on “Orpic Sustainable Leaders”; and Mr. Hisashi Osone (Managing Director, Toyo Engineering India Limited) on “Cultural Challenges in Globalization — Toyo Engineering Experience.”

- *Chairman Hamamura’s Summary of Session 1*
Today, oil companies and engineering companies in

oil producing and consuming countries face the challenge of expanding their business in the global market, and are addressing this challenge by innovating and transforming their corporate culture. As all panelists in this session have pointed out, the key to successful corporate innovation is having the right leader, and fostering such leaders is a strategic challenge to all companies.

To develop next-generation leaders, companies need to clarify and disseminate corporate principles and values in the form of MVV—mission, value and vision—among all employees, and to have top management executives themselves invest both their time and effort in fostering leaders with a clear image of what type of leaders are needed. It is also necessary to give promising young people the opportunity to serve as project managers and gain firsthand knowledge in implementing a project based on their own decisions and responsibility.

Both oil producing and consuming countries are aiming for the same goal. The key to success lies in engaging in friendly competition for mutual development



Plenary session

into stronger companies. It is important that we deepen our understanding of each other, make efforts for greater innovation, and strengthen mutual cooperation to ensure better utilization of our precious petroleum resources.

2) In Session 2, four panelists gave presentations related to the theme of “Best Practice for Innovation.” Mr. Abdulghafoor Mohammed Abduljabbar (Director General, North Refineries Company (NRC), Ministry of Oil) gave a presentation on “Challenge of Iraq to Construct World-class Refining Industry”; Mr. Bakheet Sh. Al Rashidi (Deputy Managing Director, Planning & L.M., Kuwait National Petroleum Company (KNPC)) on “Best Practices for Innovation of Oil Industry”; Mr. Abdulla Ali Al Mansouri (CSDM, Manager, Corporate Support Division, Abu Dhabi Oil Refining Company (TAKREER)) on “Environmental Aspects in Refineries and Projects”; and Mr. Hidetoshi Ueno (Deputy General Manager, Negishi Refinery, JX Nippon Oil & Energy Corporation) on “JX Nippon Oil & Energy’s Challenges for Best Practices.”

- *Chairman Adachi’s Summary of Session 2*

In Session 2, presentations by each of the panelists on the main theme of the session, “Best Practice for Innovation,” illustrated the firm resolve of each company to maximize the value of oil, take initiatives to enhance corporate competitiveness, and become strong companies capable of supporting their nation.

To ensure that humanity can continue to enjoy the benefits of oil for as long as possible, oil producing countries are striving to upgrade their refineries with the application of advanced technologies that can not only turn heavy oil distillates to fuel, but could also crack them to make them lighter and even convert them to petrochemical feedstock. In regard to training, conscious efforts are being made to develop human resources with the capacity to promote improvement and greater efficiency in the oil refining and petrochemical sectors. Meanwhile, oil consuming countries, for their part, are upgrading their refining facilities in the effort to optimize processes and promote effective utilization of oil and energy conservation.

The panelists in this session commonly stressed the importance and need to innovate oil refineries and petrochemical plants in response to the changing

demand structure, and to implement best practices toward fulfilling that goal. They also introduced the creative efforts that their company is making to establish appropriate systems and training frameworks, in their pursuit of best practices. The expression “best practice” sounds nice, but the important thing is to come up with a mechanism for executing these practices.

We may have our differences as oil producing and consuming countries, but we are both working toward the common goal of maximizing and making the best of oil resources. The Japanese oil and engineering industries therefore wish to share their experience and technologies with oil producing countries to help realize advanced and robust refineries with the active cooperation of all.

3. Closing Statement

After the discussion sessions, Mr. Masataka Sase, Executive Director of JCCP, took the podium to deliver a few words in closing. He said that while the oil industry experienced various events in the past 30 years, we have nevertheless been able to secure a stable supply of oil. We have been able to maintain a proper demand-supply balance thanks to deep mutual understanding between oil producing and consuming countries, and to the establishment of a mechanism to resolve any issues that might impact the stability of supply. This has made us realize anew that dialogue is indispensable between oil producing and consuming countries, and that we must continue to make an effort to establish mutual understanding and cooperation. In terms of the fact that the presentations in today’s discussion sessions have made us think about this important issue of dialogue, this symposium has served its purpose well.

This year’s JCCP International Symposium has once again provided an ideal forum for exchanging views toward the establishment of a sustainable oil supply system among frontline leaders in the oil downstream sector in oil producing countries and Japan. JCCP will continue to promote dialogue between the two sides of the oil industry through forums such as this symposium, to strengthen mutual understanding and contribute to the stable supply of oil.

Please visit JCCP’s website (<http://www.jccp.or.jp>) to see the presentation materials from the symposium.

<by Hisayoshi Tanda, Administration Dept.>

The 30th JCCP International Symposium Program
“Dialogue for Sustainability of Oil Supply and Consumption”

Date	Time	Proceedings
Jan. 25 (Wed)	14:00 – 17:10	<p>Opening ceremony</p> <p>Opening address Mr. Yaichi Kimura, President of JCCP</p> <p>Guest-of-honor speech Mr. Hisayoshi Ando, Director-General, Natural Resources and Fuel Department, Agency for Natural Resources and Energy, METI</p> <p>Keynote speeches Dr. Ing. Jeroen van der Veer, Chairman, Supervisory Board, ING Group N.V. (Former CEO, Royal Dutch Shell PLC)</p> <p>Dr. Hasan M. Qabazard, Director, Research Division, OPEC—Organization of the Petroleum Exporting Countries</p> <p>Special lectures Dr. Fereidun Fesharaki, Chairman, FACTS Global Energy Inc.</p> <p>Mr. Abdulhakim A. Al-Gouhi, General Manager, Ras Tanura Refinery, Saudi Aramco</p> <p>Ms. Salma Al Hajjaj, Director, Center for Leadership Development, Kuwait Petroleum Corporation (KPC)</p>
	18:00 – 20:00	Reception
Jan. 26 (Thu)	9:30 – 12:00	Session 1 “Leadership for Innovation”
	13:30 – 16:00	Session 2 “Best Practice for Innovation”
	16:00 – 16:10	Closing address: Mr. Masataka Sase, Executive Director of JCCP

Keynote Speeches

Country	Speaker	Speech Title
Netherlands	Dr. Ing. Jeroen van der Veer Chairman, Supervisory Board, ING Group N.V. (Former CEO, Royal Dutch Shell PLC)	Thoughts for Your Energy
Austria	Dr. Hasan M. Qabazard Director, Research Division, OPEC—Organization of the Petroleum Exporting Countries	Global Oil Outlook & Future Challenges

Special Lectures

Country	Speaker	Speech Title
USA	Dr. Fereidun Fesharaki Chairman, FACTS Global Energy Inc.	Asia and Middle East Oil Markets Post-Fukushima
Saudi Arabia	Mr. Abdulhakim A. Al-Gouhi General Manager, Ras Tanura Refinery, Saudi Aramco	Saudi Aramco Ras Tanura Refinery Best Practice
Kuwait	Ms. Salma Al Hajjaj Director, Center for Leadership Development, Kuwait Petroleum Corporation (KPC)	Coaching: An innovative way to sustainability

Session 1: Leadership for Innovation

Chairman: Mr. Mitsutoshi Hamamura

Director/Senior Executive Officer, Engineering Management Unit, Toyo Engineering Corporation

Country	Speaker	Speech Title
Thailand	Ms. Premhatai Napalai Vice President, Leadership & Talent Management Development, PTT Public Company Limited	Building and Harnessing Executive Branch Strength — Realizing PTT Group's Goal of Becoming a Fortune 100 Company by 2020
Saudi Arabia	Mr. Raed H. Al-Rabeh Director, Professional Development Department, Saudi Aramco	Young Leadership Development
Nigeria <i>(canceled)</i>	Engr. Augustine Olusegun Oniwon Group Managing Director, Nigeria National Petroleum Corporation (NNPC)	Sustaining Global Energy Supply —The Role of Nigeria
Oman	Prof. Dr. Hamed Al Dhahab HRS General Manager, Human Resources Services, Oman Oil Refineries and Petroleum Industries Co. (Orpic)	Orpic Sustainable Leaders
Japan	Mr. Hisashi Osone Managing Director, Toyo Engineering India Limited	Cultural Challenges in Globalization —Toyo Engineering Experience

Session 2: Best Practice for Innovation

Chairman: Mr. Hiroji Adachi

Executive Officer and General Manager, Refining Department, Refining Technology & Engineering Division, JX Nippon Oil & Energy Corporation

Country	Speaker	Speech Title
Iraq	Mr. Abdulghafoor Mohammed Abduljabbar Director General, North Refineries Company (NRC), Ministry of Oil	Challenge of Iraq to Construct World Class Refining Industry
Kuwait	Mr. Bakheet Sh. Al Rashidi Deputy Managing Director, Planning & L.M., Kuwait National Petroleum Company (KNPC)	Best Practices for Innovation of Oil Industry
UAE	Mr. Abdulla Ali Al Mansouri CSDM, Corporate Support Division Manager, Corporate Support Division, Abu Dhabi Oil Refining Company (TAKREER)	Environmental Aspects in Refineries and Projects
Japan	Mr. Hidetoshi Ueno Deputy General Manager, Negishi Refinery, JX Nippon Oil & Energy Corporation	JX Nippon Oil & Energy's Challenges for Best Practice

The 31st JCCP International Symposium

“Communication and Cooperation: For Sustainable Future of Oil Industry”



Mr. Keizo Morikawa, President of JCCP (center), and the guest of honor, chairmen and panelists of the symposium

The 31st JCCP International Symposium was held over two days, from January 30 to 31, 2013, under the auspices of the Ministry of Economy, Trade and Industry, and with the attendance of approximately 350 people from inside and outside of Japan.

1. Theme

The theme of this year's symposium was “Communication and Cooperation: For Sustainable Future of Oil Industry.” It was explored in detail in two discussion sessions held on the second day, with a focus on “Change of Business Environment in Oil Downstream and Human Resources Development” in the morning and “Change of Business Environment in Oil Downstream and Innovation of Technology” in the afternoon.

Global demand for oil is on the rise. Therefore, measures for securing a stable supply of oil need to be considered not only from the perspective of emergency preparedness, but also from the perspective of achieving sustainable utilization of oil far into the future. Based on this awareness, members from oil-producing and consuming countries exchanged views on the medium- to long-term outlook of oil demand, issues for securing

a stable supply of oil, and the development of human resources and technologies to address those issues in the two-day symposium, with the objective of creating opportunities for producer-consumer cooperation toward sustainable development of the oil industry.

2. Overview

(1) First Day (January 30): Opening Ceremony

An opening ceremony was held at 2:00 p.m. on January 30, featuring an opening address by Mr. Keizo Morikawa, President of JCCP, followed by a greeting from the guest of honor, Mr. Hisayoshi Ando, Director-General of the National Resources and Fuel Department at METI.

In his speech, Mr. Morikawa spoke as follows: The global energy outlook is facing a major turning point today. Japan experienced an unprecedented nuclear crisis in March 2011, which prompted many countries to review their energy policy. Dramatic developments have also been made in the new energy sources of shale gas and shale oil. At the same time, however, both oil-producing and consuming countries have the responsibility to prevent further global warming and be conscious of their use of oil so we may hand this precious resource to future generations. In the face

of such changes, we must strengthen the industry's foundation and fulfill our responsibility of supplying sufficient energy to people in our societies by acquiring a good grasp of developments in global energy supply and demand and doing our best to address the challenges that come our way, keeping our eyes open to the latest technological developments, and developing excellent human resources for the future of the oil industry. Lastly, Mr. Morikawa expressed his hope that the two-day symposium will be fruitful to everyone in the audience, and that they will gain fresh perspectives on the themes presented in the speeches and discussion sessions.

Next, Mr. Ando spoke as follows: Almost two years have passed since the 3/11 disaster. During this time, oil-producing countries have been of tremendous help in allowing us to provide fuels to people in disaster-stricken areas. I would like to express my greatest appreciation to you all. Through this experience, we recognized anew the good relations that exist between Japan and oil-producing countries, and strengthened our resolve to continue these relationships over the long term. The theme of this year's symposium is "Communication and Cooperation for Sustainable Future of Oil Industry." It tells us that both oil-producing and consuming countries share the same view of the importance of maintaining a stable supply of resources. I hope we can strengthen our cooperative relationship through this symposium.

(2) Keynote Speech

Following the opening greetings, Dr. Fatih Birol, Chief Economist, International Energy Agency (IEA), gave a keynote speech on "World Energy Outlook," and summarized the important message of the IEA publication *World Energy Outlook 2012* released last November, as follows: "The key message I would like to share with you today is the very fact that the foundations of the global energy system are shifting, and shifting rather rapidly. Players who are able to understand the shift will be able to position themselves, their countries, their companies, and their family budget, and those who cannot understand what is happening will be the losers. Therefore, it is important to understand those shifts.

"I believe there are three drivers of this shift. The first is the resurgence of oil and gas production in selected countries, namely the United States, Canada and Iraq. The development of non-conventional oil and gas resources such as shale gas, tight oil and Canadian oil sands by the United States and Canada, and the large-scale development of oil resources in Iraq, are

particularly important.

"The second driver is on the nuclear front. After Fukushima, we saw some countries changing their nuclear policies toward a lower share of nuclear power in their energy mix. If nuclear power goes down, something has to go up in order to fill the gap, and this will have implications on the global energy picture.

"The third driver of the shift is energy efficiency. Energy efficiency has been talked about for many years, but for the first time I can personally observe a growing momentum on energy efficiency in terms of legislation—not in terms of words, but in terms of legislation and legal steps."

In view of these three drivers, Dr. Birol said it should be clear to anyone's eyes that the global energy system will be changing dynamically in the future, and went on to discuss the various elements of change. A detailed summary of Dr. Birol's speech is provided on pages 10 to 13 in this issue of *JCCP NEWS*.

(3) Special Lectures

Dr. Birol's keynote speech was followed by four special lectures.

1) *Oil Sustainability in Carbon Constrained World—The Doha Climate Gateway: Challenges Beyond 2012*

Mr. Abdullah Al Sarhan

Energy and Environment Advisor, Office of the Assistant Minister for Petroleum Affairs, Ministry of Petroleum and Mineral Resources, Kingdom of Saudi Arabia

Mr. Al Sarhan based his lecture on the Doha Climate Gateway that was adopted by the COP18 conference held in December 2012, and discussed Saudi Arabia's resolve to do its part in mitigating climate change as a member



Special lecture: Mr. Abdullah Al Sarhan, Energy and Environment Advisor, Ministry of Petroleum and Mineral Resources, Kingdom of Saudi Arabia

of the Framework Convention on Climate Change. He also noted that oil and natural gas will continue to be an important part of the global energy mix, and that sustainability of those energy resources is a vital issue to both oil producers and consumers. Furthermore, Mr. Al Sarhan stressed the importance of technology innovation in mitigating climate change, and described Saudi Arabia's technological development initiatives.

2) *Strategic Shifts in the Global Oil Equation*

Dr. Fereidun Fesharaki

Chairman, FACTS Global Energy, Inc.

Dr. Fesharaki explained that in the oil upstream sector, the increased production of non-conventional oil resources such as shale gas and tight oil is changing the global oil supply-demand balance, as well as the balance of power between oil-producing and consuming countries, and that in the oil downstream sector, the active construction of large-scale refineries in oil-producing countries is shifting the center of global oil downstream operations from oil-consuming countries to oil-producing countries. As a result, Dr. Fesharaki said there will be a clear distinction between those who will survive and those who will not, according to the law of the survival of the fittest, and predicted the future of the oil industry.



Special lecture: Dr. Fereidun Fesharaki, Chairman, FACTS Global Energy, Inc.

3) *Kuwait National Petroleum Company \$40 Billion Mega Investment Plan*

Mr. Hatem Ibrahim Al-Awadhi

Deputy Managing Director – Projects,

Kuwait National Petroleum Company (KNPC)

Mr. Al-Awadhi spoke about KNPC's \$40 billion mega-investment plan that includes a clean fuel project consisting of the construction of new refineries and clean fuel production processes by 2020, and the company's vision to establish a presence as a leader in the global oil industry. To bring the project to success, Mr. Al-Awadhi

said human resources are the most important element, and explained how KNPC is making company-wide efforts for their development.



Special lecture: Mr. Hatem Ibrahim Al-Awadhi, Deputy Managing Director – Projects, KNPC

4) *Saudi Aramco—Technology in Human Resource Development*

Mr. Jamil F. Al Dandany

Director of Education Partnerships, Saudi Aramco

Mr. Al Dandany explained Saudi Aramco's strategic goal of becoming the world's leading oil company, and introduced the company's efforts to achieve that goal. According to Mr. Al Dandany, Saudi Aramco is expanding both its oil upstream and downstream operations on a global scale, and is developing pragmatic personnel through training programs that adopt the latest technologies, based on the awareness that the key to success lies in the development of outstanding human resources to support those operations.



Special lecture: Mr. Jamil F. Al Dandany, Director of Education Partnerships, Saudi Aramco

The four special lectures provided the understanding that the world's oil industry is undergoing major changes, and that the development of outstanding human resources capable of taking charge of these changes is a priority strategic issue to triumph as winners.

(4) Reception

A reception was held after the keynote speech and special lectures. Mr. Ken Watanabe, Director, Petroleum Refining and Reserve Division, National Resources and Fuel Department, METI, gave a welcome speech, followed by Mr. Andrew Laah Yakubu, Group Managing Director, Nigerian National Petroleum Corporation (NNPC), who led a toast after giving a brief greeting.



Mr. Andrew Laah Yakubu, Group Managing Director, NNPC

(5) Second Day (January 31): Discussion Sessions

The program for the second day consisted of Discussion Session 1 in the morning and Discussion Session 2 in the afternoon.

1) Session 1

(9:30 – 12:00; Chaired by: Mr. Morihiro Yoshida, Managing Director of JCCP)

In Session 1, four panelists gave presentations on the theme of “Change of Business Environment in Oil Downstream and Human Resources Development,” and discussed their company’s initiatives to develop next-generation leaders with an eye to creating a new era for the oil industry.

The panelists were: Mr. Husain Ali Sanasiri, Team Leader, Executive Performance Management, Kuwait Petroleum Corporation (KPC); Ms. Raiha Azni Abdul Rahman, Vice President, Human Resource Management Division, Petroliaam Nasional Berhad (PETRONAS); Mr. Ali bin Abdullah Al-Riyami, Director General of Oil and Gas Marketing, Ministry of Oil and Gas (MOG), Oman; and Mr. Andrew Laah Yakubu, Group Managing Director, Nigerian National Petroleum Corporation (NNPC).

As chairman of Session 1, Mr. Yoshida summarized the session as follows: In this session, representatives from four companies gave presentations on the theme of

“Change of Business Environment in Oil Downstream and Human Resources Development.” All four companies have a large social responsibility in their respective countries to provide a stable supply of oil and gas, and are making bold corporate changes with a clear agenda to fulfill their responsibilities into the future.

To achieve future growth, it is essential to make sincere efforts to introduce new technologies that respond to changes in the business environment and to develop human resources who can deal with those changes. Each of the four companies represented in this session places emphasis on human resource development and endeavors to develop people by actively introducing effective training methods.

Outstanding personnel form the foundation of competitive companies. The development of human resources therefore has high priority in achieving continuous growth in any company. Moreover, while the development, improvement and steady implementation of educational programs is important to developing human resources, it is important above all else to generate greater consciousness in each employee and guide them so they can pursue their own potentials through personal development.

Since each country has its own history, culture and unique circumstances, personnel development strategies must be based on distinct values in each country and company. However, at the same time, it is also important to interact with those in other countries who face similar issues and mutually learn from each other’s experiences.

Much was learned from the four presentations today. It would be wonderful if Japan and oil-producing countries can continue to hold exchanges and mutually cooperate in building strong companies.

2) Session 2

(13:30 – 16:00; Chaired by: Mr. Hideto Matsumura, Director, Senior Executive Officer, Cosmo Oil Co., Ltd.)

In Session 2, five panelists gave presentations on the theme of “Change of Business Environment in Oil Downstream and Innovation of Technology,” and introduced new technological challenges made in their companies.

The panelists were: Mr. Ardhy N. Mokobombang, Vice President, Strategic Planning, Business Development & Operational Risk – Refining Directorate, PT Pertamina (Persero); Mr. Sultan Abdul Rahman Al Bigishi, Vice President, Operations Division, Ruwais Refinery, Abu

Dhabi Oil Refining Company (TAKREER); Ms. Nihad Ahmed Moosa, Director General, State Company for Oil Projects (SCOP), Ministry of Oil-Iraq; Mr. Uthman A. Al-Ghamdi, Manager, Operations Department, Ras Tanura Refinery, Saudi Aramco; and Mr. Yukinori Kawashima, Assistant General Manager - Production Control, Yokkaichi Refinery, Cosmo Oil Co., Ltd..

As chairman of Session 2, Mr. Matsumura summarized the session as follows: Today, five panelists gave presentations that focused on the advancement of oil refining, collaboration with the petrochemical industry, pipeline and tank yard development plans, research frameworks for the above and the demonstration of new technologies. Indonesia is addressing its growing domestic demand for oil by pursuing a new vision for the refining business to be achieved by 2025. In Abu Dhabi, a technical development center has been established for the development of refinery assistance technologies and human resources. In Iraq, a large-scale infrastructure construction project has been launched with the aim of increasing its crude oil export capacity. In Saudi Arabia, a new project initiative has been launched with the aim of improving the quality of oil products and establishing a cooperative relationship with the petrochemical industry. The Japanese presentation introduced the flare gas recovery technology that Cosmo Oil has commercialized in cooperation with TAKREER. All of the presentations offered important themes pertaining to future oil supply-demand trends and environmental countermeasures. They also illustrated worldwide technical trends in energy conservation and environmental technologies and the diversification of products in collaboration with the petrochemical industry as a means for strengthening refinery competitiveness.

Today's panelists all emphasized the necessity of making national efforts to develop technologies in cooperation with domestic and foreign partners, instead of outsourcing technical development to external licensors and other such foreign institutions, as has been done up to now. Behind this understanding lies an evolving environment in which companies can no longer expect to survive international competition without tackling new challenges. Moreover, tackling new challenges requires pragmatic human resource development at all stages of operation, through onsite experience in refining, storage and transportation operations, and not by studying books.

Cosmo Oil cultivated the flare gas recovery system as its own technology developed jointly with

Toyo Engineering, and succeeded in its practical application to the Ruwais Refinery in cooperation with TAKREER. That this successful experience provided a rare opportunity for personal development to young engineers in UAE and Japan is a source of pride and honor to Cosmo Oil.

The oil industries in oil-producing countries and Japan alike have accumulated vast experience and technologies through refinery operations. To continue to survive in the coming era, oil-producing countries and Japan need to mutually exchange and share their technologies and expertise. We can expect to see the rise of new, competitive refineries from such cooperation between oil-producing countries and Japan. On a closing note, I therefore ask that greater efforts than ever before be made to deepen mutual exchanges among our countries.

3. Closing Statement

After the discussion sessions, Mr. Masataka Sase, Executive Director of JCCP, took the podium to deliver the closing message. He first noted that events of significant bearing on the energy supply-demand balance are occurring one after another in today's world, including the large increases in global demand for energy, uncertainties in the future of nuclear power generation, the potentials of shale oil and gas development, and full-scale reconstruction and increased oil production capacity in Iraq. Mr. Sase said that these topics have been addressed from various angles by the panelists of this year's international symposium, who presented a direction for dealing with them through human resource development and technical innovation initiatives over an information-filled, fruitful two days. Reiterating the objectives of the JCCP International Symposium, which are to create an opportunity for exchanges among energy experts from oil-producing countries and Japan and contribute to the stable supply and demand of energy by deepening mutual understanding, Mr. Sase stated that the objectives have again been met this year owing to the participation of a large number of people from inside and outside of Japan, and thanked everyone on behalf of JCCP.

* Presentation materials from the symposium are available on JCCP's website (<http://www.jccp.or.jp>) for your reference.

<by Hisayoshi Tanda, Administration Dept.>

The 31st JCCP International Symposium Program

“Communication and Cooperation: For Sustainable Future of Oil Industry”

Date	Time	Proceedings
Jan. 30 (Wed)	14:00 – 17:35	<p>Opening ceremony</p> <p>Opening address Mr. Keizo Morikawa, President of JCCP</p> <p>Guest-of-honor speech Mr. Hisayoshi Ando, Director-General, Natural Resources and Fuel Department, Agency for Natural Resources and Energy, METI</p> <p>Keynote speeches Dr. Faith Birol, International Energy Agency (IEA)</p> <p>Special lectures Mr. Abdullah Al Sarhan, Ministry of Petroleum and Mineral Resources, Kingdom of Saudi Arabia Dr. Fereidun Fesharaki, FACTS Global Energy Inc. Mr. Hatem Ibrahim Al-Awadhi, Kuwait National Petroleum Company (KNPC) Mr. Jamil F. Al Dandany, Saudi Aramco (on behalf of Mr. Nasser Al-Nafisee)</p>
	18:00 – 20:00	Reception
Jan. 31 (Thu)	9:30 – 12:00	Session 1 “Change of Business Environment in Oil Downstream and Human Resources Development”
	13:30 – 16:00	Session 2 “Change of Business Environment in Oil Downstream and Innovation of Technology”
	16:00 – 16:10	Closing address: Mr. Masataka Sase, Executive Director of JCCP

Keynote Speech

Country	Speaker	Speech Title
France	Dr. Faith Birol Chief Economist, International Energy Agency (IEA)	World Energy Outlook

Special Lectures

Country	Speaker	Speech Title
Saudi Arabia	Mr. Abdullah Al Sarhan Energy and Environment Advisor, Office of the Assistant Minister for Petroleum Affairs, Ministry of Petroleum and Mineral Resources, Kingdom of Saudi Arabia	Oil Sustainability in Carbon Constrained World The Doha Climate Gateway: Challenges Beyond 2012
USA	Dr. Fereidun Fesharaki Chairman, FACTS Global Energy, Inc.	Strategic Shifts in the Global Oil Equation
Kuwait	Mr. Hatem Ibrahim Al-Awadhi Deputy Managing Director – Projects, Kuwait National Petroleum Company (KNPC)	Kuwait National Petroleum Company \$40 Billion Mega Investment Plan
Saudi Arabia	Mr. Jamil F. Al Dandany, Director of Education Partnerships, Saudi Aramco	Saudi Aramco – Technology in Human Resource Development

Session 1: Change of Business Environment in Oil Downstream and Human Resources Development

Chairman: Mr. Morihiro Yoshida
 Managing Director, Japan Cooperation Center, Petroleum (JCCP)

Country	Speaker	Speech Title
Kuwait	Mr. Husain Ali Sanasiri Team Leader, Executive Performance Management, Kuwait Petroleum Corporation (KPC)	K-LEAD – Journey to the Corporate Academy
Malaysia	Ms. Raiha Azni Abdul Rahman Vice President, Human Resource Management Division, Petroliaam Nasional Berhad (PETRONAS)	Building a Sustainable Human Capital Strategy – Building Own Timber
Japan <i>(canceled)</i>	Mr. Nobutaka Nohara Associate Executive Officer, General Manager, Corporate Administrative & Financial Affairs Division, JGC Corporation	Development of Globally Competitive Human Resources
Oman	Mr. Ali bin Abdullah Al-Riyami Director General of Oil and Gas Marketing, Ministry of Oil and Gas (MOG)	Oman's Future Oil and Gas Industry
Nigeria	Mr. Andrew Laah Yakubu Group Managing Director, Nigerian National Petroleum Corporation (NNPC)	Change of Business Environment in Oil Downstream and Human Resources Development



Session 1 panelists



Session 2 panelists

Session 2: Change of Business Environment in Oil Downstream and Innovation of Technology

Chairman: Mr. Hideto Matsumura
 Director, Senior Executive Officer, Cosmo Oil Co., Ltd.

Country	Speaker	Speech Title
Indonesia	Mr. Ardhy N. Mokobombang Vice President, Strategic Planning, Business Development & Operational Risk – Refining Directorate, PT Pertamina (Persero)	Meeting the Energy Challenge in the World's Largest Archipelago
UAE	Mr. Sultan Abdul Rahman Al Bigishi Vice President, Operations Division, Ruwais Refinery, Abu Dhabi Oil Refining Company (TAKREER)	Strategy of TAKREER on R&D for Sustainable Future of Refining Industry
Iraq	Ms. Nihad Ahmed Moosa Director General, State Company for Oil Projects (SCOP), Ministry of Oil-Iraq	Blueprint for Iraqi Oil & Gas Infrastructure Development and Plans for Pipeline Network and Storage in Oil Industry
Saudi Arabia	Mr. Uthman A. Al-Ghamdi Manager, Operations Department, Ras Tanura Refinery, Saudi Aramco	Ras Tanura Refinery Clean Fuel Project Fosters Technology to Gain Efficiency
Japan	Mr. Yukinori Kawashima Assistant General Manager – Production Control, Yokkaichi Refinery, Cosmo Oil Co., Ltd.	Flare Gas Recovery Project at TAKREER Ruwais Refinery

The 19th Joint GCC-Japan Environment Symposium

—Environmental Challenges and Mitigation Approaches for Sustainable Development in the Oil and Gas Industry—



Commemorative photo taken at the opening ceremony

Background

The GCC-Japan Environment Symposium takes place annually as a forum for information exchange among environmental experts in the GCC countries and Japan, and was held for the 19th time this year.

This year's symposium was jointly organized with Sultan Qaboos University (SQU) in Oman, and was implemented over a three-day period from December 18 to 21, 2010 under the theme, "Environmental Challenges and Mitigation Approaches for Sustainable Development in the Oil and Gas Industry."

Overview

The symposium opened on December 19 with an



Scene from the symposium

opening ceremony attended by some 140 participants, including such key figures as H.E. Dr. Saud Al-Bemani, Vice Chancellor of SQU; Dr. Ali Al-Harthy, Dean, College of Engineering, SQU; Mr. Salim Bin Awadh Al-Rubki, Manager, Public Relations & External Communications, Oman Refineries and Petrochemicals Company (ORPC; special supporter of this year's symposium); Mr. Shinichi Yamanaka, Chargé d'Affaires ad interim (Counsellor), Embassy of Japan in Oman; and Dr. Norio Arihara, Professor of the Faculty of Science and Engineering, Waseda University (leader of the Japanese delegation). Dr. Rashid S. Al-Maamari, Director of the SQU Oil & Gas Research Center and chairperson of the Environment Symposium Organizing Committee, gave an opening address, followed by Mr. Yamanaka and Mr. Morihiro Yoshida, Managing Director of JCCP.

Dr. Al-Maamari thanked everyone for attending the symposium, and gave a brief introduction of SQU's relationship with JCCP. The first JCCP project that was implemented at SQU was in 1996, and the most recent was a project that ended in the establishment of a laboratory plant for the treatment of oilfield produced water at Petroleum Development Oman (PDO) last November. Through such projects, SQU has developed close ties with JCCP, PDO and other oil companies in Oman. Dr. Al-Maamari also noted that SQU has co-hosted this environment symposium with Japan twice. As co-organizer once again this year, he hoped the symposium



Mr. Shinichi Yamanaka, Chargé d'Affaires ad interim (Counsellor), Embassy of Japan in Oman



Mr. Morihiro Yoshida, Managing Director of JCCP

would be a forum for meaningful discussions between Japan and the GCC countries as it has been before.

Mr. Yamanaka also mentioned the oilfield produced water treatment project as an example of the long-term technical cooperation between Japan and Oman. He then talked briefly about Japan's contribution to environmental issues and Japan-Arab cooperation in the energy and environment sectors, with references to the Nagoya Protocol, which was adopted by the Tenth Conference of the Parties (COP10) to the UN Convention on Biological Diversity held last year in Nagoya, and the Tunisia Declaration, issued by the Japan-Arab Economic Forum also held last year in Tunisia. Mr. Yamanaka closed his speech with words of expectation that all parties would take the occasion of this symposium to acquire Japan's outstanding oil refining technologies.

Mr. Yoshida, after giving a brief introduction of JCCP and an overview of JCCP technical cooperation projects and training programs, asserted that Japan's advanced environmental technologies would be effective in addressing environmental issues that are raising widespread concern in the GCC countries, and stressed the importance of this symposium.

After the opening ceremony, two speakers gave

keynote speeches. From Japan, Prof. Arihara gave a speech on "Opportunities and Challenges in Low-Carbon Energy Developments and Global Warming Countermeasures." On the Omani side, Dr. Yasmien Al-Lawati, Water Management Team Leader at PDO, gave an opening speech in Session 1.

After these keynote speeches, 19 Japanese and GCC experts gave presentations in five separate sessions, as shown below.

December 19

Session 1: Environmental Issues in the Oil and Gas Industry

Session 2: Alternative Energy

Session 3: Oily Water Treatment

December 20

Session 4: Wastewater and Desalination

Session 5: Environmental Management in Selected Industries

In each session, presentations by GCC speakers particularly focused on topics relating to "water" and "the environment." This is from the fact that the symposium was originally launched as a greening seminar, and indicated the GCC countries' strong continuing interest and concern in the environment and water resources.

A closing ceremony was held after completion of the last session on the 20th. Following a summary of presentations by Mr. Al-Maamari, Dr. Mustaque Ahmed, Ph.D., Director, Center for Environmental Studies and Research (CESAR) gave three recommendations from the general, long-term and short-term points of view. Mr. Koichi Io, Deputy General Manager of the JCCP Technical Cooperation Dept., thanked all symposium participants, SQU and ORPC for their cooperation in the successful implementation of the symposium.



Dr. Norio Arihara, leader of the JCCP delegation (Waseda University)



A participant from a GCC country delivering a presentation

On the 21st, we visited ORPC's Mina Al-Fahal Refinery. After receiving a brief explanation of the refinery, we toured the refinery and observed the refinery's strong commitment to environmental conservation.

Summary

Active discussions took place in all sessions of the symposium, with experts from the GCC countries

showing strong interest in the presentations on Japan's advanced environmental technologies.

We hope that this environment symposium has served to deepen relationships between oil-related organizations and companies in the GCC region and JCCP. We are also hopeful that coverage of the symposium in local newspapers and on SQU's official website has contributed to increasing public recognition of JCCP in the GCC countries.

<by Makoto Nakamura, Technical Cooperation Dept.>

FY2010 Joint GCC-Japan Environment Symposium

Opening Ceremony				
	Country	Organization	Name	Presentation Title
Keynote speech	Japan	Faculty of Science & Engineering, Waseda University	Professor Norio Arihara (JCCP Delegation Leader)	Opportunities and Challenges in Low-carbon Energy Developments and Global Warming Countermeasures
Session 1: Environmental Issues in the Oil and Gas Industry				
Chairperson				
Chairperson	Oman	Sultan Qaboos University	Dr. Ahmed Al-Futaisi	
Speakers				
Keynote Speech	Oman	Petroleum Development Oman	Dr. Yasmeen Al-Lawati	Sustainable Development Aspirations and Challenges for an Oil and Gas Operating Company
1	Qatar	Qatar Petroleum	Speaker: Dr. Azhari F.M. Ahmed Co-author: Dr. Ali Hamad Al-Mulla	Mitigating Anthropogenic Air Emissions in Qatar: Sustainable Development Opportunities for the Oil and Gas Industry
2	Japan	Idemitsu Kosan Co., Ltd.	Mr. Naoki Takakura	Environmental & Energy Policy in Japan and Efforts Made by Idemitsu
3	Oman	Oman Refineries and Petrochemicals Company	Mr. Salim Ali Al-Harthy	Cleaner Production in Oman Refineries and Petrochemicals Company LLC
Session 2: Alternative Energy				
Chairperson				
Chairperson	Japan	Faculty of Science & Engineering, Waseda University	Professor Norio Arihara	
Speakers				
1	Oman	Sultan Qaboos University	Dr. Ahmed Al-Busaidi	Jatropha: A Bio-fuel Crop for Oman
2	Japan	Cosmo Oil Co., Ltd.	Mr. Hiroyuki Wada	Challenge to the Development of New Type of Solar Concentration System in Abu Dhabi
3	Japan	JX Nippon Oil & Energy Corporation	Mr. Jun Uehara	Toward New Energy at JX Nippon Oil & Energy
4	Japan	JGC Corporation	Mr. Yuji Saito	Solar Powered Desalination Using Thermoelectric Power Generation

Session 3: Oily Water Treatment				
Chairperson				
Chairperson	Oman	Sultan Qaboos University	Dr. Salim Ali Al-Rawahi	
Speakers				
1	Japan	Shimizu Corporation	Dr. Kazuo Okamura	Treatment & Utilization of the Oilfield Produced Water in Oman
2	Oman	Sultan Qaboos University	Dr. Mahad S. Baawain	Feasibility Study to Upgrade Effluent Water Treatment Facility and Water Disposal System at Marine Outfall
3	Oman	Sultan Qaboos University	Dr. Anton Purnama	Design Recommendations for a Submerged Marine Outfall using CORMIX Simulations
3	Nigeria	Ahmadu Bello University	Dr. Abdulazeez Yusuf Atta	Treatment of Phenolic Waste Water Using Microwave Enhanced Nickel/ Copper Oxides on Alumina Catalysts
Session 4: Wastewater and Desalination				
Chairperson				
Chairperson	UAE	United Arab Emirates University	Prof. Abdel-Mohsen Onsy Mohamed	
Speakers				
1	Kuwait	Kuwait Institute for Scientific Research	Dr. Essam E.F. El-Sayed	Zero Liquid Discharge Desalination for Treatment of Saline Water Waste Streams
2	Saudi Arabia	Saudi Aramco	Mr. Mohammad Abu Naiyan	High Efficiency Biological Nutrient Removal of the Modified Ludzack Ettinger (MLE) Process
3	Bahrain	University of Bahrain	Speaker: Dr. Mohammed Saleh Al-Ansari Co-author: Dr. Nader Al-Masri, Bahrain Centre for Studies & Research	Future Sustainable Desalination Technologies for the GCC
4	Australia	Curtin University	Dr. Hari B. Vuthaluru	Boron Pre-treatment for Seawater Desalination
Session 5: Environmental Management in Selected Industries				
Chairperson				
Chairperson	Oman	Sultan Qaboos University	Dr. Ahmed Sana	
Speakers				
1	Saudi Arabia	Saudi Aramco	Mr. Ali Hommod Al Shamrani	CO ₂ Soil Gas Survey Method for Identification of Free Phase Hydrocarbons in Groundwater
2	Saudi Arabia	King Fahd University of Petroleum & Minerals	Dr. Bassam S. Tawabini	Environmental Management of Drilling Fluids Waste: An Overview
3	UAE	United Arab Emirates University	Prof. Abdel-Mohsen Onsy Mohamed	Durability of Cement Kiln Dust-based Sulfur Polymer Concrete
4	Oman	Sultan Qaboos University	Dr. Khalid Al-Rawahy	Transport Sector in Oman, Contribution to Greenhouse Gases Implication for the Future

* Presentation materials from each speaker are available on our website (<http://www.jccp.or.jp>).

The 20th Joint GCC-Japan Environment Symposium

—Challenges for a Sustainable Environment in Oil and Gas Industry—

1. Objective

The GCC-Japan Environment Symposium is held annually to bring together environmental experts from the six GCC countries (Saudi Arabia, Kuwait, Bahrain, Qatar, UAE, Oman) and Japan with the objective of promoting mutual understanding, information exchange, and technical developments through the sharing of environmental improvement and conservation measures in each country.

The 20th symposium, themed “Challenges for a Sustainable Environment in Oil and Gas Industry,” was held over the three-day period from November 22 to 24, 2011, in Abu Dhabi, UAE, with United Arab Emirates University (UAE University) and JCCP as co-organizers and special support from Abu Dhabi National Oil Company (ADNOC).



*H.H. Sheikh Nahayan Mubarak Al Nahayan,
Minister of Higher Education and Scientific Research and
Chancellor of the UAE University*



Opening ceremony

2. Overview

This year was a milestone year, marking not only the 20th holding of this symposium, but also the 40th anniversary of UAE and the 30th anniversary of JCCP. H.H. Sheikh Nahayan Mubarak Al Nahayan, Minister of Higher Education and Scientific Research and Chancellor of the UAE University, remarked in his opening speech, “Twenty, thirty, forty—these numbers suggest that

this is a significant symposium,” as he expressed his delight at joining JCCP in organizing the symposium and extended his appreciation to ADNOC for its special support. He also said, “We are here because thirty years ago JCCP seized the initiative to promote understanding and cooperation between Japan and the GCC countries,” and that JCCP has since sustained its initial action and developed the annual symposium into a landmark event that assembles scientists and professionals from GCC countries and Japan to communicate and exchange knowledge on better understanding of the improvement and rehabilitation of the environment through utilization and application of innovative technologies. “We cannot easily realize our goals for environmental protection,” he said, but he is confident that everyone’s presence at the symposium reflects a strong interest in the huge promise of generating and sharing scientific knowledge as a basis for making sound environmental policies, and that the symposium will advance knowledge and understanding and conclude with inspiration to take new and effective actions.

H.E. Mr. Tatsuo Watanabe, Japanese Ambassador to the United Arab Emirates, spoke next, representing



*H.E. Mr. Tatsuo Watanabe,
Japanese Ambassador to the UAE*



Mr. Yaichi Kimura, President of JCCP



*Prof. Dr. Kenji Yamaji, Director-General,
Research Institute of Innovative
Technology for the Earth (RITE)*

the Japanese side and first expressing his honor in participating in the commemorative symposium. He also noted that next year marks the 40th year of diplomatic relations between UAE and Japan. Back then, Tokyo had been struggling with air and river pollution problems, but over the years, UAE and Japan have established a strong relationship based on energy resources and worked positively to address environmental problems, to ultimately transform UAE into a modern city abounding with the beauty of nature and Tokyo into a city of blue skies and clear rivers that provide a habitat to an array of fish. He said he strongly hoped the symposium would be of tremendous benefit to everyone involved in addressing environmental issues.

Mr. Yaichi Kimura, President of JCCP, also gave an opening greeting, which began with a message of gratitude to the GCC countries for their support and encouragement in the wake of the Great East Japan Earthquake that rocked Japan last March. He said he has never before felt so keenly the significance of a stable supply of energy and oil, in particular, and Japan's bonds with the GCC countries who play an important role in providing stability, and expressed his profound thanks to their long-standing friendship. He also extended his sincerest appreciation to the many institutions not only from the six GCC countries but also from Japan that have lent their presence to this milestone event, and stressed his wish that the symposium would further strengthen friendly ties between the GCC countries and Japan.

Following the opening speeches, Prof. Dr. Kenji Yamaji, Director-General, Research Institute of Innovative Technology for the Earth (RITE), gave a

keynote presentation titled "Policy and Technology Scenarios towards a Sustainable Energy System." He said that "sustainability is an essential keyword for the 21st century," and that "energy and global warming are critical themes to be tackled in order to achieve a sustainable society." Mentioning the three technology scenarios (baseline scenario, ACT scenarios, and BLUE scenarios) presented by the IEA in Energy Technology Perspectives 2008, he noted that the set of BLUE scenarios, which targets a 50% reduction in CO2 emissions from the energy sector by 2050, emphasizes the importance of the electricity and transportation sectors and investments for low-carbon technologies. Meanwhile, Japan had already been taking initiatives toward a low-carbon society since before the Great East Japan Earthquake, but after the earthquake, policies for further promotion of renewable energies have also come to share the spotlight as a priority issue. Dr. Yamaji stressed that technological research, development, and diffusion are necessary for non-fossil energy, energy-efficient technologies, and CCS technologies for fossil fuels. Moreover, in addition to technological innovation, he said social innovation will also be required to realize a low-carbon society, environmental harmony must be taken into consideration in development of social infrastructures, and educational and publicity activities need to be encouraged to increase awareness of climate change risks and to encourage lifestyle changes. He concluded by urging the international community to establish an international and multidisciplinary system for solving energy and global warming issues in a comprehensive manner.



Presentation session

Following the keynote presentation, three discussion sessions were held over two days, featuring 16 presentations by experts from the GCC countries and Japan.

First day (November 22)

Session 1: “Air Quality, Carbon Capture & Storage, Alternative Energy Applications”

Second day (November 23)

Session 2: “Oil and Gas Industry Environmental Issues”

Session 3: “Protection of the Marine Environment, Wastewater Treatment”

The speakers and their presentation themes are as shown in the chart on the next pages.

The first day ended with a dinner reception held at the Emirates Palace Hotel and hosted by ADNOC.



Visit to the new UAE University campus

Prominent figures such as Mr. Ali Khalifa Al Shamsi, Director, Corporate Planning & Coordination, ADNOC; Mr. Mohamed B. Al-Qubaisi, Director, Exploration & Production Directorate, ADNOC; and Mr. Ali Rashid Al Jarwan, CEO, Abu Dhabi Marine Operation Co. honored the event, as symposium participants took the opportunity to mingle with each other.

At the end of the second day, Mr. Morihiro Yoshida, Managing Director of JCCP, gave a closing speech. He thanked UAE University for co-organizing the symposium and ADNOC for its special support, and said it was a special honor to receive the attendance of H.H. Sheikh Nahayan Mubarak Al Nahayan at the opening ceremony with his impressive, heart-warming and thought-provoking speech. He said the two-day series of presentations were impressively timely in their themes, and led to meaningful and fruitful discussions. He concluded his speech and closed the symposium by saying that the resolution of environmental problems is an urgent issue for the world, and that since there is much that the GCC countries and Japan can learn from each other, he earnestly hopes the symposium will continue to provide opportunities to forge closer and deeper relations among all countries concerned.

On the third day, a group of speakers from the GCC countries and Japan visited UAE University’s vast new campus that boasts a variety of the latest facilities, while receiving generously detailed explanations from staff members and students of the university.



Local newspaper article on the symposium

3. Summary

The symposium ended on a successful note, with an attendance of more than 150 on the first day and the participation of numerous people from the GCC countries and Japanese companies in the region over the two days of presentation sessions and productive discussions. Since both UAE and Japan face the sea, protection of the marine environment is an issue of particularly strong and serious concern, and will continue to be a theme of high relevance to both countries. In Abu Dhabi, construction projects are going on throughout the city, and further urban development is underway. In conjunction with increases in population, environmental issues are inevitable if they are not properly addressed. This no doubt applies to other GCC countries, as well.

In future, countries that can deal properly with nature will be worthy of attention. Therefore, based on this awareness, mutual exchange of information will become ever more important, and in this respect, this symposium is expected to play at least a small part in promoting technical cooperation.

With news of the symposium appearing in a number of local newspapers on the next day and also broadcast by NHK international broadcasting service, the symposium has contributed to promoting awareness of JCCP activities in the GCC region.

Taking the opportunity of this article, JCCP would like to extend its deepest appreciation to UAE University for its co-organization, ADNOC for its special support, and other relevant institutions for their support and cooperation in bringing the symposium to success.

<by Mieko Onai, Technical Cooperation Dept.>

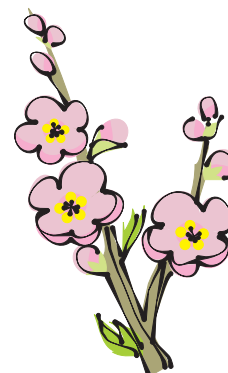
FY2011 Joint GCC-Japan Environment Symposium Program

Opening Ceremony		
Keynote Speech	Japan	Prof. Dr. Kenji Yamaji Director-General, Research Institute of Innovative Technology for the Earth (RITE) "Policy and Technology Scenarios towards a Sustainable Energy System"

	Country	Presentation Title	Speaker
Session 1:	Air Quality, Carbon Capture & Storage, Alternative Energy Applications		
	Session Chair:	Prof. Adel Gastli (Sultan Qaboos University / Oman)	
	Session Co-chair:	Mr. Takashi Sato (JX Nippon Oil & Energy Corporation / Japan)	
1	UAE	ADNOC Air Quality Management System (AQMS)	Mr. Hazem Abuahmad SPC/ADNOC
2	Japan	Associated Gas Utilization: The Pioneer Work of JX Group	Mr. Takashi Sato JX Nippon Oil & Energy Corporation
3	UAE	Selective Removal of CO ₂ and H ₂ S from Pressurized Gas Streams Using Hollow Fiber Membrane Contactors	Dr. Mohamed H. Al-Marzouqi UAE University
4	Japan	IDESORB: VOC Recovery Unit—Environmental Friendly Equipment—	Mr. Satoshi Kibata Idemitsu Kosan Co., Ltd.
5	Oman	Potential of Solar Energy Applications in Oman's Oil Industry	Prof. Adel Gastli Sultan Qaboos University
6	Japan	Cooperative Activities on Energy Business of Showa Shell for the Middle East Countries	Mr. Keiji Fujihara Showa Yokkaichi Sekiyu Co., Ltd.

Session 2: Oil and Gas Industry Environmental Issues			
Session Chair: Mr. Said Abdi Yusuf (Qatar Petroleum / Qatar)			
Session Co-chair: Dr. Shunji Oya (Swing Corporation / Japan)			
1	Japan	Challenges to Better Environment by Effective Use of Water and Solid Waste	Dr. Shunji Oya Swing Corporation
2	Saudi Arabia	Enhance Water Resources Sustainability through Innovative Technology to Maximize Oily Wastewater Reuse	Mr. Mohammed A. Alhajri Saudi Aramco
3	Bahrain	Risk Based Assessment of Contaminated Land & Groundwater	Mr. Ijaz Ashraf The Bahrain Petroleum Company
4	UAE	Bioremediation of Groundwater Contaminated by Oil Spills in the Western Region of Abu Dhabi	Mr. Mohamed Mostafa A. Mohamed UAE University
5	Kuwait	Remediation of Oil Polluted Groundwater Resources of Northern Kuwait: Challenges and Solutions	Mr. Adnan S. S. S. A. Akbar Kuwait Institute for Scientific Research

Session 3: Protection of the Marine Environment, Wastewater Treatment			
Session Chair: Dr. Joydas Thadickal Viswanathan (King Fahd University of Petroleum & Minerals / Saudi Arabia)			
Session Co-chair: Mr. Takao Sumihiro (Abu Dhabi Oil Co., Ltd. / Japan)			
1	UAE	Contribution to the Protection and Enhancement of Marine Environment	Mr. Matwali Shahatah Shobanah SPC/ADNOC
2	UAE	Utilization of Eco-Friendly Materials to Construct Artificial Reefs	Dr. Osama M. Wahba Marine Environment Research Centre
3	UAE	Preservation Project of Coral and Seagrass for Sustainable Oil Field Development	Mr. Takao Sumihiro Mr. Tariq Al Kindi Abu Dhabi Oil Co., Ltd.
4	Saudi Arabia	Oil-related Activities and Environmental Concerns in the Gulf	Dr. Mohammad A. Qurban Dr. Joydas Thadickal Viswanathan King Fahd University of Petroleum & Minerals
5	UAE	Innovative Approaches to the Treatment of Refinery Wastewater	Dr. Muftah El-Naas UAE University



The 21st Joint GCC-Japan Environment Symposium (Preliminary Report)



Important figures and panelists of the symposium

The 21st Joint GCC-Japan Environment Symposium was held on February 5 and 6, 2013 in Doha, Qatar. Co-organized by JCCP and Qatar Petroleum (QP), this year's symposium was themed "Sustainable Environment, Climate Change and Renewable Energy for Oil and Gas Industry."

An opening ceremony kicked off the symposium on the 5th, with opening speeches given by Dr. Ali Hamed Al-Mulla, Manager of Corporate Environment & Sustainable Development at QP; H.E. Mr. Kenjiro Monji, Japanese Ambassador to Qatar; and Mr. Morihiro Yoshida, Managing Director of JCCP. An audience of more than 160 from the GCC countries and Japan filled the venue, including Dr. Takashi Tatsumi, Director and Executive Vice President of the Tokyo Institute of Technology (leader of the Japanese delegation).

After the opening ceremony, Dr. Tatsumi gave a keynote speech on "Tackling Challenges to Sustainable Energy and Environment."

Following the keynote speech, a total of 23 technical papers were presented by experts from the GCC countries and Japan, in three presentation sessions and a forum held over the course of the two-day event. Session 1 covered "Carbon Capture & Storage, Alternative Energy Applications," Session 2 "Oil and Gas Industry Environmental Issues" and Session 3 "Protection of the Marine Environment, Wastewater Treatment," while the forum examined "Best Environmental Practices in Refineries." Active discussions took place in all sessions and the forum, and presentations on Japan's advanced environmental technologies particularly elicited strong interest from GCC experts.

The forum was the first undertaking of its kind in the symposium. Focusing specifically on environmental

issues in refineries, it featured presentations and discussions on best environmental practices by speakers representing refineries in the GCC countries and Japan, and provided an opportunity to exchange practical information among refinery experts.

After the forum, Dr. Al-Mulla closed the symposium with a speech of appreciation to all symposium participants, JCCP and QP.

In a press conference held after Dr. Tatsumi's keynote speech, Dr. Al-Mulla and Mr. Yoshida responded to questions from the press about JCCP activities in the region and about the environment symposium. News of the press conference and symposium was extensively reported in seven local newspapers on the following day (three English-language newspapers and four Arabic newspapers), and contributed to increasing public recognition of JCCP's presence in Qatar.

Prior to the opening of the symposium, the Japanese delegation was given the honor of visiting with H.E. Dr. Mohammed Bin Saleh Al-Sada, Minister of Energy & Industry, Chairman & Managing Director of QP. Thus on the 4th, a delegation composed of Dr. Tatsumi, Mr. Yoshida, Mr. Junichi Kasuya, General Manager of the JCCP Riyadh Office, and Yukiteru Watanabe, Deputy General Manager of the Technical Cooperation Department at JCCP, paid a courtesy call on the Minister.

JCCP would like to extend its deepest appreciation to everyone who cooperated in the successful implementation of the symposium.

<by Yukiteru Watanabe, Technical Cooperation Dept.>

* The names of the panelists, their presentations and other such details will be provided in the next issue of *JCCP NEWS*.

The 21st Joint GCC-Japan Environment Symposium

(Follow-up Report)



Members of the symposium

JCCP and Qatar Petroleum (QP) co-hosted the 21st Joint GCC-Japan Environment Symposium on February 5 and 6, 2013 in Doha, Qatar, under the theme of “Sustainable Environment, Climate Change and Renewable Energy for Oil and Gas Industry.”

The opening ceremony was held on February 5th, with opening speeches given by Dr. Ali Hamed Al-Mulla, Manager of Corporate Environment & Sustainable Development at QP; H.E. Mr. Kenjiro Monji, Japanese Ambassador to Qatar; and Mr. Morihiro Yoshida, Managing Director of JCCP. An audience of more than 160 speakers and participants filled the venue, including Dr. Takashi Tatsumi, Director and Executive Vice President of Tokyo Institute of Technology (leader of the Japanese delegation).

Dr. Al-Mulla formally called the symposium to order and expressed his pleasure of holding the Joint GCC-Japan Environment Symposium in Qatar for the second time in cooperation with JCCP. Ambassador Monji stressed that the symposium theme, “Sustainable Environment, Climate Change and Renewable Energy for Oil and Gas Industry,” is an important issue not only to Japan and the GCC countries, but also to the rest of the world. He also said he hopes Japan can contribute

with its knowledge and experience to the issue here in Qatar, which has just recently hosted a successful COP18 conference. Mr. Yoshida expressed JCCP’s wish to contribute to reducing CO₂ emissions and addressing environmental issues through training and technical cooperation, and then thanked H.E. Dr. Mohammed bin Saleh Al-Sada, Minister of Energy and Industry, and QP for their strong support of the symposium.

Following the opening ceremony, Dr. Tatsumi gave a keynote speech on “Tackling Challenges to Sustainable Energy and Environment.” He said that historically economic growth and energy consumption are closely



Dr. Takashi Tatsumi, leader of the Japanese delegation



Symposium audience

correlated, it is necessary to develop more efficient energy production and energy utilization technologies in the future. To achieve these goals, he stressed the need for drastic changes in people's consciousness toward industrial structure and energy conservation. Dr. Tatsumi also lectured that worldwide increases in energy demand will be countered in the short term by saving energy and storing/reusing CO₂ while also utilizing nuclear power and biomass. In the long term, photovoltaic power will be a core source of renewable energy.

Following the keynote speech, a total of 23 technical papers were presented by experts from the GCC countries and Japan, divided into three presentation sessions and a forum. Session 1 featured "Carbon Capture & Storage, Alternative Energy Applications," Session 2 "Oil and Gas Industry Environmental Issue," and Session 3 "Protection of the Marine Environment, Wastewater Treatment."

The panelists of Session 1 included two Japanese speakers. Mr. Soichi Ogawa (Deputy General Manager, Global Business Support Division, Solar Frontier K.K.) gave a presentation titled "CIS Technology Contribution to the Middle East Energy Business," and Mr. Mitsunori Shimura (Deputy Executive General Manager, Technology Development Unit, Chiyoda Corporation) a presentation titled "Development of Large-scale H₂ Storage and Transportation Technology with Liquid Organic Hydrogen Carrier (LOHC)."

Session 2 included presentations by two Japanese speakers. Mr. Hidemitsu Saito (Manager, Global Technical Cooperation Group, Overseas Business Division, JX Nippon Oil & Energy Corporation) spoke about "Technologies for Volatile Organic Compounds (VOC) Recovery in Petroleum Industry and JX's Activities in Middle East Area," and Mr. Toshiyasu Morita (Assistant Group Manager, Environment & New Energy Technology Development, Cosmo

Engineering Co., Ltd.) about "Technical Support for Environmental Improvement of the Refineries in Middle East Countries."

In Session 3 held on the February 6th, Mr. Rajeev Supekar (Sales Director, Infrastructure Business Division, International Sales and Marketing Unit, Toyo Engineering Corporation) discussed "Improvement of Industrial Wastewater Treatment and Enhancement of Water Recycle with Zero Liquid Discharge (ZLD) Application in the Existing Refinery and Petrochemical Facilities."

In addition to the presentation sessions, a forum that focused specifically on environmental issues in refineries was held as a new initiative in the symposium. With the aim of achieving cross-cutting discussions on environmental issues among refineries in the GCC countries, members from GCC and Japanese refineries gave presentations under the theme of "Best Environmental Practices in Refineries," with Dr. Al-Mulla presiding over the forum. In addition to active exchanges of views, presentations were given on environmental initiatives related to refinery operations, including a presentation by Mr. Hiroaki Mimura (Instrumentation & Control Engineer, Technology & Engineering Center, Idemitsu Kosan Co., Ltd.) on "Importance of Alarm Management for Preventing Accidents which Lead to Environmental Pollution." Although it was the first undertaking of its kind, the forum provided a unique opportunity for lively discussions based on presentations given by each speaker on air pollution countermeasures, wastewater treatment, waste processing and other such environmental issues, and proved to be a productive forum for active exchanges of information on environmental issues in refineries.

The sessions and forum held over the course of the two-day event introduced Japan's advanced environmental technologies and the serious approaches to environmental issues made by the GCC countries,



Forum

and provided an ideal platform for GCC environmental experts to share and exchange knowledge on a wide range of environmental issues.

After the forum, Dr. Al-Mulla closed the symposium by summarizing the two days of discussions and expressing his gratitude to all symposium participants, JCCP and QP personnel.

It is also worth noting that a press conference was held after Dr. Tatsumi's keynote speech on the first day. Dr. Al-Mulla and Mr. Yoshida responded to questions from the press, mainly about the significance of holding the environment symposium in Qatar and prospects for cooperation between Qatar and Japan in the energy sector. News of the press conference and symposium was extensively reported in seven local newspapers on the following day (three English-language newspapers and four Arabic newspapers), and contributed to increasing public recognition of JCCP's presence in Qatar.

In the meantime, preceding the opening of the symposium, the Japanese delegation was given the honor of visiting with H.E. Dr. Al-Sada, Minister of Energy & Industry and Chairman & Managing Director of QP. On February 4th, Dr. Tatsumi, Mr. Yoshida, Mr. Junichi



Local newspaper article

Kasuya, General Manager of the JCCP Riyadh Office, and Mr. Yukiteru Watanabe, Deputy General Manager of the Technical Cooperation Department at JCCP, made a courtesy visit to the Minister.

Taking the opportunity of this newsletter, JCCP would like to express its deepest appreciation to everyone who cooperated in the successful implementation of the symposium.

<by Sadao Wada, Technical Cooperation Dept.>

FY2012 Joint GCC-Japan Environment Symposium Program

Opening Ceremony		
Keynote Speech	Japan	Prof. Dr. Takashi Tatsumi Executive Vice President for Research, Tokyo Institute of Technology "Tackling Challenges of Sustainable Energy and Environment"

	Country	Title	Speaker/Organization
Session 1: Carbon Capture & Storage, Alternative Energy Applications Session Chair: Dr. Muhammad Hassan Al-Malack (KFUPM/Saudi Arabia) Session Co-chair: Dr. Ali H. Al-Marzouqi (UAU/UAE) Mr. Sadao Wada (JCCP/Japan)			
1	Saudi Arabia	CO ₂ Capture and Sequestration: Overview of Research Efforts Supporting Sustainable Environment in Saudi Arabia	Mr. Abdulwahab Zaki Ali M. Abdullah King Fahd University of Petroleum & Minerals
2	Japan	Potential Contribution of Solar Frontier's CIS Technology to the Middle East Energy Business	Mr. Soichi Ogawa Solar Frontier K.K.
3	Oman	Renewable Energy Application in Oil & Gas Industry	Dr. Ali Al-Alawai Petroleum Development Oman

4	Qatar	Assessment of Solar and Wind Energy Potential in Qatar	Dr. Pitta Govinda Rao Qatar Petroleum
5	Japan	Development of Large-scale H ₂ Storage and Transportation Technology with Liquid Organic Hydrogen Carrier (LOHC)	Mr. Mitsunori Shimura Chiyoda Corporation
6	Kuwait	Application of Renewable Energy in the Petroleum Industry	Dr. Mamun Halabi & Dr. Ayman Al-Qattan Kuwait Institute for Scientific Research
7	Qatar	Qatar Carbonates and Carbon Storage Research Centre: Status Update after Three Years of Fundamental Research	Dr. Jurgen Foeken Qatar Petroleum

Session 2: Oil and Gas Industry Environmental Issues

Session Chair: Dr. Mohammad Albeldawi (QP/Qatar)

Session Co-chair: Dr. Ayman Al-Qattan (KISR/Kuwait)

Mr. Hiroaki Mimura (Idemitsu Kosan Co., Ltd./Japan)

1	Qatar	Oryx GTL Experience in Flaring Reduction: Challenges & Opportunities	Mr. Mansoor Al-Marri Oryx GTL
2	Japan	Technologies for Volatile Organic Compounds (VOC) Recovery in Petroleum Industry and JX's Activities in the Middle East Region	Mr. Hidemitsu Saito JX Nippon Oil & Energy Corporation
3	Japan	Technical Support for Environmental Improvement of the Refineries in Middle East	Mr. Toshiyasu Morita Cosmo Engineering Co., Ltd.
4	UAE	Water Sensitive Urban Design (WSUD)— A Measure of Climate Change Adaptation	Dr. Rezaul Kabir Chowdhury UAE University
5	Saudi Arabia	Sustainable Energy and Environment Objectives, Challenges, the Needs and the Road Map	Dr. Alaadin A. Bukhari King Fahd University of Petroleum & Minerals
6	Qatar	Flare Mitigation Efforts in QP's NGL Complex and Its Contribution to Qatar's Sustainable Development	Mr. Abdulla Al-Qahtani Qatar Petroleum

Session 3: Protection of the Marine Environment, Wastewater Treatment

Session Chair: Mr. Hamed Al Rumhi (ORPIC/Oman)

Session Co-chair: Mr. Mohamed Al Amei (TAKREER/UAE)

Mr. Toshiyasu Morita (Cosmo Engineering Co., Ltd./Japan)

1	Japan	Improvement of Industrial Wastewater Treatment and Enhancement of Water Recycling with ZLD Application in the Existing Refinery and Petrochemical Facilities	Mr. Rajeev Supekar Toyo Engineering Corporation
2	UAE	Modeling Bioremediation of Oil Spills in Contaminated Groundwater Aquifers Using Slow-releasing Oxygen Sources	Dr. Mohamed Mostafa UAE University
3	Qatar	Application of Geospatial Analyses in Environmental Planning, Sea-level Modeling and Geosciences Research	Mr. Rob Ross Qatar Petroleum
4	Qatar	Evaluation of Environmental Performance and Impact Study on Marine Life around the QP Offshore Facility—North Field Alpha	Mr. Sajjan Khan Qatar Petroleum

Forum: Best Environmental Practices in Refineries Session Chair: Dr. Ali Hamed Al-Mulla (QP/Qatar) Session Co-chair: Mr. Jun Nishimura (JCCP/Japan)			
1	Japan	Importance of Alarm Management for Preventing Accidents which Lead to Environmental Pollution	Mr. Hiroaki Mimura Idemitsu Kosan Co., Ltd.
2	Kuwait	Air Emission Management—KNPC Experience	Mr. Abhay Kumar Kashyap Kuwait National Petroleum Co.
3	Bahrain	Management of Hazardous Waste—BAPCO Approach	Mr. Ijaz Ashraf & Mr. Abdulla Al Ansari The Bahrain Petroleum Co.
4	Qatar	QP Refinery Waste Water Treatment Challenges and the Zero Liquid Discharge (ZLD) Initiative	Mr. Nadeem Shakir QP Refinery
5	UAE	BeAAT [Central Environment Protection Facilities] An Overview of BeAAT Plant	Mr. Jassim Jawas TAKREER
6	Oman	Solutions for the Re-use of Spent Catalyst from RFCC	Mr. Hamed Al Rumhi Oman Oil Refineries and Petroleum Industries Co.

Saudi Aramco Vice President and Aramco Overseas Company President Visit JCCP

Since the year before last, JCCP and Aramco Overseas Company (AOC), a subsidiary of Saudi Aramco, have engaged in discussions toward the implementation of a Customized Program-Japan (CPJ) for Saudi Aramco's Materials Supply Organization. Upon reaching an agreement on the course program, an agreement signing ceremony for implementation of the CPJ was held on December 1, 2010 at JCCP Headquarters, with the attendance of representatives from Saudi Aramco and AOC, and Mr. Masataka Sase, Executive Director of JCCP.

Representatives from Saudi Aramco included Mr. Munir Rafie, Vice President, Material Supply, and Mr. Abdullah Al-Warthan, Manager, Projects Purchasing and Strategic Sourcing Department. Representatives from AOC included Mr. Ahmed Al-Zayyat, Managing Director; Mr. Abdulmonem Al-Momin, Manager Purchasing, Logistic & Contracting Department; Mr. Ahmed Al-Zahrani, Chief Representative of the Tokyo Office; and two key members from the Tokyo Office.

Many refinery operations and maintenance engineers

from Saudi Aramco have participated in JCCP training programs to date. Therefore, JCCP readily agreed to implement the CPJ in response to a request from Saudi Aramco's Materials Supply Organization. Around ten university graduate-level employees from the organization will be invited to Japan to acquire comprehensive knowledge of Japan's oil industry through exchanges of information with Japanese oil companies and practical training at materials manufacturing companies in Japan. At the same time, the program will offer participants an opportunity to learn about Japanese business practices, job performance, and work ethics.

After the signing of the CPJ agreement by Mr. Al-Zayyat and Mr. Sase, JCCP staff members introduced JCCP's activities and facilities to the Saudi delegation and promoted deeper understanding of JCCP.

We believe that the visit by key figures from Saudi Aramco and AOC has laid the foundation for widening relationships between JCCP and Saudi Aramco, which we consider one of our most important counterparts in the Middle East.

<by Akio Yamanaka, Operations Dept.>



*Signing Ceremony:
Mr. Ahmed Al-Zayyat, Managing Director of AOC,
and Mr. Masataka Sase, Executive Director of JCCP,
shake hands after signing the agreement*



*Address by Mr. Munir Rafie, Vice President of Material and
Supply, Saudi Aramco*

JCCP Receives a Visit by Mr. Fuad Al Zayer from the IEF

On September 18, 2012, JCCP received a visit from Mr. Fuad Al Zayer, Coordinator, Energy Data Transparency, International Energy Forum (IEF), during his visit to Japan to attend the LNG Producer-Consumer Conference, sponsored by the Ministry of Economy, Trade and Industry and the Asia Pacific Energy Research Centre, on September 19. At JCCP he was warmly welcomed by Mr. Masataka Sase, Executive Director, Mr. Morihiro Yoshida, Managing Director, and Mr. Mitsuyoshi Saito, Counselor.

The IEF was established in 1991 as an international institution that aims to promote mutual dialogue and understanding between energy-producing and consuming countries. Its secretariat is based in Riyadh. The Forum consists of 89 member countries at present, which together account for 90% of the world's oil and gas production and consumption. This means IEF practically comprises almost all countries that are directly related to the global supply and demand of oil and gas.

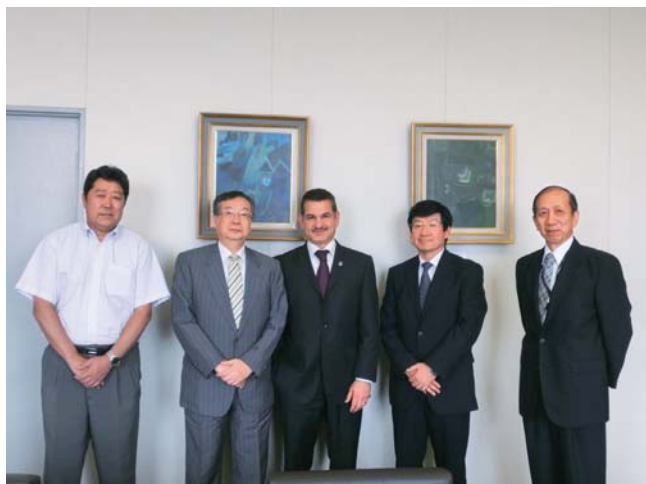
Among its main activities, the IEF convenes a biennial gathering of energy ministers from its member countries to discuss energy issues of concern to the global community, as well as a biennial gathering of CEO-level leaders to promote dialogue among energy companies in member countries. It also gathers basic information on key energy indicators such as oil demand, supply and inventories from its member

countries and disseminates the information on the JODI (Joint Organization Data Initiative) website (<http://www.jodidata.org>) to provide global access to accurate information and promote proper judgment of energy situations. The IEF's consistent activities have helped deepen mutual understanding among oil-producing and consuming countries, and have greatly contributed to the stabilization of energy supply and demand over the past 20 years.

JCCP visited the IEF Secretariat for the first time in November 2011, and thereafter slowly but steadily nurtured its relationship with the Forum. On the occasion of Mr. Al Zayer's recent visit to Japan, JCCP members explained JCCP's functions and achievements using a DVD and PowerPoint slides, and provided a tour of the training facilities at JCCP Headquarters. As his visit coincided with the commencement of two regular courses, which included four participants from Saudi Arabia, Mr. Al Zayer took some time to exchange a few words with the participants. As a whole, Mr. Al Zayer's visit provided an ideal opportunity to promote greater understanding of JCCP's functions and achievements by the IEF.

As both the IEF and JCCP are organizations that aim to foster greater mutual understanding between oil and gas consumers and producers, JCCP hopes to continue holding exchanges with the IEF into the future.

<by Hisayoshi Tanda, Administration Dept.>



Mr. Fuad Al Zayer, Coordinator, Energy Data Transparency, IEF (center)



Exchanging words with regular course participants from Saudi Arabia

Executive Meetings Visits to Saudi Arabia, Kuwait, and Thailand

Mr. Masataka Sase, Executive Director of JCCP, and H. Tanda, General Manager of Planning and Coordination, made a round of visits to Saudi Arabia, Kuwait, and Thailand from May 14 to 21, 2011, to explain the schedule of JCCP training courses in the aftermath of the Great East Japan Earthquake of March 11.

Placing priority on participants' safety, JCCP has postponed the implementation of all regular courses between April and July, but plans to reorganize and resume the courses in September. The recent visits were therefore made to obtain the understanding of JCCP counterparts in oil-producing countries about JCCP's safety measures for participants and to personally urge them to send participants to regular courses in the knowledge that they will be safe.

K. Nita, General Manager of the Riyadh Office, accompanied Mr. Sase in Saudi Arabia and Kuwait.

1. King Fahd University of Petroleum & Minerals (KFUPM)

On May 16, the JCCP delegation paid a call on H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM; and Dr. Sahel Abduljawwad, Vice Rector for Research at KFUPM, and held a meeting in the rector's office.

Before proceeding to the main topic of the meeting, Mr. Sase thanked the two leaders for the many messages of sympathy and support JCCP received from KFUPM in the wake of the Great East Japan Earthquake. He also thanked Dr. Abduljawwad for giving a presentation at



At KFUPM:
H.E. Dr. Khaled S. Al-Sultan, Rector (left)

the JCCP International Symposium this past January.

Dr. Al-Sultan said he was struck by the Japanese people's patience and tolerance in their struggles toward recovery from the disaster, and that he holds them in the highest respect and admiration. He also said that the relationship between JCCP and KFUPM is not just a word, but a reality built on past achievements, and that he wishes to see further development of the relationship in the future.

2. Saudi Aramco's Ras Tanura Refinery

On May 16, the JCCP delegation visited Saudi Aramco's Ras Tanura Refinery to pay a call on Mr. Abdulhakim A. Al-Gouhi, General Manager of the refinery.

Mr. Al-Gouhi expressed his appreciation of JCCP's support, while noting that Saudi Arabians have great respect for Japanese culture and always associate the word "Japan" with a positive value. The JCCP side explained that all regular courses scheduled between April and July have been postponed in consideration of participants' safety and health, but asked for Mr. Al-Gouhi's cooperation in sending participants to the courses if and when they resume in September.



At Saudi Aramco's Ras Tanura Refinery:
Mr. Abdulhakim A. Al-Gouhi, General Manager (right)

3. Saudi Aramco HQ

On May 17, the JCCP delegation called on Ms. Huda M. Al-Ghpson, General Manager of Training and Career

Development, at Saudi Aramco Headquarters.

After thanking Ms. Al-Ghpson for her participation in the JCCP International Symposium this past January, Mr. Sase explained that JCCP regular courses between April and July have been postponed due to the impact of the March earthquake, but that JCCP is planning to resume the courses in September, and requested Ms. Al-Ghpson's help in urging the participation of Saudi Aramco personnel.

Ms. Al-Ghpson sincerely explained that many employees from Saudi Aramco, not to mention Saudi Arabia as a whole, receive training in Japan, and said she has found that they all wish to continue their training in Japan despite the recent earthquake. She was also kind enough to say the Saudi Arabian people have strong feelings of trust in Japan, and that everyone is confident that the hardworking people of Japan will progress steadily along the road to recovery.



*At Saudi Aramco Headquarters:
(From the left) H. Tanda; Mr. Mutlaq A. Al-Subaey,
Superintendent; Mr. Masataka Sase; Ms. Huda M. Al-Ghpson,
General Manager of Training and Career Development;
and Mr. K. Nita*

4. Japanese Embassy in Kuwait

On May 18, the JCCP delegation visited the Japanese Embassy in Kuwait to pay a courtesy call on H.E. Mr. Yasuyoshi Komizo, Ambassador.

Ambassador Komizo noted that the Kuwaiti government donated five million barrels of petroleum to Japan in the wake of the recent earthquake, and shared his understanding that Japan's contribution to human resource development in Kuwait since the mid-1970s was well recognized by leading figures in Kuwait's oil industry and was the decisive factor behind the generous donation of unprecedented scale. He also offered words of encouragement to the JCCP

delegation, saying human resource development is a long-term process, which requires continuous and persistent efforts on the part of JCCP.



*At the Japanese Embassy in Kuwait:
H.E. Mr. Yasuyoshi Komizo, Ambassador (second from left)*

5. Kuwait National Petroleum Company (KNPC)

On May 19, the JCCP delegation visited KNPC to meet with Mr. Asaad Ahmed E. Al-Saad, Deputy Chairman, Mr. Fahed Fahhad Al-Ajmi, Deputy Managing Director; and Mr. Ahmad S. Al-Jemaz, Deputy Managing Director of the Shuaiba Refinery.

At the outset of the meeting, Mr. Sase articulated his deep appreciation for the many heartfelt messages JCCP received from KNPC after the recent earthquake. He then went on to explain that all regular courses scheduled up to this summer have been postponed, but as JCCP is



*At KNPC:
(From the second from left) Mr. Waleed Al-Hamad,
Assistant Manager of HR Department;
Mr. Fahed Fahhad Al-Ajmi, Deputy Managing Director;
and Mr. Asaad Ahmed E. Al-Saad, Deputy Chairman*

planning to resume them following the establishment of strict safety measures, he asked KNPC to encourage the participation of its employees.

The KNPC leaders offered warm words of condolence for the recent earthquake and expressed their deep conviction that the Japanese people's strength and resilience will help them overcome the disaster and rebuild an even stronger nation than before. They also emphasized that the strong relationship of trust that JCCP and KNPC have steadily established over the years will never be severed.



At KNPC:

Mr. Ahmad S. Al-Jemaz, Deputy Managing Director of the Shuaiba Refinery (second from right)

between April and July have been postponed after the earthquake in consideration of the safety of participants, but as they are being readied to resume in September, he asked for the active participation of the company's employees. Mr. Teparimargorn firstly praised the Japanese people for their perseverance and prayed for the country's swift recovery. He then said that, due to lack of information about the earthquake in Thailand, he had not been sure whether he should send participants to JCCP regular courses, but he is glad to hear that JCCP is moving forward, and appreciates the JCCP delegation making the long trip to provide reassurance.



At PTT Public Company:

Mr. Pitipan Teparimargorn, Senior Executive Vice President (fourth from left); and Ms. Papinya Tansamrit, Vice President (third from right)

6. PTT Public Company Limited

On May 20, Mr. Sase visited PTT Public Company Limited as the final destination of the series of follow-up meetings, to meet with Mr. Pitipan Teparimargorn, Senior Executive Vice President, Human Resources and Organization Excellence; and Ms. Papinya Tansamrit, Vice President, Learning and Development Center Department.

Mr. Sase explained that all regular courses scheduled

At all destinations of the recent follow-up meetings, the JCCP members were deeply touched by everyone's expressions of sympathy and encouragement for recovery from the Great East Japan Earthquake, as well as for their warm patience and support of JCCP courses. To respond to their expectations, we at JCCP have strengthened our resolve to resume the courses as quickly as possible and to continue striving to strengthen our relationships with oil-producing countries.

<by Hisayoshi Tanda, Administration Department>

Executive Meetings in Saudi Arabia and Oman

Mr. Masataka Sase, Executive Director of JCCP, visited JCCP counterpart organizations in Saudi Arabia and Oman from May 17 to 23, 2013 to propose requests for presentations at the 32nd JCCP International Symposium and to hold policy dialogues regarding JCCP activities. He was accompanied by Akio Yamanaka, Executive Councilor at JCCP; Junichi Kasuya, General Manager of the JCCP Riyadh Office; and Jun Nishimura, General Manager of the JCCP Middle East Office.

1. Saudi Arabia

(1) International Energy Forum (IEF) Headquarters (May 18)

The JCCP delegation visited IEF Headquarters in Riyadh and met with Dr. Aldo Flores-Quiroga, Secretary General, to give a broad outline of next year's JCCP International Symposium and to request a keynote speech from him at the symposium. Dr. Flores-Quiroga said he takes keen interest in Japan, and wishes to accept the offer if his schedule could be accordingly arranged. In turn, he requested JCCP's participation in IEF activities, such as by implementing workshops and training programs at IEF Headquarters based on JCCP's vast experience in providing training. The delegation thus agreed to examine potential schemes for cooperation with IEF in the future.



*At IEF: Dr. Aldo Flores-Quiroga, Secretary General
(second from right)*

(2) Petro Rabigh (May 19)

JCCP receives Saudi Arabian participants to its training courses not only from Saudi Aramco, but also from Petro Rabigh, albeit in small numbers, but this was JCCP's first visit to the company. The delegation met with Mr. Salem A. Al Baddad, Assistant Supervisor and received requests for the acceptance of larger numbers of participants from Petro Rabigh and for the implementation of an expert dispatch program or special course on corrosion and corrosion prevention. The delegation gave word that they will take these requests back to JCCP for consideration.



At Petro Rabigh

(3) King Abdulla University of Science and Technology (KAUST) (May 19)

The JCCP delegation next visited KAUST as a potential counterpart for technical cooperation projects. Dr. Kazuhiro Takanabe, Associate Professor at the university, provided a general overview of the present state of the university and took the delegation on a tour of the campus. KAUST is a graduate university that opened in 2009. It is the first co-ed university in Saudi Arabia, and currently has approximately 700 students. Tuition is free. With plans to increase enrolment to the 2,000 level in the future, the university is outfitted with a core laboratory and the world's leading-edge laboratory equipment for use by all departments. The faculty is presently composed of around 100 members, but is

planned to be augmented in the future to 200. Students come from around the world, with Asian students comprising the largest majority of 33%. Most are from China and India, with none from Japan (one student is scheduled to enroll in September). Saudi Arabian students make up 20% of the total student population, but measures are being taken to increase that percentage to around 50% in the future. The campus and residential community face the Red Sea, and boast an impressive environment complete with welfare and recreation facilities (medical fees are free).

Saudi Aramco contributed funding for establishment of the university, and is strengthening its relationship with the university as one of its largest sponsors. JCCP should perhaps also explore specific means for cooperation with the university.

(4) Jeddah Refinery, Saudi Aramco (May 20)

At the Jeddah Refinery, the JCCP delegation met with Mr. Abdullah A. Al-Deraibi, Manager, and Mr. Ahmed A. Rajab, Superintendent, and exchanged views on training needs and other issues regarding training. Mr. Al-Deraibi participated in a JCCP course in 1989, and gives high marks to JCCP's training program, compared to Western training programs. He noted that his strongest concern is to address the urgent issue of preventing and minimizing human error in the operation departments, so the delegation offered to consider a special course on the issue.

During the delegation's meeting with Mr. Al-Deraibi, Mr. Omar S. Bazuhair, Executive Director, Refining & NGL Fractionation, who happened to be visiting the refinery from the head office of Saudi Aramco, dropped by. He thanked JCCP for its assistance in the area of human resource development, and asked for its continued support.



*At Jeddah Refinery:
Mr. Ahmed A. Rajab, Superintendent (center)*

(5) Japanese Embassy in Saudi Arabia (May 18)

The JCCP delegation paid a call on H.E. Mr. Jiro Kodera, Ambassador, to explain JCCP's plan to hold a JCCP alumni meeting in Saudi Arabia as an overseas network project for this fiscal year, and to request the Ambassador's attendance if the plan is realized. Ambassador Kodera, in turn, provided suggestions and invaluable advice for holding such a meeting in Saudi Arabia.

2. Oman

(1) Omani Ministry of Oil and Gas (May 21)

The JCCP delegation paid a courtesy call on Dr. Mohammed Hamed Saif Al Rumhy, Minister of Oil and Gas. It was the first time in five years for the minister and Mr. Sase to meet with each other. Dr. Al Rumhy expressed strong interest in recent affairs in Japan, and asked about the political and economic situations in Japan under the Abe administration. He also talked about his life at Waseda University back when he studied in Japan and contributed to the friendly atmosphere of the meeting, but had firm policies in regard to student exchange programs.



*At the Omani Ministry of Oil and Gas:
Dr. Mohammed Hamed Saif Al Rumhy, Minister (center)*

(2) Oman Refineries and Petroleum Industries Company (ORPIC) (May 21)

The JCCP delegation next visited ORPIC's Mina Al Fahal Refinery and met with Mr. Musab Al Muhrqi, CEO. Mr. Al Muhrqi demonstrated good knowledge about JCCP, and expressed his appreciation of JCCP training programs and technical cooperation projects. He also discussed training needs in the petrochemical sector. The delegation requested Mr. Al Muhrqi's participation



At ORPIC: Mr. Musab Al Muhraqi, CEO (center)

in next year's JCCP International Symposium as a panelist, and Mr. Al Muhraqi said he would like to accept the offer if his schedule permits, as it would be his first visit to Japan.

(3) Japanese Embassy in Oman (May 21)

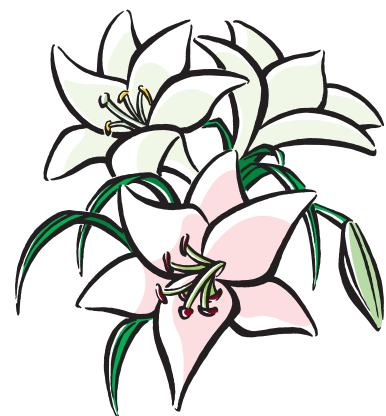
At the Japanese Embassy in Oman, the delegation

met with H.E. Mr. George Hisaeda, Ambassador, and reported on the status of JCCP activities in Oman, as well as on Minister Al Rumhy's request for an exchange study program, among other matters. The Ambassador, for his part, provided enlightening information about Oman, such as the status of education and training that is sought in Oman to help the younger generation find employment.

3. Summary

The visits to the two countries yielded positive results concerning the participation of key figures in next year's JCCP International Symposium. Moreover, through policy dialogues, JCCP received a strong request for uniquely Japanese training from the manager of Jeddah Refinery himself, and a request for training on new subjects from the CEO of ORPIC. Given the dynamic changes taking place throughout the oil industry, the delegation keenly felt the need to hold executive meetings on a regular basis, and to reflect the invaluable opinions obtained through such meetings to actual operations and activities.

<by Akio Yamanaka, Councilor, Administration Dept.>



Interviews with JCCP Graduates

Taking the occasion of JCCP's 30th anniversary, we paid visits to past participants of JCCP training courses as part of the survey of downstream trends in oil producing countries, and interviewed them on what they have gained from participating in a JCCP course, and what future expectations they have of JCCP.

The group of interviewees included Mr. Shigeo Baba (President, Cosmo Research Institute), and Mr. Takashi Sato (Manager, Global Technical Project Group, Global Business Department, Overseas Business Division, JX Nippon Oil & Energy Corporation) as chairman and member, respectively, of the Committee for the Survey of Oil Downstream Industries in Oil-producing Countries; Mr. Hisayoshi Tanda (General Manager, Planning and Coordination, JCCP Administration Dept.) and Ms. Masumi Kitahara (Manager, Planning and Public Relations, JCCP Administration Dept.) as members of the management office; Mr. Shoichiro Yagi (General Manager) from the JCCP Middle East Office; and Mr. Kenji Nita (General Manager) from the JCCP Riyadh Office.

A summary of the interviews is introduced below.

H.E. Eng. Zeyad H. Al Zahrani Undersecretary, Saudi Ministry of Petroleum and Mineral Resources

Past participant of a regular course on Marketing Management (TR-7-88) in FY1988

(Mr. Al Zahrani passed away last December 18 while in London to attend a conference on behalf of H.E. Mr. Ali bin Ibrahim Al-Naimi, Minister of Petroleum and Mineral Resources.)

Date of interview: November 15, 2011

Q1: How did you come to participate in a JCCP regular course?

A: Saudi Arabia and Japan have a long friendship that goes way back to 1955. In the 1980s, JCCP's commencement of cooperation to oil producing countries gave us many opportunities to learn about Japanese history, culture, technologies, and experience. I participated in a regular course in 1988. It was a long time ago, but I still have fond memories of that time, and what I learned then is



H.E. Eng. Zeyad H. Al Zahrani, Undersecretary, Saudi Ministry of Petroleum and Mineral Resources (fourth from right)

still relevant to what I do today. It was a precious experience, both to me, personally, and to Saudi Arabia. Speaking as one who has participated in a JCCP training course in the past, I hope the relationship between JCCP and Saudi Arabia will continue long into the future.

Q2: What have you gained from JCCP's training course?

A: I think the greatest achievement of having participated in a JCCP training course is that I acquired clues to understanding the Japanese people. Everyone I met in Japan was friendly and kind. I came to believe that in Japan, "good" people means "good" in all other aspects.

JCCP courses are designed not only to provide practical knowledge through lectures, but to also introduce Japanese history and culture through company visits and field trips. In the course I participated in, a field trip to Kyoto provided an insightful experience in learning about the history through which Japan developed into the country it is today.

Q3: What future expectations do you have of JCCP?

A: In both Saudi Arabia and Japan, the oil industry is undergoing a major transformation and expanding into new businesses, such as the petrochemical and power generation businesses. I think JCCP training programs also need to change along with these new developments. As Japan is known for the high efficiency and high quality of

its technologies in electronics, precision machines, and various other sectors, we hope to receive JCCP's cooperation in acquiring that technical experience.

Mr. Ali Obaid Al-Yabhouni
General Manager, National Gas Shipping
Co., Ltd. (NGSCO) / Abu Dhabi National
Tanker Company Ltd. (ADNATCO)
UAE Governor for OPEC

Past participant of a regular course on Marketing & Physical Distribution (TR-8-97) in FY1997

Date of interview: November 13, 2011

Q1: How did you come to participate in a JCCP training course?

A: I was in charge of oil marketing at ADNOC at the time I participated in a JCCP regular course. With Japan being an important customer to ADNOC, the company decided to provide employees an opportunity to learn about Japan and to foster employees who have proper knowledge about Japan.

Q2: What have you gained from JCCP's training course?

A: In addition to classroom lectures on various technologies, JCCP programs also include company visits and field trips, and provide a wonderful opportunity to travel to many different places in Japan with members of the same course. This experience exposed us to Japanese companies and society in action, and helped us understand Japanese people's thoughts about work, as well as provided an opening to thinking about the



*Mr. Ali Obaid Al-Yabhouni, General Manager,
NGSCO/ADNATCO*

secrets behind Japan's remarkable development. By personally participating in a regular course, I gained a good understanding of the values and behavior of the Japanese people, and after returning to UAE, I was able to communicate better with people in charge of procurement in Japanese oil companies and trading houses. I think JCCP provides a foundation for getting to know about Japan through its training courses.

Q3: How has JCCP's training course benefited you in your work?

A: The Japanese people value long-term relationships of trust. In business, there are good times, and there are bad times. In regard to crude oil purchase contracts with ADNOC, there are times when a purchasing party desires a greater purchase volume, and times when it desires a smaller purchase volume. Japanese companies, however, never change their contract quantity with ADNOC no matter what the circumstances. They think about the future, and place priority on maintaining good business with ADNOC. We also look at our business with Japanese companies from a long-term perspective and value our relationship with Japan, because we understand and accept the way the Japanese think. Additionally, in rigid conformity to term-based crude oil contracts, which are renewed yearly, Japanese companies have unfailingly renewed their contracts every year up to the present. For this reason, we call our contracts with Japanese companies "ever-green" contracts. By the same token, our relationship with Japan is an "ever-green" relationship.

Q4: What future expectations do you have of JCCP?

A: JCCP and the ADNOC Group have a long history of mutual interaction, and JCCP's contributions are well known at ADNOC. Ever since JCCP commenced its training courses 30 years ago, we have been sending our employees to attend the courses in Japan, and still continue to do so. I think this steady interaction speaks for itself on what ADNOC thinks about JCCP.

Mr. Mohamed Abdulla Al Azdi
CEO, Abu Dhabi National Chemical
Company (ChemWEyaat)

Past participant of a regular course on Marketing & Physical Distribution (TR-2-83) in FY1983

Date of interview: November 14, 2011

Q1: What were your impressions from participating in a JCCP course?

A: In the course I participated in, visits to Japanese refineries, an oil tank facility and an aviation fuel supply facility were especially helpful, as it allowed me to confirm with my own eyes the reality of how Japanese companies manage their production and distribution sites. The cultural field trips and Japanese language session were also helpful.

Japan is an important business partner to the ADNOC Group, so it is important to ADNOC to understand the Japanese language, as well as to understand the culture and history behind the Japanese people's way of thinking. In order to deepen mutual understanding, I think it is essential to create opportunities for interaction.

Q2: How does ADNOC evaluate JCCP training courses?

A: ADNOC is highly appreciative of JCCP's contribution. Everyone recognizes that significant developments are made at ADNOC after employees participate in a JCCP training course and bring back what they learn. I think this is the primary reason why ADNOC has and still continues to send employees to JCCP courses.



At ChemWEyaat:

Mr. Mohamed Abdulla Al Azdi, CEO (center), and Mr. Khalfan Saeed Al Qamzi, Vice President (third from right)

Q3: What future expectations do you have?

A: I wish to see JCCP provide more courses that more widely cover the oil industry and include petrochemical issues. Until recently, oil refining and petrochemical processing were regarded as separate industries. Today, however, the two fields combined are considered to comprise the oil industry.

ADNOC's future challenges lie in the production of high value-added products such as petrochemical products and lubricating oil, and the development of the power generation business. Advancement into these new fields is necessary to increase the added value of the oil industry, and I therefore expect JCCP to also keep up with this trend.

Mr. Mubarak S. Al-Ketbi
Manager, Crude and Condensate Division,
Marketing and Refining Directorate, Abu
Dhabi National Oil Company (ADNOC)

Special lecturer at the 28th JCCP International Symposium held in FY2009

Date of interview: November 15, 2011

Q1: How does ADNOC view its business with Japan?

A: ADNOC and Japan have a long history that goes back to the 1960s, before Abu Dhabi gained independence. I think the fact that the first export of crude oil from Abu Dhabi was to Japan, is symbolic of our relationship.

Q2: What do JCCP training courses mean to ADNOC?

A: Personal relationships are important in business. Business opportunities expand by holding face-to-face meetings and deepening mutual understanding. At ADNOC, there are many people who have gained a good grasp of Japan and the Japanese people by attending a JCCP course. I think the growing number of such people has significantly facilitated business between ADNOC and Japan.

Q3: What opinions do previous participants of JCCP courses have of the courses?

A: Participants of JCCP courses learn many things not only through lectures, but also by visiting



At ADNOC:

Mr. Mubarak S. Al-Ketbi, Manager (third from right), Mr. Al Rafaei (right) and Mr. Al Mulla (second from left)



At TAKREER:

Mr. Ja'afar Salem Al Jabberi, Human Resources and Administration Manager (fourth from right), Mr. Al Gattan (fourth from left), Mr. Helazallah (left), and Mr. Al Mutawa (second from left)

Japanese companies for offsite training and by exchanging information with each other during travel and free times. I think this is an important aspect of JCCP courses. Generally speaking, training frequently refers to classroom lectures, but JCCP's programs feature diverse modes of learning, which most participants agree makes the courses more interesting.

Q4: What future requests do you have for JCCP?

A: Mutual cooperation is essential for greater prosperity of both ADNOC and Japan. We both need each other. Therefore, I hope to continue sending our employees to JCCP courses to increase the numbers of employees who have proper understanding of Japan.

**Mr. Ja'afar Salem Al Jabberi
Human Resources and Administration
Manager, Abu Dhabi Oil Refining
Company (TAKREER)**

Past participant of a regular course on Human Resource Management (TR-12-90) in FY1990
Date of interview: November 15, 2011

Q1: What thoughts do you have of JCCP training programs?

A: I myself am a participant of a JCCP course, but so is my predecessor, Mr. Ismail Al Mulla, who has recently been promoted to Assistant General Manager of TAKREER. Mr. Ali Obaid Al-Yabhouni, General Manager of ADNATCO, whom JCCP members interviewed yesterday, and his predecessor, are also graduates. It is widely

known that there are many JCCP graduates among executives of the ADNOC Group.

Q2: How has your participation in a JCCP course helped you establish your career?

A: Developing a career is similar to stacking blocks one by one to build a house. By participating in a JCCP course, I acquired an opportunity to study the Japanese human resource management system. What impressed me most was the underlying principle of lifetime employment. To enjoy the benefits of lifetime employment, the Japanese people dedicate themselves to their company and work hard until retirement. I think herein lies the key to the growth of Japanese companies. In hindsight, I think my experience in attending a JCCP course was one of the building blocks of my career.

**Mr. Emad Abdulkarim
Manager, Naphtha/Mogas/LPG Sales,
International Marketing, Kuwait
Petroleum Corporation (KPC)**

Past participant of a regular course on Refinery Management (TR-8-02) in FY2002
Date of interview: December 11, 2011

Q1: How did you come to participate in a JCCP regular course?

A: Back at the time, I was in charge of oil export operations. After participating in a JCCP regular course, I experienced various different departments, and am now manager for overseas sales of naphtha, gasoline and LPG in the

International Marketing Department. I also had many opportunities to do business with Japanese companies.

Q2: What were your impressions of the JCCP course?

A: The 18-day regular course I participated in included not only classroom lectures, but also company visits and field trips, which took us to various regional cities and exposed us to Japanese culture and traditions and the Japanese people's commitment and sense of responsibility toward quality. Through this experience, I gained a deeper understanding of Japan. It was enlightening to learn how each and every individual works with a strong sense of responsibility for his/her duties and how they interact with others with respect.

The Internet was not as developed then as it is today, so information about Japan was limited, and we could only learn about the country through TV and movies. Participating in the course allowed me to personally meet people in Japan and get to know the real Japan, and thereby deepen my understanding about the country.

Q3: How has the course benefited you in your work?

A: In my many occasions of doing business with Japanese people, my knowledge of the business practices of Japanese companies has allowed me to avoid misunderstandings and to act appropriately. Therefore, I believe that my exposure to Japanese society while attending a JCCP regular course has been especially useful in facilitating smooth business transactions with the Japanese. My work is to conduct trade, so I must engage in difficult negotiations with my customers. Sometimes Kuwait has the upper hand, and at other times,

Japan has the upper hand. Yet, in any situation, I feel that the key to continue doing business over the long term is to settle negotiations on grounds that leave some room for compromise, without driving the other party into a corner. I was able to take in this style of interaction precisely because I had the opportunity to personally get to know the Japanese people.

Another memorable aspect of my participation in a regular course is that I was able to meet people from different countries who engage in the same job as me, which was a rare opportunity. Engaging in conversation with these people came as a fresh reminder that there are diverse views in the world, even among our group of oil producing countries. Furthermore, case-study presentations made by each participant on an issue they face and how they have resolved it opened our eyes to new issues that could eventually occur in our own countries. I learned that problems are opportunities for challenge, opportunities that open new possibilities, and opportunities that present the potential to produce benefit. This thinking served me well when I assumed my current position. By participating in a JCCP regular course, my portfolio of friends expanded to include friends at Saudi Aramco, ADNOC and QP. For this, I am truly grateful to JCCP.

Q4: What expectations do you have of JCCP?

A: Japan relies on Kuwait for oil supply, and Kuwait values Japan as an important customer. Kuwait and Japan thus have a relationship in which they mutually need each other. In order for both countries to grow, each needs to be strong. At the same time, we must also strengthen the relationship of our two countries. Through JCCP training courses, we have come to understand the values of the Japanese people. In the same way, I hope the Japanese people will also come to understand the values of the Kuwaiti people.



Mr. Emad Abdulkarim, Manager, Naphtha/Mogas/LPG Sales, International Marketing, KPC (center)

Mr. Alaa Al Naqi
Team Leader, Planning and Economic
Study, International Marketing, Kuwait
Petroleum Corporation (KPC)

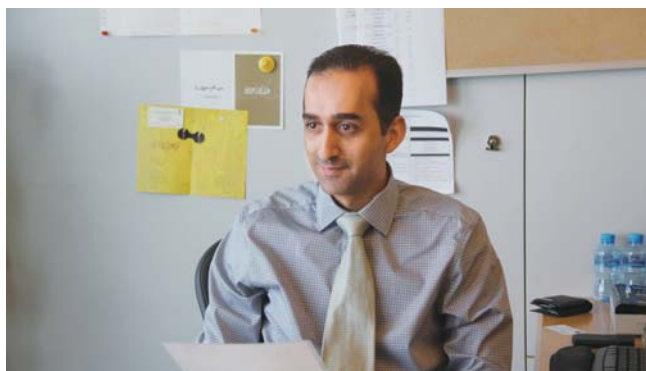
Past participant of a regular course on Automotive Fuel Production Technology (TR-2-02) in FY2002
Date of interview: December 11, 2011

Q1: What were your impressions from participating in a JCCP training course?

A: I learned many things by participating in a JCCP regular course, not only through lectures, but also from what I observed and heard in Japanese society. I have attended more than 30 training programs to date, but the JCCP course was probably the most memorable of all. I have deep respect for my lecturers even today. My greatest memory of the regular course I attended is having met many people who engage in the same job as me. In fact, I still keep in touch with the other participants of the course. They are good friends even after 10 years, and we always see each other whenever I visit their countries.

Q2: How has the course benefited you in your work?

A: The International Marketing Department at KPC undertakes the transactions of crude oil and oil products with Japanese oil companies and trading firms. Japan is thus an important customer, so I think it is important that employees in the department have proper understanding of the culture and business practices of Japanese companies. It is highly commendable that JCCP has continued to provide opportunities for KPC staff to deepen their understanding of Japan through its training courses.



Mr. Alaa Al Naqi, Team Leader at KPC

Mr. Fahad Al-Shatti
Chief Representative, Kuwait Investment
Ltd. (KIL)

Past participant of a regular course on Marketing & Physical Distribution (TR-14-07) in FY2007
Date of interview: October 21, 2011

Q1: What is your present job?

A: I am currently on temporary loan to KIL's Beijing Office from Kuwait Petroleum Corporation (KPC). KIL is a Chinese affiliate of the Kuwait Investment Authority, and I am in charge of developing investment opportunities in China.

Q2: How did you come to participate in a JCCP training course?

A: I attended a regular course on marketing management in 2007. At the time, I was in charge of crude oil marketing at KPC, and had just been assigned to the KPC Beijing Office. Prior to that, however, I had many opportunities to do business with Japanese companies as a marketing manager at the KPC Head Office in Kuwait, and had been impressed by the diligence and sincerity of the Japanese people. Even when a problem arose and I would consult them about possible countermeasures, they would tell me frankly what can and cannot be done. From that time on, I became interested in Japan's unique corporate culture and work practices.

Q3: What have you learned in the regular course?

A: After attending the 18-day course, I realized that the traits that I had seen in the Japanese people I did business with are not characteristic of certain groups of businessmen only, but are normal standards of Japanese society in general. Everywhere I went, the Japanese people were kind, and talked openly about whatever I wanted to know. Before going to Japan, I had heard that communicating with the Japanese people is a difficult task, but I found out that the difficulty lies only in the language problem, and that it is not at all difficult to reach out to them.

Another large benefit was having gained confidence about Japan's economy. Before going to Japan, the Japanese economy had been suffering a slowdown, and I had thought future



Mr. Fahad Al-Shatti, Chief Representative, KIL (center)

growth was not to be expected. However, once in Japan, I saw that Japan's economic power is strong, and that the country is a promising and stable export destination for our crude oil.

Q4: How has the course benefited you in your work?

A: The Japanese people place importance on time. JCCP courses were planned down to the minute, and were precisely implemented as planned. This experience made me aware of the value of time, which is an important and necessary aspect of all international businessmen.

Q5: What other impressions do you have?

A: I still keep in touch with the other participants of the course. We were all from an oil producing country, so in this sense, we were competitors, but participating in the course gave us a useful insight into what each country thinks of Japan. I realized then that it is much more meaningful to see other people not as competitors, but as friends and partners.

Q6: How would you evaluate JCCP training courses?

A: JCCP courses are composed not only of classroom lectures, but also various events, such as traveling and dining together with other participants, all of which present new discoveries. I am still grateful to all our lecturers.

Mr. Majid Al Sharji
Capability Coach, Oman Refineries and
Petroleum Industries Company (Orpic)

Past participant of a regular course on Human Resource Management (TR-55-01) in FY2001 and a regular course on Refinery Management (TR-9-04) in FY2004

Date of interview: December 10, 2011

Q1: How did you come to participate in a JCCP regular course?

A: I attended a regular course on Human Resource Management in fiscal 2001. The other participants were from a variety of countries but were engaged in the same job as me, so it was stimulating to be able to mutually share our experiences. The second time I participated in a regular course was in fiscal 2004, in a course on refinery management. As with the first course I attended, the course brought together participants from various countries around the world, including Qatar, UAE, Venezuela and Vietnam, in fruitful discussions and mutual learning.

Q2: What kind of work do you currently do with JCCP?

A: I currently act as the counterpart coordinator of a JCCP technical cooperation project, and am working to improve refinery efficiency through technical exchanges with Japanese oil companies. At Orpic, we had been struggling with the operations of our sour gas treatment unit, but we were able to find a solution immediately after



Mr. Majid Al Sharji, Capability Coach, Orpic (second from right)

being shown the same unit in a Japanese refinery. Thanks to Japan, we encountered no problems thereafter.

Q3: What expectations do you have of JCCP?

A: English communication is very important. Those of us in the Middle East region generally find it difficult to understand Japanese people's English, and would like to see a bit more proficiency. However, despite this point, the JCCP lecturers were so gentlemanly in the way they interacted with all of us participants, that we placed absolute trust in them.

Mr. Khalfan Al Saadi
Team Leader, Rotational Equipment,
Oman Refineries and Petroleum Industries
Company (Orpic)

Past participant of a regular course on Project Management (TR-11-07) in FY2007

Date of interview: December 10, 2011

Q1: What were your thoughts after participating in a JCCP regular course?

A: I attended a course on project management in fiscal 2007. Through the course, I was able to gain a direct feel for the history and culture of Japan and the way Japanese companies do business, and was able to understand how Japan came to be a global leader in manufacturing. It was also interesting to exchange information with other participants who engage in similar jobs in different countries, and to learn how work is pursued in other countries. Moreover, as



Mr. Khalfan Al Saadi, Team Leader at Orpic

the program offered a combination of classroom lectures, visits to refineries, and field trips, we were able to keep focused, and never got tired of our day-to-day activities over the entire 18 days of the course.

Q2: How has the course benefited you in your work?

A: The course covered practical aspects of maintenance management, such as the comparison and selection of contractors, examination of alternative plans, and risk analysis. Back at the time, I had just begun to work at a refinery, but as I came to be tasked with more duties and my responsibilities increased, I realized that what I learned at JCCP applies to my real-life work, and was glad I had the opportunity to study at JCCP.

The case-study presentations were also an ideal avenue for mutually sharing experiences. Listening to each trouble case was highly meaningful, particularly as they were troubles that could occur at any of our refineries. It also helped that our lecturer had looked into the design of our refineries and each trouble case in advance and provided his input. In fact, I was surprised with the thoroughness of his preparation.

Q3: What impressions do you have of the Japanese people?

A: I have learned that the Japanese have an extremely strong sense of responsibility toward work. When we visited a certain manufacturing plant, I witnessed plant workers spending meticulous time preparing for their job ahead and applying themselves to their work only after making certain everything is in perfect order. I glimpsed the reason why Japanese products are highly respected for their quality. The JCCP experience was filled with diverse learning opportunities, and has given me a good direction in life.

Details of the interviews and their analysis will be compiled in a report on downstream trends in oil producing countries and utilized for further enhancement of JCCP activities in the future.

<by Hisayoshi Tanda, Administration Dept>

Participation in Middle East Petrotech 2012 in Bahrain

The 8th Middle East Refining and Petrochemicals Conference & Exhibition 2012 was held over a four-day period from May 20 to 23, 2012 in an international exhibition center in Bahrain.

1. Overview

Petrotech is a large-scale international convention that is held every two years in Bahrain to promote the development and exchange of technologies in the oil-refining and petrochemical industries. The organizing committee and sponsors of the event include state-run oil companies and petrochemical companies in the Middle East region (Saudi Aramco, BAPCO, ADNOC, QP, KPC, etc.) and Western oil and petrochemical companies (ExxonMobil, Dow Chemical, Foster Wheeler, etc.). Under this year's theme of "Creating Value: Technology, Investment & People," the conference part of the event featured four keynote presentations, eleven guest-of-honor speeches and a large number of presentations, and the exhibition part featured showcases by more than 80 companies in the oil industry. JCCP participated in the Petrotech exhibition for the fifth time this year, and sent Tetsuji Kubota, Senior Counselor, Training Dept.; Hisayoshi Tanda, General Manager, Planning & Coordination, Administration Dept.; and Masumi Kitahara, Manager, Public Relations, to staff the JCCP booth.



Opening ceremony for the Petrotech exhibition

2. Background and Objectives

JCCP participated in the past four Petrotech exhibitions to introduce JCCP activities to visitors from the oil industry in Middle East oil-producing countries. This time, in addition to introducing JCCP activities, the JCCP booth aimed to also introduce JCCP's 30-year history of technical cooperation in oil-producing countries, and to take advantage of the occasion to once again meet and exchange information with JCCP graduates and key figures in JCCP counterpart organizations.



JCCP's booth



Ms. Huda Al-Ghpson, Executive Director, Employee Relations & Training, Saudi Aramco (center)



JCCP graduates (Saudi Aramco)

3. Exhibition

The design concept of the JCCP booth, with some added improvements, was based on the idea used in the 20th World Petroleum Congress held last December, which met with great success.

Although JCCP graduates who were informed of JCCP's participation in the event took the time to visit the JCCP booth last year, we had only limited meeting space to enjoy conversation. With this in mind, this time around we prepared a space for meetings inside the booth.

This being JCCP's fifth participation, many JCCP graduates who knew that JCCP participates in the event every year paid a visit to the JCCP booth from Bahrain, Saudi Arabia, and other neighboring countries. Although an email notice was sent to all graduates in advance, many knew of JCCP's participation even without the notice, which was a clear indication that JCCP has become a fixture of sorts at the Petrotech event.

The visitors included people related to JCCP activities in diverse ways: JCCP counterpart coordinators, past participants, people scheduled to participate in a JCCP course the following week, university professors who attended a workshop sponsored by the Technical Cooperation Department, etc.

The event also provided an opportunity to get in touch once again with Mr. Bakheet Al Rashidi, Deputy Managing Director, KNPC, who was a guest speaker in a past JCCP international symposium and was acting as an executive member of the Petrotech organization committee; and with Ms. Huda Al-Ghpson, Executive Director, Employee Relations & Training, Saudi Aramco, and Ms. Salma Al Hajjaj, Director, Leadership

Development, KPC, who were present at Petrotech as guest speakers.

4. Keynote Presentations

The conference featured four keynote presentations under the theme, "Creating Value: Technology, Investment and People," and was chaired by Mr. Abdulaziz M. Al-Judaimi, Vice President, Chemicals, Saudi Aramco.

- (1) H.E. Dr. Abdul Hussain bin Ali Mirza, Minister of Energy, shared his view that the Middle East countries are globally important oil-producing countries, and in addition to their role as oil producers, they are also becoming oil consumers at a rapid pace. For this reason, oil-producing countries must also break away from their dependence on oil and introduce non-petroleum energies.
- (2) Mr. Mohamed H. Al-Mady, CEO, SABIC, spoke on a variety of issues. He said that the development of talented personnel is a priority issue, which should be addressed by creating a program that could systematically train the necessary human resources. In regard to business, he said it is necessary to take the standpoint of "asking customers to buy," and not of "supplying products to the market." In regard to technology, Mr. Al-Mady noted that shale gas being developed in the United States has dropped in cost to the level of natural gas in Saudi Arabia, and is posing a large threat to petrochemical companies in oil-producing countries. As a countermeasure, he



Ms. Salma Al Hajjaj, Director, Leadership Development, KPC



Mr. Al-Shirawi, General Manager (right),
Mr. Larry Jaeger, Advisor (left),
Oil and Gas Affairs, National Oil and Gas Authority, Bahrain

said Middle East countries must hereafter consider utilizing not only ethane but also a variety of other feedstock to develop the petrochemical industry.

- (3) Mr. Farouk AL-Zanki, CEO, KPC, spoke about Kuwait Refinery Vision 2030 and defined a number of major issues, including the integrated operation of three refineries, improvement of domestic consumption of heavy crude oil, and human resource development. He said that in the future, easy oil will need to be appropriated to exports, and heavy oil that is not suited for export will need to be domestically processed into oil products. He therefore emphasized the need to develop human resources with the necessary capacity to treat heavy oil.
- (4) Dr. Graeme Codrington, Futurist, Author, Keynote Presenter and Expert on the New World of Work, TomorrowToday, gave a presentation. He issued a warning, saying that “to stay competitive, we

must tackle the problems instead of solving today’s problem with yesterday’s technology.”

The presentations were peppered with phrases such as “cultural innovation,” “integrated wisdom,” and “developing creative culture” and shed light on the realization that even state-run companies must work hard to seek such values, and thus the development of human resources is a critical issue in conjunction with the advancement of technologies.

5. Summary

JCCP has participated in the Petrotech exhibition five times over the past 10 years, and has successfully introduced JCCP activities to a wide audience through repeated participation with a small booth measuring a mere 18m² in area. The event also provided an ideal opportunity to reunite with past JCCP participants, deepen mutual friendships, and update the roster of JCCP graduates, who are JCCP’s most precious asset.

As the theme indicated, the development of both technologies and human resources has come to be recognized as a major issue also in oil-producing countries. Meanwhile, JCCP has worked diligently to promote stable supplies of oil and cooperation with oil-producing countries through technical cooperation and personnel development activities for more than 30 years since its establishment. That JCCP’s efforts have come to match the needs of oil-producing countries today was clearly felt through JCCP’s participation in this year’s Petrotech event.



JCCP graduate (BAPCO)

<by Masumi Kitahara, Planning & Public Relations,
Administration Dept.>

Assigned to Saudi Arabia for the Second Time

Junichi Kasuya, General Manager, Riyadh Office



As of February 1, 2012, I was temporarily transferred from my parent company Idemitsu Kosan Co., Ltd. to JCCP, and have been residing in Riyadh, the capital of Saudi Arabia, from March. I am the fourth representative of the JCCP Riyadh Office since it was established in 2003, but this is actually my second assignment in Saudi Arabia. The first time, I was stationed in Jeddah as a representative of the Idemitsu Jeddah Office from immediately after the Gulf War in 1991 to June 1993.

There are presently a little over 700 Japanese people living in Saudi Arabia, of which around 230 live in Riyadh, and there are 20 Japanese companies and organizations including the Embassy of Japan.

Saudi Arabia is roughly 5.7 times larger than Japan, and the largest country on the Arabian Peninsula. It is well known as a dominant power in terms of the Islam religion and the world's largest producer of crude oil. The country's population, which was around 16 million during my stay in Jeddah, has grown to approximately 26 million today, achieving a more than 60% growth in just 20 years. The population in the capital city of Riyadh has also grown considerably from around 1.8 million 20 years ago to more than 5 million, and now surpasses even the total population of UAE, a country made famous by the riches of Dubai. The cityscape of Riyadh is marked today by luxury brand shops and fast-food chains that are also popular and well known in Japan.

With the dissemination of cell phones, satellite broadcasts and Internet access, which did not exist 20 years ago, and a host of new technologies that are too numerous to name, Saudi Arabia has become a materially affluent and advanced country. It has also become more open and free, allowing Saudi Arabian women to appear on mass media and issuing business visas to women, freedoms that were unheard of in the past. There are still many inconveniences compared to Japan and the West, but the country is steadily advancing.

At the same time, however, the above-mentioned population increase has brought various issues that were never envisioned 20 years ago. Among them, unemployment and the sharp increase in energy demand are particularly serious issues. The latest unemployment rate was reported at around 11% as a whole, with up to 30% of youths and more than 50% of women said to be unemployed. Given this situation, there is urgent need to create new workplaces and build vocational facilities where people can acquire the necessary knowledge and skills. Demands for water, electricity and fuel have also surged to the point of affecting the supply of fuel, feedstock natural gas and crude oil to power plants, desalination facilities, the petrochemical industry, and other industries.

Over the past few years, the government has employed various initiatives for addressing these issues, such as by establishing unemployment countermeasures and promoting energy conservation and efficient energy use.

The changes taking place in Saudi Arabia are changes that are also taking place in other Middle East oil-producing countries as well.

Meanwhile, Japan's dependency on the Middle East for oil imports is around 90% at present, and has not changed much since 20 years ago. This means the Middle East oil-producing countries are as important to Japan's energy security today as they were back then. Based on this understanding, JCCP's mission to strengthen relationships with oil-producing countries stands firm, and JCCP's role remains as important as ever.

The Riyadh Office oversees JCCP activities not only in Saudi Arabia but also in Bahrain, Qatar, Kuwait and Egypt. Along with the JCCP Middle East Office in Abu Dhabi, it stands at the forefront of facilitating communications with these oil-producing countries. Close to 10 months have already passed since I took

up my present post at the Riyadh Office. I will make continued efforts to maintain and strengthen JCCP's relationships with oil-producing countries by expanding personal connections with relevant parties and searching for seeds of new projects.

Changing the subject, I live alone in Riyadh. Without my family here, without any movie theaters though I love to watch movies, and with a limited selection of entertainment, playing golf on the weekends has become one of my favorite pastimes. In Riyadh, there are two beautifully green golf courses that are simply

stunning. As I am the only Japanese person on staff at the Riyadh Office and usually have few opportunities to speak Japanese, playing a round of golf with other Japanese members is a refreshing respite. Having said this, however, playing golf frequently becomes more a source of frustration than relaxation, since I am not necessarily good at the sport.

If anyone reading this has an opportunity to come to Saudi Arabia on business, please feel free to drop me a line. I will look forward to your visit.



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