

JCCP NEWS

Special Issue

connected by technology, person-to-person

Report of Activities Related to **Saudi Arabia**



FY2008 - FY2010

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New JCCP Training Initiative: Implementation of a Long Course

“Practical Training for Young Instrumentation and Control Engineers”

JCCP launched a long course called “Practical Training for Young Instrumentation and Control Engineers” this fiscal year as a new initiative in training. Intended for young engineers in the instrumentation and control fields in Middle East oil-producing countries, the course was designed to provide practical training through a systematic program that covers a broad range of topics, from basic to applied technologies in the two fields, with a main focus on hands-on learning.

For successful implementation, the course required a net number of 39 days. Including weekends, it spanned a total of 53 days, from May 25 (Tue) to July 16 (Fri), 2010. An overview of the course is provided below.

1. Background to Implementation of the Course

Since last year, we at JCCP have been contriving ways to enhance the practicality of our courses in order to offer training that more closely responds to the needs and requests of oil-producing countries and is even more beneficial than before. Particularly in the instrumentation and control fields, regular course participants have voiced strong requests for systematic training on wide-ranging topics, from basic to applied technologies. The said long course was formulated under this situation, after much trial and error.

Our main concern was in designing a program that ensures both systematic and practical implementation. While basing it on a regular course program, we also needed to take steps to prevent obsolescence, by featuring the latest technologies, maintaining a high level of specialty, and incorporating hands-on training in addition to lectures. Toward this end, we obtained full cooperation from multiple Japanese companies related to instrumentation and control, and began designing the program roughly a year ago, around summer 2009.

Another major issue we faced was in the selection of countries and companies that are interested in



Course participants

participating in a long course and that could afford to send participants to Japan over such a long period of time. With the cooperation of JCCP’s various departments, we spent many occasions making a careful selection of potential countries mainly among the Middle East oil-producing countries. Throughout this selection process, Iran and Saudi Arabia, which have consistently supported JCCP’s efforts since the very beginning, have taken strong interest in the new course as having potential to produce significant results, by offering various suggestions and requests. Therefore, in the end, we designed a long customized course for a group of participants from two countries, Iran and Saudi Arabia.

2. Course Overview

(1) Participants

The course was offered to Iran and Saudi Arabia, and was attended by a group of nine participants, four from Iran (NIORDC) and five from Saudi Arabia (ARAMCO). Members from the two countries included one leader and one middle-level engineer each from different refineries. The engineers were aged 35 and above on average (Iranian participants were between the ages of 35 and 41; Saudi Arabian participants were between 27

and 39), and equally represented the instrumentation and control fields.

It was evident in their every action that the participants came to the training filled with enthusiasm as selected representatives of their countries. Although they may have felt some worries about leaving their workplace responsibilities for close to two months, they displayed a high degree of determination to make the most of the training opportunity and take home all the necessary knowledge and experience. For example, while they gave unstinting applause to lectures they felt were particularly satisfying and agreeable, when they had a question, they continued to seek clarification of the issue until they were fully satisfied. Many of the Saudi Arabian participants were especially quick to ask questions whenever a lecturer presented even the slightest information they did not understand. At the same, however, they also warned each other when they felt that their questions were interrupting a lecture for too long, and maintained a good balance among the group. The Iranian participants, on the other hand, tended to ask relatively few questions during the lectures but saved them until the end so as not to interrupt the flow of the lectures. The lecturers noted with interest this difference between participants from the two countries.

The two-country makeup of the group, with each country's members coming from different refineries and regions in their countries, seemed to have a positive effect on the participants themselves during their prolonged stay in a foreign country. It allowed them to mutually share and gain a different perspective on specific workplace issues while also providing a sense of reassurance in number. Members from the same country tended to stay together as a group outside of the course, but during hands-on exercises and practical training, they actively communicated with each other and worked in a concerted manner irrespective of nationality.

(2) Selection of Program Topics

The course was designed to provide knowledge of basic to applied technologies in the instrumentation and control fields in a practical fashion, as mentioned above. Under the two large headings of "instrumentation" and "control," four categories of topics were organized according to basic and applied technologies.

For example, for the control field, the "basic" part included lectures on controller tuning theory and practice using a simulator, which is also a popular topic in JCCP regular courses, and an overview of advanced

control; the "applied" part featured a lecture on model predictive control (MPC), a representative method of advanced control, and practical training on a method of optimization combining MPC and a process model. For the instrumentation field, the "basic" part provided lectures on basic measurement principles for flow rate, temperature, pressure, and other such parameters, and the "applied" part covered equipment maintenance, practical training on relevant tasks from the formulation of basic design to onsite construction, the advanced technology of field bus designing, and loop designing based on process control characteristics.

Details of each program are provided in the following section under "Control-related training provided at JCCP," "Instrumentation-related training provided at JCCP," and "Offsite training." Offsite training focused on providing first-hand knowledge of applied and new technologies in instrumentation and control through visits to refineries and plants.

The programs were specifically developed with tremendous cooperation from nine major companies related to instrumentation and control in Japan. A total of 29 programs were developed, including ten control-related programs provided at JCCP, nine instrumentation-related programs provided at JCCP, and ten offsite training programs. Of these programs, more than 60%, or 19 programs to be exact, were new programs offered for the first time (12 JCCP programs and seven offsite programs). The nine cooperating companies agreed to dispatch 67 employees as lecturers, and to implement ten of the offsite training programs over a period of 16 days.

The number of cooperating companies, the names of companies that provided offsite training, and the number of lecturers are as follows.

1) Name of companies by field: 9 companies

(i) Instrumentation and control device manufacturers (4 companies):

Yokogawa Electric Corporation
Yamatake Corporation
Emerson Japan, Ltd.
Oval Corporation

(ii) Engineering companies (3 companies):

JGC Corporation
Toyo Engineering Corporation
Chiyoda Corporation

(iii) Oil companies (2 companies):

JX Nippon Oil & Energy Corporation
Idemitsu Kosan Co., Ltd.

2) Offsite training: 10 programs

A total of 10 programs (7 new programs) were implemented at 9 sites of 6 companies, including 2 oil companies. JX Nippon Oil & Energy Corporation implemented 2 programs.

- (i) JX Nippon Oil & Energy Corporation
- (ii) Yamatake Corporation, Niigata Operational Training Center (Niigata)
- (iii) Idemitsu Kosan Co., Ltd., Tokuyama Refinery and Training Center (Tokuyama)
- (iv) Emerson Japan, Ltd., Solutions Center (Kurashiki)
- (v) Yokogawa Electric Corporation, Mitaka Head Office (Mitaka)
- (vi) Yokogawa Electric Corporation, Kofu Plant
- (vii) Oval Corporation, Yokohama Operation Center (Yokohama)
- (viii) Yamatake Corporation, Shonan Plant (Chigasaki)
- (ix) Yamatake Corporation, Fujisawa Techno Center (Fujisawa)
- (x) JX Nippon Oil & Energy Corporation, Oita Refinery

* New programs were implemented at sites (i), (ii), (iv), (vi), (vii), (ix), and (x).



At the Niigata Operational Training Center

3) Lecturers

Lectures and offsite training were conducted by four JCCP lecturers and a total of 67 specialist employees from cooperating companies. At offsite locations, 45 engineers provided training, assisted by large numbers of plant personnel and staff members who facilitated equipment maintenance exercises and the smooth implementation of lectures.

The following is a list of the number of lecturers by company.

- (i) Yokogawa Electric Corporation: 23 + plant personnel
- (ii) Yamatake Corporation: 15 + plant personnel
- (iii) Emerson Japan, Ltd.: 5 (including 4 engineers dispatched from abroad)
- (iv) Oval Corporation: 2 + plant personnel
- (v) JGC Corporation: 4
- (vi) Toyo Engineering Corporation: 7
- (vii) Chiyoda Corporation: 4
- (viii) JX Nippon Oil & Energy Corporation: 5 + refinery staff
- (ix) Idemitsu Kosan Co., Ltd.: 2 + refinery staff

(3) Main Details of Programs

Most of the programs were well accepted by the participants, but since not all details can be provided, the following is a general summary of programs that successfully embodied our goal of providing “training that is more practical than before.”

1) Control-related training provided at JCCP:

10 programs

- (i) The nine programs in the control field provided a verification of basic theories and technologies related to process control, but the content sufficiently satisfied and captured the attention of the technically advanced participants of the course.
- (ii) Among these programs, the combination of skillful lecture techniques and hands-on simulator training seemed to be especially valid



Simulator training at JCCP

in the practical training on DCS (distributed control systems) related to offsite training at JX Nippon Oil & Energy Corporation's Niigata Operation Training Center and the practical training on classic control theories.

- (iii) A lecture on Kaizen was provided in response to a strong request from the participants. Although it was not directly related to the theme of the course, the request reflected the participants' high level of interest in Japanese-style operational improvement practices, and offered a perspective for observing various initiatives implemented at the sites of offsite training provided by cooperating companies.

2) Instrumentation-related training provided at JCCP: 9 programs

- (i) Beginning with a basic lecture on measurement principles for instrumentation devices, three major engineering companies in Japan were asked to conduct programs on equipment maintenance, tasks from basic designing to onsite construction work, and the flow of operations in an actual project. As all programs were newly developed for this course, we took care so that the lectures by the three companies do not overlap each other.
- (ii) Each cooperating company applied creative ideas to their lectures and hands-on training, and provided an understanding of the significance of "designing," a concept with which the participants were not necessarily familiar. Furthermore, combined with hands-on training at an instrumentation device manufacturer using actual devices, the program proved to be highly effective.

3) Offsite training: 10 programs

- (i) JX Nippon Oil & Energy Corporation and Yamatake Corporation, Niigata Operational Training Center (Niigata): May 31 (Mon.) – June 2 (Wed.)
 - As these two companies utilize their idle refinery production facilities for hands-on operational training, they were asked to implement two new programs that use those facilities.
 - One of the themes of the new programs was to provide practical training using actual facilities on the functions and maintenance procedures for DCS and instrumentation



Training using an actual plant

devices at Yamatake Corporation. The other was to provide a series of operational training from the startup of standalone equipment to emergency countermeasures at JX Nippon Oil & Energy Corporation.

- The programs implemented by these two companies composed an integral part of the systematic, practical training that included computer simulation at JCCP, mini plant operations, and actual plant operations at oil companies.
- It seems that most of the participants had already received training in instrumentation and control in their countries or at a training center in Europe, but they nevertheless showed interest in the Niigata Training Center's training methods, mostly owing to the lecturer's high teaching skills. They seemed particularly interested in its methods of providing skills for handling instrumentation devices in an actual plant and operational control techniques through training.
- (ii) Idemitsu Kosan Co., Ltd., Tokuyama Refinery and Training Center (Tokuyama): June 14 (Mon.) – June 15 (Tue.)
 - The Tokuyama Refinery uses an independently developed advanced process control system in its actual operations, and provided the participants with an invaluable opportunity to observe first-hand a control application in operation in an instrument room.
 - The participants had many questions about the refinery's maintenance system prior

to making the visit and asked even more detailed questions in the instrument room about the division of roles among the officers and their daily routines and tasks. Refinery engineers responded to each and every question with sincerity, and created an extremely favorable impression among the participants.



At the Tokuyama Refinery

(iii) Emerson Japan, Ltd., Solutions Center (Kurashiki): June 16 (Wed.) – June 17 (Thu.)

- In response to the participants' strong request to study the latest instrumentation technologies, Emerson Japan provided thorough training on a wireless instrumentation system by bringing in an expert engineer from abroad and using a specially built demonstration unit.
- As a result of the participants' strong interest in wireless instrumentation coupled with the company's effective presentation of the topic, the program was highly appreciated and well received by all participants.



Placing special emphasis on new technologies

(iv) Yokogawa Corporation, Mitaka Head Office (Mitaka) and Kofu Plant (Yamanashi): June 21 (Mon.) – June 23 (Wed.)

- Yokogawa Corporation provided a highly motivating program covering many new technologies as requested by the participants, and also provided a tour of its instrumentation device plant in Kofu for the first time.
- The participants rated the program highly, as it covered products that they familiar with, while also emphasizing new technologies.
- The visit to the Kofu Plant not only provided an engaging look at Japanese-style management, including the 6S+S (5S + safety + sense) concept and practice, but also allowed the participants to witness the scenic beauty of Japan as they traveled to the plant, located at some distance from Tokyo.



Participants displayed strong interest in new technologies

(v) Oval Corporation, Yokohama Operation Center (Yokohama): June 25 (Fri.)

- We asked Oval Corporation to organize a new offsite training program, because the company is well known in some of the oil-producing countries as a manufacturer of flow meters, and also because it is able to provide training in the disassembly and maintenance of independent devices at its facility.
- Since the participants had already studied the structure and functions of instrumentation devices in advance, the program provided at the company's Yokohama Operation Center focused on hands-on disassembly, maintenance, and assembly of actual devices. Learning about relevant devices

and at the same time acquiring knowledge and practice in actually disassembling and assembling those devices in a single training program seemed to be a new experience even to the instrumentation engineers of the course. With perspiration glistening on their foreheads, they happily applied themselves to the disassembly/assembly exercise.



Participants practicing the disassembly and assembly of instrumentation devices

(vi) Yamatake Corporation, Shonan Plant (Chigasaki) and Fujisawa Techno Center (Fujisawa): July 5 (Mon.) – July 7 (Wed.)

- Yamatake Corporation had organized a program centered on the maintenance of DCS and instrumentation devices (control valves), but in response to the participants' request, we asked them on short notice to allot some time to providing training on DCS and safety instrumentation systems.



Participants practicing maintenance

- A well-balanced training on the maintenance of control valves was achieved through the combination of a detailed introduction of the product manufacturing process at Shonan Plant, and lectures and disassembly/maintenance practice of independent devices at Fujisawa Techno Center.
- The participants possessed extensive theoretical knowledge about instrumentation to begin with, but the program provided a valuable and highly meaningful experience by offering the opportunity to confirm the functions of a device while actually disassembling it.

(vii) JX Nippon Oil & Energy Corporation, Oita Refinery: July 12 (Mon.) – July 13 (Tue.)

- We asked JX Nippon Oil & Energy Corporation to provide a training program at its Oita Refinery for the first time, because it is advanced in the digitization of documents (specifications, systematic diagrams, etc.) and has a well-established maintenance system in place.
- The refinery had just completed major periodical repairs in June, immediately prior to providing the offsite training program, and had little time for preparation. Nevertheless, the staff were kind and patient in responding to the participants' many questions with detailed answers.
- The opportunity for direct exchanges with refinery engineers was also a significant factor of the program to the participants.



At the Oita Refinery

3. Observations

Initially, we intended for the course to be attended by young engineers with around three years' experience in instrumentation and control, but the participants who actually took part in the course were middle-level engineers specializing in the two fields. To match their high level of technical expertise, we had all of our lecturers modify their originally planned programs, and were thus concerned until the very end as to whether the participants would find the course to be satisfactory on the whole.

Upon completion of the course, we were relieved to find that all nine participants evaluated the course as almost entirely satisfactory, and that we had achieved our goal of providing courses that are "more practical than before." While we are proud of having designed an optimum course, we also owe the successful implementation of the course to the outstanding quality of the participants and to the generous cooperation of highly advanced Japanese companies.

Despite spending close to two months attending an extended training course in a foreign country, an Iranian participant noted that he never once felt homesick. We are glad, and hope that other participants also felt this way owing to the fact that they were with other members from their country, and also to the Japanese people who interacted with them in a friendly manner.

It is particularly worth mentioning that the group of middle-level engineers who participated in this course

displayed a high level of expertise and knowledge, an enthusiastic attitude toward training, and a strong sense of responsibility as a representative of their country and company, not to mention mature traits and qualities. Furthermore, they possessed the necessary attitudes and abilities to adjust to living in a foreign country for close to two months, and maintained high conscientiousness from the beginning to the end of the course. They were so well adjusted by the end of the course that some of the Saudi Arabian participants noted that they would like to adopt the good customs and aspects of the Japanese, such as punctuality, and even had one participant saying, "We are Japanese now."

The contribution and cooperation of all companies that provided specialized programs centered on practical training was especially instrumental to the successful completion of the course. They consistently acted in a positive and sincere manner, which demonstrated the qualities and corporate culture of the Japanese people aside from their technical capabilities. They also showed flexibility and broadness in changing and improving their program content to accommodate participants' requests (mainly for advanced levels of training), even in the midst of implementing their program.

Lastly, JCCP takes pride in having planned sufficiently in advance for the two-month-long course, having established a cooperative framework that cuts across all relevant departments, and in having ensured the basic requirements for the participants' extended stay in Japan, all toward bringing the course to successful completion.

<by Teruhiko Sasaki, Training Dept.>

Information Exchange and Training for Young Engineers in Japan and Saudi Arabia

As a new undertaking, JCCP has implemented a training program intended to contribute to human resource development in oil-producing countries and Japan through information exchange among young engineers. Selected young engineers visit refineries and oil-related facilities in the counterpart country to assess training needs at the field level and to seek and discover mutual knowledge of technologies, business operations, the background to those operations, and solutions to common issues. Through this interaction, they are also encouraged to share future visions, form friendships, and strengthen relations between oil-producing and consuming countries.



With young engineers from Japan and Saudi Arabia

1. Young Japanese Engineers Dispatched to Saudi Aramco

1-1. Objective

Under the program, five young engineers from Japan visited Saudi Arabia from May 12 to 20, 2010, to exchange information and establish relationships of trust with young engineers at Saudi Aramco. The five engineers were Mr. Hidetaka Morishige (Safety and Environmental Protection Section, Aichi Refinery, Idemitsu Kosan Co., Ltd.), Mr. Masaya Hashimoto (Maintenance & Engineering Section, Sakaide Refinery, Cosmo Oil Co., Ltd.), Mr. Gakushi Yamagishi (Petroleum Refining Department, Japan Energy Corporation), Mr. Tomohito Shimpo (Technological Section, Showa

Yokkaichi Sekiyu Co., Ltd.), and Mr. Masahiro Suzuki (Planning Group, Negishi Refinery, Nippon Petroleum Refining Co., Ltd.). They were accompanied by F. Tone from JCCP's Training Department.

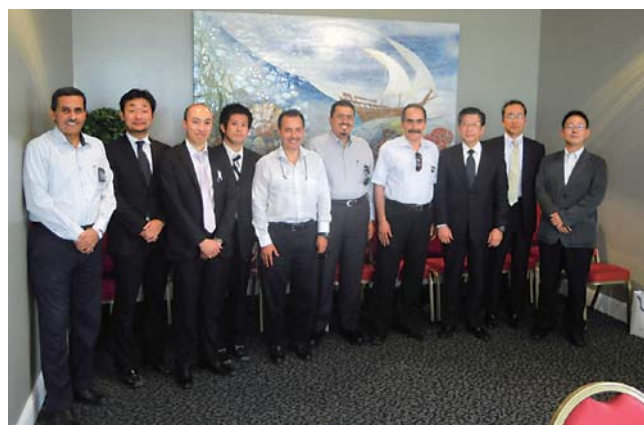
1-2. Destinations and Overview

(1) Ras Tanura Refinery, Saudi Aramco

The Ras Tanura Refinery sends many participants to JCCP training programs. For this exchange program, the refinery's training division provided generous cooperation in recommending departments that the young engineers from Japan should visit at Saudi Aramco, and in providing advice and making appointments.

After a staff member introduced the Ras Tanura Refinery to the Japanese group, Mr. Khalid Al-Mutairi, Training Unit Supervisor, explained that the Training Unit has the responsibility not only to teach skills, but also to develop human resources capable of contributing to Saudi development with the goal of elevating Saudi Arabia to a leadership role in the Middle East region. Mr. Al-Mutairi also said he would like the Japanese engineers to take advantage of the exchange program and gain a good grasp of Saudi Aramco's present situation.

After the warm welcome from Mr. Al-Mutairi and his staff, an employee (Mr. Mohammed Saeed Al-Shahrani) who participated in JCCP's Safety Management Course (TR-9-09) last year gave a tour of the refinery's North and South Oil Operation Divisions and their respective



With management personnel at the Ras Tanura Refinery

control rooms. In both control rooms, Saudi operators greeted the Japanese group with warm handshakes, which resonated in the hearts of the Japanese engineers. The engineers also met with the maintenance manager and operations manager of the refinery, and received a request for revamping JCCP's training course programs and other precious advice.

(2) Ras Tanura Terminal

In cooperation with OSPAS (mentioned later), this terminal receives crude oil that is sent from the oilfields via pipeline to shipping stations located in Ras Tanura and Juaymah, and transfers it to tankers and other vessels, as well as receives and transfers oil products produced in the Ras Tanura Refinery and the Juaymah NGL Fractionation Plant. It is also responsible for managing tanks and guiding tankers to shipping berths. As the terminal essentially operates a tank farm, staff members here expressed interest in learning about tank accident cases in Japan, and requested a course on tank inspection and management.



View of the South Terminal (from the Saudi Aramco website)

(3) Dhahran Shop Division

This division was established for the purpose of supporting the stable supply of crude oil by providing inspections of rotary and other equipment, when there were no major equipment manufacturers in Saudi Arabia. Today, it operates three plants in Dhahran, Juaymah, and Yanbu, and specializes in the repair of motors, pumps, steam turbines, heat exchangers, and gearboxes. Engineers undergo training at the Training Unit for the first two years after they join the company and receive on-the-job training (OJT) once they are assigned to this department. They are also given opportunities to receive training at foreign manufacturing companies (in the US, UK, etc.) to strengthen their technical skills. Since the

department was unfamiliar with JCCP courses until this time, the JCCP members promised to maintain close contact in the future.

(4) Oil Supply Planning and Scheduling Center (OSPAS)

OSPAS is the oil supply center of Saudi Aramco. It monitors and controls the operation, production, and transportation data of all oil and gas operations in Saudi Arabia. A large screen displays five different categories of data: Refining Network, Terminal Planning & Scheduling, Crude Oil Network, Gas & NGL Network, and Electric Network. As it is difficult even for Saudi Aramco employees to visit OSPAS, the Japanese engineers felt both honored and humbled at the opportunity and were impressed to no end by all its trappings.



Giant screen in the OSPAS control room (from the Saudi Aramco website)

(5) North Oil Operation Division

The North Oil Operation Division operates a crude oil processing plant which commenced operations in 2004 with a capacity to supply 500,000 BD of AL (Arabian light) crude oil, 300,000 BD of AM (Arabian



At the Qatif crude oil processing plant

medium) crude oil, and 40,000 BD of condensate. The Qatif Oilfield, discovered in 1945, is spread over an area of 50km × 10km. The Japanese group was unable to visit the actual oil wells, but they were allowed inside a plant that transports crude oil from the oil wells to the processing facility. Members of the division expressed interest in all JCCP regular courses, and requested JCCP to implement the same TPM course that was previously implemented at Abqaiq in the north region.

(6) Ras Tanura Laboratory Division

Here the Japanese group received an overview and tour of the facility from staff members who participated in a JCCP course in the past. As Saudi Aramco exports oil products worldwide, the laboratory performs various tests and activities to increase the integrity of quality control data. Staff members noted that many of them have participated in a JCCP course, and are now producing significant results in bringing improvements to the workplace. In fact, it was evident throughout the facility that hints and ideas acquired from visits to oil-related facilities in Japan during the courses were applied to the laboratory with successful results.

(7) Exchange of views with young engineers

The young engineers from Japan held a deep and meaningful exchange of views with five young engineers at Saudi Aramco after introducing themselves and sharing their expectations and impressions of this program.

Here are a few of the main Q&As that took place.

Question from the Saudi side: “There is an extremely large number of refineries in Japan. Why are there so many, and how efficient are they?”

The JCCP side explained as follows: “Refineries with small capacities tend to lag behind in terms of efficiency. In the past, there were many more refineries throughout Japan, but their numbers were reduced through consolidation and amalgamation. For this reason, competition is severe, and there is an extremely high level of awareness concerning operational improvement in Japan.”

Question from the Saudi side: “There are many oil companies in Japan, but do these companies actively exchange information with each other?”

The JCCP side explained as follows: “Exchanging information among different companies is not necessarily common practice, but active exchanges of technical information take place in technical conferences that are held in regard to specific unit categories. In addition to

the exchange of technical information, discussions on trouble cases, process issues and their countermeasures are also held at these conferences.” The Saudi engineers indicated strong interest in the fact that there are forums for sharing technical information in Japan, and appeared to want to participate in them if at all possible.

In regard to JCCP training programs, there were opinions that hands-on training is essential to programs related to maintenance themes, and that the 11 to 18 days that are currently allotted to hands-on training should be expanded to 2 to 3 months. Other opinions noted that an evaluation system is needed to assess participants’ degree of understanding. The JCCP side replied that it will give due consideration of these opinions.



Young engineers of Saudi Aramco



With the JCCP participants, after holding an exchange of views

1-3. Summary

This program was the first of its kind, but thanks to the cooperation of Saudi Aramco and its various departments, we feel it was a meaningful program that produced substantial results. The young engineers from Japan came into the program with a forward-looking and assertive attitude as representatives of the companies they belong to, and inquired about many aspects of Saudi Aramco’s operations with the aim of understanding the differences between their companies and Saudi Aramco.

One of the main objectives of the program was to collect views about JCCP’s training programs, but we received

proposals and ideas far surpassing our expectations, which underscored the importance of implementing this type of program on a continuous basis. Included were proposals for courses in which veteran employees (management) and young employees can mutually engage in discussions, technical courses specifically designed in reference to the equipment configuration and future plans of the participant company, courses that analyze failure cases relevant to engineers, and courses on analysis of failure cases intended for operators.

2. Invitation of Young Engineers from Saudi Aramco to Japan

2-1. Objective

A group of six young engineers from Saudi Aramco were invited to Japan for the period between June 8 and 18, 2010, to gain an understanding of Japan's oil industry and strengthen ties of information exchange and trust with young engineers in Japanese oil companies. With the cooperation of a number of oil companies in Japan, they observed the import, transfer, storage system and the operational, safety, and maintenance management systems in Japanese refineries, and gained an understanding of uniquely Japanese activities such as TPM activities, and the market situation in Japan.

2-2. Companies and Overview

At JCCP, we provided an outline of the present state of the oil industry in Japan through lectures on the "Present State and Issues in Japan's Oil Industry," "Safety Management in the Refinery, the Creation and Activities of a Safety Culture," and "Energy Saving for Profitability Improvement."

(1) Chiba Refinery & Anesaki Oil Station, Idemitsu Kosan Co., Ltd.

The arrival of the group of engineers from Saudi Aramco coincided with the early-morning shift change at the Chiba Refinery. They therefore experienced the shift-change process, performing the "radio exercise" that begins each workday, observing safety confirmation activities and the TBM (Tool Box Meeting) activity, and taking part in the "point and call" (pointing with a finger and calling out for confirmation) of safety slogans. The Saudi engineers said the experience was valuable, and that they wish to introduce the activities to Saudi

Aramco. In the control room they acquired knowledge about TPM activities, and in the field they examined various improvement measures, some of which they felt were applicable to their refineries. Furthermore, they visited a gasoline station located in front of the Chiba Refinery and inspected the tires, lubricating oils, and servicing tools sold in the station. They also observed with interest service station staff receiving training on window wiping and car washing, and reflected on the level of services in Saudi Arabia.



Taking part in the "radio exercise"

(2) Kiire Terminal, Nippon Oil Staging Terminal Co., Ltd.

The group of Saudi engineers were ferried to a berth where a VLCC was actually docked, and received an explanation of the crude oil discharging task. They also inspected the control room from where all terminal operations are controlled, and gained a general understanding of the system that controls and manages the process of discharging crude oil and loading it onto domestic vessels, through detailed explanations. In the tank yard, the group inspected the tanker vapor recovery (TVR) unit that was independently developed by Nippon Oil Staging Terminal. As vapor emissions that are released when loading crude oil to a VLCC are simply burned as flare gas at Saudi Aramco, the Saudi engineers took an interest in the explanation that vapor recovery could lead to an increase in profit, and seemed impressed with its environmental management and cost management aspects.

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

The training at Sakaide Refinery focused on maintenance management, and the group from Saudi

Aramco examined the operational management system in the integrated control room and toured the refinery site. Mr. Masaya Hashimoto, Maintenance & Engineering Section, who was one of the members of the group of young Japanese engineers to Saudi Aramco, explained the importance of preventive maintenance through a comparison of daily maintenance and periodic maintenance activities. The importance of diagnosis technologies in addressing aging facilities was also discussed.

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

The focus of the training at Yokkaichi Refinery was on providing an understanding of the upgrading processes of heavy oil in Japanese oil companies. The Saudi engineers visited the control rooms of various units and received detailed explanations about diverse technologies. For example, in the control room of the heavy oil processing unit, a miniature model of the facility that was created at the detailed design stage was used to explain how the initial design was revised after confirming the ideal equipment layout for routine rounds and inspections and the role of engineers. Since designs are confirmed using a 3D simulation model in most cases today, the Saudi engineers seemed to recognize anew the important role of physical models in facilitating understanding. Mr. Tomohito Shimpō, Technological Section, who was one of the members of the group of young Japanese engineers to Saudi Aramco, explained the upgrading process of heavy oil in Japan in detail, and engaged the Saudi engineers in a discussion on technologies related to RFCC risers and catalyst regeneration columns and technologies related to catalyst direct desulfurization.

(5) JGC Corporation World Operations Center

At JGC Corporation, one of the most prominent



At Showa Yokkaichi Sekiyu

engineering companies in Japan, the group of Saudi Aramco engineers received an inspiring practical lecture on project management based on the lecturer's own experience. They were also given a presentation on A-MIS (Advanced Maintenance Inspection Supporting System), a system for estimating maintenance and inspection periods from inspection logs and time changes observed in static equipment, and actively discussed the technology from various angles. The lecture on equipment life prediction technology for turnaround maintenance, however, was highly technical and a challenge to fully comprehend for some members.

2-3. Group Discussions

The young engineers from Saudi Aramco took part in group discussions with the young engineers from Japan who earlier visited Saudi Arabia, to compare issues of concern and future challenges of young engineers, seek points in common to both countries, and deepen mutual exchanges. Divided into three groups composed of both Japanese and Saudi engineers, they were instructed to come up with a topic related to the theme of "workplace issues and countermeasures, and personal action plans" by having each person share issues that he perceives, contemplates or faces daily, and discussing common issues and their priority as a group. As a result of discussions, each group happened to select an issue related to the disparity between veteran and young employees or to the handing down of knowledge and skills. Not only Saudi engineers but also Japanese engineers took an active part in sharing their thoughts, and helped move the discussions along by initiating the analysis of causes and summarizing the key points. Each group examined the causes from various angles and proposed solutions. In the analysis of causes, the groups did not go beyond identifying such general factors as



Engineers engaged in discussion



Presentation of group discussion results

the superficial system, management method, and the responsibility of superiors. As solutions, they articulated their wishes without proposing specific measures, and in the final analysis they were unfortunately unable to create personal action plans for taking voluntary action. However, their discovery that young engineers in both Saudi Arabia and Japan share the same issues was an achievement in itself. We hope that these engineers will take the opportunity of their group discussions to keep in contact with each other and develop a relationship of friendly competition.

2-4. Observations of the Program

To design a completely new type of program, we realize we may have made some challenging demands of companies we visited, but we are simply grateful that they more than came through for us, providing training in locations that are not accessible in regular courses and giving lectures in the greatest detail. Judging by the responses of the participants, they also appreciated the experience to a great degree. However, some noted that they would have liked to experience an actual site of training implemented by refineries and case-based training backed by scientific facts. Some others said that the program might have been even more helpful if it included training at an equipment or device manufacturer. We will take these opinions into consideration in future programs. As this was the first attempt at implementing this program, we only invited the participation of oil companies, but we hope to expand the scope of the program more widely in the future.

The overall evaluation of the program was that it was beneficial to the respective duties of each participant. Some of the practices and qualities of Japanese companies

the participants discovered and wished to apply to their workplaces were the following: good teamwork, mutual trust and respect, large collective office spaces that promote communication and facilitate the dissemination of discussion results, and energy-saving initiatives. In regard to the composition of participants, many opinions indicated that a mixed group of young engineers from a multiple number of countries would be ideal, so that various views could be exchanged among engineers of different countries and not only with Japanese engineers. In a sense, we feel that this type of request is also characteristic of a JCCP program.

The engineers who participated in this program were consciously aware that they are officer candidates at Saudi Aramco, and that they were selected for this program to represent the company. Their questions were always to the point, and they engaged in discussions with such active and open minds that even the lecturers and member company staff members were duly impressed.

As this program was the first of its kind to be implemented, many factors need to be considered, to upgrade the program next year. For example, we need to consider including an element in the program that would satisfy participants' desire to learn about Japan as a country, respond to their strong request for training at an equipment manufacturer (in consideration of the fact that they are engineers and the equipment they operate is mostly Japan-made), develop an idea for providing a look at how training is implemented in Japan, and explore the validity of extending the program by a few days and inviting the participation of young engineers from several countries at a time.

3. General Summary

This program was planned and implemented for the first time this year, with the objective of deepening mutual understanding and creating a foundation for new relationships among young engineers in Japan and Saudi Aramco. Given its recent completion, we wish to interview the superiors of the young Japanese and Saudi engineers who participated in the program, as well as staff members who were in charge of the training units, to obtain their evaluations of the program, and their opinions, suggestions, and requests for continuation of the program in the future. In addition to their input, we will also consider designing an exchange program for young engineers from multiple countries, in planning next year's program.

<by Fumihito Tone, Training Dept.>

Seminar on Refinery Maintenance Management and TPM Held at Saudi Aramco



JCCP-side lecturers with the management of Southern Area Oil Operations and participants of Part 2 of the seminar

Saudi Aramco is currently implementing improvement and reform activities with a focus on safety management and preventive inspection, with the aim of upgrading facility inspection technologies in Saudi Arabia. To complement its efforts, it sought JCCP's cooperation in learning about the current state of improvement activities such as Total Productive Management (TPM) and the latest maintenance management techniques employed by Japanese refineries. In response to this request, JCCP and Saudi Aramco have begun to hold a Customized Program-Overseas (CPO) on a regular basis.

This year's seminar was divided into two parts and held at two different venues. Part 1 was held at Yanbu NGL Fractionation Department from April 22 to 30, 2010, and Part 2 was held at the North Ghawar Producing Department (Southern Area Oil Operations) from May 1 to 5, 2010. Part 1 has been held in turn among four refineries and two NGL fractionation departments, and was held for the third time this year. Part 2 was held this year as a result of a request made by a participant who attended a TPM seminar in fiscal 2008 for implementation of the seminar in his department.



With the management of Southern Area Oil Operations



Part 1 lecture session: Mr. Keisuke Suzuki from Idemitsu Kosan



Part 1 presentation of group discussion results



Part 2 presentation of group discussion results

Four Japanese lecturers conducted the seminar. They included a lecturer from JCCP's Training Department (F. Tone) and three external experts (Mr. Akio Higashi from Showa Shell Sekiyu K.K.; and Messrs. Yoshisumi Tamao and Keisuke Suzuki from Idemitsu Kosan Co., Ltd.). A carefully selected group of 27 participants from Saudi Aramco's four refineries and two NGL fractionation departments attended Part 1 of the seminar, and 36 participants from departments related to Southern Area Oil Operations attended Part 2.

As the seminar was to be held at Southern Area Oil Operations for the first time, Part 2 was held with the attendance of Mr. Saad A. Turaiki, Vice President, and all management employees of the North Ghawar Producing Department. The Southern Area Oil Operations' strong expectations of the seminar were also evident in the opening speech given by Mr. Abdullah Al-Helal, Manager, North Ghawar Producing Department. Mr. Al-Helal spoke about Saudi Aramco's company-wide maintenance activities launched in 2005 and their relationship to JCCP training programs, and also introduced the historical relationship between Saudi Arabia and Japan.

The seminar program was designed in consideration of the fact that the majority of the participants in both Parts 1 and 2 of the seminar were maintenance engineers. On the first day, a lecture provided an outline of the history and present state of maintenance management in Japanese refineries. The second day's lecture introduced maintenance management issues that Japanese refineries have confronted and resolved, and discussed the necessity, purpose and aim of TPM activities. The third day's lecture provided greater understanding of TPM by presenting case examples of improvement measures taken by two refineries which introduced TPM in advance of other refineries in Japan and faced various frustrating experiences in the process of its introduction. On the fourth day, participants engaged in group discussions, which were particularly well received in previous TPM seminars, to provide an awareness of the significance of small-group activities. As typical of TPM activities, the participants divided into small groups and discussed various issues to gain conscious awareness of the actions they take in order to solve a problem.

In the performance exercise on "workplace issues and solutions," each group discussed the gap (problem) between their ideal images of the workplace and reality, and presented the results of their discussions with the other groups.

Specific discussion themes for the group in Part 1 of the seminar were "the handing down of technical experience," "fire-extinguishing water control system," "employee capability," and "refinery margin." In Part 2, they were "experienced employees," "generational gap in experience," "employee morale," "reliability of rotary equipment," and "manpower." As can be seen from these themes, the handing down of technologies across generations and the quality of engineers are



With participants of Part 1 of the seminar

main issues of concern, as they are also in Japan. To prevent the groups from identifying problem areas without careful consideration, or from trying to deny personal involvement by simply dismissing the issue as a management problem, the lecturers guided the direction of discussions by asking “why, why, why” over and over again.

We noted some noteworthy changes in this year’s discussions. For one, the discussion on the theme of “refinery margin” indicated that cost awareness has also begun to spread throughout the operational field. Another major change from last year’s discussions is that younger employees have begun taking a more assertive role in addressing and seeking improvement in employee-related issues. The early retirement of long-time employees in their 50s was raised as a common issue in the discussions on “employee capacity” in Part 1 and on “experienced employees” and “employee morale” in Part 2. The participants claimed that this is one of the factors relating to the handing down of technology. Moreover, the recognition that a large generational gap exists, with employee age distribution peaking in the 50s and 20s age groups, underscored the issue of how to hand down experience and knowledge from the older to younger generations and prevent the decline of employee technical skills as a whole. This also happens to be an issue of concern in Japan, but the difference is that the under-16 population accounts for 40% of the total population in Saudi Arabia. Saudi Aramco is addressing the issue by expanding job categories (increasing

equipment capacities, constructing new refineries) to increase employment, but the company is still facing a dilemma, due to the large difference in the motivation levels of long-time employees and younger employees. Even during group discussions, the younger employees accurately assessed the issue of their poor motivation as stemming from early retirement, and actively sought to improve the situation.

Judging by the lively group discussions and the many comments we received that the course was extremely helpful, we feel we have accomplished the expected goal of the seminar, for the most part. However, as some of the younger employees noted that they desire a deeper technology-oriented program, some changes might be needed to respond to differing needs among participants of different age groups. Some other participants suggested providing comparisons with the situation in Japan, premised on the lecturers’ preliminary efforts to understand the situation at Saudi Aramco. As these opinions seem to indicate, perhaps it is time to reassess and review the future direction of the seminar in reference to Saudi Aramco’s needs.

We intend to maintain close communications with the seminar staff on the Saudi Aramco side, to more accurately grasp the needs of each department at Saudi Aramco and implement as meaningful a seminar as possible in the future. A strong partnership is especially important, in order to respond swiftly to policy changes that occur when personnel changes are made every two to three years at Saudi Aramco.

<by Fumihito Tone, Training Dept.>



Article of the seminar in the Arabian Sun (June 16, 2010)

Seminar on “Refinery Maintenance Management and TPM” Held in Iran and Saudi Arabia

1. Iran

The National Iranian Oil Refining and Distribution Company (NIORDC) is focusing its efforts on upgrading facility maintenance technologies and improving safety management at its refineries. Mr. S. Mahjoubi, Deputy Director, Production Coordination and Supervision, who attended the FY2009 JCCP Program Seminar (TCJ) last July, took the occasion of the program seminar to convey to JCCPNIORDC’s request for a seminar designed to introduce TPM (Total Productive Management) and other kaizen activities that are employed by refineries in Japan. The principle aim of implementing such a seminar, Mr. Mahjoubi explained, is to bring changes in awareness among refinery engineers in Iran. Responding to this request, JCCP sent a three-member team to NIORDC’s Tehran Refinery to conduct the requested seminar from November 7 – 11, 2009. The members included a lecturer from JCCP’s Training Department (F. Tone, lecturer) and two external experts (Messrs. Yoshisumi Tamao and Atsushi Ishizawa from Idemitsu Kosan Co., Ltd.). Mechanical engineers and process engineers were eligible to apply, and 21 participants were ultimately selected to attend the seminar from the NIORDC Head Office and its nine refineries.

A lecture on “Oil Industry in Japan” was given first, to provide a general understanding of the current situation in the oil industry in Japan. It particularly focused on the structure of Japan’s dependency on the Middle East region for crude oil, and hence the importance for Japan to build a stable relationship with the Middle East. The lecture on “Overview of Safety Management and TPM Activities in the Refinery” introduced serious accidents that have occurred in refineries and petrochemical plants in Japan due mostly to poor maintenance management. These examples illustrated the reason why there has been a surge in voluntary improvement activities and why TPM activities came to be introduced in Japan. The lecture also discussed ideal management practices and the significant role of the manager in increasing motivation in the workplace, and introduced TPM and small-group activities that have become common practices in Japanese refineries. In the lecture on “Case Examples of TPM Activities/Improvement Activities for Refinery Management,” the significance and achievements of TPM activities were discussed in reference to step-by-step examples of TPM activities implemented in two refineries of Idemitsu Kosan, from the introduction to the results of those activities.

Group discussions were also held for the first



Seminar participants



Group discussion



Lecture session

time in a TPM seminar in Iran, as a means for allowing participants to actually experience the meaning of engaging in small-group activities. The participants were given an assignment of “raising an issue in their workplace, identifying the gap (problem) between the ideal image and reality, and coming up with a measure for reaching a common ideal.” As instructed, the participants divided into small groups, and within their group they shared an issue they face in their workplace. They then selected an issue of high priority, analyzed the issue’s essential cause, and created an action plan for resolving the issue as a group. The topics of discussion varied from group to group, ranging from issues related to energy consumption to discussions on electrical shock accidents with electric drills, and were discussed in detail using completion diagrams and diverse factor analysis methods to explain the fine points of the issues to each other. The group discussion session thus turned out to be a highly productive learning experience for the participants.

Mr. Mahjoubi summarized his impression of the program by saying that it has planted seeds of completely new management ideas in the minds of the participants and has given them a new vision. Through this experience, many participants said they feel they have acquired a better understanding of TPM. Other participants said they intend to apply what they learned in this program to improving their workplaces, based on the understanding that “cooperation between managers and employees underlies the efforts of Japanese refineries to improve productivity and profits,” and that “the goal of TPM

is to achieve an effective coordination not only of equipment and tools, but also between managers and employees.” Furthermore, a participant noted that the seminar had, as hoped, reminded him anew that maintenance is the steady accumulation of simple and concise practices.

2. Saudi Arabia

Saudi Aramco is striving to improve facility maintenance technologies, and is focusing on implementing activities related to safety management and preventive maintenance. To strengthen these activities, it requested JCCP’s cooperation in acquiring knowledge about TPM and other improvement activities and the latest in maintenance management employed by Japanese refineries so that it may improve and reform refinery maintenance management technologies in Saudi Arabia. In response to this request, JCCP implemented a seminar last fiscal year on human resource development centered on TPM and other improvement activities, and the second seminar of the series was held at Saudi Aramco’s Riyadh Refinery from October 31 to November 4, 2009. A team of four Japanese lecturers from JCCP’s Training Department (F. Tone) and external companies (Mr. Akio Higashi, Showa Shell Sekiyu K.K.; Messrs. Yoshisumi Tamao and Atsushi Ishizawa, Idemitsu Kosan Co., Ltd.) conducted the second seminar, which was attended by 20 carefully selected participants from Saudi Aramco’s four refineries and two NGL Fractionation Departments.



Group presentation

The main lectures on “Maintenance Management in Japanese Refineries” and “Overview of Safety Management and TPM Activities in the Refinery” first introduced the reality and transition of maintenance management practices in Japan. They then expounded on issues facing Japanese refineries and the voluntary initiatives through which they resolved those issues, before discussing the background to introduction of TPM in Japan. They also discussed management principles in Japan and the important role of the manager in raising worker motivation in the workplace, as well as introduced examples of small-group activities. Many of the participants seemed to find Japan’s “Point and Call” practice highly interesting, and said they would like to include it in their daily operations. In the session on “Case Examples of TPM/Improvement Activities for Refinery Management,” the various case examples of refinery improvements achieved through TPM activities captured the participants’ strong attention. At the end, all participants voiced their opinion that TPM activities are extremely effective, and that there is a lot to learn from them.

In the small-group discussion session, each group was asked to “raise an issue in their workplace, identify the gap (problem) between the ideal image and reality, and to think of a measure for reaching a common ideal,” as in the session in Iran. Under the guidance of the lecturer, the participants probed deeper and deeper to identify the roots of an issue and analyzed its essential cause to come up with specific countermeasures. Some groups engaged in particularly in-depth discussions on such challenging issues as changes in maintenance systems, the construction of a system that would



*Presentation of the completion certificate
Mr. Ali A. Al Hazmi, General Manager, Riyadh Refinery
(right)*

enable the procurement of raw materials as quickly as possible, and issues relating to single equipment in the workplace. Since the issues were common themes to all departments, the participants said they were able to engage in active discussions and exchanges of views, and evaluated the session as highly meaningful.

At the end of the program, the participants noted that they could perhaps more easily adapt the TPM concept to their workplaces if they could gain a better understanding of actual TPM activities through onsite training. They thus requested the implementation of a practical TPM training program at a Japanese refinery that practices TPM activities. The participants’ earnest desire to more fully understand TPM activities and to apply them to improving and restructuring their workplaces was a significant change from the previous seminar in 2008, in which participants showed greater interest in holding group discussions than in the TPM concept itself. The lecturers feel that this change in focus clearly demonstrates the effective outcome of the seminar.

<by Fumihito Tone, Training Dept.>



Seminar participants

Seminar on “Refinery Maintenance Management and TPM” Held at Saudi Aramco’s Ras Tanura Refinery



Seminar participants

1. Background to the Seminar

Saudi Aramco is striving to improve facility inspection technologies, and has begun to implement improvement and reform activities with a focus on safety management and preventive inspection. To step up its activities, it has been seeking to learn about the state of improvement activities such as Total Productive Management (TPM) and the latest in maintenance management in Japanese refineries, as a reference for improving and reforming refinery maintenance management technologies in Saudi Arabia. Mr. Fareed Z. Kamfar, then-Maintenance Manager, Ras Tanura Refinery, in particular has had a strong interest in human resource development through improvement activities represented by TPM, and had been wishing to invite Japanese experts to implement a seminar at the refinery. In response to these wishes, JCCP conducted a seminar at Saudi Aramco’s Ras Tanura Refinery from January 24 to 28, 2009.

JCCP sent a team of four lecturers, consisting of a lecturer from JCCP’s Training Department (Fumihiro Tone) and three external experts (Mr. Akio Higashi

from Showa Shell Sekiyu K.K.; and Messrs. Hideru Muto and Yoshisumi Tamao from Idemitsu Kosan Co., Ltd.), to conduct the seminar. Each lecturer gave a presentation on a pre-assigned topic.

2. Overview of the Seminar

JCCP planned and implemented the TPM seminar in response to Saudi Aramco’s strong request. As a Customized Program-Overseas (CPO), it posed many new challenges to JCCP. In organizing the course content, we paid special care to create a practical course that is not limited to providing textbook knowledge, but that would provide immediately useful information in the workplace. We avoided providing information that could be obtained from the numerous books on TPM that have been translated into English and published around the world. Instead, we aimed to provide an understanding of why TPM is necessary, and focused on introducing the actual trials, tribulations, and achievements of Japanese refineries.

The topics of the four-day program were as follows:



Opening address: Mr. Fareed Z. Kamfar, then-Maintenance Manager, Ras Tanura Refinery

- Day 1:
Maintenance Management in Japanese Refineries
- Day 2:
Overview of Safety Management and TPM Activities in the Refinery
- Day 3:
Case Examples of TPM/Improvement Activities for Refinery Management
- Day 4:
Group Discussion on “Problem Solving”

Since the majority of the participants were maintenance engineers, the first two days of lectures provided an outline of the history and present state of maintenance management in Japanese refineries. They presented the objectives and aims of TPM and why TPM was necessary, by discussing how Japanese refineries have confronted and resolved various maintenance management issues.

The third day’s lecture, based on Japanese refineries’ bitter experience in introducing TPM,

provided deeper knowledge of TPM activities by introducing case examples of improvement activities that were borne from the concept that it is possible to “wring water from even a dry towel.”

On the fourth day of the seminar, group discussions were held for the first time in a CPO, so that participants could learn the meaning of small group activities not only from lectures, but also from hands-on experience.

3. Details of the Seminar

At the opening of the seminar, Mr. Kamfar urged the participants to acquire a good understanding of the TPM concept. He noted that, after completion of a training program, participants often complain that the program had given them no new knowledge or that it did not provide high-level information; but he told them not to make superficial judgments, and to grasp what lies within. Thus began the seminar.

On the first day, the lecture on “Maintenance Management in Japanese Refineries” presented the background and factors involved in the global cost competition facing Japanese refineries, and an insight into the Japanese mentality, with a focus on the problem-solving technique that demands the full participation of all members concerned. The lecture also provided a general view of Japanese culture and customs.

On the second day, the lecture on “Overview of Safety Management and TPM Activities in the Refinery” introduced a case example of a serious accident that occurred at a Japanese oil complex, and described the background behind the rise in improvement activities and introduction of TPM activities in Japan’s equipment industries in the



Lecture scenes

Process 1

What is your problem?

What is the Gap between "to be" and "as is"?

What is "to be" in your section?

Process 2

Select priority / common problem(s) in group.

What is the cause of Gap?
Cause Analysis
ex. 5 Times Why
4M Analysis 4M: Man, Machine, Media, Management
Fish bone Analysis etc.

Try to make your action plan for a challenge.

Discussion process

effort to reduce human error and management system insufficiencies. It also discussed management principles in Japan's oil refining companies and the important role of the manager in increasing worker motivation in the workplace, as well as introduced an overview of how Japanese refineries have improved and advanced TPM activities and representative small group activities.

The third day's lecture on "Case Examples of TPM/Improvement Activities for Refinery Management" introduced and discussed TPM activities implemented at Idemitsu Kosan's Chiba Refinery. The lecture emphasized the significance

and achievements of these activities by presenting key points in firmly establishing such activities, specific examples of various improvement measures, and examples of trouble cases. The specific examples and discussions seemed to facilitate understanding of TPM and other improvement activities.

On the fourth day, group discussions were held for the first time in a CPO. Each group discussed "ideal images ('to be') of the workplace and the gap with reality ('as is')," according to the process shown on the following page, and mutually presented the results of their discussions with the other groups.

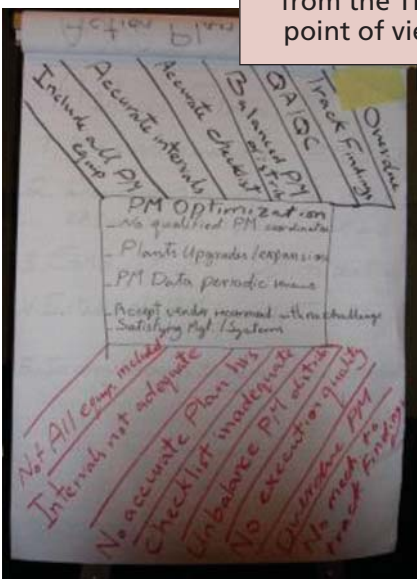
The participants were grouped so that their



Group discussions from the TPM point of view



Presentations of discussion results



Group discussions and presentations



Presentation of the completion certificate

engineering levels and positions were evenly balanced out among the groups. After deciding on a group leader and presenter amongst themselves, members shared ongoing problems with each other and selected a problem that they decided has high priority. They analyzed the gap between “to be” and “as is,” and created their action plan for solving the problem.

Each group raised many current problems. At first, they tended to attribute the causes of those problems to organizational and system flaws, but they began to discuss causes relating to their own actions soon after the lecturer noted that they need to “make the problems their own” in order to solve them. The participants extensively discussed the causes, countermeasures, and action plans for their problems, gave substantial presentations, and reached a high level of awareness that they must take positive action to solve problems.

After the group presentations, we asked all participants, “Do you want to change?” and the response was, “Yes, we want to change.” When we asked, “Can you do that?” they responded, “Yes, we can!”

At the closing of the seminar, Mr. Kamfar said he felt that the TPM seminar produced results beyond his expectations and expressed high hopes of seeing more positive effects of the seminar in the future. He mentioned that most of the participants gave good remarks about the seminar and expressed a commitment to act on their own.

4. Reflections

With all participants giving us their full concentration, we were able to hold highly interactive lectures over four days. The participants at times surprised us lecturers with their rapid chain of questions and observations, and made for an intensive and fruitful seminar.

The group discussions were our first attempt of its kind, and we initially worried whether it would proceed as we had planned. However, it turned out that we had nothing to worry about: the discussions had a strong impact on the participants, and were extremely well received. We even received a request to include workshops relating to each day’s lecture in future seminars.

By introducing not only the best practices of Japanese refineries but also numerous examples of their failures, we think the seminar presented a realistic view of situations that the participants are certain to confront in the future. In this respect as well, we hope to continue implementing the TPM seminar.

We were able to bring the seminar to a successful completion thanks to the support and cooperation of everyone concerned. Thank you all very much.

<by Fumihiro Tone, Training Dept.>

March 18, 2009 The Arabian Sun 3

Attendees, instructors, and Ras Tanura Refinery Maintenance management and training staff gather for a photo at the closing ceremony of the Total Productive Maintenance course.

RT studies Japanese best practices

RAS TANURA — Twenty-seven employees from Saudi Aramco organizations got the chance to learn Japanese best practices to improve efficiency and encourage teamwork between maintenance, operations and engineering staff during a one-week program recently at Ras Tanura Refinery.

Total Productive Maintenance (TPM) was the title of the program, which included classroom sessions and workshops facilitated by instructors supplied by the Japanese Cooperation Center — Petroleum (JCCP). TPM presents a comprehensive strategy emphasizing teamwork along with “Can Do” and “Continuous Improvement.”

TPM is both practical and results-driven. Applied on the shop floor, it is a common-sense approach that provides visibility to all the six major categories of losses in a process plant.

Those categories are: poor equipment performance caused by breakdowns, excessive set up and adjustments, minor stoppages and idling, running at reduced speeds, quality losses and start-up losses.

“Even though in our long experience in the oil business, we have been exposed to many world-class systems and practices,” said Muhammad H. Khalifa of Southern Area O&H Operations, “this Japanese TPM program has many new ideas and practices that are essential to us, our plants and to our country.”

At the closing ceremony, RT Refinery Maintenance manager Fawad Z. Kamfar thanked JCCP for its interest and cooperation in organizing the program, noting it was a step forward to strengthen the relationship between the Kingdom and Japan. He also expressed appreciation for the JCCP management for offering the course in Ras Tanura, reaching a large number of participants.

JCCP instructors left participants with a simple piece of wisdom: “Do not just look for a single large improvement; the sum of small simple improvements will result in the greatest overall improvement.”

Fawad Z. Kamfar

The Arabian Sun (March 18, 2009)

"Safety Management for Refinery" Held at Saudi Aramco's Ras Tanura Refinery



Seminar participants

1. Background to the Seminar

Saudi Arabia is the largest crude oil producer in the world. As a country that supplies roughly 26% of Japan's total crude oil imports, it is one of the most important countries holding the key to stabilizing crude oil supplies to Japan.

In response to a survey conducted by JCCP on training needs in major oil-producing countries in the Middle East, we received a request from Saudi Aramco for the implementation of a Customized Program-Overseas (CPO) on safety management in the refinery. We visited the Ras Tanura Refinery last May to discuss the details, concept, and schedule of the program, and implemented the seminar in December, as presented below.

2. Overview of the Seminar

(1) Name of the seminar

JCCP-Saudi Aramco Seminar on Safety Management for Refinery (CPO-23-08)

(2) Seminar schedule

December 13 – 17, 2008 (5 days)

(3) Venue

Ras Tanura Refinery, Saudi Aramco

(4) Lecturers

JCCP Training Department: Yoshiaki Ueno,
Fumihiro Tone

JGC Corporation: Mr. Eigai Hamada

Sompo Japan Risk Management Inc.:
Mr. Susumu Adachi

3. Details of the Seminar

The seminar was held at the Saudi Aramco Training Center at Ras Tanura Refinery, under the following schedule.

Dec. 13th:

Opening ceremony, introduction of the seminar program, introduction of JCCP activities, overview of Japan's oil industry

Dec. 14th:

Safety Management for the Refinery, its Theory and Practice

Refinery Activities for Safety Management

Dec. 15th:

Safe Plant Design Technology and Risk Management

Safe Plant Design Technology and Process Safety Management



Opening address: Mr. Mohammed A. Al-Omaid, then-General Manager, Ras Tanura Refinery



Dec. 16th:

- HSE Risk Assessment and Methods
- Risk Management from the Perspective of a Nonlife Insurance Company
- Risk Analysis and Evaluation Methods in Refineries and Petrochemical Plants

Dec. 17th:

- Comprehensive Q&A, course review, closing ceremony

We designed the seminar with two major objectives in mind. The first was to introduce activities and methods that have been adopted by Japanese companies to establish a safety culture and safe working environment. The other objective was to provide detailed information on risk management methods from the perspective of process safety design.

Saudi Aramco, attaching substantial importance to the seminar, notified and nominated participants not only from the Ras Tanura Refinery but all its

refineries, and ultimately selected 26 participants.

At the opening of the seminar, Mr. Mohammed A. Al-Omaid, then-General Manager, Ras Tanura Refinery, urged the participants to “take full advantage of the opportunity of this JCCP seminar to learn about Japanese-style safety management and methods for establishing a safety culture,” and expressed the significance and his expectations of the seminar.

4. Overview of Lectures

(1) Safety Management for the Refinery, Its Theory and Practice

This lecture provided knowledge of the concept of safety management, the importance of establishing a safety culture, and key points of safety activities. It also introduced safety activities and methods and voluntary small group activities that have emerged from corporate and social awareness of safety in Japan, while showing a video of danger prediction



Lecture scenes



Presentation of the completion certificate



Closing address

activities and physical finger-pointing confirmation activities. The lecture was well-received and appreciated by the participants.

(2) Refinery Activities for Safety Management

This lecture introduced examples of refinery accidents, their causes, and countermeasures. It also explained management methods and specific practices for accident prevention. Everyone showed strong interest, particularly in the description of Total Productive Management (TPM) activities, which are proving extremely effective in Japan's refineries, and had many detailed questions concerning them.

(3) Safe Plant Design Technology and Risk Management

From the perspective of an engineering company, this lecture systematically introduced technical issues relating to equipment design and risk management, and discussed methods and principles that are considered effective in managing plant operations. It specifically covered such topics as plant disaster and countermeasures, safe plant design, safety and risk management, safety management in the United States, and safety and risk evaluation methods (HAZOP, LOPA, and OHR). The lectures on safety and risk management and evaluation methods also provided practical training using actual case examples, and elicited active responses from the participants and encouraged their active

participation in discussions.

(4) Risk Management from the Perspective of a Nonlife Insurance Company

This lecture introduced refinery risk evaluation and assessment in detail, from the perspective of a nonlife insurance company. For example, it discussed what factors a nonlife insurance company focuses on when surveying, analyzing and assessing accident trends and risks in Japanese refineries and petrochemical plants. It also covered risk evaluation methods, the underwriter's point of view, and rate calculation methods, and captured the participants' strong interest, particularly in regard to risk evaluation methods.

5. Evaluation and Impressions of the Seminar

This seminar was a touchstone for JCCP in many respects. To fully satisfy Saudi Aramco's needs, we designed the program with considerable care, particularly in regard to introducing Japan's small group activities, which are commonly believed to be extremely effective in establishing and developing a safety culture. To facilitate understanding of these activities, we included detailed discussions of their theories, theoretical backgrounds, and actual results. The lectures we delivered to fulfill the second objective of the program of providing detailed information on risk management methods

from the perspective of process safety design were also highly evaluated by the participants.

Each day's lecture began at 7:30 a.m. and lasted until 3:30 p.m. with an hour's lunch break in between, but the participants remained so intensely focused on the lectures that we lecturers had also fully concentrated on the seminar, almost oblivious to the time.

On the final day of the seminar, Mr. Fareed Z. Kamfar, then-Maintenance Manager, Ras Tanura Refinery, personally held a meeting with the participants, and later relayed their impressions of the seminar to the JCCP team. Mr. Kamfar happily reported that the participants considered the seminar

one of the most meaningful seminars they have attended, and that they feel they have benefited greatly from it. It was extremely rewarding to us lecturers to receive such high praise. We hope to maintain strong channels of cooperation with Saudi Aramco, so that we may carry over the recent success to further achievements.

Saudi Aramco ran an article on the seminar on its website and in its weekly journal, *The Arabian Sun*, as shown below.

In closing, we would like to extend our deepest appreciation to everyone for their time and cooperation in planning and implementing this seminar.

<by Yoshiaki Ueno, Training Dept.>



Article of the seminar in The Arabian Sun

Customized Program in Japan on “Maintenance & Safety Management” for Saudi Aramco



At JCCP:
Mr. Fareed Kamfar (second from right in front row)

1. Background

In recent years, Saudi Arabia has become the largest supplier of crude oil to Japan, supplying as much as 30% of Japan’s total crude oil imports, and making Saudi Arabian Oil Company (Saudi Aramco) an extremely strong presence in the world crude oil market.

Last March, an Expert Service program on “Refinery Plant Maintenance” was implemented in Saudi Arabia (Feb. 28 – Mar. 7, 2008), and Mr. Mikio Kojima, then-Executive Director of JCCP,

who had been visiting Saudi Arabia at the time, delivered a speech at the seminar venue. Taking the opportunity of Mr. Kojima’s attendance, Mr. Fareed Z. Kamfar, RT Refinery Maintenance Manager, strongly requested an opportunity to observe maintenance & safety management and total productive maintenance (TPM) activities in Japanese refineries. In response to the request, JCCP designed and implemented a program titled “Maintenance & Safety Management by TPM in Japanese Refineries” (CPJ-20-08), from October 16 to 30, 2008.

2. Overview of the Program

Saudi Aramco is presently seeking to upgrade its facility maintenance technologies, and has launched improvement/reform activities, with an emphasis on safety management and preventive maintenance. Mr. Kamfar therefore wished to observe TPM and other improvement activities, as well as the latest maintenance management technologies in Japanese refineries, to gain a perspective on measures for improving and reforming refinery maintenance management technologies in Saudi Arabia.

The program was designed to mainly cover “safety program,” “total productive maintenance (TPM),” and “maintenance services organizations,” through close examination of relevant initiatives implemented by JCCP member companies participating in the program, in addition to discussions. Unlike conventional courses, it placed emphasis on holding frank discussions with management-level personnel at each company, rather than on classroom lectures. To insure that focused discussions were held, each company prepared for discussions based on a list of questions that had been prepared in advance.

The participants were Mr. Kamfar, acting group leader, Mr. Abdulsalam Ashi, Yanbu Refinery, Maintenance Division Superintendent, and Mr. Nezar Lamfon, Jeddah Refinery, Maintenance Division Superintendent.

3. Program Details

The program featured onsite training at a chemical company and a maintenance company under contract with a Japanese refinery at Mr. Kamfar’s request, in addition to oil companies, engineering companies, and machine & equipment manufacturers. At JCCP Headquarters, a lecture entitled “Maintenance & Safety Management in Japanese Refinery” examined causes and countermeasures to accidents in Japan as an approach to understanding the history of safety & maintenance management, and introduced representative TPM activities that oil refining-related companies in Japan have implemented to date. The lecture also served to put into perspective the significance of the facilities visited.



*At Nippon Petroleum Refining Co., Ltd.,
Muroran Refinery*

(1) Refineries

At Nippon Petroleum Refining Co., Ltd.’s Muroran Refinery, detailed discussions were held on the safety education mechanism of the refinery’s maintenance department and its safety management framework with a contractor employed to undertake daily maintenance activities. At Japan Energy Corporation’s Mizushima Refinery, Mr. Kazuo Yamada, Deputy General Manager, personally described maintenance and TPM activities implemented by the refinery in an easy-to-understand manner, while introducing case examples. With respect to safety management activities, an executive officer gave a detailed account of the status of various initiatives, and explained efforts to achieve “visualization” at the refinery, in reference to concrete examples. The information provided helped establish a general understanding of the status of equipment maintenance management at the Mizushima Refinery. At Idemitsu Kosan Co.,



At Idemitsu Kosan Co., Ltd., Chiba Refinery

Ltd.'s Chiba Refinery, the study group watched the early-morning change of shift, observed safety activities and TBM (Tool Box Meeting) activities, and received an overview of TPM activities in a discussion session attended by Mr. Akira Kitayama, General Manager. The group also visited a company that undertakes daily maintenance management at the Chiba Refinery, and obtained information on the maintenance management system and safety management framework binding the contractor to Idemitsu Kosan's standards.

(2) Chemical company

The group visited the Mizushima Plant of Mitsubishi Chemical Corporation, one of the largest chemical companies in Japan. They gained a general understanding of the company's education system, through hands-on experience in safety management at the safety training center, which was independently established by a cooperation council, and a tour of the T-TEC Center, where new employees regularly receive training.

(3) Equipment manufacturers

At the Murooran Plant of Japan Steel Works, a world-renown manufacturer of pressure vessel materials and equipment, the group received pointers on the maintenance management of pressure vessels, toured the high-pressure vessel production site, and renewed their understanding of the company's scale, high technical expertise, and quality. What most captured the group's attention, however, were the words of greeting the employees

exchange with each other: "*Go-anzen ni*," meaning "Please be safe." This came as a strong reminder that words of greeting are extremely important in staying consciously aware of safety. At the Haneda Plant of Ebara Corporation, a leading Japanese pump manufacturer, the group received a description of the company's large-pump maintenance service framework in the Middle East, as well as on its engineer training system. Detailed discussions were also held on the order receiving/placement system for spare parts and other components, and on the delivery lead times for new large-pump orders, in addition to other specific topics.

(4) Engineering companies

Visits were made to three leading engineering companies in Japan. Chiyoda Corporation, a contractor for Saudi Aramco's principle refineries, gave a presentation that primarily focused on plant life cycle engineering and work safety. JGC Corporation gave an overview of its overseas O&M (operation & maintenance) status and a detailed description of its maintenance and inspection activities in Japan. Toyo Engineering Corporation delivered a presentation titled "O&M, a View from Safety," which covered its policies for safety management as a contractor and its training system for subcontractors, and illustrated Japanese engineering companies' attitude toward safety. Listening to these presentations, the members of the study group articulated their concern regarding the technical level of contractors in Saudi Arabia and their wish for them to consider receiving training.



At Japan Steel Works, Murooran Plant



At Sompō Japan Risk Management, Inc., Head Office

(5) Insurance company

Based on its extensive knowledge of risk management trends in Japan, Sompo Japan Risk Management, Inc. provided training in basic policies for risk assessment as seen from the perspective of an insurance company and the diverse aspects involved in assessing hazards and other risks, including those in relation to the flow of activities, organization, progress management, cost management, risk management, and change control.

(6) Maintenance companies

At Sankyu Inc., a medium-sized company specializing in maintenance activities, detailed discussions were held on the training system for employees who perform maintenance activities and on specific human resource development programs for employees involved in maintenance. At Shinko Plantech, discussions centered on specific issues in the maintenance and inspection of refinery facilities, and focused particularly on daily maintenance and “Turnaround Maintenance” systems. These discussions were helpful in gaining an accurate understanding of the high level of maintenance technologies in Japan.



At Shinko Plantech, Head Office

4. Evaluation and Impressions

Mr. Kamfar and the other two members of the study group stated that the opportunities to

personally visit representative companies in Japan and discuss various issues with experts in those companies have been extremely beneficial, and that they have fully satisfied their intended objectives. They also voiced their intention of applying their experience in Japan to management practices at Saudi Aramco, and with a renewed awareness, in particular, of the importance of having managers take initiative, they mentioned that they would like manager-level employees of Saudi Aramco to attend similar training, to improve management capabilities in their organization.

This program has been designed considerably differently from conventional customized programs. Toward resolving various issues confronting Saudi Aramco’s maintenance department, it featured detailed discussions with the management of oil-related companies in Japan, as a means of providing a point of reference on how Japanese companies are addressing such issues. We feel that this approach has, in a way, established a foundation for practical training programs in general.

From the designing stage of this program, we paid meticulous attention to details to offer a program that would satisfy the study group from Saudi Aramco, and have selected companies for onsite training that would satisfy the members’ intended objectives, following a series of negotiations. In terms of the specific topics of the program, what was initially a vague idea, gradually began to take shape, again thanks to the generous cooperation from related companies and their help in establishing topics to be discussed at each company. Owing to these efforts and to the study group preparing questions in advance, all of the companies were able to adequately prepare and insure that discussions would not end up being superficial, but would have a definite focus and provide pertinent information, even within a short period of time.

On a final note, JCCP would like to extend its deepest gratitude to everyone who has generously offered their cooperation in the planning and implementation of the program. Thank you very much.

<by Fumihito Tone, Training Dept.>



My Impressions of the Customized Program in Japan

Mr. Fareed Zainaldeen Kamfar, RT Refinery Maintenance Manager

It has been a tremendously rewarding experience for me and my team to have participated in this program. We were quite moved by the warm and hearty welcome with which JCCP received us. On behalf of Saudi Aramco and the team accompanying me, I would like to thank Mr. Masataka Sase, Executive Director of JCCP, and his staff, for developing and organizing the program.

The visits to various industries and institutions provided us an excellent opportunity to learn about procedures related to TPM and safety practices in Japan's industries. It was indeed a great experience to observe first-hand the intricate details of these activities and how meticulously they are being implemented, as well as the methods employed to achieve excellent quality levels.

We were also impressed with how plant personnel and contractors work in tandem in accepting ownership, responsibility, and accountability for plant maintenance and operation. It is a living example of the application of the TPM concept.

Our visits to Idemitsu Kosan, Nippon Petroleum Refining, Japan Energy's refineries and Mitsubishi Chemical gave us an insight into TPM and safety concepts that are being implemented and practiced in Japan. The discussions we held with various people in Japan Steel Works, Ebara Corporation, JGC Corporation, Chiyoda Corporation, Sompō Japan Risk

Management, Sankyu Corporation, Shinko Plantech, and Toyo Engineering were extremely fruitful, and provided us with valuable information related to this program's objectives, with a focus on HR development and employee well-being.

Over the past 27 years, JCCP has always been at the forefront of building bridges of friendship between Japan and oil-producing nations, and has contributed tremendously to enhancing mutual cooperation between companies in major oil-producing nations and Japan. In these days of energy reliance, JCCP's initiatives have gone a long way in reaching out to oil producers.

On a personal note, about 24 years ago I had the opportunity to attend one of JCCP's programs, and since then I have greatly valued Japanese culture and work practices. I am impressed by the fact that every Japanese worker, irrespective of his level of responsibility in his organization, places "trust before business" and ultimate importance on "maintaining highest quality standards." This speaks loudly of Japan's remarkable development following World War II into one of the most developed and industrialized nations in the world.

In closing, once again I would like to extend our thanks and appreciation for your warm hospitality, graciousness and courtesy during our trip, and look forward to maintaining cooperation between Saudi Aramco and JCCP in the future.



Tailor-made Program on Refinery Plant Maintenance Held in Saudi Arabia



Participants of the seminar from various Saudi Aramco refineries (closing ceremony)

1. Background

Saudi Arabia is indisputably the world's greatest producer of crude oil, with its Ghawar Oil Field said to contain the world's largest crude oil reserve. As a major supplier of crude oil, Saudi Arabian Oil Company (Saudi Aramco), the country's state-run oil company, is, and will continue to be, a dominating presence in the global crude oil market. Today, Saudi Arabian crude accounts for roughly 30% of Japan's total crude oil imports, making Saudi Arabia Japan's leading supplier of crude oil.

For Japan to secure a stable supply of crude oil, Saudi Arabia is certainly becoming ever more important to Japan. Yet, no JCCP-initiated Expert Service (ES) programs have been implemented in the country for close to 20 years, since 1988. Seeking to establish a closer relationship with Saudi Aramco, Mr. Mikio Kojima, Executive Director of JCCP, approached Mr. Abdulaziz F. Al-Khayyal, Senior Vice President, Refining, Marketing & International, last January, and held a policy dialogue on future JCCP cooperation. As a result of the meeting, the two leaders

agreed to commence working-level consultations on the implementation of a tailor-made program at Saudi Aramco. Soon thereafter, Mr. Abdul Majeed H. G., Supervisor, Human Resources Development, who is JCCP's counterpart at Saudi Aramco, participated in a JCCP Program Seminar held in July 2007, so JCCP took the opportunity of his visit to Japan to discuss the tailor-made program in detail. In response to Saudi Aramco's request for a seminar on refinery plant maintenance, JCCP organized and implemented the seminar from February 28 to March 7, 2008.



*Area around the seminar venue
(Left) The coastline extends north, all the way to Iraq; (Right) Saudi Aramco's safe and attractive guest house*

Members from Japan included four lecturers from the JCCP Training Department (Messrs. Shintaro Miyawaki, Akio Higashi, Kazumasa Nakazawa, and Fumihiro Tone) and an external expert (Mr. Naomi Fujisawa, Shin Nippon Machinery Co., Ltd. Kure Works). The members each lectured on a specific topic.

As a matter worthy of special mention, the seminar was honored to receive a speech by Mr. Kojima, who had also been visiting Saudi Aramco at that time. Mr. Kojima's speech presented a rare opportunity for the participants to reaffirm the significance of JCCP activities and the importance of the cooperative relationship between JCCP and Saudi Aramco.

2. Overview of the Seminar

The Ras Tanura Refinery is Saudi Aramco's largest refinery, located on the east coast of Saudi Arabia, and Ras Tanura Port is known as a major port from which crude oil from the world's largest Ghawar Oil Field is shipped to the world. Crude oil tankers bound for Japan also leave from this port.

The seminar took place in an auditorium in the HRD (Human Resource Development) Department building, located in close proximity to the Ras Tanura Refinery, with the attendance of 22 personnel from all the 5 refineries belonging to Saudi Aramco, including those on the west

coast of Saudi Arabia. Mr. Abdul Majeed, JCCP's counterpart at Saudi Aramco, gave his full cooperation to the seminar, from making all the necessary arrangements, to attending to the JCCP team during their stay in Saudi Arabia.

The seminar venue was located in a corner of Najmah Camp, at the tip of a large peninsula far removed from the city center. The camp also provided simple yet clean and comfortable accommodations for the Japanese lecturers. The seminar began and proceeded smoothly as planned, thanks

to efficient preparations for receiving the JCCP lecturers and seminar participants, as well as for processing identification procedures and other paperwork, and was able to successfully achieve its intended purpose.

3. Details of the Seminar

The seminar was originally planned to cover three lecture topics (3 days), but in response to a strong request from Mr. Fareed Z. Kamfar, RT Refinery Maintenance Manager, during preliminary discussions, two



Seminar lecturers with Mr. Abdul Majeed H.G., Supervisor, Human Resources Development (center)



Seminar scene



*Exchange of commemorative gifts
Mr. Mohammad A. Al Omair, General Manager (right), and
Mr. Fareed Z. Kamfar, Refinery Maintenance Manager (left)*



*Gift presented to Mr. Mikio Kojima, Executive Director of JCCP,
in commemoration of the seminar*

more topics (2 days) were added (diagnosis, inspection, and repair of main rotary equipment, and refinery safety management), and adjustments were made with respect to the selection of an external lecturer. After selecting an external lecturer and making the necessary arrangements with the cooperating company, the seminar was re-scheduled to cover a five-day period (extending the seminar duration) featuring one lecture presentation a day, by different lecturers.

The seminar covered the following lecture topics.

- Day 1: Rotary machinery maintenance management
- Day 2: Essential technology and maintenance of rotating machines
- Day 3: Maintenance management of Japanese refinery
- Day 4: Static equipment trouble & countermeasures in Japan
- Day 5: Refinery activities for safety management

The lecturers each lectured on their respective topic, based on their achievements in technological improvement and abundant experience in Japan, and elicited enthusiastic responses from the participants. JCCP hopes that the knowledge of TPM activities and various improvement measures in Japanese refineries that the participants have gained through the seminar will be put to practical use in enhancing Saudi Aramco refineries in the future.

In response to a questionnaire that was handed out to the participants on

the final day, all of them indicated that they would like to participate in a JCCP regular course some day, and provided a bright prospect for future JCCP activities.

4. Evaluation and Impressions of the Seminar

The implementation of the JCCP-initiative ES seminar for the first time in roughly 20 years was largely made possible by the generous support of Mr. Fareed Z. Kamfar, RT Refinery Maintenance Manager, and Mr. Abdul Majeed, JCCP's counterpart at Saudi Aramco. Their valuable advice and cooperation, from the preparations of the seminar to its proceedings, were greatly instrumental to the successful completion of the seminar. JCCP extends its deepest appreciation and gratitude to them.

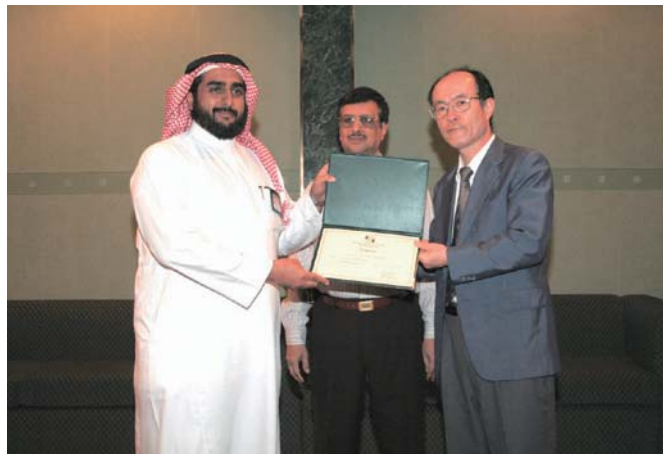
In terms of the fact that the seminar period coincided with Mr. Kojima's

meeting with the head of the Ras Tanura Refinery, that Mr. Kojima delivered a message at the seminar in person and boosted the participants' motivation, and that the timing of the seminar was ideal for promoting JCCP activities to the Ras Tanura Refinery, which is considered to be the central facility of Saudi Aramco, the seminar provided the perfect ending to the FY2007 programs.

With the implementation of this seminar, JCCP has added another page to its long history of cooperation activities, and sees this achievement as an indication of a bright future. In this respect, JCCP sincerely hopes that the success of this seminar will lead to the further development of customized programs in the future.

Lastly, JCCP would like to extend its deepest appreciation to everyone who generously cooperated in the planning and implementation of the seminar. Thank you very much.

<by Shintaro Miyawaki, Training Dept.>



Presentation of completion certificates



Auditorium where Mr. Mikio Kojima, Executive Director of JCCP, delivered a special speech

Report on the Cooperation with Training Centers Program

—Saudi Arabia, Qatar, UAE, Oman—

A two-member delegation from JCCP, consisting of A. Yamanaka, General Manager, Operations Department, and K. Kojima, Lecturer, Training Department, visited Saudi Arabia, Qatar, UAE and Oman from February 18 to March 1, 2010 under the Cooperation with Training Center Program.

The main objectives of the visits were to introduce and promote the FY2010 JCCP regular course programs, explain and discuss in detail the implementation of customized programs, and exchange views with JCCP counterparts in those countries.

Saudi Arabia

The JCCP delegation visited Saudi Aramco's Ras Tanura Refinery on February 20 and held a meeting with Mr. Mohammed A. Al-Omair, Executive Director, Refining & NGL Fractionation, and his staff. Mr. Al-Omair is responsible for overseeing all refineries operated by Saudi Aramco.

After expressing his appreciation of JCCP training programs and technical cooperation projects, Mr. Al-Omair noted that he has recently begun requiring participants to submit a report after completing their training courses at JCCP. He also put forth a request for a Customized Program-Japan (CPJ) in fiscal 2010.

JCCP proposed the implementation of an information exchange program between young employees of Saudi

Aramco and Japanese oil companies. As the training of young employees is an important issue at Saudi Aramco, the proposed program, which focuses on training young employees, was well-received by Saudi Aramco. To JCCP, the program would provide a means for assessing new training needs in oil-producing countries.

Following the meeting, the delegation was shown Saudi Aramco's impressive laboratory, meticulously managed to ensure safety and health.

Qatar

On February 22, the JCCP delegation visited Qatar Petroleum (QP) and met with Mr. Mohamed Normarzuki Bin Yaacob, Senior Supervisor, Short Tech., Corporate Training, and his staff.

Mr. Yaacob thanked JCCP for its cooperation through training programs and technical cooperation projects, and then mentioned a few points in regard to QP's future participation in JCCP regular courses. He explained that QP was unable to send many participants overseas last year due to the outbreak of the H1N1 influenza virus, but plans to increase its participation this year, given the improved situation. He also said he will consider QP's participation in JCCP training programs comprehensively, in reference to JCCP member company courses as well.

On February 23, the delegation visited the



Meeting with Mr. Mohammed A. Al-Omair, Executive Director (center), at Saudi Aramco's Ras Tanura Refinery



Meeting at the QP Head Office



Meeting at the TASWEEQ Head Office

Qatar International Petroleum Marketing Company (TASWEEQ) and met with Mr. Anton Bray, Marketing Director, Condensate & Refined Products, and his staff. TASWEEQ is wholly owned by the Qatari government, and mainly engages in the export and sales of petroleum products. This was the first visit made by a JCCP delegation.

The delegation introduced JCCP and its activities, gave an overview of the FY2010 regular course program and customized training program. They also explained and requested TASWEEQ's participation in the FY2010 JCCP Program Seminar (TCJ) that is scheduled to be held in Japan this July for JCCP counterpart personnel.

Mr. Bray said he would need to discuss the possibility of customized programs with other officers of TASWEEQ, but wishes to implement several Customized Programs-Japan (CPJ) and Customized Programs-Overseas (CPO) on separate occasions during the year. He also said he would like the CPJ to be designed mainly for Qatari personnel, in consideration of the number of participants the program could accommodate and the duties of the participants, and the CPO, for all employees.

UAE

On February 24, the JCCP delegation visited Abu Dhabi Oil Refining Company (TAKREER) to meet with Mr. Ja'afar Salem Al-Jaberi, HR & Administration Division Manager, Mr. Ahmed Herzallah, Senior Career Development Officer, HR & Administration Division, and other staff members.

TAKREER thanked JCCP for its support through training programs and technical cooperation projects, and talked about several topics, such as the fact that officers at the president's assistant level were reshuffled

to better implement the capacity increase project planned for the Ruwais Refinery, that TAKREER wishes to send a member to participate in the FY2010 TCJ program, and that they are thinking positively about the next VIP invitation of JCCP.

Following the visit to TAKREER, the delegation visited Abu Dhabi National Oil Company (ADNOC), and met with Mr. Hashem Y. Al Refaei, Marketing Research & Administration Division Manager, Marketing & Refining Directorate, who participated in last year's JCCP International Symposium, and his staff.

Mr. Al Refaei expressed his appreciation of JCCP training programs and technical cooperation projects, and said he wishes to continue sending ADNOC employees to participate in JCCP's FY2010 regular courses. He also thanked the JCCP members for their proposal for a CPJ on oil marketing and physical distribution, and promised to make the necessary internal arrangements to realize the program.

After the meeting, the delegation had the opportunity to inspect a large-scale service station complex operated by ADNOC.



At the TAKREER Head Office



Meeting at the ADNOC Head Office

Oman

In Oman, the JCCP delegation visited Oman Refineries and Petrochemicals Company (ORPC) on February 28, and met with Mr. Mohammed Rabia Al Ghailani, General Manager Corporate Support, and his staff.

Mr. Al Ghailani has only recently been appointed to his present position, but on welcoming the JCCP delegation, he promptly expressed his appreciation of JCCP training programs and technical cooperation projects. Because ORPC was



With Mr. Mohammed Al Ghailani, General Manager, at the ORPC Head Office (center)

founded by a merger between the former Oman Refinery Company (ORC) and the Sohar Refinery, Mr. Al Ghailani showed strong interest in the merger and consolidation of Japanese oil companies.

The delegation introduced JCCP activities, thanked ORPC for its participation in JCCP training programs and technical cooperation projects, gave a rundown of Oman's past record of participation in JCCP training programs, presented an overview of FY2010 JCCP regular courses and customized training programs, and explained and requested ORPC's participation in the FY2010 TCJ program.

The delegation learned from its recent visits that countries and organizations with a steady record of participation in JCCP training programs and technical cooperation projects, such as Saudi Arabia and UAE, have stronger interest not only in JCCP regular courses but also in CPO and CPJ programs, and more specific requests of JCCP training programs. JCCP takes this as a testament to the achievements and relationships of trust that it has established over its history of close to 30 years.

In recent years, JCCP has been concentrating its efforts on providing even more practical training programs than ever before, but the recent visits made the delegation renew their awareness of the significance of meeting and exchanging frank views with JCCP counterparts.

<by Kazuo Kojima, Training Dept.>



Report on the Cooperation with Training Center Program —Kuwait and Saudi Arabia—

A JCCP delegation visited Kuwait and Saudi Arabia from October 11 to 21, 2009, under the Cooperation with Training Center Program to exchange views with the counterparts of JCCP regular courses regarding their evaluation of the courses and future needs. The delegation especially emphasized that JCCP will launch long-term CPJ programs and new regular courses in fiscal 2010, to provide even more practical training than before.

Kuwait

In Kuwait, the delegation's main destinations included the head office of Kuwait National Petroleum Co. (KNPC), KNPC's Mina Abdullah Refinery, and the Leadership Development Center (LDC) and Petroleum Training Center (PTC) of Kuwait Petroleum Corporation (KPC).

Under the leadership of KPC, the oil industry in Kuwait is promoting corporate reforms in an effort to develop companies that are capable of pursuing results and gaining a global competitive edge. Human resource development, in particular, is regarded as an important part of corporate reform, and initiatives are being implemented toward the development of human resources—from leaders to

field operators—with an emphasis on real ability.

At KNPC's HR Department, which sends the largest number of participants to JCCP every year from Kuwait, Mr. Waleed Al-Hamad, Assistant Manager, introduced to the delegation its human resource development programs and a check sheet of strict standards that KNPC uses to evaluate the effectiveness and results of refinery engineers.

At KPC's Leadership Development Center (LDC), Ms. Salma Al Hajjaj, Director, described LDC as an institution established specifically for the purpose of developing top management personnel, and explained that potential top management candidates are registered in a database from early on to provide education and training from a company-wide perspective.

At the Mina Abdulla Refinery, managers who participated in a JCCP course in the past shared their expectations and requests with regard to JCCP training. Mr. Mohammed G. Al Mutairi, Deputy Managing Director, in particular, expressed deep understanding of JCCP activities, as one who has participated in JCCP training programs twice. He spoke about his impression of the Japanese people's work ethic and Japanese-style management practices, and about how the knowledge he gained



*At KNPC's Mina Abdulla Refinery
Mr. Mohammed G. Al Mutairi, Deputy Managing
Director (fourth from right), and other officers*



*At KPC
Ms. Salma Al Hajjaj, Director, Leadership Development
Center, KPC (fourth from left)*



*At the Saudi Aramco Head Office
Ms. Huda M. Al-Ghpson, General Manager,
Training & Career Development (second from left)*



*At the Ras Tanura Refinery
Mr. Al-Sultan, Maintenance Manager, RT Refinery
(second from left), and JCCP graduates*

through JCCP personally benefited him in his career thereafter, and expressed his strong desire to continue sending as many refinery personnel to JCCP courses as possible in the future.

Saudi Arabia

In Saudi Arabia, the delegation mainly visited the following five destinations: the Saudi Aramco Head Office, the Ras Tanura Refinery, the Ras Tanura Training Center, the Eastern Province Branch of the Ministry of Petroleum and Mineral Resources, and a Saudi Arabian government office in charge of human resource development.

At the Ras Tanura Refinery, the JCCP delegation held a meeting with JCCP graduates in the company of Mr. Al-Sultan, Maintenance Manager, and obtained their views on how JCCP training is helping them in their current workplaces, as well as their expectations and requests for improvement in regard to JCCP. There were those who said they developed an interest in Japanese corporate management as a result of their exposure to Japanese companies through JCCP training, and those who said they wish to learn how to apply Japanese-style management to Saudi Arabia. Others requested a training program that not only offers classroom lectures but places more emphasis on providing practical knowledge.

At the Ras Tanura Training Center, the JCCP delegation toured the center's training plant that

operates very much like a real plant and large training facility that is comparable to a vocational school in scale, while receiving detailed descriptions from Mr. Al-Hamdan, Supervisor, NA Industrial Training Dept., and managers of other departments.

At the Saudi Aramco Head Office, the JCCP delegation exchanged views with Ms. Huda M. Al-Ghpson, General Manager, Training and Career Development, who explained that Saudi Aramco is currently concentrating its efforts on developing leadership. According to Ms. Al-Ghpson, Saudi Aramco seeks two specific abilities in potential leaders: the ability "to forecast the future of the oil industry from a global perspective, establish concrete targets, and see those targets through to the end," and the ability "to efficiently organize and develop younger workers who adhere to new values."

At the Ministry of Petroleum and Mineral Resources, H.E. Mr. Yahya J. Shinawi, Director General, spoke about the ministry's initiatives for capacity development of its staff members, with a view to creating environmental and safety criteria for the oil industry in Saudi Arabia.

The visits to Kuwait and Saudi Arabia yielded the understanding that both countries place strong emphasis on human resource development as a priority issue, that they have a high regard for the basic qualities of the Japanese people, culture and customs, and also for Japanese-style management. Furthermore, the JCCP delegation noted that oil-

producing countries have strong interest in training programs that include lectures on kaizen, TPM and TQC activities. In light of such new needs in Saudi

Arabia and Kuwait, JCCP acknowledges that it must further enhance and improve its training courses in the future.

<by Masumi Kitahara, Administration Dept.>



With H.E. Mr. Yahya J. Shinawi, Director General of the Eastern Province Branch of the Ministry of Petroleum and Mineral Resources (second from left)

Report on the Cooperation with Training Center Program (Iran, Kuwait, Saudi Arabia, Bahrain)

From November 8–18, 2008, a five-member JCCP delegation visited four countries in the Middle East, to hold working-level conferences with JCCP counterpart training departments in those countries. The delegation specifically sought to introduce the FY2009 JCCP regular course program, promote and propose the implementation of customized programs (CPO/CPJ) that are designed in response to specific needs in each country, and to exchange views with JCCP counterpart personnel. The members of the delegation were Mr. Akio Yamanaka, General Manager, Operations Department, Mr. Yasuo Tabei, Master Lecturer, Training Department, Mr. Shoichiro Yagi, General Manager, Middle East Office, Mr. Toshimi Kinoshita, General Manager, Riyadh Office, and Mieko Onai, Manager, Operations Department.

Each of the four countries sends participants to JCCP courses on a continuing basis, and plays an important role in sustaining JCCP cooperation. For this reason, personally meeting with people in charge of or involved in sending participants to JCCP courses and directly obtaining their views and requests have proved to be extremely meaningful in further strengthening cooperative relationships. The visits also presented an ideal opportunity to explain in person course details that could not be fully communicated by writing only, and to promote JCCP activities planned for the coming fiscal year.

1. Iran

On November 10, the delegation visited the Head Office of National Iranian Oil Refining and Distribution Company (NIORDC) located in Tehran, and held a meeting with Mr. Saeid



*At the NIORDC Head Office,
with Mr. Saeid Mahjoubi, Deputy Director,
Production Coordinator & Supervision (second from left)*

Mahjoubi, Deputy Director, Production Coordinator & Supervision. NIORDC sends many participants to JCCP each year, but in order to secure its continued participation, the delegation provided an overview of FY2009 regular courses, as well as proposed the implementation of customized programs. After due consideration, Mr. Mahjoubi stated that he wishes to place priority on receiving a customized program



*At the NIORDC Esfahan Refinery,
with Mr. M. Aghanejad, Managing Director
(fifth from left)*

on safety management, saying that he would like NIORDC employees to learn about the Japanese mentality of preventing accidents from occurring in the first place.

After the meeting, the delegation met with Mr. Aminollah Eskandari, Director Refining Affairs, who expressed his growing expectations in JCCP's cooperative framework.

On the following day, the delegation visited the Esfahan Refinery. After receiving a warm welcome and engaging in a follow-up discussion with Mr. M. Aghanejad, Managing Director, and other JCCP graduates, the delegation members toured the site and gained an overall understanding of the refinery's operations.

During this trip, the delegation also had the opportunity to visit the Tehran Head Office and Esfahan Branch Office of National Iranian Oil Products Distribution Company (NIOPDC), a subsidiary of NIORDC specializing in logistics,



At the NIOPDC Head Office



At the NIOPDC Esfahan Branch Office

from which the numbers of participants to JCCP regular courses have been increasing during the past few years. The meeting at the Head Office was attended by Mr. Rahman Ghasemi, Director of Human Resource & Training, and many other members who participated in a customized program (Human Resource Management & Development) held in Japan last February for a study group from Iran. As they were familiar with JCCP regular courses, they offered diverse opinions and requests for future regular courses. At the Esfahan Branch Office, the delegation met with Mr. Farazmand Mohammad, Manager, Esfahan Region, and Mr. Soleiman Malakan, Deputy of Commercial Department, both of whom participated in a JCCP regular course in the past, in addition to a number of other personnel, and gained an understanding of the current state of an oil logistics facility in Iran.

2. Kuwait

On November 13, the delegation visited Kuwait National Petroleum Company (KNPC) and held a meeting with a number of key personnel, including JCCP counterpart Mr. Ali Abdulla, Team Leader, and Ms. Saud Abdullatif A. Al-Awadhi, Senior Specialist, both from the Career Development Division, HRD, Ms. Haifa Al-Youhah, Specialist, Mr. Mohammad J. Burahmah, On-the-Job Training (OJT) Personnel, and Mr. Deven Kotecha, Safety, Health & Environment (SH&E) Training Personnel.

In addition to receiving participants from KNPC to regular courses, since 2004 JCCP has implemented four customized programs in Kuwait and one in Japan. In the meeting, the KNPC side requested the implementation of a new course on the environment, with a focus on safety, health & environment (HSE), an area that KNPC is particularly seeking to reinforce within its HRD structure. The KNPC side also maintained that JCCP training is an indispensable part of their HRD system.

As KNPC is also striving to promote the OJT system, the KNPC members provided an overview



Meeting at the KNPC Head Office

of in-house OJT training and SH&E training. The delegation members felt that the training system chart and evaluation table that the company actually uses could be useful references for JCCP training as well.

KNPC invests a substantial amount of expenses in training its 5,000 employees. Its HRD system aims to assign the right people to the right places, and fosters human resources with care, so that each person can exercise his or her full potential. In regard to engineers, its policy appears to be to provide thorough education on safety management issues and attitude from the early stages of employment. Based on this understanding of KNPC's commitment to training its employees, JCCP should perhaps reexamine how it can continue contributing to KNPC through its training programs.

3. Saudi Arabia

On November 15, the delegation visited Saudi Aramco's Ras Tanura Refinery. Regardless of it being the beginning of the week in Saudi Arabia, 13 people turned out for the meeting, including Mr. Lloydie A. Jonson, Assistant to Vice President, Refining, who is also JCCP's counterpart at Saudi Aramco, and training coordinators for gas operations from Saudi Aramco's other refineries and oil fields. The meeting provided an ideal stage for presenting an overview of regular courses and

customized programs to many training managers all at once. There have been increasing numbers of Saudi Aramco participants to regular courses during the past few years, and there are plans to hold a customized program at the Ras Tanura Refinery again this fiscal year in December and January, following those implemented during the previous year. Therefore, the Saudi Aramco side showed strong interest in regular courses and customized programs for FY2009, and in the end requested a course on gas operations.

Among themselves, the training coordinators discussed measures for streamlining the feedback of participants' requests of JCCP courses, as well as the series of procedures from announcing course offerings within Saudi Aramco to sending in applications. Hopefully, their discussion will facilitate smoother coordination between Saudi Aramco and JCCP in the future. The meeting also produced specific requests relating to course improvements. JCCP will consider these requests seriously, and reflect them in the management and operation of future courses.



At Saudi Aramco's Ras Tanura Refinery, with participants of the meeting

4. Bahrain

On November 16, the delegation held a meeting at a refinery operated by the Bahrain Petroleum Company (BAPCO), with Mr. Mohamed Abdulla



At BAPCO, with Mr. Mohamed Abdulla Al Jamea, General Manager, Human Resources & Administration (third from left)

Al Jamea, General Manager, Human Resources & Administration, and JCCP counterpart Mr. Ali Salman Ali, Superintendent Technical Training. Due to its small population, Bahrain has so far sent only a small number of participants to JCCP courses compared to other Middle East countries, but there has been steady participation from Bahrain every year since 1990.

BAPCO also enjoys a strong cooperative relationship with Japanese companies. As Mr. Al Jamea has stated, BAPCO is extremely grateful for JCCP's technical assistance, and holds particularly strong expectations of training in the operational maintenance sector. In addition to JCCP regular courses, however, BAPCO would also like to participate in courses initiated by JCCP member companies.

5. Summary

During its recent visit to the Middle East, the JCCP delegation not only visited oil companies in oil-producing countries, but also paid courtesy calls on the Japanese Embassies in Iran and Bahrain and gained a deep understanding of current situations in the countries visited. At the Japanese Embassy in Bahrain, the delegation members had the opportunity to meet with H.E. Mr. Takeshi Kondo, Ambassador

Extraordinary and Plenipotentiary, who emphasized the significance of Bahrain to Japan. He stated that "Bahrain may not produce as much oil as other countries, but it plays an important role in securing the navigation safety of tankers." At the Japanese Embassy in Iran, the delegation obtained invaluable information on current situations in Iran from Mr. Toshiyuki Shirai, Head of the Economic Section. Mr. Shirai showed support of JCCP activities by expressing his conviction that continuous, hardworking activities over a long period of time, like JCCP activities, are what is most necessary to Iran today. The delegation also visited Yokogawa Electric Corporation's offices in Saudi Arabia and Bahrain, and obtained significant insight into the countries through the eyes of a Japanese company that has succeeded in making inroads into the Middle East region.

In each country, the percentage of young employees is beginning to increase along with the increase in population, and many companies are hoping to have them learn from Japan, not only in regard to technical capabilities, but also such spiritual aspects of the Japanese as their diligence and sense of responsibility toward their work. To many organizations, this is an extremely important aspect of JCCP activities, and one for which they have great expectations. At the same time, however, some countries have articulated their honest opinions of JCCP courses without reserve. These opinions will be reviewed and reflected in the planning and implementation of future courses.

Over the years, JCCP has established close bonds of friendship with Iran, Kuwait, Saudi Arabia, and Bahrain. However, the recent visits have provided the delegation with the opportunity to reaffirm the importance of continuously doing the utmost to support counterpart countries and making steady cooperation efforts through JCCP activities.

I would like to take the opportunity of this report to send my warmest and sincerest appreciation to everyone who has supported us throughout our recent trip through the four countries in the Middle East.

<by Mieko Onai, Operations Dept.>

Total Number of Participants to JCCP Courses in Japan Has Surpassed 17,000!

November 27, 2007 was a landmark day for JCCP. With the two courses that were begun that day—TT-1 (Training Management) and TR-16 (Gas Processing for LNG)—the total number of participants JCCP has received since its founding has surpassed 17,000. As the commemorative 17,000th participant, Mr. Mohammad Ali Al-Qahtani received congratulatory words and a commemorative gift from Mr. Mikio Kojima, Executive Director of JCCP. At that moment, all the members of JCCP, wrapped in feelings of profound fulfillment and pride, were convinced that JCCP's 26 years of steady efforts in assisting oil-producing countries has resulted in the remarkable achievement.

Many of the 17,000 participants have gone on to become refinery directors and senior officials in national oil companies in their respective countries. JCCP is convinced that they will play a central role in the continued implementation of JCCP activities,

toward further strengthening the friendly relationships between Japan and oil-producing countries.

Encouraged by the astounding result, all of us here at JCCP have renewed our commitment to continue directing steady efforts to implementing effective and meaningful cooperation activities.

Below is a message from the 17,000th participant, Mr. Al-Qahtani (Saudi Aramco / Saudi Arabia).



Message from the 17,000th participant

Mr. Mohammad Ali Al-Qahtani
(Saudi Aramco / Saudi Arabia)

I am very honored to be the 17,000th participant at JCCP, since its establishment in 1981. I hope to return home to Ras Tanura Refinery and acquire more experience in my field. I am also looking forward to be participant number 20,000.

Since I came to Japan, I have discovered many fabulous things about JCCP and Japanese industries, particularly in the LNG field.

Japanese people are very kind and friendly, and I would like to thank them.

Finally, I would like to extend my sincerest gratitude to JCCP.

JCCP Participates in "Third OPEC Summit Exhibition" in the Kingdom of Saudi Arabia

1. Background

The Third OPEC Summit was held in Riyadh, the Kingdom of Saudi Arabia, on November 17 and 18, 2007. Under the three primary themes of "Reliability," "Prosperity," and "Protection," the heads of delegations of OPEC member countries adopted the Riyadh Declaration, which highlighted environmental issues for the first time as OPEC. Prior to the summit, a four-day international oil exhibition was held from November 13 to 16, under the sponsorship of the Saudi Ministry of Petroleum. JCCP participated in the exhibition as part of its efforts to build friendly relations with oil-producing countries, and introduced and promoted increased awareness of JCCP activities to representatives from oil-producing countries attending the exhibition.

2. JCCP Exhibition

In a booth occupying a 15 m² (3 × 5 m) space, twelve information panels provided details of JCCP's training programs and technical cooperation projects, and an introductory DVD



With H.E. Ali Al-Naimi, Minister of Petroleum of the Kingdom of Saudi Arabia

presented an overview of JCCP. The booth received as many as 200 visitors throughout the duration of the exhibition. On the first day, it had the honor of receiving a visit from H.E. Ali Al-Naimi, Minister of Petroleum of the Kingdom of Saudi Arabia. It was also honored by visits from H.E. Gholamhossein Nozari, Acting Minister of Petroleum of Islamic Republic of Iran, H.E. Dr. Purnomo Yusgiantoro, Minister of Energy and Mineral Resources of Indonesia,

and H.E. Abdullah bin Hamad Al Attiyah, Deputy Prime Minister and Minister of Energy and Industry of Qatar. To each visitor to the JCCP booth, JCCP members handed out brochures introducing JCCP activities, and provided detailed information on its training programs and technical cooperation activities. Many who visited the booth showed strong interest in the fact that JCCP offers technical assistance in cooperation with Japanese private companies.



Mr. T. Kinoshita, General Manager of the JCCP Riyadh Office, with H.E. Al-Naimi



H.E. Abdullah bin Hamad Al Attiyah, Deputy Prime Minister of Qatar, visits the JCCP booth.



H.E. Gholamhossein Nozari (second from right), Acting Minister of Petroleum of Islamic Republic of Iran, at the JCCP booth



H.E. Dr. Purnomo Yusgiantoro (center), Minister of Energy and Mineral Resources of Indonesia, listens to an explanation at the JCCP booth.



With Iranian exhibition participants in front of the JCCP booth



JCCP booth

Near the JCCP booth were the large and attractive booths of Iranian oil companies such as NIOC, NIORDC, and NPC, in addition to Saudi Aramco, ExxonMobil, Saudi Arabian Chevron, and ADNOC.

3. Impressions

During the exhibition, many JCCP graduates visited the JCCP booth and conveyed their support of JCCP, but even people who, for example, had only heard of JCCP's technical cooperation projects visited the booth, which indicated an increased awareness of JCCP activities in oil-producing countries. Visitors commented that Japan's cooperation is

“deeply appreciated by all oil-producing countries,” and that they hope JCCP will continue to implement its personnel exchange activities, “as human resource development is becoming ever more important.” Others expressed their support of JCCP technical cooperation projects, saying that “the practical nature of the projects bring tremendous benefits” to the counterpart organization.

At this exhibition, visitors were restricted for the most part to people from within the oil industry, but with the attendance of important dignitaries from various countries, the exhibition provided an ideal opportunity to effectively promote JCCP activities. Taking to heart the precious views and requests

it has received at the exhibition, JCCP intends to further enhance its activities in the future, and plans to continue participating in such opportunities as this exhibition, to increase its profile among oil-producing countries.

<by Nobutaka Sumikawa, Technical Cooperation Dept.>



Petroleum Marketing and Products Delivery

(TR-14-08: October 21 – November 7, 2008)

Mr. Mohammad A. Al-Yahya (Saudi Aramco / Saudi Arabia)

It has been a wonderful opportunity to explore technical and cultural aspects of Japan, and to experience the Japanese lifestyle and environment, thanks to JCCP and other expert authorities in Japan. Most importantly, we have observed Japan's vast knowledge base, which provides the foundation for the development of high-quality, reliable, and long-lasting products in Japan. Through this excellent course on Petroleum Marketing & Product Delivery, which was carried out by professional JCCP training staff, all participants acquired invaluable experience and a broad perspective in Japanese technology, industry and culture.

Throughout my 16-year career, this was the first time that I have experienced a course in which the agenda featured a unique combination of industrial and cultural aspects. I believe this approach was extremely effective in promoting comprehensive understanding.

On behalf of all the participants in the course, I would like to express our sincere thanks and deep appreciation to the entire JCCP management and staff, and in particular to Mr. Masataka Sase, Executive Director of JCCP, Mr. Kazuo Kojima, Course Coordinator, and his assistant, Mr. Yasuo Tabei, for their untiring guidance, support and care during our entire stay in Japan.

When people hear the name Japan, probably the first thing that comes to their mind is "superior quality." However, people would be amazed to learn the secret behind the Japanese people's commitment to maintaining this characteristic quality. I truly believe that Japan is the leader in quality and standardization. I have traveled to many wonderful places and seen many things, but to me, Japan seems by far the most unique, especially with respect to people's discipline and their pursuit of high living standards through modern infrastructures. This commitment to quality is perhaps what makes the Japanese people appear unique in the eyes of foreigners.

The course was well structured, and included field trips to several industrial facilities and cultural sites in six major cities in Japan, in order to provide exposure to the Japanese hydrocarbon chain industry, as well as to the Japanese heritage. We first visited Japan Energy Corporation's head office in Tokyo, where we received an overview of Japan's oil industry and JOMO's business outlook, in relation to oil terminals, distribution tankers and the logistics mechanism. The next day we visited Nippon Oil Corporation's Ichikawa Depot, and observed how customer orders for oil products are logged and processed for delivery to various regions, and how delivery trucks are loaded and controlled. Next, we visited Nippon Petroleum Refining Company's Negishi

Refinery in Yokohama city, and had the opportunity to take a close look at the oil fractionation unit and the manufacturing and processing systems of refined products, including various lube oil filling facilities. At Haneda Airport, we witnessed San-ai Oil Corporation staff fueling an All Nippon Airways (ANA) airplane via a sophisticated pipe network. The third visit was to JFE Steel Corporation in Fukuyama. Here, we observed a demonstration of the iron and steel manufacturing process and the steel molding mechanism, then toured the steel factory and steel storage yard. The fourth visit was to Cosmo Oil Company's branch office in Hiroshima city, where we received an overview of the company's core business areas—refining, distribution and product retailing—and toured one of its service stations.

Last but not least, we enjoyed visiting several cultural sites in Hiroshima and Kyoto that strongly represent the history of Japanese culture and heritage cultivated through the rise and fall of many empires. It was truly amazing to track the development of the Japanese lifestyle across the generations. We were fascinated with the visits and impressed with the way the members of the host companies shared their knowledge with us and responded to our questions with warm hospitality.

We all realize that the impressive course content was a result of the tremendous effort and dedication of the JCCP management and staff. Thanks to them, the course turned out to be much more than we expected. Moreover, we were blessed with stable, favorable weather during the entire course period, and were fully able to taste and explore the beauty of Japan's nature.

Finally, I would like to express my personal gratitude by saying, *Watashi wa JCCP ni kansha shiteimasu*. I really do appreciate JCCP for its magnificent work and support. I hope to see you again in the near future. *Arigato Gozaimashita*.





Project Management for Mechanical Engineers

(TR-10-08: June 24 – July 11, 2008)

Mr. Raed Mustafa Attar (Saudi Arabia / Saudi Aramco)

I would like to thank JCCP for selecting me to contribute to *JCCP News* through the kind consideration of the editorial staff.

First of all, on behalf of all the participants of the course, I would like to express my deepest appreciation to the JCCP management and kind staff for their efforts in organizing this excellent and beneficial course, and for their warm hospitality.

Fifteen participants representing 10 nations took part in this course, which presented an unforgettable experience to us all. We were impressed with Japanese history, culture, tradition and economy, all of which embody the Japanese values of a strong work ethic, respect for colleagues, and deep dedication to one's organization and its goals. We were also taken by the politeness and impeccable manners of the Japanese people in their beautiful country.

The 18-day course greatly benefited us in enhancing our project management skills. The various approaches to the subject matter, and especially the site visits, were extremely valuable.

We first visited Mitsubishi Heavy Industries' Yokohama Plant, where we observed the manufacturing process of steam turbines and boilers using the latest technologies. Also in Yokohama, we visited JGC, one of the leading engineering firms in the oil industry and a major player in ongoing projects being implemented abroad, and learned about project management for EPC projects.

We then visited Idemitsu Kosan's Chiba Oil Refinery, where we observed refinery processes, utility and control rooms outfitted with all the latest technologies, in addition to the refinery's project planning and maintenance management systems.

From Chiba, we traveled to Hokkaido, to visit Hokkaido Joint Oil Stockpiling, which is one of the

largest crude oil storage facilities in the world, fully automated with state-of-the-art technology. At the Japan Steel Works' Muroran Plant, we had the valuable experience of observing how steel is melted, cast, and formed into huge pressure vessels and columns using different machining and forming techniques.

Our journey also included a field trip to Sapporo. We will always remember the beautiful attractions of the city. The nine-day trip wasn't an easy trip, but it was worth every moment.

Through the course, we learned from A to Z how an oil or gas facility is designed, constructed, managed and maintained in Japan. We will take back with us all the knowledge and best practices we have acquired in this course, and plan to establish a shared site to further exchange knowledge and extend our friendship.

In conclusion, on behalf of all my colleagues from TR-10-08, I would like to thank JCCP and all who have contributed to this excellent program, and above all, Messrs. Fumihito Tone and Akio Higashi for their special care, guidance, understanding, and kind tolerance to our cultures, throughout the course.

Domo arigato gozaimashita.





Petroleum Marketing and Physical Distribution

(IT-4-07: January 21 – January 31, 2008)

Mr. Hytham Adnan J. Al-Saati (Saudi Aramco / Saudi Arabia)

Participating in the Petroleum Marketing and Physical Distribution course (IT-4-07) was an eye opener to me in three ways. First, I was introduced to Japan as a nation and as a culture. Second, I gained a fresh perspective of the oil industry and its future trends. Third, I was able to experience the flow of oil in detail from its arrival at the oil staging terminal in Kagoshima, south of Japan, all the way to the vehicle at a service station outside of Tokyo.

I have seen that two factors make Japan an interesting environment to learn about petroleum marketing and physical distribution. Japan is the second largest economy in world, and crude oil is its largest import commodity, which fuels that economy. Both factors make this country an excellent arena for observing how a complex and dynamic fuel production system works. Japan is also a leader in the world in terms of transportation means and industrial activities. Knowing that more than 97% of refined products is manufactured within the borders of Japan indicates the size and level of sophistication of its refining industry.

During the course, we visited an oil staging terminal in Kagoshima, where we boarded a crude oil carrier and saw the inside of a crude oil storage tank. We also saw the environmentally conscious efforts of the terminal to reduce pollutants using an on-site vapor recovery process plant to recover vapor during loading. We next traveled to Haneda Airport, the fourth largest airport in the world in terms of passenger volume, to observe jet refueling operations. We specifically saw how a sophisticated hydrant system is used to effectively supply jet fuel to aircrafts. We stood under the wings of a passenger airplane that was scheduled to take off, and witnessed the refueling activity. In Yokohama, we were invited to a lube oil filling facility, which produces numerous grades of finished lube oil for retail. We also witnessed how lorry trucks are loaded with fuels in a bulk plant. Finally, we visited a typical car service station and a service station training facility, which are the final destinations in the journey of petroleum products. This was a truly intensive tour. Most fascinating was that at each location we visited, the host company was completely open to sharing information, responding to our questions, and



At Nippon Oil Staging Terminal's Kiire Terminal

even allowing us to see, photograph and record virtually the entire facility.

Finally, and equally as interesting as the rest of the course, we were introduced to the cultural and human resources side of the country. A journey through Japan's history highlighted the roots of the current lifestyle, major historical events, and how the current business management practices originated. We realized that the significance of Japan's impressive accomplishments lies not in what the Japanese did to achieve those accomplishments, but how they achieved them.

This was a brief description of the Petroleum Marketing and Physical Distribution course from my perspective. I honestly did not know what to expect from the program prior to arriving in Japan. However, the efforts and dedication of the JCCP management and staff members raised my level of satisfaction beyond what I can describe in words. I would like to dedicate my sincere thanks to all who have contributed to this program, and above all, to Mr. Yasuo Tabei and Mr. Akio Hoshino, for their care and company during every minute of this journey.



Advanced Technologies for Rotary Machinery –Reliability Enhancement–

(IT-2-07: December 5 – December 19, 2007)

Mr. Khalaff M. Al-Ghamdi (Saudi Aramco / Saudi Arabia)

On behalf of all participants of the IT-2-07 course, I sincerely thank all the JCCP management and staff for arranging such a wonderful training program and giving us the opportunity to participate. I would like to extend my special gratitude to Kojima-san, Executive Director, and to JCCP coordinators Miyawaki-san, Higashi-san, and Tone-san.

The program was structured in a systematic manner, comprising classroom lectures, site visits to factories, visits to historical places, buffet lunches, and subway rides that took us across the breadth and width of Japan. There is no doubt that this training program will benefit us, our companies, and our countries.

The participants of this program included 16 engineers from different companies in 8 countries. We are grateful to JCCP for the wonderful welcome given us and for imparting in-depth knowledge of advanced technologies. In the future, we may perhaps see new business opportunities arise between our companies and JCCP-affiliated companies.

One thing I would like to mention, however, is the issue of communication. We noticed that the Japanese

are making every effort to incorporate English into their lives. We wish you success in this regard, as English proficiency will further open Japan to the international world and make Japan a technological giant, in the true sense of the word.

It is on this note that I, on behalf of all participants of this program, say "Thank you very much, and God bless you."



At Shin Nippon Machinery Co., Ltd.'s Kure Works

Interviews with JCCP Counterparts (Saudi Arabia & Oman)

To produce a promotional DVD of JCCP, JCCP has interviewed Mr. Fareed Z. Kamfar, Maintenance Manager (then), Ras Tanura Refinery, Saudi Aramco, and Mr. Masoud S. Al-Msalmy, General Manager, Corporate Support, Oman Refinery and Petrochemicals Company, on their views of JCCP activities seen from an oil-producing country. Since the views the two gentlemen shared with us are highly valuable and enlightening, we introduce some excerpts from the interviews below.

1. Saudi Arabia

Mr. Fareed Z. Kamfar

Maintenance Manager (then), Ras Tanura Refinery, Saudi Aramco

Interviewer: Mr. Kamfar, thank you very much for accepting this interview. You participated in a JCCP course once in 1984, so you are one of our oldest participants and are probably very familiar with JCCP activities. What has impressed you most, in your first participation in a JCCP course in 1984 and your second in 2008?

Mr. Kamfar: I was 25 or so when I participated in a JCCP course for the first time in 1984. The JCCP course was my window to Japan's culture and business environment.

Since then, I began to read books, attend lectures, and watch TV programs on Japan to become more familiar with Japan. After my last visit to Japan in October 2008, I personally began giving lectures about Japanese culture and how business is run in Japan.

There are many differences between Japan and the Middle East. We live by the Middle Eastern culture and receive the influence of the Western business culture. We cannot fully understand how the Japanese conduct business unless someone who has a perspective on both cultures provides a link. Only then can we see the true picture of Japanese business practices. Therefore, we need someone who would make that effort.

I cannot say that I understand Japan to the



*Mr. Fareed Z. Kamfar,
Maintenance Manager (then)*

level that is necessary to provide that link, but I think I have gained a good understanding of Japanese business practices. I see that Japanese businesses are founded on a culture that values personal relationships, and have learnt the concept, "trust before business," from Japan. In our business environment, business comes first, then trust. This is probably one of the greatest differences between how business is conducted in Japan and the Middle East.

I have also learnt that Japanese companies place importance on educating their employees to further improve business. To us, this is a completely different approach to conducting business.

These are some of the brief impressions I have of the past 25 years of exposure to Japanese culture.

Interviewer: What do you think is the most distinctive feature of JCCP programs, compared to those of other training institutions?

Mr. Kamfar: This is an interesting question.

We have oil, and we have the money to buy anything we need, be it technology, hardware, or training. However, we cannot buy people's minds and brains.

Japan has a precious resource that we do not have-human resources. We could benefit a lot if we can manage to tap into that resource. In this respect, I think JCCP is unique in that it shows and teaches us the importance of human resources and how we may apply that knowledge to the Middle East.

Many people in the Middle East still do not know much about Japan. However, creating more opportunities to experience Japan could cultivate more interest in learning about the country. Japan has good business practices, successful businesses, and high-quality products. From there, we take an interest in Japan and wish to know more. Therefore, what I think is outstanding about JCCP is that it taps into people's brains and minds. It is a remarkable approach. For me, JCCP is the only window through which I can see Japanese culture, but I am hopeful that this window will expand and become a large gateway to Japan in the future.

Interviewer: How has JCCP contributed to Saudi Aramco in the past?

Mr. Kamfar: Many practices in Japan are similar to what we have, in terms of culture, society, and values, so it is not necessarily difficult to introduce Japanese practices to Saudi Arabia and adopt them at Saudi Aramco.

The Japanese are good at working together as a team. That is not to say that only the

Japanese engage in teamwork, because so do many other countries throughout the world. However, I think the Japanese particularly excel at teamwork.

As a result of adopting the idea of teamwork from Japan and beginning to work in teams, we are seeing large improvements in work efficiency compared to working as individuals. For example, we have an OME (Operation Maintenance Engineering) team in our company whose members are producing greater results by working as a team than as individuals.

Quality is another element. As all products produced by the Japanese are of high quality, by bringing that concept to our environment, we could also take our business to a higher quality level. The Japanese are diligent, and strive to deliver their work with precision. I think it is admirable that they spend a lot of time and energy performing their work but also enjoy it. We also believe that enjoying one's work is an important element in our jobs.

We are adopting many Japanese practices in our company. This past January, we had JCCP staff hold a TPM seminar. As TPM is a new concept to Saudi Aramco, it made a large impact on the participants, and we saw a lot of energy in the workshop. Even during the seminar, they gave instructions over the phone to start implementing TPM in their workplaces. They said they were glad they participated in the seminar, and that they wish to apply what they had learned to their own workplace. I think this would be a starting point for the implementation of TPM at Saudi Aramco, and in this way, what JCCP has been delivering since its founding has had a large impact on Saudi Aramco.

Interviewer: What future expectations do you have of JCCP?

Mr. Kamfar: I have been thinking about this since I visited Japan last October. We buy a lot of

Japanese products, including technologies and cars, because they provide high quality. However, we cannot buy the Japanese spirit and mind. I think Japan needs to open its small window and create a larger gate. I ask this not only of JCCP, but the entire country of Japan and its government.

I would like to make three proposals on how the Japanese can capture the minds of people in the Middle East by performing business in the Japanese way. Firstly, Japan could come to the Middle East and invest in education, and particularly in universities and vocational schools. This would capture the heart of every mother in Saudi Arabia, because they would want their children to receive a higher education and to have greater job opportunities. It would also open our window wider to Japanese business and culture.

Another proposal concerns the media. When we wish to learn about Japan, we need to read a book, see somebody who would lecture about Japan and Japanese business styles, or visit Japan. However, if there are programs on satellite TV that introduce Japanese culture and business, we could study about Japan more conveniently. Japan needs to make a stronger approach to penetrate the wall separating us.

Finally, I would also like Japan to bring to the Middle East businesses that will touch our lives. Such businesses would make us more familiar with the Japanese style of doing business, or at least allow us to experience for ourselves the true value of Japanese business. For example, American and European fast-food shops and coffee shops are changing the newer generation in the way they eat, the way

they behave, the way they interact with others, and the way they conduct themselves. In the same way, Japan should establish a presence in our daily lives, in order to understand us more. Japan has done an outstanding job of selling cars and IT, but it needs to make more effort to transform people's lifestyles.

This pertains not only to JCCP, but to all Japanese. Through the collective efforts of all Japanese people, I am certain you can make it happen.

Interviewer: I understand that managerial personnel at Saudi Aramco do not have their name on their uniform, but what made you decide to have your name on your uniform?

Mr. Kamfar: My last visit to JCCP in October 2008 had a profound impact on my personal actions. I saw that in Japanese refineries and industries, the management approaches the employees, whereas in our business, the management has employees come to them. After returning to my country, I decided to spend 70% of my time with my subordinates, and to put my name on my uniform so they can easily identify me. In Japan, personal relationships among employees and the trust that is born from those relationships are extremely important to success in doing business. Based on this understanding, I want everyone at the refinery to know me not as refinery manager, but as an individual. This is why I have my name on my uniform, and not my title.

Interviewer: Thank you very much for sharing your invaluable views.

Mr. Kamfar: Thank you.

Agreement Signing Ceremony for a New Project in Saudi Arabia

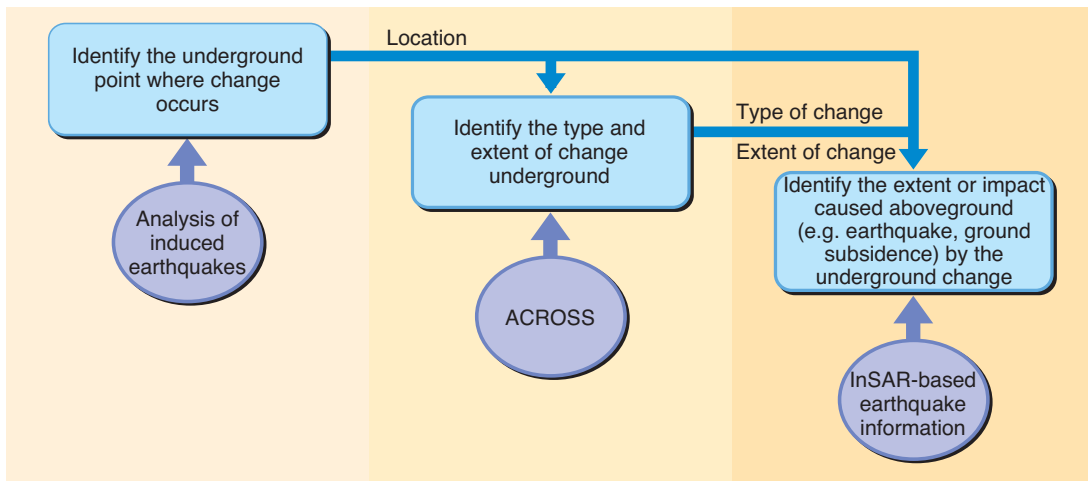
On February 21, 2010, JCCP and King Abdulaziz City for Science and Technology (KACST), a state-run research institution in Saudi Arabia, held an agreement signing ceremony for the project on “Application of Ground Deformation Monitoring Technologies towards Preserving the Natural Resources Infrastructure’s Potential.” The ceremony took place at KACST.

The project aims to survey and develop comprehensive ground deformation monitoring technologies that would prevent ground subsidence and induced earthquakes in oil fields from impacting oil facilities (refining equipments, pipelines, etc.), and to ultimately transfer those technologies to KACST. On the Japanese side, NTT Data CCS Corporation and Nippon Mining Research and

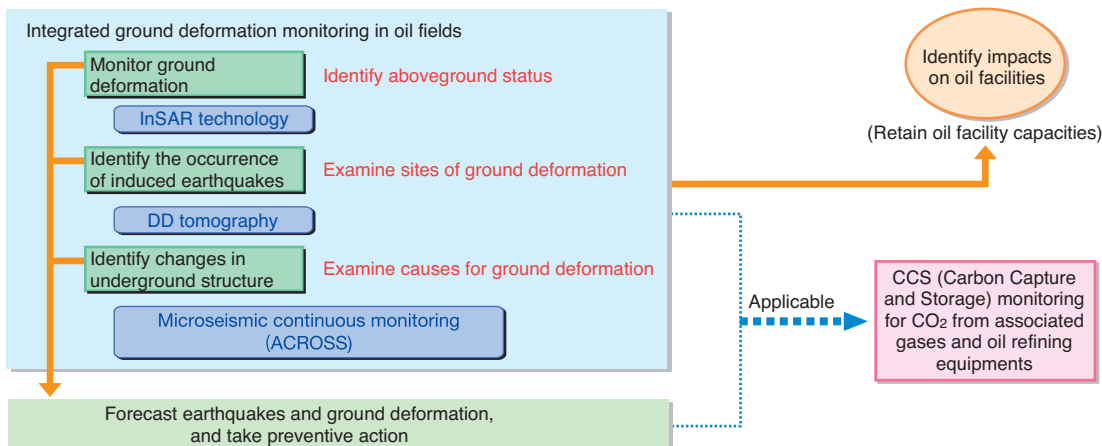
Technology Co., Ltd. are participating in the project.

In oil fields, pressure and stress inside the reservoir can be changed by oilfield operation. This leads to ground subsidence. In order to preserve the production potential in the oil fields, it is necessary to identify the status and causes of ground deformation and also forecast and prevent further deformation. To this end, it is important to introduce monitoring technologies enabling the observation within reservoirs to determine the causes as well as status of ground deformations.

Pressure changes inside the reservoir may cause stress imbalance, which could trigger earthquakes (induced earthquakes). Although the scale of an induced earthquake is normally minimal, it is reported that the magnitude



Interrelationship between ground deformation monitoring technologies



Integrated ground deformation monitoring in oil fields

sometimes exceeds 3. Because the source depth of such induced earthquakes is shallow, its aboveground motion is relatively large, which may impact on oil production facilities directly. In fact an earthquake that occurred in northern Haradh in September 2007 was relatively small on a Japanese scale, with a magnitude of 4.2 and a depth of 33 kilometers (the maximum acceleration was estimated at about 12.5 Gal). Nevertheless, all oil well equipments were shut down in the Hawaiyah oil refinery. In the Haradh oilfield, some 300 induced earthquakes occurred in two months, including minimal ones.

For comprehensive ground deformation monitoring technologies, the project will investigate and develop the InSAR (Interferometric Synthetic Aperture Radar) remote sensing technology, the Double-Difference Tomography (DD tomography) and the ACROSS system (Accurately Controlled Routine-Operated Signal System) technology. The InSAR technology monitors ground surface change in oilfields using satellite data. The DD tomography analyzes induced earthquakes and identifies the accurate locations where ground change is likely to occur. The ACROSS system monitors microseismic waves on a continuous basis to identify the type and extent of stress change in ground change locations. The project will apply these technologies to creating a risk management system.

The signing ceremony was held with the attendance of

H.E. Dr. Mohammed ibn Ibrahim Al-Suwaiyel, President, and H.H. Dr. Turki bin Saud bin Mohammad Al Saud, Vice President, on the KACST side; and H.E. Mr. Shigeru Endo, Ambassador of Japan to Saudi Arabia, Mr. Tatsuo Baba, Executive Officer at NTT Data CCS Corporation, and Mr. Morihiro Yoshida, Managing Director of JCCP, on the Japanese side. The press were also present to report on the commemorative event.

With Dr. Al-Suwaiyel presiding over the ceremony, representatives from the participating companies each gave a speech. KACST members, in particular, expressed their pleasure in the fact that the mutual relationship of cooperation between JCCP and KACST has continued for so many years, and said that the new project is an extremely important undertaking that they expect will be fruitful.

Following the speeches, Dr. Al Saud and Mr. Yoshida affixed their signatures to the agreement, and members from the two countries gave a technical overview of the project. Active questions and answers, including some highly professional ones, were exchanged, and demonstrated KACST's extremely strong interest in the project.

We feel that the signing ceremony was instrumental in promoting mutual awareness of the significance of implementing the project in Saudi Arabia with Japanese technical cooperation.

<by Haruhiko Oshima, Technical Cooperation Dept.>



Signing of the agreement

*(Front row) H.H. Dr. Turki bin Mohammad Al Saud, KACST Vice President (left)
Mr. Morihiro Yoshida, Managing Director of JCCP (right)
(Back row) H.E. Dr. Mohammed ibn Ibrahim Al-Suwaiyel, KACST President (left)
H.E. Mr. Shigeru Endo, Ambassador to Saudi Arabia (center),
Mr. Tatsuo Baba, Executive Officer at NTT Data CCS (right)*

Experimental Application of In-SAR Technology in Saudi Arabia

As part of JCCP's FY2008 technical cooperation program, King Abdulaziz City for Science and Technology (KACST), a royal research institution in the Kingdom of Saudi Arabia, is jointly implementing the "Experimental Application of In-SAR Technology in Saudi Arabia to Assess the Effect of Reservoir Activity on Surface Subsidence" project with NTT Data CCS Corporation, Nippon Mining Research and Technology Co., Ltd., and Nichiyu Engineering Corporation.

Remote sensing is a method of acquiring remote information on land formations, features, and

objects, by monitoring any change of the earth's surface by satellite and from aircraft. One of the most representative remote sensing technologies is In-SAR (Interferometry Synthetic Aperture Radar) technology, which is the main feature of the project. It uses satellite-mounted synthetic aperture radar (SAR) to obtain pairs of observation data from an extremely close range, and analyzes the phase difference between each data pair. Today, In-SAR technology is attracting attention as an effective means of acquiring elevation data and measuring changes in terrain (see Fig. 1).

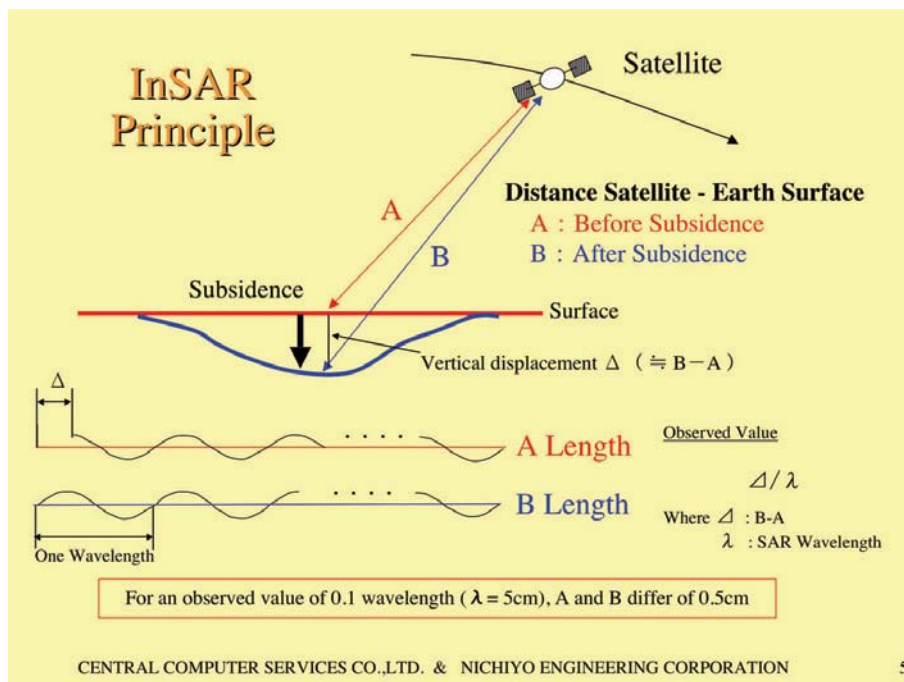


Fig. 1 Fundamental principle of In-SAR technology

The study examines the feasibility of systematizing the series of tasks from mapping changes in the earth's surface over a wide area, with high precision using the latest In-SAR technology, to assessing the impacts of ground deformations and other risk factors on oil facilities and others, based on the obtained data (see Fig. 2).

This project is expected to contribute to further

improvement of KACST's technical level in the area of In-SAR technology. In the future, the In-SAR system that is being developed through the project would allow prompt, high-precision assessments of land deformations throughout Saudi Arabia's vast 2.15 million square kilometers of land (5.7 times the area of Japan), and greatly contribute to the effective management of oil fields and other areas.

<by Shigeru Nanbara, Technical Cooperation Dept.>

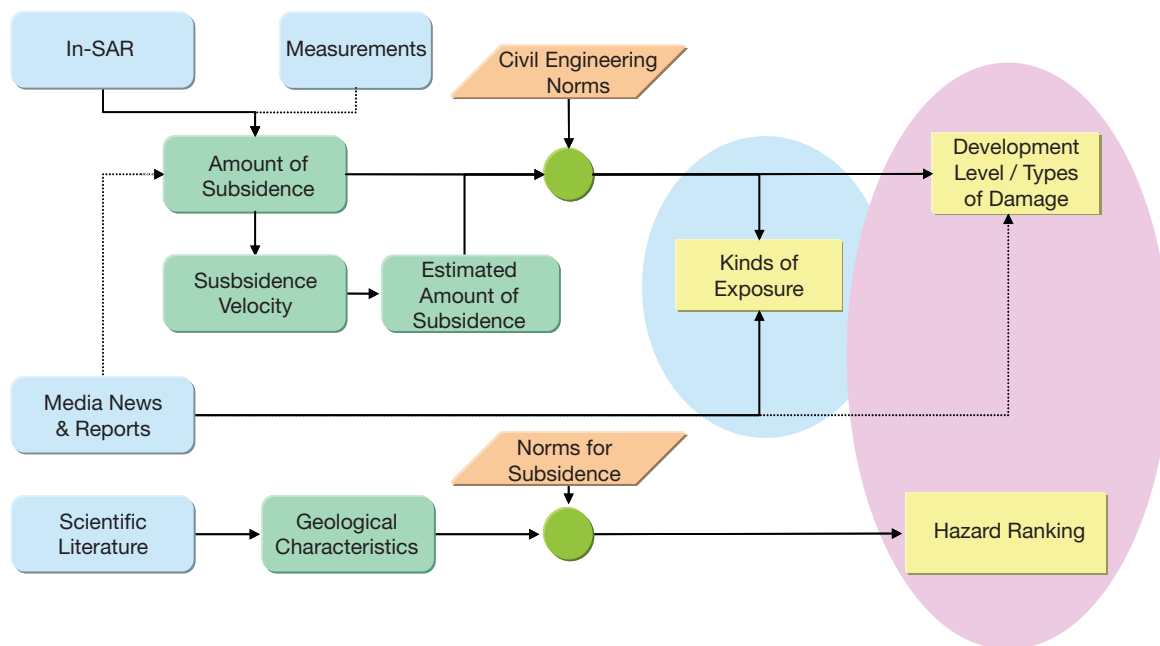


Fig. 2 Risk assessment system using In-SAR technology

Signing Ceremony for the Project on “Mild Hydro-cracking of LCO & Evaluation of Gas Oil HDS Catalysts” in Saudi Arabia

On May 17, 2009, JCCP and King Fahd University of Petroleum and Minerals (KFUPM) held a ceremony for signing a Memorandum of Agreement (MOA) on the joint technical cooperation project, “Mild Hydro-cracking of LCO & Evaluation of Gas Oil HDS Catalysts,” in Saudi Arabia.

The objective of the project is to lay the basic groundwork for the development of mild hydro-cracking technology toward the effective utilization of the surplus of light cycle oil (LCO) that is expected to grow in the future, and to develop a technology for the evaluation of catalysts that are used to produce low-sulfur diesel fuel with a sulfur content of less than 10ppm from Saudi Arabia’s high-sulfur heavy crude oil.

For the first time in a JCCP technical cooperation project, a Japanese university (Kyushu University) has participated as a member of a consortium headed by Nippon Oil Research Institute Co., Ltd.

Dr. Sahel N. Abdul-Jauwad, Vice Rector for Applied Research, and Mr. Katsuo Yokoyama, Managing Director of JCCP, signed the agreement in the ceremony, which was also attended by Mr. Fumio Iwai, Minister, and Mr. Toshiki Nagano, First Secretary, from the Embassy of Japan in Saudi Arabia, and Dr. Isao Mochida, Professor at Kyushu University.

Preceding the signing, Mr. Iwai gave a congratulatory speech in Arabic, and Mr. Yokoyama, Dr. Abdul-Jauwad, and Dr. Mochida each offered a few words of greeting in English. After signing the agreement, Mr. Yokoyama

presented a commemorative gift to Dr. Abdul-Jauwad, and brought the ceremony to a successful close.

The project will be implemented in the following four stages, over a period of three years, from April 1, 2009 to March 31, 2012.

1. Patent and Literature Survey

The latest patents and technical literature relating to the project will be surveyed, to establish a roadmap for the project using the acquired information.

2. Installation of Testing and Analysis Apparatus

The following three types of testing and analysis apparatus will be installed.

- i) Micro-testing unit
- ii) Gas chromatograph with atomic emission detector (GC-AED)



Signing ceremony: Dr. Sahel N. Abdul-Jauwad, Vice Rector for Applied Research (seated right)

iii) High-performance liquid chromatograph (HP-LC)

The micro-testing unit will be used to evaluate catalyst performance. The GC-AED and HP-LC will analyze the feed oils that will be loaded in the testing unit and the oil products derived from the catalyst performance test conducted in the micro-testing unit.

3. Analysis of Gas Oil and Light Cycle Oil (LCO)

Various types of feed samples from Saudi Arabian crude oil will be acquired by distillation and used to produce gas oil. LCO, a by-product of fluid catalytic cracking, will also be used as gas oil feed. These feed samples will be analyzed by a method proposed by Kyushu University. Lastly, they will be loaded in the micro-testing unit to induce a reaction, and the derived desulfurized oil will be analyzed by the same method used to analyze the feed samples.

4. Catalyst Performance Evaluation

Experimental catalysts will be researched and their performance evaluated in the micro-testing unit, in reference to commercial catalysts. Initially, commercial catalysts will be evaluated with gas oil feed and LCO, to gain an understanding of desulfurization trends.

Following the ceremony, the Japanese delegation toured the research facilities at KFUPM, then paid a courtesy call on H.E. Dr. Khaled S. Al-Sultan, Rector of the University. Dr. Al-Sultan explained that, on learning of Kyushu University's participation in the project, he pushed back the boundaries of his university's organization and instructed two up-and-coming young faculty members from the Chemical Engineering Department (Dr. K. Al-Hooshani, Associate Professor, and Dr. M. Al-Daous, Associate Professor) to join the project members on the KFUPM side. More so than previous projects, he said he hopes this project will further evolve in the future as a mutual sharing of intellectual knowledge.



Mr. Yokoyama presenting a commemorative gift to Dr. Sahel N. Abdul-Jauwad, Vice Rector for Applied Research, KFUPM



H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM, presenting a commemorative gift to Mr. Fumio Iwai, Minister of the Japanese Embassy in Saudi Arabia

After enjoying a pleasant exchange of views, Mr. Yokoyama presented a commemorative gift to Dr. Al-Sultan, who in turn, presented a commemorative gift to Mr. Iwai.

A brief overview of the project was introduced in three local newspapers the following day, based on a press release distributed to the media.

This project marks a milestone as the first JCCP technical cooperation project that includes a university on both the Saudi and Japanese sides. We hope that the successful completion of the project will contribute to the further development of friendly ties between our two countries.

<by Hiroaki Hara, Technical Cooperation Dept.>

Article on HS-FCC Process (High-Severity Fluid Catalytic Cracking) in Saudi Aramco Journal of Technology

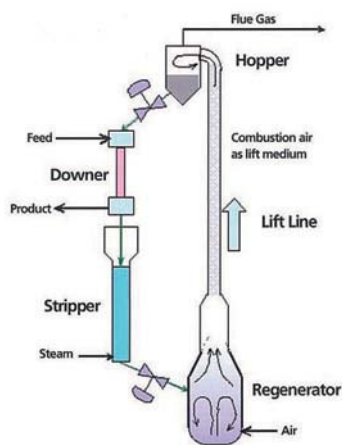
JCCP and King Fahd University of Petroleum and Minerals (KFUPM) in Saudi Arabia have carried out a number of years developing the HS-FCC (High-Severity Fluid Catalytic Cracking) technology, with the cooperation of Nippon Oil Corporation and Saudi Aramco. Studies of the technology first began with a 0.1 b/d pilot plant, and thereafter moved on to test operations of a 30 b/d demonstration unit. Following a series of feasibility studies on increasing the scale of the unit, significant advancements have been made toward the construction of a commercial-scale unit. Today, a new project is underway, for the construction of a 3,000 b/d semi-commercial unit.

HS-FCC is an innovative process that aims to maximize the production of propylene and other petrochemical feedstock, by using a down-flow reactor, instead of the conventional up-flow system. It is attracting widespread attention as a new solution to the needs of the times.

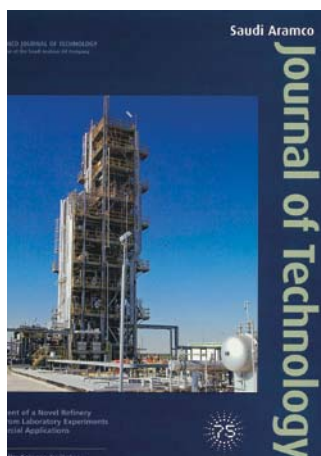
The new process was introduced in a leading article in the Spring 2008 issue of *Saudi Aramco Journal of Technology*. Titled “Development

of a New Oil Process: From Experiments to Commercialization,” the article describes the characteristics of the HS-FCC process, results of tests conducted using the 0.1 b/d pilot plant, results of test operations of the 30 b/d demonstration unit carried out at Saudi Aramco’s Ras Tanura Refinery, analyses of those results, and future plans for its commercialization. The cover of the journal features a photo of the 30 b/d demonstration unit constructed at the Ras Tanura Refinery. On the following page is an article on receiving the Noguchi Memorial Award. Last year, the award was presented to JCCP, KFUPM, Nippon Oil Corporation, and Saudi Aramco by the Japan Petroleum Institute (JPI), in recognition of their efforts in the HS-FCC development project. The article is accompanied by a photo of Mr. Khalid Al-Buainain, Senior Vice President of Saudi Aramco, and Saudi Aramco engineers who have participated in the project. The journal’s special focus on the HS-FCC process is a clear indication of the extreme importance that Saudi Aramco attaches to the development of the technology.

<by Minoru Horike, Technical Cooperation Dept.>



The HS-FCC Process



*Cover of Saudi Aramco Journal of Technology
The photo is of the 30 b/d demonstration unit*



The Noguchi Award was presented by the Japanese Petroleum Institute for the groundbreaking development of the innovative High-Severity Fluid Catalytic Cracking (HS-FCC) process technology to the research consortium of Saudi Aramco, the Japanese Cooperation Center Petroleum, Nippon Oil Company and King Fahd University of Petroleum and Minerals (KFUPM). This was the first time the award has gone to any organization outside of Japan.

Article on receiving the JPI Noguchi Memorial Award

Signing Ceremony for the Joint Project on FCC Catalyst Development and Evaluation Technologies in Saudi Arabia

On April 27, 2008, JCCP and King Fahd University of Petroleum and Minerals (KFUPM) held an MOA signing ceremony for the “Technical Cooperation Project on FCC Catalyst Development and Evaluation Technologies in Saudi Arabia,” which the two organizations will be jointly implementing. The ceremony was held at KFUPM in the presence of Mr. Hiroshi Oka, Japanese Minister to Saudi Arabia, followed by a press conference and other related events. Other attendees included Mr. Takahiko Yamaji, President of Nippon Oil Research Institute Co., Ltd., who attended on behalf of the two companies that will be responsible for implementing the project (Nippon Oil Research Institute Co., Ltd. and Nippon Oil Corporation), as well as a number of members from Saudi Arabian Oil Company (Saudi Aramco). Amid this gathering, Dr. Sahel N. Abdul-Jauwad, Vice Rector for Applied Research at KFUPM, and Mr. Katsuo Yokoyama, Managing Director of JCCP, mutually signed the agreement. News of the signing ceremony was broadcast on Saudi national TV, followed by a press conference. Dr. Abdul-Jauwad expressed his joy in being able to sign the project agreement. He stated that the goals of the project are to strengthen the relationship of joint research with Japan and develop research

capacities at KFUPM. He also emphasized his firm belief that the project will bring beneficial results to the oil refining industry in both countries. Mr. Yokoyama expressed his confidence that the project will contribute to the oil industry in Saudi Arabia and ultimately help KFUPM researchers develop new, advanced catalysts on their own, toward improving productivity in their refineries. Stating that building a strong relationship of trust between the two countries based on the project is JCCP’s ultimate goal, he affirmed JCCP’s commitment to achieve that goal.

The new project is based on the results of the Technical Cooperation Project on the Effective Utilization of Light Oil Distillates in Saudi Arabia, which was also jointly implemented by JCCP and KFUPM, from April 2006 to March 2007, as part of JCCP’s project-finding (PF) activities. It is estimated that FCC catalysts could be used ten times more by installing new FCC units and expanding existing units in Saudi Arabian refineries, as planned. The new project therefore aims to transfer to KFUPM evaluation technologies that Saudi Arabian refineries would need in the future to select an optimum FCC catalyst. It also aims to take this objective further, to help Saudi Arabia build the necessary capacities



*Courtesy call on H.E. Dr. Khaled S. Al-Sultan,
Rector of KFUPM (left)
Mr. Oka (right), Mr. Yamaji, President of Nippon Oil
Research Institute Co., Ltd. (second from right)*



*Exchange of the contract
Dr. Sahel N. Abdul-Jauwad (right),
Mr. K. Yokoyama (left)*

for independently developing new catalysts suitable to the country's FCC units in the future.

The project is scheduled to be implemented over a period of three years, from April 1, 2008 to March 31, 2011, with the participation of Nippon Oil Research Institute Co., Ltd. and Nippon Oil Corporation, and is to be implemented in the following four stages.

(1) Introduction of facilities

An advanced cracking evaluation unit (ACE unit) will be installed at KFUPM, and operational training provided to KFUPM researchers, to upgrade research activities related to the evaluation of FCC catalysts.

(2) Technical transfer

Technologies for producing FCC catalysts and for conducting tests using the ACE unit will be transferred to KFUPM.

(3) Evaluation of FCC catalysts

Further technologies will be transferred to KFUPM, to allow KFUPM researchers to actually use the technologies transferred to them in stages (1) and (2), and to evaluate catalysts that are planned to be used.

(4) Development of FCC catalyst

Efforts will be made to foster the ability in KFUPM researchers to research and develop advanced FCC catalysts suitable to FCC units in Saudi Arabia.

The project is expected to improve the processing technologies of FCC units in Saudi Arabia, and to ultimately play an important role in the global oil refining sector.

Prior to the signing ceremony, the Japanese parties to the project paid a call on H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM. His Excellency acknowledged the significant relationship that JCCP and KFUPM have cultivated through the years, and expressed his strong expectations that the new project will further strengthen and develop the cooperative relationship. He showed especially

strong interest in the advancements being made with regard to the high-severity fluid catalytic cracking (HS-FCC) technology, which has been jointly developed by KFUPM, Saudi Aramco, Nippon Oil Corporation, and JCCP. He took note of the development of the semi-commercial HS-FCC unit in Japan, and inquired about the future registration of patents for that technology.

Mr. Yokoyama expressed his strong hopes that the project will further deepen the relationship of trust that KFUPM and JCCP have cultivated through the implementation of numerous projects, to date.

News of the signing ceremony was covered by local newspaper *Al-Watan* (April 28, 2008 edition) and on its English website.

JCCP hopes that the successful completion of the project will further strengthen friendly ties between Saudi Arabia and Japan, and that the transfer of evaluation technologies for FCC catalyst development will contribute to upgrading oil refining technologies in Saudi Arabia.

<Keikoh Sasaki, Technical Cooperation Dept.>



Articles of the signing ceremony featured in the local newspaper and its English website.

Establishment of New JPI Award for Technical Developments in Oil-Producing Countries

Japan Petroleum Institute (JPI) established a new award for technical developments in oil-producing countries this year, in commemoration of the 50th anniversary of its founding. The award is to be presented to individuals or organizations in both oil-producing countries and Japan, who have together made a significant achievement in the research and development or improvement of oil-related technologies in oil-producing countries, or have contributed to promoting technical exchanges. The commendation is expected to deepen mutual understanding between oil-producing countries and Japan, increase technical exchanges in the oil sector, and thereby promote future international exchanges of technologies. It is also expected to contribute to the development of infrastructures in the downstream sector in oil-producing countries, and ultimately play a significant role in securing oil resources and stable supplies of energy. For these reasons, JCCP is fully supporting the new award.

An overview of the award is provided below, as a prime example of strong collaboration between JCCP and organizations to which JCCP is directing its cooperation efforts in recent years.

1. Background to Establishment of the Award

In February 2007, JCCP arranged a mission for experts from universities and industries in Japan to tour the sites where technical cooperation projects are being implemented in Middle East oil-producing countries. A university professor who participated in the mission proposed the use of an award hosted by JPI, an authority in its field, as a means of facilitating technical transfers to Middle East oil-producing countries. In response to this proposal, JCCP held a series of discussions with the Ministry of Economy, Trade and Industry and

JPI, as well as consulted in detail with the professor who proposed the idea, and the award was finally brought to fruition this fiscal year.

JPI itself is actively involved in technical cooperation projects with Middle East oil-producing countries. In fact, it has been implementing catalyst seminars with King Fahd University of Petroleum and Minerals (KFUPM) in Saudi Arabia, since 1991. JPI was considered the ideal host of the new award, because it possesses abundant experience and expertise in bestowing awards, such as the JPI Award and the Noguchi Memorial Award. It was also fortunate that JPI had already been planning to create a special commemorative award to be presented as part of its 50th anniversary celebrations, and had set up a 50th Anniversary Commemorative Awards Subcommittee for that purpose.

2. Composition of the Award

The award will be composed of the Japan Petroleum Institute Award for Invaluable International Cooperation and the Japan Petroleum Institute Award for International Cooperation on Technology. The Japan Petroleum Institute Award for Invaluable International Cooperation will be presented to individuals or organizations in both oil-producing countries and Japan, who have together made a significant achievement in transferring oil-related technologies to oil-producing countries, or in developing human resources in oil-producing countries by means of technical exchanges. The Japan Petroleum Institute Award for International Cooperation on Technology will be presented to individuals or organizations in both oil-producing countries and Japan, who have together made a significant achievement in the research and development or improvement of oil-related technologies in oil-producing countries. In

other words, the former focuses on “people” who have contributed to technical exchanges between Japan and oil-producing countries, and the latter, on “technologies.”

3. Presentation of the Japan Petroleum Institute Award for Invaluable International Cooperation

The JPI 50th anniversary ceremony was held on May 15, 2008. Mr. Toshikazu Kobayashi, Vice President of Nippon Oil Corporation and newly appointed president of JPI, presented the Japan Petroleum Institute Award for Invaluable International Cooperation and commemorative gift to Dr. Sahel N. Abdul-Jauwad, Vice Rector for Applied Research at KFUPM, who attended the ceremony on behalf of H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM, and Dr. Tatsuaki Yashima, Professor at Nihon University Advanced Research Institute for Science and Technology. H.E. Dr. Khaled S. Al-Sultan was recognized for his leading role in promoting technical exchanges with Japan and in developing human resources in Saudi Arabia through the technical exchanges. Dr. Yashima was recognized for his many years of effort in promoting international exchanges between Japan and Saudi Arabia/Kuwait, as chairman of the JPI Overseas Cooperation Subcommittee.

Upon receiving the award, Dr. Abdul-Jauwad



Mr. Toshikazu Kobayashi, President of JPI, presenting the Japan Petroleum Institute Award for Invaluable International Cooperation to Dr. Sahel N. Abdul-Jauwad, Vice Rector of KFUPM



*(Front row, from right) Dr. Sahel N. Abdul-Jauwad, Vice Rector of KFUPM, and Dr. Tatsuaki Yashima, Professor at Nihon University Advanced Research Institute for Science and Technology
(Back row, from left) H.E. Mr. Faisal H. Trad, Ambassador of Kingdom of Saudi Arabia to Japan, and Mr. Toshikazu Kobayashi, President of JPI*

expressed his appreciation for the award, stating that the prestigious award holds great significance as a strong incentive to continue contributing to building a fertile relationship with Japan. Dr. Yashima also thanked JPI for the award, and affirmed that it would certainly be instrumental in building constructive relations between the GCC countries and Japan.

4. Strengthening Cooperation with Oil-Producing Countries

As Dr. Abduljauwad stated, the Japan Petroleum Institute Award for Invaluable International Cooperation was interpreted as a strong incentive for oil-producing countries to strengthen cooperative relations with Japan. The award is therefore expected to strengthen collaboration not only between oil-producing countries and JCCP, but also between those countries and other relevant organizations in the oil industry.

Unfortunately, there were no recipients of the Japan Petroleum Institute Award for International Cooperation on Technology this time around. Continued efforts need to be made to establish a record of outstanding performance.

(by Toyonori Uemura, Administration Dept.)

Activity Report

from Researchers Participating in the Long-Term Researcher Dispatch Program

Introduction

Over the years, JCCP has developed cooperative relationships with major counterpart institutions such as King Fahd University of Petroleum and Minerals (KFUPM) and Kuwait Institute for Scientific Research (KISR) through international joint research programs and technical cooperation projects. To further strengthen and improve these relationships, JCCP sends veteran Japanese researchers to counterpart institutions long term to provide research support and engage in direct exchanges with researchers at those institutions under the Long-term Researcher Dispatch Program.

JCCP has dispatched three honorary university professors and a corporate researcher during the three years from FY2007 to FY2009. They mainly help their host institution develop research personnel and provide detailed research assistance in response to its needs.

Three researchers have been dispatched in FY2010. These researchers were asked to share some of the local information they have obtained by staying long term in the country of their host institution and interacting with local researchers, and to also introduce their research support activities.



Briefing session at JCCP, July 14, 2010

FY2010 Researchers

■ Dr. Hideshi Hattori, Professor Emeritus, Hokkaido University

- (1) Host institution: Center of Refining and Petrochemicals (CRP), Research Institute (RI), King Fahd University of Petroleum and Minerals (KFUPM)
- (2) Term of dispatch: Approximately three months each year since FY2007 (this year's schedule is being planned)
- (3) Research field: Application of solid acid catalyst and solid base catalyst to oil refining and petrochemistry

■ Dr. Katsuomi Takehira, Professor Emeritus, Hiroshima University

- (1) Host institution: Center of Refining and Petrochemicals (CRP), Research Institute (RI), King Fahd University of Petroleum and Minerals (KFUPM)
- (2) Term of dispatch: Approximately three months each year since FY2009 (this year's schedule is being planned)
- (3) Research field: Research of catalysts for petrochemical feedstock production by ethylbenzene dehydrogenation

■ Dr. Hidehiro Higashi

- (1) Host institution: Petroleum Refining Department, Petroleum Research and Studies Center (PRSC), Kuwait Institute for Scientific Research (KISR)
- (2) Term of dispatch: Approximately three months each year since FY2007 (this year's schedule is being planned)
- (3) Research field: R&D on enhancement of practical evaluation performance of pilot plant tests and improvement of refinery operations

1. Research Activities at KFUPM in Saudi Arabia

Dr. Hideshi Hattori, Professor Emeritus, Hokkaido University

King Fahd University of Petroleum & Minerals (KFUPM) is the leading university for science and technology in Saudi Arabia. It is located on a small, rocky hill that sits on a massive oil field discovered in 1938 in Dammam Dome and was previously owned by the national oil company Saudi Aramco. In addition to numerous departments, the university also has a prominent Research Institute. Headed by Dr. Sahel N. Abduljauwad, Vice Rector for Applied Research, the Research Institute is composed of six research centers run by 140 staff members. The six centers are: (1) Communication & IT (CCIT); (2) Economics & Management (CEMS); (3) Environment & Water (CEW); (4) Engineering Research (CER); (5) Petroleum & Minerals (CPM); and (6) Refining & Petrochemicals (CRP).

The Center of Refining & Petrochemicals (CRP) has 24 staff members, and belongs to the Center of Research Excellence (CoRE) in Petroleum Refining & Petrochemicals. The CoRE program was established in 2007 to promote highly focused interdisciplinary research. It is a cross-sector research group composed of the university's departments of chemistry and chemical engineering, plus a number of outside research institutions (both national and international).

As a selected member of JCCP's Long-term Researcher Dispatch Program, I visited Saudi Arabia for three months each year (one month's stay × 3) from

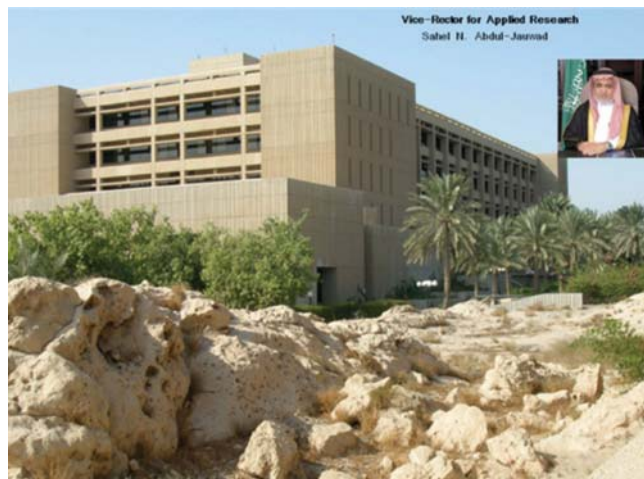
FY2007 to FY2009. I understood that my mission was "to strengthen our mutual research foundation and promote friendly relations between Japan and Saudi Arabia by providing research guidance and deepening ties between our two countries," and have worked toward achieving this goal.

The main focus of my activities was to promote studies of solid acid and solid base catalysis and to initiate new research projects. In my first year, I submitted several research plans to KFUPM and discussed projects that would be applicable for implementation with KFUPM. One of the projects I proposed, on alkane isomerization over tungstated zirconia modified by platinum catalyst, was taken up as a theme for a student's master's thesis. The student who was placed under my charge was an excellent student, who completed his thesis in two years and received his degree in the beginning of 2009.

To acquire research subsidies needed to pursue this research project, we applied to the Ministry of Higher Education for a research grant. The following year, in 2008, our application was accepted, and we received a 24-month research grant. The objective of our research was to develop a catalyst that would deliver high performance in the skeletal isomerization of alkanes higher than C6. This skeletal isomerization is a key to producing high-octane, high-quality gasoline that contains only small amounts of aromatic compounds, and is a theme related to technologies that are certain



*The center of KFUPM, sitting atop a rocky hill
(from the rooftop of the RI building)*



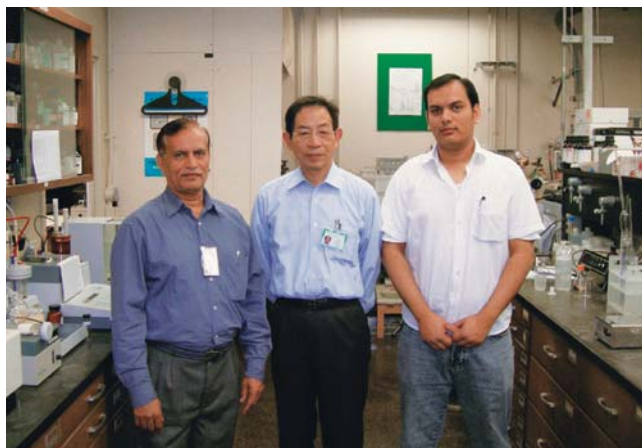
*The Research Institute, a prominent building on campus
The photo insert is of Dr. Sahel N. Abduljauwad, Vice Rector
for Applied Research*

to become necessary in the near future, as increasingly stringent global environmental regulations require gasoline to have an ever lower content of aromatic compounds. The research also corresponds to the flow of Saudization, the general policy of implementing production activities by the hands of Saudi Arabians as much as possible.

In FY2009, my third year at KFUPM, I continued to assist in the development and continuation of the research project that was approved by the Ministry of Higher Education. I also provided advice for the projects that are being carried out or planned by CRP, as well as for the formulation of a new plan for a project on solid base catalysis.

The thesis written by the master's degree student was published as two separate papers in the international journal, *Applied Catalysis A: General*, and the subsequent research that was conducted in FY2009 was presented at the TOCAT6/APCAT5 Conference held in Sapporo in July 2010 as the only oral presentation from Saudi Arabia. A full paper of the presentation is scheduled to be included in a special issue of *Catalysis Today* dedicated to TOCAT6.

KFUPM has been receiving technical assistance and cooperation from JCCP (or PEC) since around 1990, and has implemented numerous joint studies with JCCP over many years. It also has an ongoing relationship with JCCP in sponsoring research seminars on catalyst technologies and in sending participants to JCCP courses in Japan, and has strengthened and advanced the foundation of its research centers through these cooperation schemes. As a university-affiliated research center, CRP should perhaps focus on fulfilling its original role of strengthening basic research capacities. In this regard, I feel that more emphasis should hereafter be placed on basic research, in relation to CRP's future management policy.



The master's degree student who was in the charge of Dr. Hattori and the research scientist who provided his assistance in conducting experiments

Speaking of basic research, King Abdullah University of Science and Technology (KAUST) opened last year and is gathering human resources in basic research fields from all over the world. Its research plan shows an extensive list of themes related to leading-edge scientific technologies. KFUPM is also expected to contribute to technical advancement in its specific research field. JCCP's cooperation is highly evaluated at present, but university needs constantly change. To continue to be held in high regard in the future, I believe that JCCP and KFUPM should thoroughly discuss the future vision of the university at the global level before deciding on specific cooperation and assistance measures.

The weather in Saudi Arabia has been pleasant, perhaps because I have been visiting the country in moderate seasons. At KFUPM, I live in an on-campus guesthouse, which occupies a section of a residential area for university faculty. As the area is safe and comfortable, I have never worried about physical danger. The *adhan*, or ritual call to prayer that is heard from the mosque five times a day, has become a part of my daily rhythm.

2. Research Assistance at KFUPM in Saudi Arabia

Dr. Katsuomi Takehira, Professor Emeritus, Hiroshima University

1. Introduction

I have spent three occasions in FY2009 and FY2010 providing R&D assistance on petrochemical feedstock production catalysts at the Center of Research Excellence in Petroleum Refining and Petrochemicals in King Fahd University of Petroleum & Minerals (KFUPM) located in Dhahran, Saudi Arabia. My first stay was from October 16 to November 20, 2009; the second was from January 6 to February 5, 2010; and the third was from February 19 to March 10, 2010. While JCCP's Long-term Researcher Dispatch Program began in FY2007, my participation in the program has been from FY2009.

2. Research Theme

The focus of my research in FY2009 was specifically placed on the development of a styrene production catalyst by ethylbenzene dehydrogenation. This project was sponsored and funded by King Abdullah University of Science and Technology (KAUST), a new research institution established last year on the coast of the Red Sea in Jeddah, and was implemented at KFUPM as one of several projects adopted by KAUST in various fields including the catalyst development field. For this reason, I belong to the KAUST Center in Development at KFUPM. In FY2009, I also received a request from Saudi Basic Industries Corporation (SABIC) for the development of a propylene production catalyst by propane dehydrogenation. In January 2010, I proposed



With Mr. A. Khurshid in front of the styrene production reactor

a project for development of a new hydrotalcite catalyst, but received a message in June that it will not be implemented, due to the tight supply of raw propane in Saudi Arabia. Nevertheless, as worldwide demand for propylene production has been growing in recent years, KFUPM has thereafter commenced a research and development project with SABIC to address propylene production by catalytic cracking of naphtha.

3. Research Progress

With respect to the development of a styrene production catalyst by ethylbenzene dehydrogenation, I proposed to develop an oxidative dehydrogenation catalyst using air or carbon dioxide as a soft oxidant, as shown in Fig. 1. My plan was to produce a highly dispersed iron oxide catalyst derived from Mg-Al hydrotalcite and conduct an activity test using a fixed-bed gas flow reactor, at KFUPM. For catalyst characterization, I requested KFUPM to undertake the atomic absorption analysis and differential thermogravimetric analysis (Mr. A. Khurshid); the analysis of X-ray diffraction, N₂ absorption, and CO₂-TPD to Hiroshima University (Prof. T. Sano); Mössbauer absorption analysis to the University of Tokyo (Prof. K. Nomura); and TPR and XPS analyses to Ehime University (Prof. H. Yahiro). I intended to prepare different types of catalysts and evaluate their

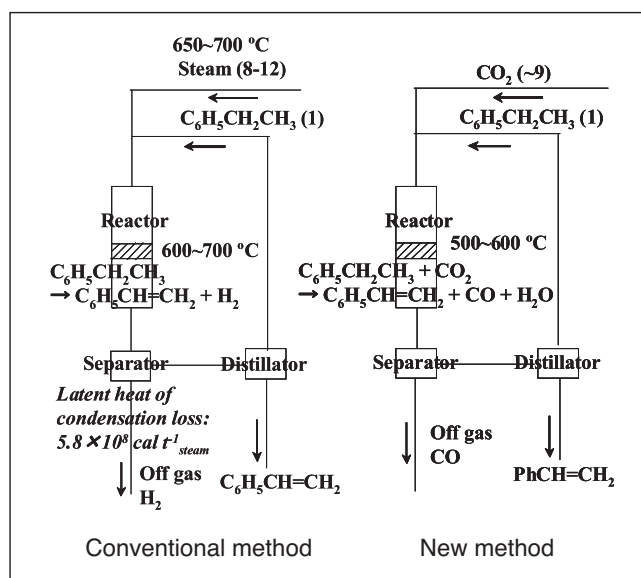


Fig. 1: New styrene production method

activities, but lacked the necessary manpower and reactor environment at KFUPM. Therefore, I shared the reactor that Prof. H. Hattori (KFUPM) was using in his research on “alkane isomerization over tungstated zirconia modified by platinum catalyst,” and had Dr. R. Jermy, a post-doctoral researcher, perform the activity test. Thereafter, a third-year undergraduate student and later a master’s course student (Mr. A. Al-Ali and Mr. L. Atanda) offered to help prepare the catalysts, and the research gradually began to make progress.

4. Research Results

It has already been confirmed that Mg/Fe/Al oxide catalysts derived from a hydrotalcite precursor (Fig. 2) display high activity.¹⁾ Since gas analysis was not

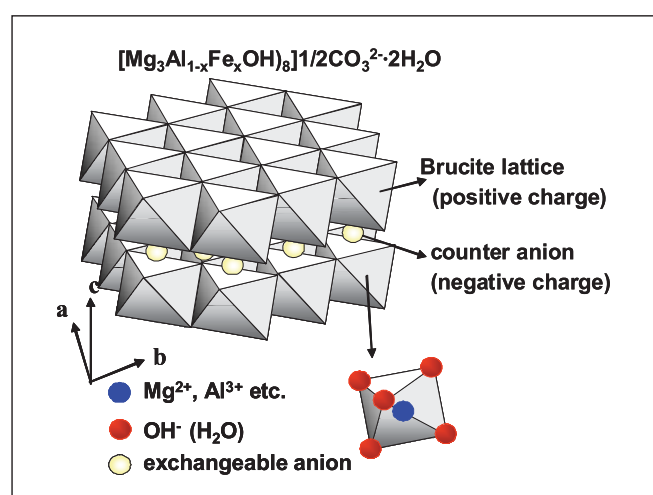


Fig. 2: Hydrotalcite

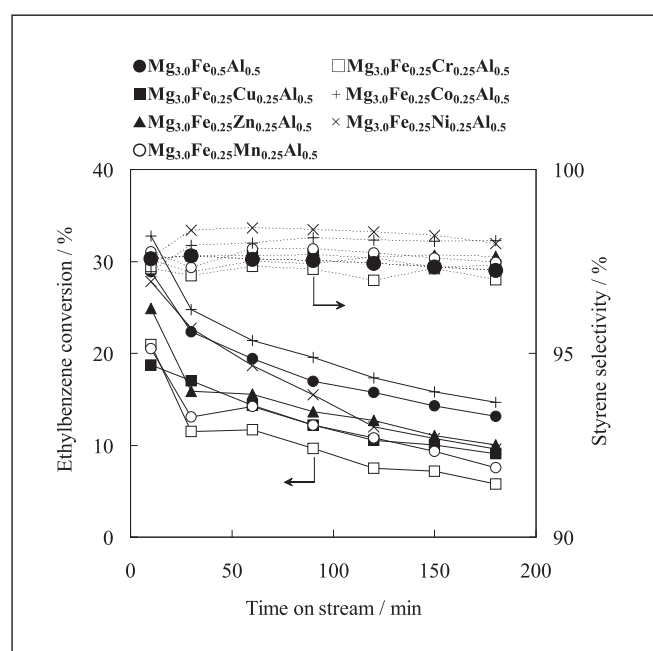


Fig. 3: $Mg_3Fe_{0.25}Me_{0.25}Al_{0.5}$ catalyst activity

possible with the reactor we used, we could not examine oxidative dehydrogenation reaction using air or carbon dioxide, but we examined the simple dehydrogenation activity of ethylbenzene by preparing Mg/Fe/Al oxide catalysts with a part of the Fe replaced with Cu, Zn, Cr, Mn, Co, or Ni. Because iron catalysts were used in the presence of hydrogen, the activity test was conducted under the inert gas atmosphere of He and not N_2 , to avoid producing NH_3 . Among the metal species added, Co displayed the best effect as an additive, followed by Ni, while the other metals showed negative effects (Fig. 3). Then, we tried to clarify the factors improving catalytic activity by Co addition in comparison with the effect of Ni. As the result, the high activity of the $Mg_3Fe_{0.25}Co_{0.25}Al_{0.5}$ catalyst seemed to be promoted by the reduction-oxidation between Fe^{3+} and Fe^{2+} and by the stabilization of Fe^{3+}/Fe^{2+} by the formation of Fe-Co binary system. Moreover, a part of Mg^{2+} in $Mg_3Fe_{0.5}Al_{0.5}$ mixed oxide was replaced with Zn^{2+} to test the effect of MgO as the support. We found that catalyst activity declines with an increase in Zn replacement (Fig. 4). It was concluded that the dehydrogenation of ethylbenzene was initiated by the β -H⁺ abstraction to form an electron rich intermediate on $Mg^{2+}O^{2-}$ basic sites, followed by α -H abstraction on Fe^{3+} acid sites to produce styrene. As previously mentioned, this research was pursued as a project commissioned by KAUST, a new research university which has just recently opened. KFUPM has also begun to show strong interest in our academic research and new findings in recent years. Based on this situation, we compiled and contributed the results we

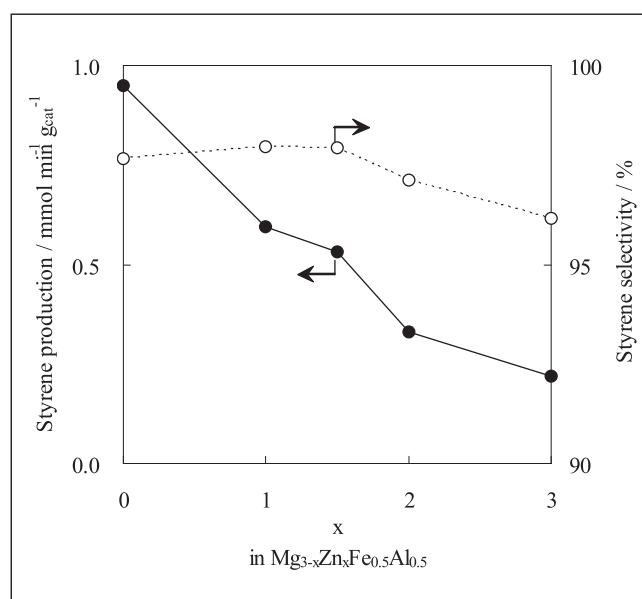


Fig. 4: $Mg_{3-x}Zn_xFe_{0.5}Al_{0.5}$ catalyst activity

obtained in the following three papers: (1) “Ethylbenzene dehydrogenation over binary $\text{FeO}_x\text{-MeO}_y/\text{Mg}(\text{Al})\text{O}$ catalysts derived from hydrotalcites”; (2) “Ethylbenzene dehydrogenation over $\text{FeO}_x/(\text{Mg,Zn})(\text{Al})\text{O}$ catalysts derived from hydrotalcites: Role of MgO as basic sites”; and (3) “Ethylbenzene dehydrogenation over $\text{Mg}_3\text{Fe}_{0.5-x}\text{Co}_x\text{Al}_{0.5}$ catalysts derived from hydrotalcites: Comparison with $\text{Mg}_3\text{Fe}_{0.5-y}\text{Ni}_y\text{Al}_{0.5}$ catalysts.”

5. Research Summary

The research progressed smoothly in FY2009, and the KFUPM researchers and I were able to compile our results in three papers, as mentioned above, to be submitted to international journals under our joint names. We intend to continue with the research, and to apply ourselves to the development of oxidative dehydrogenation catalysts. The results we have achieved so far will be presented at the KCC Symposium on Catalysis on 7-9 December 2010 by Dr. Sulaiman S. Al-Khattaf, Director of the KFUPM Center of Refining & Petrochemicals and leader of this project. An additional piece of information worthy of note in regard to this research is that the Mg-Al hydrotalcite that we used in preparing our catalysts is garnering attention for its possible application to the PSA separation of CO_2 . In fact, KFUPM has just recently received an inquiry about it from Saudi Aramco. The widespread application

of the hydrotalcite not only to catalysts, but also to separators and diverse other purposes, can be expected in the future.

I received support from many people in implementing my one-year research project at KFUPM. With the cooperation of the people at KFUPM, we were able to compile the results of our research in the three papers mentioned above in a relatively short period of time. Many researchers at KFUPM’s research center have been to Japan as participants of training programs, and are friendly and cooperative with Japanese people on the whole. Even aside from the research, I have enjoyed spending time with them. To enhance the potential of the research center even more in the future, it is perhaps necessary to install a new reactor that is compact enough to ensure mobility, and to maximize the operations of various analysis equipment for catalyst characterization. KFUPM prides itself on its long history, but it is at a time when it needs to further improve its standing as a university originally devoted to basic research areas, particularly given the opening last year of KAUST, a new global-scale graduate university. In this regard as well, it seems that publishing research results in international academic journals is becoming increasingly important.

Reference

1) Y. Ohishi, T. Kawabata, T. Shishido, K. Takaki, Q. Zhang, Y. Wang, K. Nomura, and K. Takehira, *Appl. Catal. A: General* 288 (2005) 220-231.



Progress Report on “The Long-term Researcher Dispatch Program”

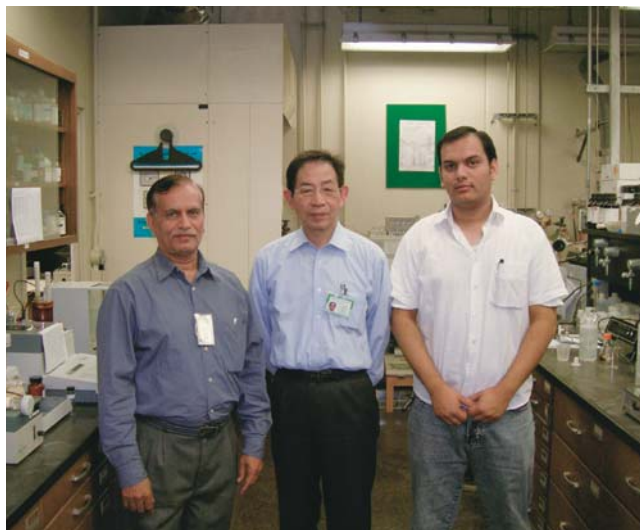
1. Program Objective

JCCP launched “The Long-term Researcher Dispatch Program” in FY2007 as a new initiative under the International Joint Research Scheme. Through the program, JCCP sends honorary university professors and senior corporate researchers to universities and research institutions in major oil-producing countries long term, to provide guidance to local researchers and to promote the advancement and invigoration of research activities in counterpart organizations by helping them improve research methods and address new research themes. The program also aims to enhance personal exchanges in the research field and thereby build and strengthen relationships of trust between oil-producing countries and Japan.

2. Implementation Status

In FY2007, the year of commencement of the program, the months between May and October were busily spent making the necessary preparations, and researchers were actually dispatched overseas in November. Two researchers were respectively dispatched to King Fahd University of Petroleum and Minerals (KFUPM) in Saudi Arabia and Kuwait Institute for Scientific Research (KISR) in Kuwait for a period of three months, from November to February. The two organizations were selected as counterpart organizations of the program, as they have built a solid relationship with JCCP in the technical cooperation field going back more than 15 years, through the joint implementation of international research programs, technical cooperation projects, and periodical symposiums.

In FY2008, three researchers were dispatched to KFUPM and KISR as before. An overview of the



Dr. Hideshi Hattori, Professor Emeritus, Hokkaido University (center), at KFUPM

first two years of the program is presented below.

<Dispatch to KFUPM>

- *Researcher*
Dr. Hideshi Hattori, Professor Emeritus, Hokkaido University
- *Term*
Three-month dispatch to KFUPM, between November 2007 and February 2008
Three-month dispatch to KFUPM, between June 2008 and February 2009
- *Field of research assistance*
Introduction and guidance in new themes in catalyst research
 - (1) Production of clean gasoline composed primarily of multi-branch alkane through the use of zirconium solid acid catalysts and elucidation of the catalyst action mechanism
 - (2) Production of high added-value aromatics through the use of solid base catalysts and elucidation of the catalyst action mechanism



Dr. Hidehiro Higashi, JGC Catalysts and Chemicals Ltd. (front), at KISR

<Dispatch to KISR>

- *Researcher*
Dr. Hidehiro Higashi, JGC Catalysts and Chemicals Ltd.
- *Term*
3-month dispatch to KISR, between November 2007 and February 2008
3-month dispatch to KISR, between May 2008 and November 2008
- *Field of research assistance*
Studies on improving catalyst research methods and refinery operations
 - (1) Studies and guidance for increasing assessment performance of pilot tests on desulfurization catalysts and others
 - (2) Implementation and analysis of a cold-flow model experiment for improving the



Dr. Takeshige Takahashi, Professor Emeritus, Kagoshima University, at KISR

operations of the desulfurization unit at KNPC

- *Researcher*
Dr. Takeshige Takahashi, Professor Emeritus, Kagoshima University
- *Term*
2.5-month dispatch to KISR, between October 2008 and February 2009
- *Field of research assistance*
Implementation of lecture presentations on catalyst research and guidance of individual researchers
 - (1) Implementation of lecture presentations on the deactivation mechanism of atmospheric residue hydrodesulfurization catalysts and prevention of catalyst deactivation
 - (2) Individual counseling and guidance: Individual research issues, development of young researchers, research policies, etc.

3. Summary

During the first two years of the program, three researchers have been dispatched to KFUPM in Saudi Arabia and KISR in Kuwait long term, to provide research assistance and guidance to local researchers. Careful consideration was given so that researchers were not dispatched in the midst of the extremely hot summer season and the Islamic fasting month, but even so, the intensive weather and differences in customs and the living environment must have required some getting used to. Nevertheless, the researchers quickly adapted to their new environment and cultivated personal exchanges with researchers, and began carrying out assistance activities as appropriate to the research situation at the counterpart organization. By residing in the host country over a relatively long term, the researchers were able to apply themselves to diverse areas of research, including the launch of new research themes, improvement of research methods, and implementation of lecture presentations and individual guidance, and thereby contributed to developing the capacities of local researchers and enhancing research in their counterpart

organizations. The counterpart organizations have expressed strong appreciation of the program as a prime example of interpersonal cooperation.

On March 18, 2009, the researchers reported on their local activities in a debriefing session held with the participation of members from the Ministry of Economy, Trade and Industry, JCCP member companies, and Japan Petroleum Institute. Based on the experiences gained through the program during the past two years as presented in the debriefing session, JCCP hopes to continue responding to the specific needs of the counterpart organizations by dispatching highly experienced researchers willing to blend in and offer research assistance to local researchers.

<by Kazuhisa Okumura, Technical Cooperation Dept.>



Debriefing session (March 18), at JCCP Headquarters



Progress Report on the “Long-term Researcher Dispatch Program”

1. Background

JCCP launched the Long-term Researcher Dispatch Program in FY2007, as part of its research assistance activities under the International Joint Research Scheme. Through the program, JCCP sends honorary university professors and senior researchers from private companies in Japan, who have made remarkable achievements in their specialized field, to universities and research institutions in major oil-producing countries. The researchers reside in their respective host country long term, and routinely assist in the R&D activities of local researchers, in response to the needs of the counterpart organization. In addition to providing guidance, Japanese researchers who are dispatched to oil-producing countries apply their expertise to improving research methods, identifying new and promising research themes, and otherwise promoting the advancement and vitalization of research activities within their counterpart organizations. By providing research assistance in response to the requests of the



Dr. Hattori in a meeting with the Vice Chancellor of KFUPM, Sept. 2007

counterpart organization, the program is not only expected to strengthen personal exchanges in the R&D field, but also to build and increase the counterpart organizations' trust in Japan.

King Fahd University of Petroleum and Minerals (KFUPM) in Saudi Arabia and Kuwait Institute for Scientific Research (KISR) in Kuwait have been selected as counterpart organizations of the program. Over many years, the two organizations and JCCP have built a solid relationship through the implementation of joint research projects under the

international joint research scheme and technical cooperation programs, and by holding joint symposiums on a regular basis.

2. FY2007 Program

(1) Overview

Following meticulous planning and preparation among the Japanese researchers and their affiliated and counterpart organizations, two researchers have been dispatched to KFUPM and KISR this fiscal year. They have already commenced their research guidance activities at their counterpart organization, and are scheduled to reside in Saudi Arabia and Kuwait, respectively, for a period of three months, from November to February.

Dr. Hideshi Hattori, Professor Emeritus at Hokkaido University, has been asked to work under appointment with KFUPM. Dr. Hattori is a prominent researcher in the field of catalytic research, specializing in the action mechanisms of solid-base catalysts. At KFUPM, he is engaged in joint research on solid-base catalysts with local researchers.



Dr. Hattori inspecting KFUPM's research facilities, Sept. 2007



Dr. Higashi inspecting KISR's research facilities, Sept. 2007

KFUPM's vast campus consists of educational and research facilities, residential facilities, a medical center, and various other faculty and student facilities. Dr. Hattori commutes to his research laboratory from a guest house in the faculty residence area, which is only about a 15-minute walk from the laboratory. Taking advantage of the holiday break in the latter half of December, Dr. Hattori temporarily returned to Japan to celebrate the New Year holiday in Japan, and has left once again to Saudi Arabia to continue his research until the end of February.

Dr. Hidehiro Higashi from Catalysts and Chemicals Ind. Co., Ltd. has been asked to work under appointment with KISR. Dr. Higashi is a leading researcher in the development of oil refining catalysts. In response to a strong request by KISR, he has commenced research guidance activities for improving the assessment performance of a pilot plant. As KISR has no corporate guest house, Dr. Higashi has a long-term accommodation arrangement at a hotel located about 20 minutes by car from the institute, and is daily driven to the institute.

The two researchers began their long-term stay in the Middle East in early November, when the lingering summer heat was still intense. By the middle of December, however, they

had acclimated themselves to their new environment, and had begun providing steady research assistance and guidance to researchers at their counterpart organizations.

At the moment, JCCP's primary goal is the successful completion of the three-month-long program for this fiscal year. Hopefully, this particular experience will be applied to enhancing next fiscal year's program, upon hearing the views of the researchers, and gaining an accurate understanding of the researcher acceptance situation at the counterpart organizations.

(2) Send-off gathering

Prior to the two researchers'

departure in November, JCCP organized a small send-off gathering for them on October 22. The gathering took place in a fraternity house at Tokai University, and was attended by members from Petroleum Refining and Reserve Division at the Ministry of Economy, Trade and Industry, namely Mr. Shuzo Takada, Director, Mr. Takanobu Yasunaga, Deputy Director, and Mr. Tsuyoshi Kamijo, in addition to Messrs. Mikio Kojima, Executive Director, and Katsuo Yokoyama, Managing Director, from JCCP.

The small party began with a brief speech by Mr. Kojima. He stated that this new scheme of cooperation to oil-producing countries has been "made possible by the generous cooperation of the two distinguished researchers," and that he has "strong expectations for its successful completion." To that end, he also promised JCCP's full support in all aspects of their long-term stay in the Middle East. Dr. Hattori expressed his commitment to the effect that he intends to "fully apply himself to research activities" at KFUPM, and has prepared to "respond flexibly to the situation and requests of the counterpart organization." Dr. Higashi also articulated his resolve to direct his best efforts toward the effective application of Japan's world-class hydrogen refining catalyst technology to the counterpart organization. Finally, Mr. Takada



Mr. Kojima (right), Executive Director of JCCP, speaking at a send-off gathering for Drs. Hattori and Higashi



Brief speech by Dr. Higashi (center)



Mr. Takada (left), Director of the Petroleum Refining and Reserve Division, METI, giving his best wishes to the two researchers

delivered words of encouragement to the two researchers. Based on his strong conviction that cultural exchanges are just as important as technical guidance and transfers, he expressed his high expectations of the two researchers' steady activities at their counterpart organizations, and wished them a healthy and fulfilling sojourn. After exchanging words of encouragement and resolve, over lunch the members engaged in animated conversation, mainly on topics about cooperation to oil-producing countries.

(3) Letter from Dr. Hattori

After completing the first half of his appointed period, Dr. Hattori temporarily returned to Japan on December 13 to spend the New Year holiday in Japan (Sapporo, Hokkaido). He has written to JCCP on the occasion of his return, and reported on the status of his research at KFUPM so far, as well as various aspects of his stay in Saudi Arabia, as follows.

<Research status>

Prior to assuming the appointment at KFUPM, I visited the organization in September and spent two days discussing various matters related to the dispatch

program. During that meeting, the KFUPM side asked me to propose a research theme, and I responded by proposing a theme concerning solid-acid catalysts and another theme concerning solid-base catalysts, both of which were related to zirconia catalysts. We ultimately decided on both themes, and agreed on the participation of postgraduate chemical engineering and chemistry students in our experiments.

By the end of the first one and a half months of my stay until the Hajji holiday, we finished preparing 19 types of catalysts and successfully launched a high-pressure reactor. In the latter one and a half months, which will begin after New Year's, reaction experiments will probably comprise the main part of our activities. By all means, I hope to reach a point where we can obtain sufficient basic data to write a paper.

<Personal views on the research and local life>

KFUPM's Center for Refining and Petrochemical Research Institute is slightly different from research laboratories in Japanese universities, perhaps partly owing

to its proven achievements in the development of processes for practical application. When asked which is more important, publishing an academic paper or acquiring a patent, some KFUPM researchers immediately responded in favor of the patent. This mentality, I think, differs from that in Japanese universities, where novelty and originality of invention are valued above all. I hope to somehow convince the local researchers that basic research is also important, particularly in universities.

Officially, our work hours are from 7:30 am to 4:00 pm. The university has offered me the use of an on-campus guest house that is larger than 100 m² in total area. I can obtain food and other daily necessities at a supermarket that is only a stone's throw away, so I basically want for nothing, unless I get the urge to go out into the city. Prices here are reasonable. Although I cannot leave the campus without a car, I am lucky to be in an environment where everyone around me kindly offers his help when needed.

<by Kazuhisa Okumura, Technical Cooperation Dept.>

The 19th Saudi Arabia-Japan Joint Symposium

—Oil Refining and Petrochemical Catalyst Technologies—

The 19th Saudi Arabia-Japan Joint Symposium on “Oil Refining and Petrochemical Catalyst Technologies” was held on November 8 and 9, 2009, under the joint sponsorship of King Fahd University of Petroleum and Minerals (KFUPM) in Saudi Arabia and JCCP. The symposium took place in an auditorium at KFUPM in Dhahran.

With the Japan Petroleum Institute (JPI) undertaking its implementation every year, the symposium has taken root in Saudi Arabia as

an annual event at KFUPM. It enjoys the large attendance and participation of researchers and speakers not only from KFUPM, but other universities in Saudi Arabia and Saudi Aramco’s R&D center as well.

At the planning and preparation stage of the seminar, the Overseas Cooperation Committee established under JPI and headed by Dr. Koichi Eguchi from the Kyoto University Graduate School carefully decides on the seminar theme, speakers, and

Speaker	Affiliation	Presentation Title
Dr. Yasuaki Okamoto	Professor, Shimane University (head of the Japanese group)	Preparation of Highly Active Co-Mo HDS Catalysts by the Addition of Citric Acid as a Chelating Agent
Dr. Toshihide Baba	Professor, Tokyo Institute of Technology	Catalytic Propylene Production from Ethylene Using Zeolite Catalysts
Dr. Wataru Ueda	Professor, University of Hokkaido	New Complex Metal Oxide Catalysts for Chemical and Energy Conversion
Dr. Kotohiro Nomura	Associate Professor, Nara Institute of Science and Technology	New Transition Metal Complex Catalysts for Synthesis of New Polymers by Precise Olefin Polymerization
Mr. Keisuke Nishii	Idemitsu Kosan Co., Ltd.	A Newly Developed & Introduced Process to Remove Bad Smell from Petrochemical Naphtha
Mr. Hideki Ono	Nippon Oil Corporation	Production of BHD (Bio Hydrofined Diesel) with Improved Cold Flow Properties



Symposium venue: KFUPM auditorium (Nov. 8, 2009)



Meeting with Dr. Khaled S. Al-Sultan, Rector of KFUPM (Nov. 7, 2009)

their presentation topics as appropriate to the needs on the Saudi Arabian side, to ensure that an academically meaningful symposium is implemented.

This year's symposium was attended by an audience of approximately 100, and featured more than 20 presentations on the results of studies on oil refining and petrochemical catalyst technologies. They included presentations on desulfurization, catalytic cracking, hydroprocessing, and olefin production technologies, and elicited various

questions and discussions.

On the Japanese side, six researchers participated in the symposium as Japanese speakers chosen by the JPI Overseas Cooperation Committee and presented their latest R&D achievements in their respective fields.

The secretariat of the symposium included Mr. Shigeru Hojo from JPI; K. Nita, General Manager of the JCCP Riyadh Office; and K. Okumura from the JCCP Technical Cooperation Department.

<by Kazuhisa Okumura, Technical Cooperation Dept.>

The 18th Saudi-Japan Joint Symposium

—Oil Refining and Petrochemical Catalyst Technologies—

On November 16 and 17, 2008, JCCP and King Fahd University of Petroleum and Minerals (KFUPM) sponsored a Saudi-Japan Joint Symposium on oil refining and petrochemical catalyst technologies at the KFUPM auditorium in Dhahran, Saudi Arabia. The symposium is held every year under organization by KFUPM and the Japan Petroleum Institute (JPI), and was held for the 18th time this year. It has taken root in Saudi Arabia as an annual event at KFUPM, and attracted the attendance of a large number of researchers not only from KFUPM, but also from Saudi Aramco's research department and others.

Following the preparatory discussion among KFUPM, JPI and JCCP, a twelve-member JPI Overseas Cooperation Committee headed by Dr. Koichi Eguchi from Kyoto University Graduate School actively discussed details of the symposium, including its theme, Japanese speakers, and their presentation topics, to deliver an academically meaningful symposium that suitably corresponds to needs in Saudi Arabia. The committee ultimately decided to feature presentations centering on the results of studies on environmentally friendly catalysts and catalysts that promote the effective production of high value-added products whose demands are expected to increase in the future.

JCCP and KFUPM have previously cooperated in conducting international joint research projects on advanced catalyst research (FY1992–2000) and HS-FCC (high-severity fluid catalytic cracking) technology (FY1996–2004). The last project was completed in FY2004, but the joint symposium, which has been held in parallel with the research projects, was continued as a forum for sharing new research results among researchers in Japan and oil-producing countries and supporting the activities of Saudi researchers.

Seven Japanese researchers participated in this year's symposium, presenting their latest R&D



Dr. Abdul-Jauwad, Vice Rector for Applied Research, delivering an opening address

achievements in their respective fields.

On the Saudi side, Dr. Shakeel Ahmed, a researcher at KFUPM, gave a presentation on a joint study on hydrogen production, which KFUPM is jointly implementing with Saudi Aramco. Titled “Development of Thermoneutral Reforming Catalyst for Hydrogen Production from Liquid Hydrocarbons,” the presentation received high marks from all attendees, including the Japanese attendees. We hope to include increasing numbers of presentations on such conventional yet academically significant research themes in future symposiums, while also responding to trends of the times toward globalization and diversification of topics.

On the first day of the symposium, Dr. Abdul-Jauwad, Vice Rector for Applied Research, delivered an opening address on behalf of Dr. Khaled S. Al-Sultan, Rector of KFUPM, who was suddenly called away on business in Riyadh. This was followed by opening speeches by Dr. Sachio Asaoka, Professor at the University of Kitakyushu and head of the Japanese delegation, and Kazuhisa Okumura from the JCCP Technical Cooperation Department. An audience of approximately 100



Dr. Akinobu Shiga giving a presentation



*Symposium venue:
KFUPM Research Institute auditorium*

people sat in on the opening proceedings, and 60 to 70 people attended the ensuing presentation sessions. Approximately 130 participants were from the KFUPM Research Institute and colleges, Saudi Aramco, King Abdulaziz City for Science and Technology (KACST), and various companies and universities in Saudi Arabia.

An average of five questions were raised after each presentation, and the speakers and participants engaged in lively discussions based on those questions. They also took the opportunity of rest breaks between presentations to continue their discussions and cultivate personal exchanges.

We would like to extend our deepest gratitude to all speakers of the symposium, Dr. Sulaiman Al-Khattaf, Director of KFUPM Center for Refining and Petrochemicals, members of JPI's Overseas Cooperation Committee, and all members of both secretariats, for their support and cooperation. With the continued cooperation of Japanese universities, companies, research institutes, and JPI, we hope to continue working closely with KFUPM to further improve and develop the symposium as a high-level forum for advanced technical needs in Saudi Arabia.

<by Kazuhisa Okumura, Technical Cooperation Dept.>

Japanese Speakers from JPI	Presentation Title
Dr. Sachio Asaoka Professor, University of Kitakyushu	Hydrocracking on Nanoporous Zeolite Catalysts
Dr. Atsushi Satsuma Professor, Nagoya University Graduate School	Synthesis of Bisphenol-A from Phenol and Acetone Using Organic-inorganic Modified Heteropolyacid Catalyst
Dr. Takao Masuda Professor, Hokkaido University Graduate School	Preparation of Mono-dispersed MFI-type Zeolite Nanocrystals in Water-surfactant Oil Solution and their Application to Synthesis of Olefines from Oxygen-containing Compounds
Dr. Toshio Tsutsui Associate Professor, Kagoshima University	Enhancement of Conversion and Selectivity by Unsteady-state Operation in Shape Selective Synthesis of 2,6-Dimethylnaphthalene with ZSM-5
Dr. Akinobu Shiga Lummo Research Laboratory, Japan (formerly Senior Researcher of Sumitomo Chemical Co., Ltd.)	Development of Propylene Polymerization Catalysts and Polypropylene Manufacturing Processes
Mr. Katsuya Watanabe Group Leader, Central Research Laboratory, Cosmo Oil Co., Ltd.	Development of New Isomerization Process for Petrochemical By-products
Mr. Hiroyuki Nakamura Chief Researcher, Refining Technology Center, Japan Energy Corporation	Development of Hydrodesulfurization Catalyst Using Comparative Studies of Model Feed Experiments and Quantum Chemical Studies

The 17th Annual Saudi-Japan Joint Catalyst Symposium



Opening address by H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM



Opening speech by Dr. Eiichi Kikuchi, Chairman of JPI



Dr. Hideshi Hattori, Professor Emeritus at Hokkaido University and guest researcher at KFUPM

On November 11 and 12, 2007, a Saudi-Japan Joint Catalyst Symposium was held at King Fahd University of Petroleum and Minerals (KFUPM) in Dhahran, Saudi Arabia. The symposium, which is jointly hosted every year by KFUPM and the Japan Petroleum Institute (JPI), under commission by JCCP, has taken root in Saudi Arabia as an annual event at KFUPM.

To deliver a symposium that suitably reflects the trends of the times, JPI's Overseas Cooperation Committee, chaired by Dr. Takashi Tatsumi from the Tokyo Institute of Technology, has held highly active discussions with members of KFUPM headed by Dr. Sulaiman S. Al-Khattaf, Director, Center for Refining & Petrochemicals, Research Institute, prior to the symposium, from which the symposium theme and presentation

topics have ultimately been decided.

The 17th such symposium held this year featured presentations by a group of seven researchers from Japan, headed by Dr. Eiichi Kikuchi, Professor at Waseda University and Chairman of JPI. Dr. Hideshi Hattori, Professor Emeritus at Hokkaido University, was also invited to give a presentation. Dr. Hattori currently resides in Saudi Arabia as a guest researcher at KFUPM, under JCCP's long-term researcher exchange program.

The symposium began with an opening address by H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM, followed by opening speeches by Dr. Kikuchi, leader of the Japanese delegation, and Minoru Horike, General Manager of JCCP's Technical Cooperation Department. The technical sessions

began after the speeches.

The Japanese researchers and participants from KFUPM, Saudi Aramco, Saudi Arabia Basic Industries Corporation (SABIC), universities and research institutes in Saudi Arabia, and researchers from Kuwait and the U.S., together delivered 19 presentations in all, mainly on issues related to catalyst technology in the oil refining and petrochemical fields. An audience of approximately 100 people filled the symposium venue. They took an active part in the Q&A sessions, and boosted the symposium's spirit of mutual cooperation. Even lunch and rest breaks between presentations provided an ideal opportunity for personal exchanges among researchers and engineers.

JCCP extends its profound gratitude to all who have supported the implementation of the symposium—especially Dr. Al-Khattaf, Dr. Tatsumi, and Mr. Hideki Konishi, head researcher of the JPI Secretariat, who began preparing and coordinating the event from early on, as well as members of the KFUPM Secretariat and members of JPI's Overseas Cooperation Committee—and would like to ask for their cooperation, again in the future, for the continued development of the symposium.

<by Minoru Horike,
Technical Cooperation Dept.>



Symposium session

The 28th JCCP International Symposium

“Innovation of Technology and Management in Oil Downstream: For Security of Oil Supply”



Panelists and guests of honor

The 28th JCCP International Symposium was held on January 27 and 28, 2010, under the auspices of the Ministry of Economy, Trade and Industry (METI), and with the attendance of approximately 350 visitors.

In this year’s symposium, leading authorities from oil producing and consuming countries were invited to exchange views on management and technology innovation toward advanced utilization of oil.

1. Theme and Goal

The theme of this year’s symposium was “Innovation of Technology and Management in Oil Downstream: For Security of Oil Supply.” Over the medium to long term, the global balance in oil supply and demand is apt to tighten, as a result of the increase in oil consumption particularly in newly emerging economies. Amid this situation, oil producing and consuming countries must share the responsibility of mitigating inordinate increases in oil consumption by promoting advanced utilization of oil without undermining economic growth.

2. Overview

(1) First Day: Opening Ceremony (January 27)

The symposium opened with an address by Mr. Yaichi Kimura, President of JCCP, and a greeting from the guest of honor, Mr. Masaaki Kimura, Director-General of the Natural Resources and Fuel Department, METI. These were followed by keynote speeches by Mr. Nobuo Tanaka, Executive Director, International Energy Agency (IEA), and Mr. Mohammed A. Al-Omair, Executive Director, Refining and NGL Fractionation, Saudi Aramco.



Symposium venue

Mr. Yaichi Kimura, President of JCCP, reiterated the theme of this year's symposium—Innovation of Technology and Management in Oil Downstream: For Security of Oil Supply—and presented a perspective on the issue. He said that we have spent decades developing oil utilization technologies and mechanisms to create today's affluent society, but oil is a limited resource that we must use wisely. The extent to which we can achieve the effective utilization of oil depends on the technical and management capabilities of all of us who work in the oil industry. Mr. Kimura closed his address by emphasizing the importance of technology and management innovation in handing down the precious resource to the next generation.



Mr. Yaichi Kimura, President of JCCP, giving an opening address

Mr. Masaaki Kimura from METI spoke as follows: Oil producing countries and Japan have established friendly relationships over many years as the foundation of oil security. However, as oil demand is expected to increase mainly in emerging countries over the medium to long term, one of the priority issues of the worldwide oil industry lies in how to address such changes in the global energy situation. Therefore, in the face of anticipated



Mr. Masaaki Kimura, Director-General of the Natural Resources and Fuel Department, METI, giving a speech as a guest of honor

changes in the global oil supply-demand environment, the theme of this symposium holds great significance, as it provides an opportunity to explore how technology and management innovation in the oil downstream sector could prevent the wasteful use of oil and promote its effective utilization to the greatest possible extent as an extremely valuable resource. Moreover, since issues in the oil downstream sector are common issues to oil producing and consuming countries alike, forums such as this symposium, in which various parties assemble to discuss a common theme, are certain to contribute largely to building consensus and stabilizing the global oil supply structure. In the end, Mr. Kimura expressed his expectation that the collective wisdom of oil producing and consuming countries will expand the possibilities of the precious and superior resource called “oil,” for the future of our society.

(2) Keynote Speeches

Mr. Nobuo Tanaka from IEA gave a keynote speech as follows: Future increases in demand for oil will come mainly from non-OECD countries, or in other words, from developing countries, and oil demand will continue to grow steadily and eventually outpace the production capacity of worldwide suppliers. Inevitably, spare production capacity will become tighter than it is today. Nevertheless, the situation will not cause a sudden insecurity in oil supply as in past oil crises, but will constrict oil supplies in a gradual manner. Experts call this phenomenon “creeping oil crisis*.” Needless to say, the best way to ensure stable supply of oil while maintaining economic growth is to realize advanced applications of oil, conserve energy, and prevent wasteful oil use.



Mr. Nobuo Tanaka, Executive Director of IEA, giving a keynote speech

* *Creeping oil crisis: an oil crisis that occurs as a result of a gradual constriction of oil supplies over time*



Mr. Mohammed A. Al-Omair, Executive Director of Saudi Aramco, giving a keynote speech

Mr. Mohammed A. Al-Omair from Saudi Aramco also gave a keynote speech, firstly presenting an overview of Saudi Aramco's role in the global oil industry. He said that Saudi Arabia has the world's largest reserve of hydrocarbon resources. In order to assure consumers that oil will continue to be a reliable source of energy, Saudi Aramco has striven to secure stable supplies of oil as a leading oil-producing country. Ensuring oil security requires considerable investment, but Saudi Aramco has established a consistent system for the stable supply of oil, from the oilfields to consuming regions. For example, it has maintained its 12 million b/d oil production capacity through the development of oil resources, acquired the capacity to also supply oil products by strengthening its refining capabilities, and invests in Vela International Marine Limited (Saudi Aramco's wholly owned shipping subsidiary). Mr. Al-Omair also spoke about the importance of human resource development, stating that Saudi Aramco has been able to continue the difficult and challenging business of supplying oil, precisely because it is blessed with "people" who constantly pursue higher levels of technology and management. Based on the belief that "people" are the most precious asset of the company, it has spared no investment in human resource development. Saudi Aramco's success today is the result of this policy. Mr. Al-Omair said that Saudi Aramco will continue to contribute to the global stabilization of oil supplies by directing its efforts to developing human resources and achieving advanced utilization of oil based on innovating technologies and management.

(3) First Day: Special Lectures (January 27)

The latter half of the symposium agenda on the first day featured special lectures by Mr. Mubarak S. Al Ketbi, Manager, Crude & Condensate Division, Marketing & Refining Directorate, Abu Dhabi National Oil Company

(ADNOC); Mr. He Zhoyun, Vice President, Economics & Development Research Institute, SINOPEC; and Mr. Pramod Kumar Karunakaran, Managing Director/CEO, Ethylene Malaysia Sdn. Bhd., PETRONAS.

Mr. Al Ketbi of ADNOC said that UAE is not only focusing on the development of renewable energy systems, but also on the development of nuclear power, and has plans to invest 40 billion dollars in nuclear power development by 2017. With the completion of a second unit at the Ruwais Refinery, clean fuel supplies will also be available. Mr. Al Ketbi stressed that UAE will endeavor to secure stable energy supply by comprehensively developing various types of energy.

Mr. Zhoyun of SINOPEC said that oil consumption is increasing in China, and particularly the consumption of automotive fuels such as gasoline and diesel fuel. The country is therefore directing its efforts to creating social systems that promote efficient utilization of oil. For example, it is focusing on developing alternative energy and technologies such as coal liquefaction, bioethanol, biodiesel, hydrogen energy and electric vehicles, and has also implemented a policy for shifting the mainstream transportation mode from automobiles to railways by developing inter-city high-speed railways and inner-city subway networks.

Mr. Karunakaran of PETRONAS spoke about the important role of the oil industry. He explained that PETRONAS commenced operations related to oil development in 1974, and has increased its corporate value and developed into a company that contributes to society by producing petroleum and petrochemical products from hydrocarbons. Although various difficult issues lie ahead, such as rising oil prices and intensifying international competition, Mr. Karunakaran said the oil industry has a responsibility to continue providing stable supplies of oil.

(4) Second Day: Discussion Sessions (January 28)

(i) Session 1 (morning session) "Management Innovation"

Under the chairmanship of Mr. Takeshi Kurosaki, Executive Corporate Officer in Charge of Petroleum Refining Dept., Japan Energy Corporation, five panelists delivered presentations on management innovation at their company. The panelists included Mr. Masoud Salim Al Msalmy, General Manager, Corporate Support Division, Oman Refineries & Petrochemicals Company (ORPC); Mr. Hashem Y. Al Refaei, Manager, Marketing Research & Administration Division, Marketing

& Refining Directorate, Abu Dhabi National Oil Company (ADNOC); Ms. Nina Nurlina Pramono, Vice President, People Management of Human Resources, PERTAMINA; Mr. A. O. Oniwon, Group Executive Director, Refineries & Petrochemicals, Nigerian National Petroleum Corporation (NNPC); and Mr. Shinji Takasu, General Manager, Refining Technology, Petroleum Refining Dept., Japan Energy Corporation.

In a summary of the panelists' presentations, Mr. Kurosaki noted as follows: In this session, five panelists spoke about management innovation in their respective companies. Each company bears a large social responsibility to ensure stable oil supply, but liberalization and globalization trends have created an environment of intense international competition. Unless the companies embrace technology and management innovation and build a competitive corporate culture, they will not be able to fulfill their responsibility. In all five presentations, "people" were the common key to creating a competitive company. New technologies and management systems may be developed, but they would have no effect if "people" do not change. Therefore, it is important, above all else, for people to interact with each other beyond national and corporate boundaries and to use that experience to mutually acquire the wisdom of "human development."



Session 1 panelists

(ii) *Session 2 (afternoon session) "Technology Innovation"*

Under the chairmanship of Mr. Sei Tange, Executive Vice President and CMO, JGC Corporation, four panelists delivered presentations on technology innovation in their respective companies. The panelists included Mr. Mark G. Lawrence, Head of GTL Product Marketing, Qatar Petroleum Marketing Services (Tasweeq); Mr. Aminallah Eskandari, Managing Director and Chairman of Board of Directors, Hormoz Oil Refining Company (NIORDC);



Session 2 panelists

Mr. Asaad Ahmad Al-Saad, Deputy Chairman & Deputy Managing Director, Mina Al-Ahmadi Refinery, Kuwait National Petroleum Company (KNPC); and Mr. Takashi Yasuda, Executive Officer, Senior General Manager, R&D Division, JGC Corporation.

Mr. Tange summarized the presentations as follows: Today, we listened to presentations on measures for improving the value of hydrocarbons in four countries. A new trend seems to be emerging in both oil producing and consuming countries, to use oil in value-added applications instead of simply burning it as fuel. However, comprehensive capacity to manage diverse technologies is required to continue the trend. Oil producing and consuming countries may have their differences, but they nonetheless share the same objective of seeking more advanced uses of oil and natural gas. We hope to develop new oil energy systems through mutual cooperation.



Q&A session

3. Summary

In the closing ceremony, Mr. Masataka Sase, Executive Director of JCCP, summarized the discussions that took place in this year's symposium, which focused on management and technology innovation for security

of oil supply. In regard to management innovation, he indicated that all panelists identified “human resource development” as the key to innovation and raised strong awareness that no company can survive the trend of globalization unless all ranks of personnel, from top management to site workers, unite their strengths. With respect to technology innovation, Mr. Sase said the panelists gave inspiring presentations on the challenges that are being addressed in their respective countries to produce high-value products from all types of hydrocarbon resources, from methane to heavy oil. However, as each country is working independently to attain a goal that is common to both oil producing and consuming countries, Mr. Sase emphasized the significance of all countries coming together to learn from each other in an exchange of information, and

called on all participants to further strengthen their bonds of mutual cooperation in the future.

In this year’s symposium, the keynote speech delivered by Mr. Nobuo Tanaka, Executive Director of IEA, noted that we must prepare to address a “creeping oil crisis,” which distinctively differs from the oil crises of the 1970s. JCCP has consistently focused on stable oil supply as an overriding theme of our annual international symposiums, and feel that the time has come for oil producing and consuming countries to cooperate in achieving technology and management innovation based on their longstanding relationships of trust. For our part, we will strengthen our commitment to serving as a bridge between oil producing and consuming countries and creating opportunities for mutual cooperation.

<by Hisayoshi Tanda, Administration Dept.>

The 28th JCCP International Symposium Program

“Innovation of Technology and Management in Oil Downstream: For Security of Oil Supply”

Date	Time	Proceedings
Jan. 27 (Wed)	14:00 – 15:45	Opening ceremony
		Opening address: Mr. Yaichi Kimura, President of JCCP
		Guest of honor speech: Mr. Masaaki Kimura, Director-General, Natural Resources and Fuel Department, Agency for Natural Resources and Energy, METI
		Keynote speeches: Mr. Nobuo Tanaka, Executive Director, International Energy Agency (IEA) Mr. Mohammed A. Al-Omair, Executive Director, Refining and NGL Fractionation, Saudi Aramco
	15:45 – 17:30	Special lectures (1) Mr. Mubarak S. Al Ketbi, Manager, Crude & Condensate Division, Marketing & Refining Directorate, Abu Dhabi National Oil Company (ADNOC) (UAE) (2) Mr. He Zhoyun, Vice President, Economics & Development Research Institute, SINOPEC (China) (3) Dr. Pramod Kumar Karunakaran, Managing Director/CEO, Ethylene Malaysia Sdn. Bhd. (PETRONAS) (Malaysia)
	18:00 – 20:00	Reception
Jan. 28 (Thu)	9:30 – 12:00	Session 1 “Management Innovation”
	13:30 – 16:00	Session 2 “Technology Innovation”
	16:00 – 16:10	Closing address: Mr. Masataka Sase, Executive Director of JCCP

Keynote Speeches

Country	Organization	Name	Title
Japan	International Energy Agency (IEA)	Mr. Nobuo Tanaka	Executive Director
Saudi Arabia	Saudi Aramco	Mr. Mohammed A. Al-Omair	Executive Director, Refining and NGL Fractionation

Guest Speeches

Country	Organization	Name	Title
UAE	Abu Dhabi National Oil Company (ADNOC)	Mr. Mubarak S. Al Ketbi	Manager, Crude & Condensate Division, Marketing & Refining Directorate
China	SINOPEC	Mr. He Zhoyun	Vice President, Economics & Development Research Institute
Malaysia	Ethylene Malaysia Sdn. Bhd. (PETRONAS)	Mr. Pramod Kumar Karunakaran	Managing Director/CEO

Session 1: Management Innovation

Chairman: Mr. Takeshi Kurosaki, Executive Corporate Officer in Charge of Petroleum Refining Department, Japan Energy Corporation

Country	Company	Name	Title
Oman	Oman Refineries & Petrochemicals Company (ORPC)	Mr. Masoud Salim Al Msalmy	General Manager, Corporate Support Division
UAE	Abu Dhabi National Oil Company (ADNOC)	Mr. Hashem Y. Al Refaei	Manager, Marketing Research & Administration Division, Marketing & Refining Directorate
Indonesia	PERTAMINA	Ms. Nina Nurlina Pramono	Vice President, People Management of Human Resources
Nigeria	Nigerian National Petroleum Corporation (NNPC)	Mr. A. O. Oniwon	Group Executive Director, Refineries & Petrochemicals
Japan	Japan Energy Corporation	Mr. Shinji Takasu	General Manager, Refining Technology, Petroleum Refining Department

Session 2: Technology Innovation

Chairman: Mr. Sei Tange, Executive Vice President and CMO, JGC Corporation

Country	Company	Name	Title
Qatar	Qatar Petroleum Marketing Services (Tasweeq)	Mr. Mark G. Lawrence	Head of GTL Product Marketing
Iran	Hormoz Oil Refining Company (NIORDC)	Mr. Aminallah Eskandari	Managing Director and Chairman of Board of Directors
Kuwait	Kuwait National Petroleum Company (KNPC)	Mr. Asaad Ahmad Al-Saad	Deputy Chairman & Deputy Managing Director, Mina Al-Ahmadi Refinery
Japan	JGC Corporation	Mr. Takashi Yasuda	Executive Officer, Senior General Manager, R&D Division

Keynote Speech 2

Management of Hydrocarbon Resources

Mr. Mohammed A. Al-Omair
Executive Director, Refining and
NGL Fractionation, Saudi Aramco



1. Relationship between Saudi Arabia and Asia

We at Saudi Aramco highly value our longstanding and mutually beneficial relations with Japan. As a company deeply involved in the Japanese economy as a major supplier, refiner and marketer of petroleum and petroleum products, Saudi Aramco appreciates all that we share from Japan's distinctive approach, not only to economic development, but to human development in the fullest sense. This distinguished and unique center (JCCP) plays an important role in this regard, and in strengthening cooperation and relations in the very important petroleum business.

Today, Saudi Aramco is an investor in the Japanese petroleum sector, and Japan is an investor in the Saudi petroleum sector. Yet it is *not* only in the area of petroleum that our relations with Japan are clear. We enjoy many fruitful exchanges of culture, commerce and technology.

When it comes to energy trade relations, Asia accounts for more than half of our exports of crude oil, refined products and natural gas liquids. Looking ahead, Asia's demand is projected to be met mainly from supplies from Saudi Arabia and the other Gulf states. More broadly, Asia is Saudi Arabia's largest trade partner among continents, with a 45% share of our overall trade.



PetroRabigh Petroleum Refining and Petrochemical Complex
(photo supplied by Saudi Aramco)

At the same time, Saudi Arabia is Asia's principal trading partner in the Middle East. Such a relationship is only natural.

The investment relationship is just as important. Today, our largest refining assets outside of Saudi Arabia are in Asia, with a total equity refining capacity of over 1.3 million barrels per day in Japan, China and South Korea. Japanese companies are also investing in Saudi Arabia. One of the largest refining and petrochemical complexes in Saudi Arabia, PetroRabigh Company, commissioned last year, is a joint venture that we are extremely proud of with Japan's Sumitomo Chemical.

2. Investment in the Oil Upstream Sector

Given our longstanding relationship, Saudi Aramco understands Japan's emphasis on achieving long-term stable supplies of energy. In fact, as a custodian of some of the world's largest hydrocarbon reservoirs, we have a vested interest in the stability and longevity of petroleum as a reliable source of energy. For this reason, Saudi Aramco places top priority and focus on the responsible management of hydrocarbon resources.

The past few years have been critical for the energy markets and their stakeholders. The world has experienced the deepest economic downturn in more than 70 years, and is only just starting to show some positive signs of economic recovery. We hope that the positive economic trends of the past few months are sustainable.

Fueling economic recovery and prosperity requires significant investments all along the oil and gas value chain and in all regions, especially Asia and the Middle East. Saudi Arabia alone has been executing investment plans totaling more than \$100 billion, involving maintaining and increasing oil and gas production capacities, as well as increasing and upgrading refining

and processing facilities, both in and out of Saudi Arabia.

We have recently achieved a crude oil production capacity increase to 12 million barrels per day, which is equivalent to nearly 15% of total global demand. This was achieved by putting on line one of the largest production increments ever, the 1.2 million barrels per day Khurais field complex. This new complex is just one of our recent mega-projects.



*Khurais Oil Field
(photo supplied by Saudi Aramco)*

These new projects are intended to enable us to maintain a strong spare capacity to allow us to react almost immediately in the event of urgent energy demand requirements or supply disruptions. We have constantly demonstrated our capabilities in this regard and today, we are in an even stronger position to do so, thanks to all of our investments, supported by one of the most technologically advanced exploration and drilling teams in the world.

Having achieved our crude oil production increase, we also are working to expand our gas production and processing capacities by 40%, which is mainly to fuel the local needs for electricity generation, desalination plants, petrochemicals and other industries.

3. Investment in the Oil Downstream Sector

Of course, Saudi Aramco's role is much more than oil and gas production. We are also a prominent player in the downstream sector, with seven refineries in Saudi Arabia, and several more across the world, including Japan. We are executing plans to build two new refineries in Saudi Arabia, in partnerships with international oil industry, with a total capacity of 800 thousand barrels per day. We are also upgrading existing refineries with

association to petrochemical complexes.

Our downstream involvement is not only in manufacturing, but also includes a cross-country product distribution network and air fueling responsibilities in Saudi Arabia, as well as a large world-class fleet of marine vessels under the Vela Corporation.

These investments in the upstream and downstream, as well as our international investments in joint venture refineries in Japan, China, South Korea and the United States highlight our overall endeavor towards global market stability, continuity and reliability. Our special commitment to the Asian market is a cornerstone of this endeavor. These investments are also complemented by our strategic commitment to reliability through operational excellence in everything we do.



*Vela Corporation's state-of-the-art tanker (Saiph Star)
(photo supplied by Saudi Aramco)*

4. Initiatives for Stable Oil Supply

On average, Saudi Aramco identifies new proven reserves each year at least equivalent to the amount of crude oil produced, a number that currently exceeds 3 billion barrels per year. We expect to be able to maintain this pattern for several decades, even with projected increases in demand and production.

Sustaining this level of achievement requires constant investment in new and promising technologies. We operate in an environment of smart wells employing nanotechnology for sensing, and of remote geo-steering that can navigate drill bits thousands of meters below the earth's surface from control centers located hundreds of kilometers from the wellhead. Globally, seismic technology and other sophisticated imaging and reservoir modeling technologies have dramatically increased success in finding oil and gas fields and help the industry maximize recovery levels from reservoirs.

5. Training Human Resources for the Future

Central to Saudi Aramco's success as an energy producer is human talent. For all of the wonders of technology, we recognize that all technologies are simply extensions of human ingenuity. We attach the utmost importance to our investment in training and career development for our tens of thousands of employees. Developing our people was, and continues to be, one of the key success factors of our company.

JCCP has been for years a solid provider of learning resources for our employees, and we will be continuing to rely on your own level of excellence in helping us to enhance the training and knowledge of our young and motivated employees well into the future.



*KAUST students
(photo supplied by Saudi Aramco)*

6. Future Energy Supply

Managing the hydrocarbon resources that we are so fortunate to have in our country is not only about producing, manufacturing and distributing; that aspect is required, but is relatively straightforward. At Saudi Aramco, we also place a high and equal value on protecting the environment, health and safety of our employees and surrounding communities.

In this regard, we share Japan's emphasis, and that of the entire world, on achieving ever more efficient uses of energy. The world's leading economies, including Japan, are already more energy efficient than at any time in

history. Today, the world consumes 20% less energy per \$1,000 GDP as it did back in 1990. For our part, Saudi Aramco is partnering with institutions throughout the world to help optimize energy efficiency.

For example, we are partnering with our affiliate here in Japan to develop pilot plants for solar-power electricity generation in Saudi Arabia. If anyone wonders why, it is because Saudi Arabia has not only the world's largest petroleum reserves, but also an abundance of the basic requirements for solar energy power generation. We have plenty of sunshine as well as pure-silica sand to use as raw material for solar panels.

However, while there are worthy aspirations for the development of renewable and alternative sources of energy in the future, sound projections indicate that Japan, like other leading nations, will continue to rely upon petroleum for decades to come. But as realists, we need to keep sight of the fact that renewable energy sources are projected to remain complementary to our energy needs for at least the next two decades.

As a result, for the well-being of the people on this planet who will need continued access to fossil energy, both energy producers and consumers will need to work as partners to make petroleum energy more efficient and friendly to the environment. We have made improving the quality of the transportation fuels to reduce their environmental impact a key focus area. We have been investing heavily in reducing the content of sulfur, benzene and aromatics in transportation fuels with the intent of reducing the company's environmental footprint. We are also investing in research and development efforts in the areas of carbon management, whole crude oil desulfurization, and fuel reformulation.

Finally, our emphasis on safety continues to provide demonstrated results as a world-class leader amongst our peers in the industry. Although we have been recognized many times for our safety performance, we will not be satisfied until we can sustainably achieve our goal of zero incidents.

We recognize that energy enables economic and social progress like no other commodity. As the largest producer with the largest reserves in the world, Saudi Aramco uniquely contributes to energy security for Japan and the entire global market.

Arigato gozai-mashita.

** This transcript has been produced by the JCCP Secretariat based on the speech given at the 28th JCCP International Symposium (January 27, 2010).*

** The responsibility for the wording of this transcript lies with the JCCP Secretariat.*

The 27th JCCP International Symposium

“Future Vision of the Oil Industry: Creating Value from Hydrocarbons and Approaches to New Energy Systems”



Participants of the symposium

On January 28 and 29, 2009, JCCP held “The 27th JCCP International Symposium” under the auspices of the Ministry of Economy, Trade and Industry (METI). The two-day event drew an audience of 372 visitors.

1. Theme and Goal

The theme of this year’s symposium was “Future Vision of the Oil Industry: Creating Value from Hydrocarbons and Approaches to New Energy Systems.”



*Opening address:
Mr. Yaichi Kimura, President of JCCP*



*Guest of honor speech:
Mr. Shinsuke Kitagawa, Director-General,
Natural Resources and Fuel Department, METI*

Oil consumption is increasing in newly emerging economies, and is adding new strains on the global oil market. Oil-producing and oil-consuming countries must therefore cooperate in addressing the common issue of mitigating the increase in oil consumption, by seeking even more advanced utilization of oil through promotion of energy conservation, introduction of renewable energies, and petrochemical integration.

In this year's symposium, leading engineers from Middle East and Asian oil-producing countries, as well as from Japanese oil companies, were invited to share the initiatives for effective oil utilization that are implemented in their respective countries. By providing a forum for mutual sharing of experience, the symposium aimed to create a common awareness that such personal exchange of information is vital to the efficient introduction of relevant technologies.

2. Overview

(1) First Day: Opening Ceremony (January 28)

The symposium began with an opening address by Mr. Yaichi Kimura, President of JCCP. This was followed by a greeting from the guest of honor, Mr. Shinsuke Kitagawa, Director-General of the Natural Resources and Fuel Department, METI, and a keynote speech by Mr. Nasser D. Al Mahasher, General Manager, Saudi Petroleum, Ltd.

Mr. Kimura stressed the need to appreciate more seriously than ever the true value of oil today, and spoke about the important responsibility of the oil downstream sector in oil-producing and oil-consuming countries. Based on the understanding that the oil refining industry plays an important role in converting oil into petroleum and petrochemical products, Mr. Kimura pointed out that the extent to which we can achieve effective utilization of oil depends on how much we are able to develop advanced oil refining technologies. Therefore, in this respect, we need to renew our awareness that we bear an important responsibility to the next generation.

Mr. Kitagawa of METI stated that creating new values in the oil industry is a common issue to



*Keynote speech:
Mr. Nasser D. Al Mahasher, General Manager,
Saudi Petroleum, Ltd.*

oil-producing and oil-consuming countries, and expressed his expectations that fruitful exchanges of views will take place in the symposium.

Mr. Al Mahasher, in his keynote speech, spoke about increasing the value of oil, summarized as follows: Saudi Aramco has the responsibility to provide stable supplies of oil to the world. We have a continuous production capacity of 12 million b/d in the upstream sector. In the downstream sector, we are developing integrated petrochemical refineries, including the PetroRabigh joint venture with Sumitomo Chemical, to increase the value of oil. Oil still exists in relative abundance today, but the precious resource will eventually run dry. Therefore, Saudi Aramco will continue to make every effort to maximize the value of our precious oil resource. Today, we are seeing less implementation of major projects due to the recent global downturn, but Saudi Aramco is looking beyond this short-term trend. We must not lose sight of long-term oil-related needs and opportunities. Companies that are able to keep a steady eye on the future are sure to enjoy even greater success when the global economy recovers.

Mr. Al Mahasher also used the Japanese expression "*a-un no kokyu*," which roughly translates into "being in sync with each other without using gestures or words," and called on everyone to endure together and successfully emerge from the current difficulties to a bright future in the spirit of "*a-un no kokyu*."

The 27th JCCP International Symposium Program
 “Future Vision of the Oil Industry:
 Creating Value from hydrocarbons and Approaches to New Energy Systems”

Date	Time	Proceedings
Jan. 28 (Wed)	14:00 – 15:00	Opening ceremony
		Opening address: Mr. Yaichi Kimura, President of JCCP
		Guest of honor speech: Mr. Shinsuke Kitagawa, Director-General of the Natural Resources and Fuel Department, Agency for Natural Resources and Energy, METI
		Keynote: Mr. Nasser D. Al Mahasher, General Manager, Saudi Petroleum, Ltd.
	15:15 – 17:40	Guest speech
		(1) Mr. Vikram M. Sampat, Vice President, Petroleum Business, Reliance Industries Limited (India)
		(2) Mr. Seiji Takeuchi, General Manager, Planning and Coordination Office, Rabigh Project, Sumitomo Chemical Co., Ltd. (Japan)
		(3) Dr. Fereidun Fesharaki, Chairman, FACTS Global Energy (United States)
		(4) Mr. Abubakr Amer Al-Saiari, Liaison Coordinator, Human Resources, Qatar Petroleum (Qatar)
	18:00 – 20:00	Reception
Jan. 29 (Thu)	9:30 – 12:00	Session 1 “Challenge of the Petroleum Industry to Seek Maximum Value from Hydrocarbons—Towards the Best Mix of Future Energy Systems—”
	13:30 – 16:00	Session 2 “Challenge of the Petroleum Industry to Seek Maximum Value from Hydrocarbons—Towards Consumer-Producer Cooperation—”
	16:00 – 16:10	Closing address: Mr. Masataka Sase, Executive Director of JCCP

Keynote Speech

Country	Organization	Name	Title
Saudi Arabia	Saudi Petroleum, Ltd.	Mr. Nasser D. Al Mahasher	General Manager

Guest Speeches

Country	Organization	Name	Title
India	Reliance Industries Limited	Mr. Vikram M. Sampat	Vice President
Japan	Sumitomo Chemical Co., Ltd.	Mr. Seiji Takeuchi	General Manager, Planning and Coordination Office, Rabigh Project
USA	FACTS Global Energy	Dr. Fereidun Fesharaki	Chairman
Qatar	Qatar Petroleum	Mr. Abubakr Amer Al-Saiari	Liaison Coordinator, Human Resources

(2) First Day: Special Lectures (January 28)

Following Mr. Al Mahasher's keynote speech, guest speakers Mr. Vikram M. Sampat, Vice President, Petroleum Business, Reliance Industries Limited; Mr. Seiji Takeuchi, General Manager, Planning and Coordination Office, Rabigh Project, Sumitomo Chemical Co., Ltd.; Dr. Fereidun Fesharaki, Chairman, FACTS Global Energy; and Mr. Abubakr Amer Al-Saiari, Liaison Coordinator, Human Resources, Qatar Petroleum, gave special lectures.

Mr. Sampat stated that maintaining competitive strength is extremely difficult to do in the turmoil of today's global economy, and emphasized the importance of enhancing technological capabilities and strengthening business management technologies. Mr. Takeuchi spoke about PetroRabigh, and defined it as a major project that offers three benefits: large-scale equipment, advanced technologies, and inexpensive feedstock, and that aims to contribute to promoting industries and creating employment in Saudi Arabia as a worldwide leader in the chemical industry. Dr. Fesharaki estimated the fair prices of crude oil, and gave note that investments need to be made extremely carefully, especially since so many countries are pushing forward with projects for the construction of refineries and cracking units, that by 2010 or so the global market may become saturated with excessive supplies of oil products. Lastly, Mr. Al-Saiari articulated the importance of human resource development, emphasizing the need to systematically develop outstanding personnel, as they are the key to the success of large-scale projects.



Session 1 panelists: Representing Japan, Kuwait, UAE, and Qatar (from the left)

(3) Second Day: Discussion Sessions (January 29)

(i) Session 1 (morning session)

Mr. Keizoh Takeuchi, Director and Senior Vice President, Nippon Petroleum Refining Co., Ltd., chaired Session 1. The panelists included Mr. Howard Bevan, Senior Business Planner, Corporate Planning Department, Qatar Petroleum; Dr. Jihad M. Mohaidat, Technology Department Manager, Industries Unit, MASDAR-Abu Dhabi Future Energy Company; Mr. Ahmad S. Al-Jemaz, Deputy Managing Director, Shuaiba Refinery, Kuwait National Petroleum Company; and Mr. Hiroji Adachi, Executive Officer and General Manager, Technical Service Department, Nippon Oil Corporation.

After the panelists delivered their presentations, Mr. Takeuchi summarized Session 1 discussions as follows: Oil-producing and oil-consuming countries are both actively implementing initiatives for the effective utilization of oil resources. However, in order to bring success to such large projects, a framework of worldwide cooperation based on a global perspective is essential. In this respect, JCCP serves an important role: to more strongly than ever promote training, technical cooperation, and human resource development.

(ii) Session 2 (afternoon session)

Mr. Junjiro Kuramochi, Director and General Manager, Manufacturing Department, Idemitsu Kosan Co., Ltd., chaired Session 2. The panelists included Mr. Seyed Morteza Elahi, Director of Planning and Projects Control, Pars Oil and Gas Company;



Session 2 panelists: Representing Japan, Saudi Arabia, UAE, China, and Iran (from the left)

Mr. Chaohui Huang, Section Chief, Comprehensive Plan Department, SINOPEC Zhenhai Refining & Chemical Company; Mr. Ahmed Omar Abdulla, Assistant General Manager, Operations, Abu Dhabi Oil Refining Company (TAKREER); Mr. Hussain A. Al-Qahtani, Director, Joint Manufacturing Program, Ras Tanura Integrated Petrochemical Project, Saudi Aramco; and Mr. Katsumi Teraoka, Executive Chief Engineer, Manufacturing Department, Idemitsu Kosan Co., Ltd.

After the panelists delivered their presentations, Mr. Kuramochi summarized Session 2 discussions, and concluded as follows: When considering the finite nature of natural resources, it is imperative that oil-producing and oil-consuming countries mutually pursue the noble use of oil, by promoting oil and petrochemical integration, increasing the value of oil, and saving energy.

Session 1: Challenge of the Petroleum Industry to Seek Maximum Value from Hydrocarbons
—Towards the Best Mix of Future Energy Systems—

Chairman: Mr. Keizoh Takeuchi, Director, Senior Vice President, Nippon Petroleum Refining Co., Ltd.

Country	Company	Name	Title
Qatar	Qatar Petroleum	Mr. Howard Bevan	Senior Business Planner, Corporate Planning Department
UAE	MASDAR – Abu Dhabi Future Energy Company	Dr. Jihad M. Mohaidat	Manager, Technology Department, Industries Unit
Kuwait	Shuaiba Refinery, Kuwait National Petroleum Company	Mr. Ahmad S. Al-Jemaz	Deputy Managing Director
Japan	Nippon Oil Corporation	Mr. Hiroji Adachi	Executive Officer and General Manager, Technical Service Department

Session 2: Challenge of the Petroleum Industry to Seek Maximum Value from Hydrocarbons
—Towards Consumer-Producer Cooperation—

Chairman: Mr. Junjiro Kuramochi, Director and General Manager, Manufacturing Department, Idemitsu Kosan Co., Ltd.

Country	Company	Name	Title
Iran	Pars Oil and Gas Company	Mr. Seyed Morteza Elahi	Director, Planning and Projects Control
China	SINOPEC Zhenhai Refining & Chemical Company	Mr. Chaohui Huang	Section Chief, Comprehensive Plan Department
UAE	Abu Dhabi Oil Refining Company (TAKREER)	Mr. Ahmed Omar Abdulla	Assistant General Manager
Saudi Arabia	Saudi Aramco Ras Tanura Refinery	Mr. Hussain A. Al-Qahtani	Director, Joint Manufacturing Program, Integrated Petrochemical Project
Japan	Idemitsu Kosan Co., Ltd.	Mr. Katsumi Teraoka	Executive Chief Engineer, Manufacturing Department



*Summary speech:
Mr. Masataka Sase, Executive Director of JCCP*



Symposium audience

3. Summary

In closing the symposium, Mr. Sase summarized the two days of discussions as follows: In the Middle East and Asia, there are many plans for the construction of new refineries. Through advanced integration, these refineries are designed under the principle of pursuing added value to the extreme. This situation has made me realize anew that adding value is a common issue for both oil-producing and oil-consuming countries. From the corporate perspective, pursuing added value translates into higher productivity, and from the social perspective, it means achieving efficient use of petroleum, reducing environmental burden, and conserving precious oil resources. Therefore, enhancing the value of oil is an important challenge for both oil-producing and oil-consuming countries, one which must be addressed through mutual cooperation.

Mr. Sase then closed the symposium by articulating JCCP's commitment to promote personnel and technical exchange between oil-producing and oil-consuming countries and contribute to creating new values of oil.

This year's symposium was held amidst the worldwide financial crisis that began last September. However, country representatives agreed that "although projects may see a slight delay due to the temporary fluctuation in the economy, it is important to look ahead to achieve advanced utilization of oil in the long term," and voiced their expectations of Japan's cooperation in developing human resources and corporate culture as a means for bringing those projects to success. To respond to these expectations, JCCP will continue promoting training and technical cooperation programs in the future.

<by Hisayoshi Tanda, Administration Dept.>

The 27th JCCP International Symposium Keynote and Special Speech Summaries

“The 27th JCCP International Symposium” was held on January 28 and 29, 2009 under the theme, “Future Vision of the Oil Industry.” For your reference, we have provided below the summaries of the keynote speech and three special speeches that were delivered at the symposium.

Mr. Nasser D. Al Mahasher from Saudi Arabia described Saudi Arabia’s three major areas of responsibilities as the following: (1) the provision of a reliable and stable supply of petroleum to global markets; (2) contribution to the economic development and diversification of the Saudi economy; and (3) operation based on commercial considerations and profitability. Mr. Vikram M. Sampat from India stated that we need the following four factors in order to increase competitiveness: (1) business excellence regarding feedstock and products; (2) supply chain flexibility; (3) technology innovation; and (4) environmental preservation. Dr. Fereidun Fesharaki from the United States cautioned that the refining industry needs to be very careful in making future decisions, because the upswing on the refining side may be “slow in coming.” Mr. Abubakr Amer Al-Saiari from Qatar explained that Qatar will continue to work with its partners in the educational field and other fields to further promote Qatarization and develop human resources in the energy sector.

Keynote Speech

“Hydrocarbon Development in Saudi Arabia: Maximizing Value, Maximizing Benefits”

**Mr. Nasser D. Al Mahasher
General Manager, Saudi Petroleum, Ltd.**

At Saudi Aramco, the notion of a “tripod” encapsulates the company’s three major areas of responsibilities. These are: first, the provision of a reliable and stable supply of petroleum to global markets; second, contributions to the economic development and diversification of the Saudi economy; and third, operation based on commercial considerations and profitability.

The understanding that we must strive to simultaneously fulfill each of these objectives means not only striking a balance between meeting domestic energy needs and supplying

global markets, for example, but also seeking out opportunities which contribute to all three goals.

In the upstream sector, we will achieve a massive 1.2 million barrel per day production capacity addition later this year. This includes some 1.5 million barrels a day of spare capacity.

Further downstream, the company is engaged in a series of refinery expansions and the development of grassroots refining facilities, in conjunction with partners both at home in the Kingdom and abroad. In addition to the PetroRabigh joint venture with Sumitomo Chemical, we are also

applying the integrated refining-petrochemical model in China's Fujian Province, in conjunction with SINOPEC and ExxonMobil. At Ras Tanura Refinery, we are working with Dow Chemical on the Ras Tanura Integrated Project for construction of a large petrochemical complex. While these integrated facilities help us increase profitability and diversify the product portfolio in the Kingdom, the projects also provide additional benefits to the local economy. These include new job opportunities for local investors and a hub for the growth of domestic industrial clusters.

While the current global economic downturn has impacted the short-term commercial outlook for some of these projects, these initiatives were designed with a long-term vision. We are well aware that these facilities will have to be profitable over the next several decades, not just over the next year or two, and we believe the fundamentals of these various downstream projects remain strong.

Of course, the ability to see these projects through hinges upon the abilities, skills and dedication of individuals and teams hard at work in all parts of the business. That in turn requires proactive human resources development efforts and a slate of educational programs. Our human resource efforts also include developing a corporate culture that encourages self-development by employees, a commitment to lifelong learning, and an innovative approach to business and operational challenges. The emphasis on people and their development will continue, and the company will continue to invest significantly in the men and women who call themselves "Aramcons."

To tackle all of the challenges and opportunities we face, we are working with a wide range of businesses and institutions related to energy, such as other oil companies; specialized oilfield service firms; leading petrochemical corporations; engineering, procurement and construction contractors; advanced research laboratories; and universities and educational institutions. I take an enormous degree of satisfaction from the fact that so many of those business partners and related institutions are based here in Japan.

Petroleum is a plentiful but an ultimately depleting



*Mr. Nasser D. Al Mahasher
General Manager, Saudi Petroleum, Ltd.*

resource, and at Saudi Aramco we are working hard to maximize the value of the Kingdom's precious hydrocarbons to fulfill our obligations in each area of our strategic tripod.

Today, we are witnessing what many analysts are terming the most serious worldwide economic downturn in generations. Major developed economies are in the midst of a recession, growth has flagged in the developing nations, and some of the world's best-known financial, industrial and commercial enterprises have been laid low. The current crisis is certainly remarkable not only for its severity but also for its widespread scope. Those of us working in the petroleum industry have seen the effects of the slowdown firsthand, with sagging demand and crude oil prices which are roughly a third of the levels we saw last summer. Moreover, funding for major projects has become scarcer due to lower revenues and tighter credit markets.

However, at Saudi Aramco we believe it is imperative to look beyond the short-term volatility in both the global economy and the oil markets, and we understand that the long range prospects for energy in general remain robust. The world's population will continue to grow, and as standards of living in the developing world continue to rise, so will demand for energy in general, and in particular for petroleum.

While short-term cost containment and reexamination of activities and projects is certainly

in order given the current economic crisis, we must not lose sight of the long-term needs and opportunities for petroleum. That is why intelligent, targeted, and selective investments all along the petroleum value chain are so essential, and why the decisions that will be made across our industry in the next year or two will be so critical.

On the upside, crises always bring opportunities. Forward looking companies will be able to position themselves for even greater success once the global economy recovers, if they continue to look at the big picture and the next decade or two, rather than focusing on just the next quarter or two. On the downside, there is a risk that underinvestment in vital infrastructure today will result in supply shortfalls and tight petroleum and refining markets

tomorrow, once demand recovers, as it inevitably will.

When I look to the long-term trends for energy and petroleum, I remain bullish on the prospects for the global oil industry, and feel privileged to continue playing the liaison role between Saudi Aramco and the hydrocarbon industries in Japan as well as in this part of the world.

My message to you this year is *A-un no Kokyu*. *A-un no Kokyu* means that people are on the same wavelength when they are doing something together, a relationship people can communicate without gestures or words, anticipating each other's movement. Ladies and gentlemen, let us endure together and overcome the current difficulties for our bright future through the spirit of *A-un no Kokyu*!



Participants of the symposium

The 26th JCCP International Symposium

“The Role of the Oil Downstream Sector from the Perspective of Stable Energy Supply”

On February 6 and 7, 2008, “The 26th JCCP International Symposium” was held under the auspices of the Ministry of Economy, Trade and Industry. As the symposium took place just as the crude oil price had exceeded 100 dollars per barrel, it attracted greater attention than ever before, and drew an audience of close to 300 participants.

Symposium Theme

This year’s symposium was conducted under the theme, “The Role of the Oil Downstream Sector from the Perspective of Stable Energy Supply—The Necessity and Possibilities of International Collaboration.”

Today, the issue of securing a stable oil supply is a worldwide concern. The objective of the symposium was to therefore seek avenues for

securing a stable supply of oil, through discussions among guests and panelists from Japan and abroad, on issues and countermeasures commonly faced in the oil downstream sector. JCCP hoped to promote the awareness that “it is important for oil-producing and oil-consuming countries to step beyond their roles, to cooperate in resolving issues in the oil industry, while sharing their experience with each other,” and that “promoting cooperation and deepening the engagement between oil-producing and oil-consuming countries is the key to securing a stable energy supply.”

Symposium Overview

(1) Opening Ceremony (February 6, 2008)

On the first day, the symposium began with an opening address by Mr.

Akira Idemitsu, President of JCCP, followed by a greeting by the guest of honor, Mr. Shinsuke Kitagawa, Director-General of the Natural Resources and Fuel Department, Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry (METI), and an introduction of the chairmen and panelists of Sessions 1 and 2 by Mr. Mikio Kojima, Executive Director of JCCP. Following this, Mr. Idemitsu gave a keynote speech.

In his greeting, Mr. Kitagawa first welcomed all the guests from abroad who had come to Japan to participate in the symposium. He then spoke about the significance of the close relationships that oil-producing countries and Japan’s oil downstream sector have built over the years. Today, the crude oil market is undergoing a great change in response to increasing global demands for oil, but



*Guest of honor speech
Mr. Shinsuke Kitagawa, Director-General
Natural Resources and Fuel Department
Agency for Natural Resources and Energy, METI*



*Keynote speech
Mr. Akira Idemitsu, President of JCCP*

Japan nonetheless continues to receive a stable supply of crude oil, owing precisely to the strong relationship of trust it has cultivated with oil-producing countries. Representing METI, Mr. Kitagawa also expressed his hopes that JCCP will continue to implement activities that respond to the needs of oil-producing countries, and that the mutually beneficial relationships between JCCP and those countries will continue to grow even stronger.

Mr. Idemitsu, in his keynote speech, stressed the importance of oil and the necessity of ensuring its sustainable supply. He explained that oil is indispensable to automobile, airplanes, and other modern means of transportation, as well as an important petrochemical raw material, from which various types of plastics and chemicals are made. It is a precious resource that must not be depleted by

our generation. Mr. Idemitsu emphasized that it is our responsibility to the next generation, to reconsider the role of the oil downstream sector and ensure a stable oil supply for the future.

**(2) Special Lectures
(February 6, 2008)**

Following Mr. Idemitsu's keynote speech, Dr. Ken Koyama, Board Member of The Institute of Energy Economics, Japan, and Mr. Waleed H. Al-Bedaiwi, General Manager, Saudi Petroleum, Ltd., were asked to give a special lecture as guest speakers.

After briefly summarizing today's global energy situation, Dr. Koyama discussed the evolving relationship between the Middle East and Asia. He stated that the Middle East and Asia are gradually forming an inseparable relationship, in which they mutually

depend upon each other. This is because the two regions are the growth centers of the world. Asia's growth could provide an enormous oil market to the Middle East, and growth in the Middle East would allow Asia to import a large supply of oil. In the future, investments are expected to increase in both directions, from the Middle East to Asia, and vice versa, and bring the two regions closer to each other.

Mr. Al-Bedaiwi spoke about the significant relationship between oil-producing and oil-consuming countries, likening the relationship to "the two sides of a coin," which are inseparable from the other. He closed his lecture, by articulating Saudi Aramco's strong vow to join hands with its partners in the oil downstream sector, to uphold its responsibility of providing a stable supply of oil.



*Special lecture
Dr. Ken Koyama, Board Member
The Institute of Energy Economics, Japan*



*Special lecture
Mr. Waleed H. Al-Bedaiwi, General Manager
Saudi Petroleum, Ltd.*

(3) Discussion Sessions

(February 7, 2008)

The second day of the symposium featured Session 1 discussions in the morning and Session 2 discussions in the afternoon. They arrived at the following conclusions.

1) Session 1

Theme: Management Issues in the Oil Downstream Sector for Contributing to Globally Stable Supply of Energy

The chairman of Session 1, Mr. Isao Kusakabe, Executive Officer

& General Manager, International Ventures Department, Cosmo Oil Co., Ltd., summarized Session 1 discussions as follows: "Many countries today are experiencing rapid economic growth, a situation that will make the world ever more oil-dependent in the future. At

26th JCCP International Symposium Program

The Role of the Oil Downstream Sector from the Perspective of Stable Energy Supply

Date	Time	Proceedings
Feb. 6 (Wed)	2:00 – 3:00 pm	Opening ceremony <ul style="list-style-type: none">Opening address: Mr. Akira Idemitsu, President of JCCPGuest of honor speech: Mr. Shinsuke Kitagawa, Director-General, Natural Resources and Fuel Department, Agency for Natural Resources and Energy, METIIntroduction of session chairmen and panelists: Mr. Mikio Kojima, Executive Director of JCCPKeynote speech: Mr. Akira Idemitsu, President of JCCP
	3:15 – 5:40 pm	Special lectures <ul style="list-style-type: none">Dr. Ken Koyama Board Member, The Institute of Energy Economics, JapanMr. Waleed H. Al-Bedaiwi General Manager, Saudi Petroleum, Ltd.Mr. Sultan Al-Mehairi Director, Marketing & Refining, Abu Dhabi National Oil Co. (ADNOC)
	6:00 – 8:00 pm	Reception
Feb. 7 (Thu)	9:30 am - 12:00 pm	Session I "Management Issues in the Oil Downstream Sector for Contributing to Globally Stable Supply of Energy"
	12:00 – 1:30 pm	Lunch break
	1:30 – 4:00 pm	Session II "Technological Issues in the Oil Downstream Sector for Contributing to Globally Stable Supply of Energy"
	4:00 – 4:10 pm	Closing greeting: Mr. Mikio Kojima, Executive Director of JCCP

Special Lectures

Country	Organization	Name	Title
Japan	The Institute of Energy Economics, Japan	Dr. Ken Koyama	Board Member Director, Strategy and Industry Research Unit
Saudi Arabia	Saudi Petroleum, Ltd.	Mr. Waleed H. Al-Bedaiwi	General Manager
UAE	Abu Dhabi National Oil Co. (ADNOC)	Mr. Sultan Al-Mehairi (on behalf of Mr. Hashem Y. Al-Refaei, Marketing Research & Administration Manager)	Director, Marketing & Refining



Session 1 panelists
(From the right: Indonesia, Oman, Qatar, UAE, Japan)

Session 2 panelists
(From the right: Iran, Kuwait, Nigeria, Saudi Arabia, Japan)



the same time, however, we are facing a number of serious issues, such as drastic increases in crude oil prices, environmental issues that call for stringent regulations, growing demands for petroleum products, and the need to seek measures for securing a stable oil supply. Given this situation, urgent attention must be directed to expanding and upgrading refinery facilities and developing human resources. As Japan and oil-producing countries share the same oil downstream issues, we must harness our efforts to secure a globally stable supply of oil. Relationships of trust that are born from such collaboration would also provide greater 'energy security.'"

2) Session 2

Theme: Technological Issues in the Oil Downstream Sector for Contributing to Globally Stable Supply of Energy

The chairman of Session 2, Mr. Keiichi Matsumoto, Director & Senior Executive Officer of Toyo Engineering Corporation, identified the following three technical issues from among various issues confronting the oil

downstream sector in each country, as common issues that have a particularly large impact on a globally stable supply of energy.

The first issue is the growing demand for gasoline and diesel oil, and measures for satisfying that demand, such as increasing heavy oil cracking capacity and adopting deep desulfurization technologies. In every country, demands for transportation fuel, such as gasoline and diesel oil, are increasing, while demands for heavy oil are decreasing. For this reason, there is an urgent need to construct and expand the capacities of facilities that crack heavy oil and convert it to gasoline and diesel oil. Desulfurization technologies are also sought, to produce petroleum products that comply with environmental standards that are becoming more and more stringent the world over.

The second issue is the decrease in heavy oil demand and the increase of value-added petroleum products. As a countermeasure to the decreasing demand for heavy oil, heavy oil should either be converted to light oil, by introducing a cracking unit, or to higher value-added products, such as by introducing a residual oil direct desulfurization unit, solvent dewaxing unit, or IGCC, to produce thermal power, steam energy, electric power, or synthetic gas.

The third issue is safety and environmental measures. Ensuring safety requires the proper maintenance management of facilities, utilization of appropriate tools, and awareness-raising of employees. Environmental measures should not only focus on preventing air and water pollution, but must also pay due consideration to other issues, such as the reduction of industrial waste.

(4) Summary

Lastly, Mr. Kojima summarized the two days of discussions and posed a thought for everyone to consider. He stated that the oil downstream sector

must fulfill an important role in securing a globally stable supply of energy. “Therefore,” he asked, “shouldn’t the players in the downstream sector mutually cooperate and make active

efforts to serve as a bridge between oil-producing and oil-consuming countries?” The symposium came to an end on this thought-provoking note.

*<by Hisayoshi Tada,
Administration Dept.>*

Session I: Management Issues in the Oil Downstream Sector for Contributing to Globally Stable Supply of Energy
Chairman: Mr. Isao Kusakabe, Executive Officer & General Manager, International Ventures Department, Cosmo Oil Co., Ltd.

Country	Company	Name	Title
Indonesia	PT PERTAMINA	Mr. Gigih Prakoso	Manager, Corporate Business Planning and Development
Qatar	Qatar Petroleum	Dr. Ali Hamed Al-Mulla	Manager, Corporate Environment and Sustainable Development
Oman	Oman Refinery Company L.L.C.	Mr. Said Waleed Q. Al-Zadjali	Manager, Procurement, Contracts & Inventory
UAE	Abu Dhabi Oil Refining Co. (TAKREER)	Mr. Sultan Saeed Al-Muhairi	Abu Dhabi Refinery Division Manager
Japan	Cosmo Oil Co., Ltd.	Mr. Hirohiko Kato	General Manager, International Business Dept.

Session II: Technological Issues in the Oil Downstream Sector for Contributing to Globally Stable Supply of Energy
Chairman: Mr. Keiichi Matsumoto, Director, Senior Executive Officer, General Manager, Plant Engineering Center, Toyo Engineering Corporation

Country	Company	Name	Title
Iran	National Iranian Oil Refining and Distribution Company (NIORDC)	Mr. Amin Allah Eskandari	Director, Refining Affairs
Kuwait	Kuwait National Petroleum Co.	Mr. Mohammed Ghazi Al-Mutairi	Deputy Managing Director, Mina Abdulla Refinery
Nigeria	Nigerian National Petroleum Corporation	Engr. Onochi A. Anyaoku	Group Executive Director, Refining and Petrochemicals Directorate
Saudi Arabia	Saudi Aramco	Mr. Ali Alhazmi	Superintendent, Riyadh Refinery Operation Division
Japan	Toyo Engineering Corporation	Mr. Tomomichi Tomita	General Manager, Process Systems Engineering Division



Scene of the Symposium



*Closing address
Mr. Mikio Kojima, Executive Director of JCCP*

“The 26th JCCP International Symposium”

<Speech Summaries and Closing Address>

“The 26th JCCP International Symposium” was held on February 6 and 7, 2008 (see JCCP NEWS No. 100, pp. 3-7 for a general report of the event).

Summaries of the keynote speech by Mr. Akira Idemitsu, then-President of JCCP, the guest speech by Mr. Waleed H. Albedaiwi, General Manager, Saudi Petroleum Ltd., and the closing address by Mr. Mikio Kojima, then-Executive Director of JCCP, are provided below.

Mr. Idemitsu gave a strong message that “we have an important responsibility to the next generation, to reconsider the role of the oil downstream sector in ensuring a steady and stable supply of oil for many years to come.” Mr. Albedaiwi likened the relationship between oil-producing and oil-consuming countries to “the two sides of the same coin,” and emphasized that “just as it is impossible to split the obverse side of a coin from the reverse, there is no way to decouple oil-producing countries from oil-consuming countries.” Mr. Kojima shared his conviction that “oil downstream sectors in both oil-producing and oil-consuming countries stand on common ground, and are in a position to serve as a bridge of cooperation between the two.”

<Guest Speech>

“Toward Closer Collaboration Between Oil Suppliers and Consumers: Two Sides of the Same Coin”

**Mr. Waleed H. Albedaiwi
General Manager, Saudi Petroleum, Ltd.**

1. Current State of the Oil Downstream Sector

At Saudi Aramco, we believe that some of the most serious challenges facing the petroleum industry have less to do with subsurface issues than with above-ground considerations. Subsurface issues are those relating to the upstream sector, while above-ground issues are those relating to downstream issues.

Worldwide, demand for oil remains strong, and consumption is increasing. As a result, global oil transportation networks are facing increasing stresses and strains.



The world’s refining capacity is stretched to its limit. Crude oil supplies are growing heavier and

increasingly sour, though demand for products is becoming lighter and whiter. To meet this demand, substantial investment is required to upgrade refineries, which leads to even higher prices for consumers.

We are also seeing substantial increases in the prices of raw materials, and a shortage of experienced engineers. These twin dynamics are driving up investment costs. New investments are becoming riskier, and investment decisions even more difficult.

The complex interaction of these various trends is fueling oil price volatility. Certainly, today's prices cannot be explained by the supply-demand fundamentals. Supplies are secure, and global inventory levels are adequate, but crude oil prices are seen hovering around the USD90 per barrel level. To make sense of that fact, we must consider the role that speculation plays in today's oil markets. A considerable influx of money is pouring into the global oil trade.

2. Search for a New "Producer-Consumer Relationship"

From a supplier's perspective, it might be easy to write off downstream issues as someone else's problem. However, we at Saudi Aramco believe that downstream issues are of concern not only to oil-consuming countries, but also us to oil-producing countries, as we all have a stake in the health of our industry as a whole.

Meaningful cooperation and collaboration must begin with a reconsideration of conventional producer-consumer relationships. In the past, we tended to put suppliers and consumers into opposite camps, which are bridged by cooperative ties at best, and divided by tension and mistrust at worst. In this outdated view, however, a true joining of forces cannot be achieved. The fates of producers and consumers are joined, and are inseparable.

In reality, producers and consumers occupy two sides of the same coin. Just as it is impossible to split the obverse side of a coin from the reverse, there is no way to decouple oil-producing from oil-consuming countries. Similarly, the upstream

sector of the global oil industry cannot be separated from the downstream sector, the supply destination. As long as we continue to ignore the reality of the downstream sector and correlations in the oil industry, we cannot bring the full weight of our resources, capabilities and expertise to bear on the task of providing sustainable energy solutions for the future.

3. For the Healthy Development of the Downstream Sector

At Saudi Aramco we believe that meaningful progress in the downstream segment is best achieved by working closely with the world's leading firms.

Internationally, Saudi Aramco holds stakes in oil refining and marketing enterprises in the United States, Korea, China, the Philippines, and Japan. Last December, we broke ground on an expansion of the Port Arthur Refinery in the United States, which is part of our Motiva joint venture with Shell. By 2010, the refinery will be the largest single refinery in the United States. In China, our joint ventures with SINOPEC, the government of Fujian Province, and ExxonMobile began operations last year.

In the Kingdom, we are augmenting our existing refining portfolio with work on a pair of new export-oriented refineries. One is a joint venture with ConocoPhillips, and the other, with Total. Both refineries are slated to begin operations in 2011. Each will be a full-conversion facility configured to refine Arab Heavy crude, with a nameplate capacity of 400,000 barrels per day. This heavy crude configuration will avail more lighter crude for export to global markets, while also helping to narrow the gap between current worldwide refining capacity and tomorrow's heavier, increasingly sour global crude supplies.

The most ambitious projects in the Kingdom are the integrated refining and petrochemical projects being developed in Rabigh and Ras Tanura. The first is a PetroRabigh joint venture with Sumitomo Chemical. Saudi Aramco is supplying the project with 400,000 barrels per day of crude oil, 95 million cubic feet per day of ethane, and 15,000 barrels

per day of butane. This feedstock supply will be processed by a state-of-the-art plant that includes the world's newest and largest high olefins fluid catalytic cracker and an ethane cracker. Once complete, PetroRabigh will produce 18.4 million tons per annum of petroleum products and 2.4 million tons per annum of ethylene and propylene-based derivatives, and contribute to ensuring stable supplies of petroleum and petrochemical products inside and outside the country.

These projects combine Saudi Aramco's massive oil reserves, extensive production infrastructure, and existing refining assets with our partners' technical expertise and marketing networks. The integration with petrochemical facilities will maximize the value of our existing refineries, and lead to a natural migration down the value chain for Saudi Aramco. Furthermore, these integrated refining and petrochemical facilities will form the hubs of associated industrial clusters, and play host to small- and medium-sized companies in the manufacturing, services, and conversion industries.

Saudi Aramco is not trying to carry its downstream load all by itself. Instead, we are working in collaboration with the world's leading firms, with high expectations of their technical expertise, proprietary technologies, and marketing knowledge. At the same time, we will continue to help our partners meet their obligations to their customers and their wider societies.

4. In Consideration of Our 75-Year History

This year, Saudi Aramco is celebrating its 75th anniversary.

We are taking the occasion to not only reflect on the past, but also to consider the future of our planet's energy and our role in shaping it.

We at Saudi Aramco and all of you occupy one side of the same coin. Together, let us build an oil industry that is remarkable, sustainable, and beneficial for people around the world.



Mr. Waleed Albedaiwi, emphasizing how "we occupy two sides of the same coin"

The 18th Joint GCC-Japan Environment Symposium

—Environment & Water Resources for Our Future—

The 18th Joint GCC-Japan Environment Symposium was jointly organized with Bahrain Centre for Studies & Research (BCSR), and was held over a three-day period from February 8 to 10 in Bahrain, under the theme, “Environment & Water Resources for Our Future.”

Background

JCCP has held the Joint GCC-Japan Environment Symposium annually to provide a forum for information exchange among environmental experts in the GCC countries and Japan, and fiscal 2009 marked the 18th convening of the symposium.

Overview

Some 230 participants from the GCC countries and Japan, the largest number ever, attended the opening ceremony, which was held on the 8th. They included such key figures as H.E. Dr. Mohammed J. K. Alghatam, Chairman of the Board of Trustees of BCSR; Dr. Abdulla M. Alsadiq, Secretary-General of BSCR; Dr. Eion Turnbull, Deputy Chief Executive (Refining & Marketing) of the Bahrain Petroleum Company (BAPCO), which provided special assistance in implementing the symposium by hosting a BAPCO-sponsored reception on the evening of February 8; H.E. Mr. Hideo Sato, Ambassador of Japan to Bahrain; and

Dr. Junzo Kasahara, Professor Emeritus at the University of Tokyo (and leader of the Japanese delegation). Dr. Alsadiq, Dr. Turnbull, Ambassador Sato and Mr. Morihiro Yoshida, Managing Director of JCCP, each gave an opening address.

Dr. Alsadiq thanked the guests for attending the symposium, and expressed his expectations that the symposium will provide hints for resolving water resource and climate change issues in the GCC region. He noted that, as environmental issues are a large concern to the GCC countries where water resources are limited, it is highly meaningful to have Japanese and GCC experts mutually share their knowledge and exchange views on issues of concern to the region in this symposium.

Dr. Turnbull emphasized our responsibility to seriously address environmental issues today as leaders in the field, although whether we succeed or not in doing so can only be judged by the next generation. He said he was confident that technological innovations that will be introduced in the symposium would bring us new possibilities.

Ambassador Sato noted that this environment symposium, launched in 1992 as a greening seminar and held for roughly 20 years since, provides an opportunity to address the issue of global warming, particularly in the GCC region where environmental issues have become pronounced after the Gulf War. He encouraged



Commemorative photo at the opening ceremony

all participants to learn and benefit from the knowledge of the Japanese and GCC experts.

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.

Three keynote lectures followed the opening speeches. On the Japanese side, Dr. Kasahara gave a lecture under the title, "An innovative method for the 4D monitor of storage in CCS (Carbon dioxide Capture and Storage) and oil and gas reservoirs and aquifers." On the Bahrain side, lectures were given by Mr. Essa G. Al-Ansari, General Manager of Major Engineering Projects at BAPCO, and Prof. Waleed Al-Zubari, Vice-President of Academic Affairs at Arabian Gulf University.

After the keynote lectures, 19 Japanese GCC experts gave presentations in four separate discussion sessions.

■ February 8

Session 1: Energy and Gas Industry and Sustainability

Session 2: Water Resources and Environmental Protection

■ February 9

Session 3: Climate Change and Global Warming

Session 4: Future Perspective for Energy, Water and Environment

Many of the presentations given by GCC experts focused on "water" and "the environment." This is understandable, since the symposium was originally designed as a greening seminar. However, it also indicated the GCC countries' consistently strong interest and concern in issues related to the environment and water resources.



Discussion session

A closing ceremony was held on the 9th following the final discussion session. Dr. Mohammed S. Al-Ansari, Director of the Publication & Data Warehouse at BCSR and Chairperson of the Organizing Committee of the Environment Symposium, and M. Nakamura, Manager of the Technical Cooperation Dept. at JCCP, officially closed this year's symposium after thanking all symposium participants and everyone from BCSR and BAPCO for their cooperation.

On the 10th, the Japanese delegation visited a BAPCO refinery, accompanied by many people from the Bahrain side. There they visited the Low Sulphur Diesel Production Control Center among other facilities, and recognized anew Bahrain's strong commitment to environmental conservation.

On the 7th, the day before the opening of the environment symposium, the JCCP Secretariat held a press conference at BCSR to present an overview of JCCP activities and explain details of the environment symposium. Dr. Alghatam, Dr. Alsadiq, Dr. Al-Ansari, Mr. Yukio Ishibiki, Second Secretary of the Japanese Embassy in Bahrain, and six Japanese lecturers also lent their presence to the event.

Summary

The participants of the environment symposium engaged in active discussions in the four discussion sessions. GCC experts took particular note of the presentations on Japan's advanced environmental technologies as potential solutions to their environmental challenges.

Members on the JCCP side hope that this environment symposium has helped deepen relationships between oil-related companies and organizations in the GCC region and JCCP. Moreover, public recognition of JCCP in the GCC countries has increased, owing to local media coverage of the press conference and symposium.

<by Makoto Nakamura, Technical Cooperation Dept.>



Press conference

The 18th Joint GCC-Japan Environment Symposium

No.	Country	Name	Organization
Session 1: Energy and Gas Industry and Sustainability			
Chairpersons: Prof. Hidenori Yahiro, Graduate School of Science and Engineering, Ehime University, Japan Dr. Mohammed S. Al-Ansari, Bahrain Centre for Studies & Research			
1	Saudi Arabia	Mr. Mohammad A. Hajri	Saudi Aramco
2	Japan	Mr. Shigeyuki Funada	Cosmo Oil Co., Ltd.
3	Bahrain	Mr. Ijaz Ashraf	The Bahrain Petroleum Company
4	Bahrain	Dr. Tarek Ghalwash	Bahrain Centre for Studies & Research
Session 2: Water Resources and Environmental Protection			
Chairpersons: Dr. Muhammad Al-Rashed, Kuwait Institute for Scientific Research Eng. Nassema Al-Marzouqi, Water Distribution Directorate, Bahrain			
1	Kuwait	Dr. Mohammad Al-Murad	Kuwait Institute for Scientific Research
2	Bahrain	Dr. Khaled Burashid	Electricity & Water Authority
3	Saudi Arabia	Dr. Alaadin A. Bukhari	King Fahd University of Petroleum & Minerals
4	Oman	Dr. Mahad Said Baawain	Sultan Qaboos University
5	Qatar	Dr. Kamel Mostafa Amer	Ministry of Environment
Session 3: Climate Change and Global Warming			
Chairpersons: Dr. Waheeb Al-Naser, University of Bahrain Dr. Ali Hamad Al-Mulla, Qatar Petroleum			
1	UAE	Dr. Sayed A. M. Marzouk	UAE University
2	Japan	Dr. Ken-ichi Fujimoto	Kitakyushu International Techno-cooperative Association
3	Japan	Ms. Hikari Egami	JGC Corporation
4	Bahrain	Dr. Mohammed S. Al-Ansari	Bahrain Centre for Studies & Research
5	Bahrain	Dr. Majeed Safar Jasim	University of Bahrain
Session 4: Future Perspective for Energy, Water and Environment			
Chairpersons: Eng. Ebrahim Al-Kaabi, Electricity and Water Authority, Bahrain Dr. Ken-ichi Fujimoto, Kitakyushu International Techno-cooperative Association, Japan			
1	Japan	Dr. Kayoko Tsuruga	JGI, Inc.
2	Bahrain	Dr. Waheeb Al-Naser	University of Bahrain
3	Bahrain	Dr. Nader Al-Masri	Bahrain Centre for Studies & Research
4	Japan	Prof. Hidenori Yahiro	Graduate School of Science and Engineering, Ehime University
5	Bahrain	Prof. Ibrahim Abdel Gelil	College of Graduate Studies, Arabian Gulf University



Symposium venue



*One of the Japanese lecturers: Ms. Hikari Egami,
JGC Corporation*

The 17th Joint GCC-Japan Environment Symposium

(The 4th Joint KISR-JCCP Environment Symposium)



Participants of the symposium

JCCP and Kuwait Institute for Scientific Research (KISR) jointly held the 17th Joint GCC-Japan Environment Symposium (the 4th Joint KISR-JCCP Environment Symposium) from February 2 to 4, 2009. The symposium was held in Kuwait City, under the theme, “Water Resources in the GCC and Environmental Challenges.”

This symposium has been held annually in a GCC country as a forum for information exchange among

environmental experts in the GCC countries and Japan, and was held for the 17th time this year.

The opening ceremony was held on the 2nd, with the attendance of more than 200 people from the GCC countries and Japan. They included such key figures as Dr. Naji M. Al-Mutairi, Director General of KISR, Mr. Jamal Al-Nouri, Managing Director – Planning of Kuwait Petroleum Corporation (KPC) who provided special assistance in implementing



*Dr. Naji M. Al-Mutairi, Director General, KISR (left),
Mr. Masataka Sase, Executive Director of JCCP (right)*



*Dr. Takeo Kikkawa, Professor at Hitotsubashi University
Graduate School (leader of Japanese delegation)*



Mr. Jamal Al-Nouri, Managing Director – Planning, KPC (left), Dr. Muhammad F. Al-Rashed, Director, Water Resource Division, KISR (center)



Dr. Al-Mutairi (left), H.E. Mr. Masatoshi Muto, Ambassador of Japan to Kuwait (right)

the symposium, H.E. Mr. Masatoshi Muto, Ambassador of Japan to Kuwait, and Dr. Takeo Kikkawa, Professor at Hitotsubashi University Graduate School of Commerce and Management (leader of the Japanese delegation). Dr. Al-Mutairi, Mr. Al-Nouri, H.E. Ambassador Muto and Mr. Masataka Sase, Executive Director of JCCP, each gave an opening address.

Dr. Al-Mutairi acknowledged that environmental issues are of growing concern to the GCC countries where water resources are limited, and stressed how important and meaningful it is for experts from Japan and the GCC countries to exchange views and engage in serious discussions on environmental issues. He also expressed his wish that matters discussed in this symposium will provide clues to addressing issues concerning water resources and climate change in the GCC countries.

Mr. Al-Nouri noted that holding the symposium in Kuwait this year was well-timed, as it coincided with KPC's company-wide undertaking to address environmental issues, and said that he was looking

forward to the presentations.

H.E. Ambassador Muto explained that Japan experienced serious public pollutions in the 1960s and 1970s, but has overcome those issues through its own efforts, and is presently applying the knowledge it has acquired through that experience to the Kuwait Gulf Treatment Project that is being implemented jointly with the Kuwait Ministry of Higher Education. He also expressed his wish that the symposium will encourage more Japanese companies and organizations to address environmental issues in Kuwait and other GCC countries, and produce significant achievements.

Mr. Sase firstly gave a brief introduction of JCCP, followed by an overview of JCCP technical cooperation projects and training programs implemented in Kuwait. He then explained the effectiveness of Japan's advanced environmental technologies in addressing environmental issues that are becoming of increasing concern in the GCC countries, and emphasized the importance of this environment symposium.



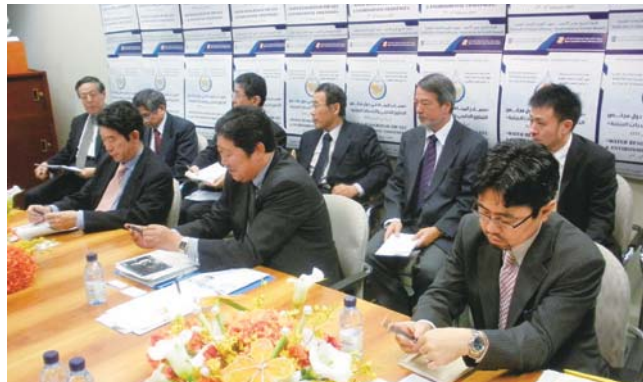
Symposium venue



Symposium session



Press conference at KISR



Japanese delegation at the press conference

The last but not the least item of the opening ceremony was Dr. Kikkawa's keynote lecture titled "Energy Conservation and Technological Innovation: Japan's Contribution to Cool Earth." The lecture focused on the "Cool Earth 50" initiative, which Japan had proposed in May 2007 as a post-Kyoto framework. Dr. Kikkawa stated that achieving an appropriate balance between global environmental conservation and economic growth is essential to realizing the "Cool Earth 50" initiative, and that this balance could be effectively achieved by promoting energy conservation and technological innovation such as Carbon Dioxide Capture and Storage (CCS) and Enhanced Oil Recovery (EOR) technologies. Dr. Kikkawa also introduced the "Top Runner Program" and "Sector by Sector Approach," which are Japan's unique methods for reducing greenhouse gases toward realization of "Cool Earth 50." He explained that the former is producing steady results in the residential, commercial and transportation sectors, and that the latter is proving effective in industrial sectors.

Discussion sessions were held on the 2nd and the 3rd. A total of 18 presentations were given under four themes: (i) Renewable Energy for Water Treatment and Desalination; (ii) Clean Development Mechanisms (CDM); (iii) Protection and Management of Water Resources; and (iv) Oil & Gas Industry and Environmental Issues, and were followed by active discussions. Presentations on Japan's advanced

environmental technologies seemed to attract the strong interest of all GCC experts.

On the 3rd, a closing ceremony was held following the completion of the second day of discussions. Dr. Khaled Hadi, Manager, Hydrology Department, representing KISR (on behalf of Dr. Muhammad F. Al-Rashed, Director, Water Resource Division), and Mr. Mitsuyoshi Saito, Councilor for JCCP, summarized the two days of discussions and proposed twelve recommendations concerning the symposium presentations. In closing, Mr. Koichi Ito, Deputy General Manager, expressed his deep appreciation to KISR, KPC and all participants, on behalf of JCCP.

On the 4th, we visited the exhibition center and oil field (artificial oil lake created on the Burgan Oil Field) of Kuwait Oil Company (KOC), which appeared to symbolize the deep commitment of Kuwait's oil-related companies and organizations



Local newspaper article on the environment symposium (Arab Times)



Local newspaper article on the press conference (Al Watan)

toward the environment.

In this environment symposium, Mr. Al-Nouri, Managing Director – Planning of KPC, not only attended the opening ceremony, but also generously hosted a KPC-sponsored reception on the evening of the 2nd. We hope that the occasion of this environment symposium has helped deepen relationships between oil-related companies and organizations in Kuwait and JCCP.

Prior to the symposium, a press conference was held at KISR on February 1, with the attendance of Dr. Al-Rashed, Director, Water Resource Division

of KISR, Mr. Takanori Yamashita, First Secretary at the Embassy of Japan in Kuwait, and eight Japanese lecturers. The JCCP Secretariat gave a statement on the environment symposium, as well as introduced an overview of JCCP and JCCP activities in Kuwait. The local newspapers ran many articles on the press conference and environment symposium, and helped increase public recognition of JCCP in Kuwait.

We would like to extend our deepest appreciation to everyone who has cooperated in the successful implementation of this symposium.

<by Makoto Nakamura, Technical Cooperation Dept.>

List of speakers

No.	Country	Name	Organization
Session 1: Renewable Energy for Water Treatment and Desalination			
Chairperson: Dr. Muhammad F. Al-Rashed, Kuwait Institute for Scientific Research (KISR) Prof. Katsuyuki Fujinawa, Shinshu University			
1	Kuwait	Dr. Essam El-Sayed	Kuwait Institute for Scientific Research (KISR)
2	Japan	Mr. Eiji Wada	Kitakyushu International Techno-cooperative Association
3	Japan	Mr. Kei Omura	NTT Data CCS Corporation
4	Japan	Mr. Sueo Nagasawa	Water Re-use Promotion Center
Session 2: Clean Development Mechanism (CDM)			
Chairperson: Prof. Morihiro Kurushima, Toyo University Mr. Mohammad Al-Fodari, Kuwait Oil Company (KOC)			
5	Japan	Prof. Morihiro Kurushima	Toyo University
6	Kuwait	Dr. M. M. Oskay	Chevron Company
7	Saudi Arabia	Dr. Mansor Kashir	Saudi Aramco (ARAMCO)
8	UAE	Dr. Ali H. Al-Marzouqi	UAE University (UAU)
Session 3: Protection and Management of Water Resources			
Chairperson: Dr. Alaadin Bukhari, King Fahd University of Petroleum & Minerals (KFUPM) Mr. Mohamed Al-Senafy, Kuwait Institute for Scientific Research (KISR)			
9	Kuwait	Dr. Meshan Al-Otaibi	Ministry of Electricity and Water
10	Japan	Prof. Katsuyuki Fujinawa	Shinshu University
11	Bahrain	Dr. Nader Al-Masri	Bahrain Center for Studies & Research (BCSR)
12	Saudi Arabia	Dr. Nassim Al-Abed	King Fahd University of Petroleum & Minerals (KFUPM)
13	Oman	Mr. Saleh Said Mohammed Al-Shoukri	Ministry of Environment and Climate
14	Kuwait	Dr. Amr Fadlalmawla	Kuwait Institute for Scientific Research (KISR)
Session 4: Oil & Gas Industry and Environmental Issues			
Chairperson: Dr. Ali Hamad Al-Mulla, Qatar Petroleum (QP) Mr. Fahad Al-Dihani, Kuwait National Petroleum Company (KNPC)			
15	Kuwait	Mr. Fadhel A. Al-Ali	Kuwait Petroleum Corporation (KPC)
16	Japan	Dr. Kazuo Okamura	Shimizu Corporation
17	Qatar	Mr. Said Abdi Yusuf	Qatar Petroleum (QP)
18	Japan	Mr. Takaaki Izumi	Nippon Oil Research Institute Co., Ltd.

The 16th Joint GCC-Japan Environment Symposium

(The 4th Joint KFUPM-JCCP Environment Symposium)



Participants of the symposium

The 16th Joint GCC-Japan Environment Symposium (the 4th Joint KFUPM-JCCP Environment Symposium) was held in Dhahran, Saudi Arabia, from January 28 to 30, 2008, by the joint sponsorship of JCCP and King Fahd University of Petroleum & Minerals (KFUPM). The main theme of the symposium was "GCC Environment and Sustainable Development."

The symposium is held annually in a

GCC country under basic environmental themes, and provides a forum for discussions among experts in the environment field.

An opening ceremony officially opened the symposium on the 28th. It was attended by H.E. Dr. Khaled bin Saleh Al-Sultan, Rector of KFUPM, Dr. Sahel N. Abdul-Jauwad, Vice Rector of KFUPM, Mr. Isam A. Bayat, Vice President, Engineering Services,

Saudi Arabian Oil Company (Saudi Aramco), and H.E. Hiroshi Oka, Chargé d'Affaires, Embassy of Japan to Saudi Arabia, in addition to more than 140 participants. H.E. Dr. Al-Sultan, Mr. Bayat, H.E. Mr. Oka, and Mr. Katsuo Yokoyama, Managing Director of JCCP, each gave an opening address.

H.E. Dr. Al-Sultan strongly acknowledged that environmental considerations are essential to the



H.E. Dr. Khaled bin Saleh Al-Sultan, Rector of KFUPM



Mr. Isam A. Bayat, Vice President of Saudi Aramco



*H.E. Hiroshi Oka, Chargé d'Affaires,
Embassy of Japan to Saudi Arabia*



Mr. Katsuo Yokoyama, Managing Director of JCCP

sustainable development of the GCC countries, and expressed high expectations that the symposium will discuss topics of particular relevance to the environment in the region, such as water resources and climate change.

Mr. Bayat commented on the timeliness of holding this environment symposium in Saudi Arabia, just at a time when Saudi Aramco is making company-wide efforts to address environmental issues, and said he was looking forward to what would be discussed.

H.E. Mr. Oka stated that Japan and the GCC countries have a long-standing relationship in the energy sector, but a relationship of cooperation is rapidly evolving in the environment sector as well. He said that he is extremely pleased to see a strengthening of relationships between JCCP and the national oil companies, research institutions, and universities in the GCC countries, in

the environment sector.

Mr. Yokoyama, after giving a brief overview of JCCP technical cooperation projects in Saudi Arabia, stated that it was a great pleasure to be able to hold this environment symposium in the GCC countries each year, and emphasized the fact that environmental issues cannot be solved by one country's efforts alone, but requires global level initiatives.

Discussion sessions held on the 28th and 29th featured 15 presentations on four topics: (i) Sustainable Environmental Development; (ii) Oil Industry and Environmental Issues; (iii) Environmental Rehabilitation; and (iv) Research and Development in Environment. Active discussions took place in each session.

On the 29th, a closing ceremony was held following the completion of the discussion session. Representing KFUPM, Dr. Walid A. Abderrahman,

Professor, Water Resource Management, summarized the two days of sessions, and representing JCCP, Koichi Io, Deputy General Manager, Technical Cooperation Department, took the opportunity to thank KFUPM, Saudi Aramco, and all participants for their participation in the symposium.

During the two days of discussion sessions, some participants from the GCC countries asked whether the Japanese lecturers could also deliver a presentation at an environmental conference to be held in their respective countries. The participants apparently found the presentations on Japan's advanced environmental technologies to be highly beneficial.

On the 30th, we visited a coastal mangrove nursery at Saudi Aramco's Ras Tanura Refinery. We saw the nursery as an indication of Saudi Aramco's strong commitment to the environment.



Opening ceremony



Symposium session

In this environment symposium, Mr. Bayat, Vice President of Saudi Aramco, not only attended the opening ceremony, but also hosted a reception for all guests (on the 28th). Taking the opportunity of his generous cooperation, we hope to further deepen JCCP's relationship with Saudi Aramco.

On January 27, the day prior to holding the symposium, we held a



Symposium venue

press conference at KFUPM. With the attendance of Dr. Abdul-Jauwad, Vice Rector of KFUPM, H.E. Mr. Oka, and five Japanese lecturers, we made an announcement on the environment symposium scheduled to be held the next day, and provided an overview of JCCP activities in Saudi Arabia. News of the press conference received coverage in the local newspaper, and contributed to increasing JCCP's profile in Saudi Arabia.

We extend our deepest appreciation to everyone who has cooperated in the successful implementation of this symposium.

<by Koichi Ito,
Technical Cooperation Dept.>



Local newspaper article on the press conference

List of Speakers

No	Country	Name	Organization
Session 1: Sustainable Environmental Development			
Moderator: Dr. Kenichi Fujimoto, Kitakyushu International Techno-cooperative Association (KITA) <Japan>			
1	Japan	Dr. Takehiko Matsui	Tottori University
2	Kuwait	Dr. Amr Fadlemawla	Kuwait Institute for Scientific Research (KISR)
3	Bahrain	Dr. Nader El-Masri	Bahrain Center for Studies & Research (BCSR)
Session 2: Oil Industry and Environmental Issues			
Moderator: Prof. Abdul Malik Al AlShaikh, King Saud University (KSU) <Saudi Arabia>			
4	Japan	Mr. Masayuki Aida	Nippon Oil Corporation
5	UAE	Dr. Muftah H. El-Naas	UAE University (UAU)
6	Japan	Dr. Masaharu Tasaki	Shimizu Corporation
7	Qatar	Dr. John Kilani	Qatar Petroleum (QP)
Session 3: Environmental Rehabilitation			
Moderator: Dr. Mohammed Al Ansari, Bahrain Center for Studies and Research (BCSR) <Bahrain>			
8	Japan	Dr. Kenichi Fujimoto	Kitakyushu International Techno-cooperative Association
9	Saudi Arabia	Dr. Hussein Al-Beshrey	Royal Commission for Jubail
10	Oman	Dr. Andy Yaw Kwarteng	Sultan Qaboos University (SQU)
11	Saudi Arabia	Dr. Ahmad S. Bajahlan	Royal Commission for Yanbu
Session 4: Research and Development in Environment			
Moderator: Prof. Abdulaziz M. Al Bassam, King Saud University (KSU) <Saudi Arabia>			
12	Saudi Arabia	Dr. Walid Abderrahman	King Fahd University of Petroleum & Minerals (KFUPM)
13	Japan	Dr. Ryoji Ohba	Mitsubishi Heavy Industries, Ltd.
14	Saudi Arabia	Dr. Khaled Al-Damegh	King Abdulaziz City for Science & Technology (KACST)
15	Saudi Arabia	Dr. William G. Conner	Saudi Aramco

Delegation from the Saudi Arabian Ministry of Petroleum & Mineral Resources Visits Japan

On June 1, 2010, H.E. Yahya J. Shinawi, Director General, and Mr. Abdullah I. Al-Jof, Technical Training Coordinator, from the Eastern Province Branch of the Saudi Arabian Ministry of Petroleum and Mineral Resources visited JCCP.

The ministry's head office is located in Riyadh, and the Eastern Province Branch is located in Dhahran. While the Riyadh head office is in charge of oil policies, the Eastern Province Branch is responsible for supervising the technical aspects of Saudi Arabia's oil industry. Mr. Shinawi is the chief officer of this department.

At JCCP, Mr. Masataka Sase, Executive Director, Mr. Morihiro Yoshida, Managing Director, Mr. Mitsuyoshi Saito, Counselor, and other executive officers welcomed the two gentlemen from Saudi Arabia.

1. Background to the Visit

JCCP and Mr. Al-Jof corresponded a number of times since last year about participation in JCCP's technical training programs on environmental management in the refinery. When JCCP members visited the Saudi Arabian Ministry of Petroleum and Mineral Resources last October under the Cooperation with Training Center



Tour of JCCP training facilities

Program, they provided an overview of JCCP courses related to environmental management and extended an invitation to Mr. Al-Jof to visit JCCP Headquarters in Japan. Mr. Al-Jof took the occasion of Mr. Shinawi's recent visit to realize the visit to JCCP.

2. Environmental Management in the Refinery

Saudi Arabia has plans to construct several large-scale refineries with 400,000 b/d-level capacities in various parts of the country, and in conjunction with these plans, there is a need to assess their environmental impact and to formulate a proper environmental management plan. To facilitate the smooth implementation of the refinery construction projects, the Ministry of Petroleum and Mineral Resources is aware that it needs to explore environmental management technologies employed around the world and to formulate a plan specifically suited to the state of affairs in Saudi Arabia. It also has strong interest in Japan's environmental management technologies, and said that it would like its employees to participate in JCCP courses and hold technical exchanges in a broad range of topics.



H.E. Yahya J. Shinawi, Director General (front row, left), and Mr. Abdullah I. Al-Jof, Technical Training Coordinator (back row, second from left), from the Eastern Province Branch of the Saudi Arabian Ministry of Petroleum and Mineral Resources

As Saudi Arabia is an important counterpart country to JCCP, we promised JCCP's cooperation, giving an outline of the implementation of JCCP courses and taking the Saudi delegation on a tour of the training facilities in JCCP Headquarters. As a regular course on "Environmental Management for Refineries" is slated to be held in September, we also provided a detailed description of this course, as it pertains to Saudi Arabia's current issues of interest.

In Saudi Arabia, refineries essentially form an entire town. As the governing authority of refineries, the Ministry of Petroleum and Mineral Resources must

not only assess the impact of refinery waste on the surrounding water, air, and soil environments, but it is also responsible for regulating the output of domestic waste from employee housing belonging to the company, as well as medical waste produced by hospitals.

We understand that the ministry hopes to systematize its environmental management technologies and incorporate them in environmental laws and regulations in Saudi Arabia in the future, and intend to do all we can to contribute to their efforts.

<by Hisayoshi Tanda, Administration Dept.>

Follow-up Meetings Visit to Saudi Arabia and Malaysia

In a bid to strengthen relationships with oil-producing countries, Mr. Masataka Sase, Executive Director of JCCP, visited Saudi Arabia and Malaysia from February 1 to 10, 2010, and held policy dialogues with the management of counterpart organizations in the two countries.

1. Saudi Arabia—King Fahd University of Petroleum and Minerals (KFUPM)

On February 3, Mr. Sase paid a courtesy call on H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM. Dr. Katsuomi Takehira, Professor Emeritus at Hiroshima University, who is currently engaging in research at KFUPM under the JCCP Long-term Researcher Dispatch Program, was also asked to lend his presence to the meeting.

The relationship between KFUPM and JCCP goes back to 1992, when the two organizations sponsored the first Saudi-Japan Joint Symposium. The symposium has been held every year since then, with the 19th and most recent symposium held in November 2009.

Mr. Sase took the lead and expressed his deep appreciation for Dr. Al-Sultan's and KFUPM's generous cooperation, without which they could not have held the seminar every year for 19 years.

Dr. Al-Sultan said KFUPM is also pleased to have

held the annual seminar continuously for 19 years, and thanked JCCP for its cooperation. The most valuable achievement, he stressed, is the relationship of trust that has developed between the two organizations through long years of cooperation, because relationships like this cannot be achieved overnight, but require gradual and steady accumulation of mutual efforts.

Dr. Sulaiman S. Al-Khattaf, Director, Center of Refining and Petrochemicals – Research Institute, thanked JCCP for sending researchers to KFUPM under the Long-term Researcher Dispatch Program, and said KFUPM is privileged to welcome Dr. Hideshi Hattori, Professor Emeritus at Hokkaido University, who began providing research guidance at KFUPM in FY2007, followed by Dr. Katsuomi Takehira. Dr. Al-Khattaf asked JCCP for its cooperation in continuing the program, as a request from both him and Dr. Al-Sultan.

2. Saudi Arabia—Saudi Aramco Training and Career Development Department

Also on February 3, Mr. Sase paid a visit to Ms. Huda M. Al-Ghpson, General Manager, Training and Career Development, Saudi Aramco. The Training and Career Development Department is located in a central area of the company's Head Office site among top management offices. As general manager of this department, Ms.



H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM (center)



*At the Saudi Aramco Head Office
Ms. Huda M. Al-Ghpson, General Manager, Training and Career Development (center)*

Al-Ghpson assumes an important role in planning and managing the development of human resources who support the future of the company.

Mr. Sase firstly outlined JCCP's relationship with Saudi Aramco, explaining that a fruitful exchange of Japanese technologies and management practices has developed between the two organizations through the participation of Saudi Aramco members in JCCP regular courses and through the implementation of Customized Programs-Overseas (CPO) at Saudi Aramco's refineries.

Ms. Al-Ghpson described Saudi Aramco's policy in regard to training. That is, the company firmly believes that studying corporate cultures in worldwide countries and incorporating their strengths into Saudi Aramco's management style is extremely important to the company's own future. Based on this policy, Saudi Aramco selects outstanding employees to take advantage of learning opportunities in various countries around the world while they are young, and to absorb their cultures in the language of those countries. Ms. Al-Ghpson said that JCCP courses also provide a good opportunity to experience Japanese corporate culture and study Japanese management practices, and that Saudi Aramco employees who have participated in them have brought back knowledge which has proven useful in many ways to Saudi Aramco's management. Based on this awareness, she also said that she wishes to send not only refinery staff members but also head office members to JCCP courses to study leadership and management skills.

In response, the JCCP side explained the basic concept of JCCP training programs, that they are designed so that manager-level employees can explore future management styles through visits to Japanese companies. In other words, JCCP training programs offer manager-level employees an opportunity to review and enhance their management styles and prepare to assume higher positions in the future.

3. Saudi Arabia—King Abdulaziz City for Science and Technology (KACST)

On February 7, Mr. Sase made a courtesy visit to H.H. Dr. Turki Saud Mohammed Al-Saud, Vice President for Research Institute of KACST.

Mr. Sase took the opportunity of his visit to KACST to express his gratitude to Dr. Al-Saud for his generous consideration of the joint technical cooperation project

on "Application of Ground Deformation Monitoring Technologies towards Preserving the Natural Resources," the signing ceremony for which is slated to take place at the end of the month.

Dr. Al-Saud said that KACST is placing large expectations on the success of the joint project, especially because the project focuses on technologies for maintaining the capacity of oil production facilities, and that he hopes to share the achievements of the project with oil companies in Saudi Arabia.

On a more personal note, Dr. Al-Saud also spoke about his visit to Japan in June 2008 under the JCCP VIP Invitation Program, recollecting how the staff members of the research institute he visited then had all lined up along both sides of his path and welcomed him with warm applause. He said he would always remember the warm hospitality he received wherever he went in Japan.

Mr. Sase stated that JCCP's exchanges with KACST through the years have had significant meaning to JCCP, and that he hopes their relationship will continue into the future. Agreeing with Mr. Sase's view, Dr. Al-Saud said he wishes to engage in even more projects with JCCP in the future and further deepen their relationship.



*H.H. Dr. Turki Saud Mohammed Al-Saud,
Vice President of KACST (left)*

4. Malaysia—Petronas

As the last destination of his agenda, Mr. Sase visited the Petronas Head Office in Malaysia on February 9, and paid a call on Datuk Anuar Ahmad, Vice President, Human Resources, and Mr. Kamarudin Zakaria, Vice President, Petrochemical Business.

At the beginning of the meeting, Mr. Sase noted that



*At the Petronas Head Office
Datuk Anuar Ahmad, Vice President,
Human Resources (center)*

JCCP and Petronas have a long history of cooperation that dates back to the establishment of JCCP, and thanked Petronas for sending as many as 800 members to JCCP courses in the past 29 years. Agreeing that 800 is indeed a substantial number, Mr. Anuar thanked JCCP anew for its cooperation. He said that the significance of participating in a training program in Japan lies not only in learning skills and technologies, but also in acquiring first-hand experience in Japanese society. As an example, Mr. Anuar spoke about his own experiences when he came to Japan to receive training in his youth. He said his exposure to Japan's development opened his eyes to a world he had never seen before. His interaction with Japan's foreign culture and society made him want to know more about how the Japanese people engage in their work, why they have such a strong sense of responsibility, what cultural and social factors affect their behavior, and so on. Recognizing that the very experience in thinking these thoughts had a large impact on his future, Mr. Anuar emphasized the significance

of going to Japan, experiencing a foreign culture, and opening one's own perspective.

Mr. Sase, pleased to hear Mr. Anuar's high evaluation of JCCP courses, said oil-producing countries and Japan have both become stronger and more capable over the 29 years that JCCP has offered training programs, and JCCP is now seeking to evolve to a higher level to create a new type of relationship based on mutual learning. He also said he hopes JCCP and Petronas would continue to develop their ties all the same.



*At the Petronas Head Office
Mr. Kamarudin Zakaria, Vice President,
Petrochemical Business (center)*

The 10-day visit to Saudi Arabia and Malaysia yielded precious exchanges of views with the senior management of counterpart organizations. The fact that they regard JCCP training programs not simply as a means for technical training, but as an opportunity for manager-level employees to experience Japanese corporate culture and prepare to become future leaders, particularly reaffirmed JCCP's commitment to continuing its activities into the future.

<by Hisayoshi Tada, Administration Dept.>

H.H. Dr. Turki Al-Saud, Vice President of KACST, Visits Japan

In response to an invitation from JCCP, H.H. Dr. Turki Bin Saud Bin Mohammed Al-Saud, Vice President of King Abdulaziz City for Science and Technology (KACST) in the Kingdom of Saudi Arabia, visited Japan from June 21 to 28, under the JCCP VIP Invitation Program.

KACST is a state-run scientific research organization located in Riyadh, the capital of Saudi Arabia. It promotes research and development not only in oil and gas technologies, but also in various other areas of development, including biotechnology, nanotechnology, and space and aeronautics technology. KACST and Japan have engaged in a number of joint technical cooperation projects over a period of more than a decade, dating back to the beginning of technical cooperation programs implemented in collaboration with the Petroleum Energy Center (PEC).

H.H. Dr. Turki Al-Saud is a specialist in space engineering technology. Prior to his appointment as Vice President of KACST, he has been successful in launching a number of satellites in Saudi Arabia as Director of the Space Research Institute. In addition to his position as Vice President of KACST, Dr. Turki Al-Saud also holds other important positions, including Chairman of the National Science & Technology Planning Council, which governs national science and technology policies and the implementation of programs under those policies. In these capacities, Dr. Turki Al-Saud plays a central role in the development of science and technology in Saudi Arabia.

During his recent visit to Japan, Dr. Turki Al-Saud made courtesy calls on various research institutes, companies, and governmental agencies in Japan, in addition to oil-related research institutions, at his strong request. An overview of those visits is as follows.

1) JCCP Headquarters

Dr. Turki Al-Saud first visited JCCP Headquarters, where he met with Mr. Mikio Kojima, then-Executive Director of JCCP, and Mr. Katsuo Yokoyama, Managing Director of JCCP, and received an overview of JCCP activities.



With Mr. Mikio Kojima, then-Executive Director of JCCP, and others at JCCP Headquarters

2) Japan Energy Corporation, Petroleum Refining Research & Technology Center

At the Petroleum Refining Research & Technology Center, Dr. Turki Al-Saud received a warm welcome from all staff, followed by a welcome speech by Mr. Kenichi Matsuda, Director of the Center, and a presentation of the Center's activities. He then toured the research buildings while listening intently to the details of a wide range of research projects, including a pilot test on desulfurization catalysts, fuel cells, and bio-treatment of spilled crude oil. During the tour, Dr. Turki Al-Saud showed strong interest not only in the research projects, but also in the pilot test equipment

and other research facilities, because the research facilities at KACST are presently undergoing large-scale expansion work.



A warm welcome from Mr. Matsuda, Director of Petroleum Refining Research & Technology Center, and the staff

3) Earth Remote Sensing Data Analysis Center (ERSDAC)

ERSDAC processes and analyzes various earth observation satellite data to extract information on rocks and geological structures that provide indices of oil and natural resource distribution and other related forms of data. It also conducts research and development on the application of such remote sensing data to resource exploration, as well as applied research in the environmental field.



Active discussions at ERSDAC

Dr. Turki Al-Saud first received a warm greeting from Mr. Yoshiro Kamata, Chairman of ERSDAC, followed by an overview of the status of various research and development projects and a tour of the facilities. Having visited ERSDAC before, about 10

years ago, and as a strong supporter of research in satellite-related technologies at KACST, Dr. Turki Al-Saud engaged in active discussions with the ERSDAC staff.

4) Toyota Motor Corporation

Dr. Turki Al-Saud first observed the car assembly line at the Toyota Tsutsumi Plant in Aichi Prefecture, one of the largest automotive plants in Japan. He then received a tour of the Toyota Kaikan Exhibition Hall and a presentation by Mr. Takayuki Kusashima, Chief Manager, and others on “Toyota’s Initiatives toward Sustainable Mobility.” At the Tsutsumi Plant, Dr. Al-Saud appeared impressed with Toyota’s *kaizen* activities and the “*jidoka*” and “just-in-time” concepts, and seemed surprised to learn that new employees are trained to become capable of front-line work on the shop floor in just two months. He also expressed strong interest in Toyota’s new initiatives, such as the development of fuel cells.



Presentation on Toyota Motors' latest initiatives

5) National Institute of Advanced Industrial Science and Technology (AIST)

At AIST, Dr. Turki Al-Saud received a greeting by Mr. Akira Ono, Vice President, an overview of the organization, a presentation on the status of research and development in nanotechnology and other projects in progress, and a tour of the facilities.

Through this visit, Dr. Turki Al-Saud and the AIST side identified possibilities for cooperation

in various areas, and agreed to establish mutual contacts for creating a partnership under concrete terms.



Nanotechnology laboratory at AIST

6) Governmental agencies

At their strong request, Dr. Turki Al-Saud and H.E. Mr. Faisal Trad, Saudi Arabia's Ambassador to Japan, visited a number of governmental agencies in Japan, to exchange views on the development of cooperative exchanges in the fields of science and technologies between Japan and Saudi Arabia. At the Ministry of Economy, Trade and Industry (METI), he met with the Deputy Director-General of the Manufacturing Industries Bureau, the Director of the Aerospace Industry Office in the Manufacturing Industries Bureau, and the Director of the Middle East and Africa Office in the Trade Policy Bureau. They also paid a courtesy call on the Council for Science and Technology Policy in the Cabinet Office, and the Director-General of the Science and Technology Policy Bureau in the Ministry of Education, Culture, Sports, Science and Technology (MEXT).

7) Reception at the Embassy of Saudi Arabia in Japan

In the evening of the last day of visits, H.E. Ambassador Trad kindly hosted a reception at the Embassy of Saudi Arabia in Japan, inviting ambassadors of other Middle East countries and key figures from companies and organizations which Dr. Turki Al-Saud visited in Japan.

We, JCCP, believe that this invitation program has helped Dr. Turki Al-Saud further his knowledge of JCCP activities, and the opportunities to witness first-hand Japan's latest technologies, in particular, deepened his understanding of trends in oil and energy situations in Japan. That such an important person as Dr. Turki Al-Saud, who plays a central role in promoting science and technology in Saudi Arabia, gained a better understanding of Japan and increased his confidence in Japan, has great meaning to Japan.



With H.E. Ambassador Trad of Saudi Arabia



With the ambassadors of Middle East countries in Japan

We would like to take this opportunity to report the successful completion of the invitation program to everyone at the Embassy of Saudi Arabia in Japan, METI, MEXT, the Cabinet Office, Japan Energy Corporation, ERSDAC, Toyota Motor Corporation, AIST, and all others who cooperated with the program, and extend our deepest appreciation for their kind support.

<by Shigeru Nanbara, Technical Cooperation Dept.>

Mr. Kojima, Executive Director of JCCP, Visits the Middle East

—Iran, Qatar, UAE, Saudi Arabia—

Between January and March 2008, Mr. Mikio Kojima, Executive Director of JCCP, visited Iran, Qatar, UAE, and Saudi Arabia, to reaffirm basic principles for strengthening its relations with those countries, through policy dialogues with the heads of national oil companies.

As outlined below, Mr. Kojima received full understanding and agreement regarding the reorganization of JCCP and its basic policies for future cooperation activities, and successfully paved the way toward strengthening ties between JCCP and the four countries.

I. Iran (January 20 – 24, 2008)

On January 22, Mr. Kojima visited NIORDC (National Iranian Oil Refining & Distribution Co.) and met with Mr. Amin Allah Eskandari, Director Refining Affairs. Mr. Kojima first thanked Mr. Eskandari for agreeing to participate in the JCCP International Symposium that was scheduled to be held the coming February, despite his busy schedule. He then discussed the strong cooperative relationship that

exists between NIORDC and JCCP in training activities, and explained that JCCP receives many NIORDC participants to JCCP regular courses each year. Mr. Kojima also gave a brief account of the Expert Service (ES) program that was implemented last year and an overview of the Study Tour (ST) program that was scheduled to be implemented in February, and encouraged NIORDC to make further use of JCCP regular courses and tailor-made courses in the future. In response, Mr. Eskandari expressed his deep appreciation of the cooperative efforts of JCCP, and requested their continued cooperation in establishing even closer ties between the two organizations. In the area of human resource development, Mr. Eskandari specifically requested JCCP's cooperation in cultivating human resources capable of creating basic refinery designs, as well as human resources qualified to engage in project and safety management activities at NIORDC. The two leaders agreed to continue exchanging views, in search of the best means of future cooperation.

On January 23, Mr. Kojima visited NIOPDC (National Iranian Oil Products

Distribution Co.) and met with Mr. S. N. Shahnazizadeh, Managing Director. Mr. Kojima first thanked Mr. Shahnazizadeh for his participation in a JCCP International Symposium in the past, when Mr. Shahnazizadeh had been Managing Director of Esfahan Oil Refining Company. The two leaders then discussed NIOPDC's participation in JCCP regular courses, and agreed to work toward further strengthening ties between the two organizations.

Also on January 23, Mr. Kojima paid a call on H.E. Akio Shirota, Ambassador, and Mr. Fujisawa, First Secretary, at the Embassy of Japan in Iran. Mr. Kojima gave an overview of his meeting at NIORDC, and described JCCP's reorganization efforts and future policies for strengthening relations with oil-producing countries in the Middle East. Ambassador Shirota noted that Iran has abundant human resources, and heartily agreed that providing continuous cooperation through JCCP tailor-made courses and technical cooperation would be key to building strong ties between the two countries.

<by Takashi Hori, Operations Dept.>



*Meeting at NIORDC
Front row, right: Mr. Amin Allah Eskandari,
Director Refining Affairs*



*With H.E. Ambassador Akio Shirota
at the Embassy of Japan in Iran*

II. Qatar and UAE (February 10 – 15, 2008)

1. Qatar

On February 12, Mr. Kojima met with H.E. Abdullah Bin Hamad Al-Attiyah, Deputy Prime Minister and Minister of Energy and Industry, and Chairman and Managing Director of Qatar Petroleum (QP). Mr. Kojima first expressed his deep gratitude to his Excellency for his strong leadership in the Joint GCC-Japan Environment Symposium, which was held last year, then discussed the favorable relationship of growing cooperation between QP and JCCP, with reference to the large increase that has been observed in the number of QP participants to regular courses, particularly over the past five years. Mr. Kojima also gave an overview of the ST and ES programs held last year, and finally emphasized the significant role of JCCP in further solidifying the

cooperative relationship between the two organizations, and in increasing synergistic effects from the combination of training and technical cooperation activities. Deputy Prime Minister Al-Attiyah expressed his profound appreciation of JCCP cooperation, and declared his full support for further expanding the relationship between the two organizations. Sheikh Abdulaziz Bin Jassim Al-Thani, Director, Administration, QP, also stressed the two organizations' shared views on strengthening bonds between QP and JCCP.

Mr. Kojima also held meetings with Mr. Essa Al-Kaabi, Director, Qatarization, QP, and members of the Human Resource Department. The members of the meetings agreed to make good use of both regular courses and tailor-made courses, and articulated their wishes to further strengthen QP's cooperative relationship with JCCP.

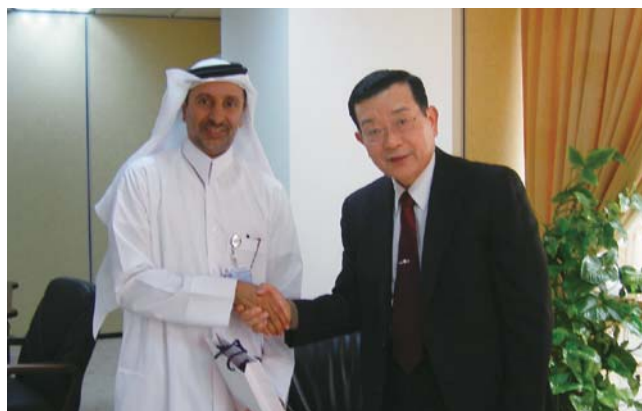
They also requested JCCP's continued support in the numerous large-scale projects that are being implemented across the energy industry in Qatar today.

2. UAE

On February 13, Mr. Kojima met with H.E. Yousef Omar Bin Yousef, CEO of Abu Dhabi National Oil Company (ADNOC). While ADNOC and JCCP are enjoying a good cooperative relationship through the implementation of significant projects, including projects for flare gas recovery and the establishment of a research center, Mr. Kojima stated that he would like to develop stronger ties between ADNOC/TAKREER and JCCP, by implementing JCCP's new scheme of tailor-made courses. H.E. Yousef Omar Bin Yousef responded by first expressing his deep appreciation of JCCP activities, and upon agreeing



At QP
H.E. Abdullah Bin Hamad Al-Attiyah,
Deputy Prime Minister and Minister of Energy and Industry
(second from right) and Sheikh Abdulaziz Bin Jassim Al-Thani,
Director, Administration (right)



At QP
With Mr. Essa Al-Kaabi, Director, Qatarization



At ADNOC
With H.E. Yousef Omar Bin Yousef, CEO (center)



At ADNOC
With Mr. Abdulla Saeed Al-Badi, Human Resources Director



At TAKREER
With Mr. Jasem Ali Al-Sayegh, General Manager

that tailor-made courses are indeed an extremely interesting scheme, requested working-level discussions for their implementation in the future.

Mr. Kojima also met with Mr. Abdulla Saeed Al-Badi, Human Resources Director. Mr. Al-Badi listened with interest to Mr. Kojima's proposal for implementing tailor-made courses, but based on the reason that sending an entire group of supervisor-level officers to Japan at once would pose some difficulties, he stated that he would prefer to begin with ES programs. In fact, Mr. Al-Badi mentioned that he would like JCCP to implement a number of ES courses on different themes and for different groups of participants.

On February 14, Mr. Kojima met with Mr. Jasem Ali Al-Sayegh, General Manager of Abu Dhabi Oil Refining Company (TAKREER), who accepted Mr. Kojima's proposal for implementing a tailor-made program with enthusiasm, and encouraged working-level

3. Embassy of Japan in Qatar and UAE

Mr. Kojima took the opportunity of his visit to Qatar and UAE to pay a call on the Embassy of Japan in the two countries. In Qatar, he met with H.E. Ambassador Yukio Kitazume and Mr. Homma, First Secretary, and in UAE, he met with H.E. Ambassador Takuma Hatano and Mr. Inokuchi, First Secretary, to give an overview of his meetings at QP and ADNOC, and to explain the restructuring of JCCP and future policies. In regard to tailor-made courses, both Ambassadors expressed their concern that it could be difficult for a number of personnel to simultaneously leave their workplaces for a substantial period of time to participate in tailor-made courses in Japan, and that perhaps ES programs could be more readily implemented, in this respect. Ambassador Hatano suggested dispatching experts to

discussions for developing effective programs. The two leaders concurred on the significance of utilizing tailor-made programs to strengthen the cooperative relationship between JCCP and ADNOC/TAKREER.

ADNOC's Petroleum Institute (PI). According to Ambassador Hatano, ADNOC and TAKREER personnel are highly interested in learning about field management in Japan, so it may be a good idea to have Japanese experts visit the working environment at ADNOC and TAKREER, point out potential problem areas, and provide guidance on improvement measures.

<by Koji Hori, Administration Dept.>

III. Saudi Arabia (February 29 – March 5, 2008)

1. Saudi Aramco Ras Tanura Refinery

In the morning of March 2, Mr. Kojima attended a tailor-made seminar that had begun the previous day at the Ras Tanura Refinery. He gave a speech that emphasized his strong wish to strengthen ties with Saudi Aramco, and with the Ras Tanura Refinery in particular, Saudi Aramco's mother refinery, and exchanged views with refinery officers on future JCCP cooperation. (For details, see "Tailor-made Program on Refinery Plant Maintenance Held in Saudi Arabia," on pages 18-20 of this newsletter.)

In the meeting with Mr. Mohammed S. Al-Gusaier, Vice President, Refining, Mr. Kojima extended his gratitude to all who supported and cooperated in implementing the first tailor-made seminar at the refinery, but declared



With H.E. Ambassador Yukio Kitazume
at the Embassy of Japan in Qatar



With H.E. Ambassador Takuma Hatano (center)
at the Embassy of Japan in UAE



*At the Ras Tanura Refinery
With Mr. Mohammed S. Al-Gusaier, Vice President*

that this is “only the beginning” of the new phase of JCCP cooperation, and that JCCP intends to continue enhancing its activities in the future. Mr. Al-Gusaier expressed his appreciation of JCCP activities, saying that refinery personnel who have participated in past JCCP courses have returned to the refinery not only with new technical knowledge, but also with a keen interest in Japanese corporate culture, as a result of having been exposed to a refinery work environment where employees of their same generation work with pride and responsibility. He stated that he would therefore like to continue sending refinery personnel to take part in JCCP regular courses. Mr. Al-Gusaier also requested the development of a new cooperation scheme that would allow longer-term onsite experience and guidance, and Mr. Kojima promised to explore the best means of responding to the request based on the foundation

of the tailor-made scheme.

2. Saudi Aramco Head Office

In the afternoon of March 2, Mr. Kojima visited the Saudi Aramco Head Office and met with Mr. Abdulaziz F. Al-Khayyal, Senior Vice President, Industrial Relations. Mr. Kojima paid a call on Mr. Al-

Khayyal last January, to clarify JCCP’s desire to strengthen its ties with Saudi Aramco, and to ask for Saudi Aramco’s cooperation in sending participants to regular courses and implementing tailor-made programs. As a result, through Mr. Al-Khayyal’s kind offices, JCCP has received 36 participants from Saudi Aramco in FY2007, the largest number from the company since JCCP first launched regular courses, and has implemented a tailor-made seminar at the Ras Tanura Refinery. Mr. Kojima gave an overview of those achievements, and deeply thanked Mr. Al-Khayyal for his generous cooperation and thoughtful consideration.

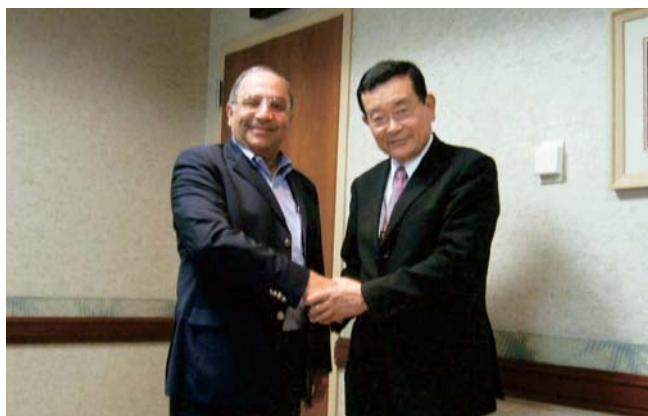
Mr. Al-Khayyal in turn expressed his high expectations of JCCP activities. He stated that Saudi Aramco has a responsibility of providing a stable supply of oil to the world, and must maintain the world’s highest level of safe and stable operations. To this

end, he hopes to send as many Saudi Aramco personnel to participate in JCCP regular courses, not only to acquire technology and knowledge, but also to gain first-hand experience in “Japan’s wonderful corporate culture,” founded on responsibility and discipline.

The meeting ended with the two leaders agreeing that the successful implementation of the recent tailor-made seminar is merely the first step toward the strengthening of cooperative ties between the two organizations, and that they shall build upon that success to deepen cooperative efforts based on a “face-to-face” relationship of mutual trust.

Mr. Kojima again visited the Saudi Aramco Head Office in the afternoon of March 3, to meet with Mr. Adil A. Al-Tubayyeb, Vice President, Marketing, Supply & Joint Venture Coordination. Mr. Al-Tubayyeb played a central role in establishing the Saudi Aramco Tokyo Office, and possesses a deep understanding of the relationship between Saudi Arabia and Japan. He took part in a lecture event in Japan sub-hosted by JCCP last December, and spoke to attending executive officers from energy-related companies in Japan, on the significance of Japan-Saudi Arabia cooperation in securing a stable supply of oil. Mr. Waleed H. Al-Bedaiwi, General Manager, Saudi Petroleum, Ltd., who had temporarily returned to Saudi Arabia from Japan, also joined the meeting.

In the meeting, Mr. Al-Tubayyeb



*At the Saudi Aramco Head Office
With Mr. Abdulaziz F. Al-Khayyal, Senior Vice President*



*At the Saudi Aramco Head Office
With Mr. Adil A. Al-Tubayyeb, Vice President*

explained that the population in the Middle East is increasing so rapidly today that the Greater Middle East Region, composed of the traditional Middle East countries and neighboring countries, is certain to become a major oil-consuming region in the near future. As the Middle East region also has the world's largest hydrocarbon reserves, it is poised to become a major supplier of petroleum and petrochemical products, in addition to crude oil. As a result, Mr. Al-Tubayyeb predicts that the Middle East region will develop into a global hydrocarbon trading hub. This significant information came at an opportune time for JCCP, as it is presently in the process of creating an action plan that identifies the direction of its efforts for strengthening relations with the countries of the Middle East.

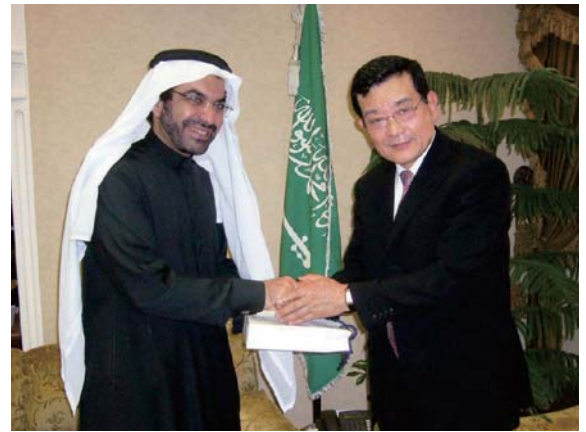
3. King Fahd University of Petroleum and Minerals (KFUPM)

In the morning of March 3, Mr. Kojima paid a courtesy call on H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM. The university has been acting as JCCP's partner in implementing various technical cooperation projects,

including the HS-FCC development project, and is an important counterpart of JCCP's in Saudi Arabia.

After fondly reminiscing about Dr. Al-Sultan's visit to Japan in FY2004 under JCCP's VIP Invitation Program, Mr. Kojima expressed his gratitude to Dr. Al-Sultan, for warmly receiving Dr. Hideshi Hattori, Professor Emeritus at Hokkaido University, under the Long-term Research Dispatch Program, and for his cooperation in holding the Joint GCC-Japan Environment Symposium last January. Dr. Al-Sultan graciously accepted Mr. Kojima's words of appreciation, saying that building trust is the hardest part about establishing relationships, but "JCCP and KFUPM are way past that stage," and have entered a new stage where the two organizations should strengthen their bonds based the foundation of mutual trust that they have built over the years.

The follow-up meetings held between January and March allowed Mr. Kojima



With H.E. Dr. Khaled S. Al-Sultan, Rector, at KFUPM

to spend more time to exchange views on a wider range of issues than before, with key persons in oil-related organizations in major oil-producing countries. The role of the Middle East is increasing in importance to Japan, as well as to the entire world, in securing a stable supply of oil. Expectations of JCCP have also increased, accompanying this trend, and cooperation requests have diversified. JCCP intends to take into consideration the recent series of dialogues that Mr. Kojima has held with oil industry leaders in the Middle East, as well as various other relevant factors, to develop new, enhanced cooperation schemes in the future.

<by Hisayoshi Tanda, Administration Dept.>

Mr. Katsuo Yokoyama, Managing Director of JCCP, Visits the Middle East

Mr. Katsuo Yokoyama, Managing Director of JCCP in charge of technical cooperation projects, traveled to the Middle East twice, between October-end and November 2007, and visited a total of six countries in the region. This was Mr. Yokoyama's first visit to the Middle East, since his appointment as managing director in July 2007. He attended important ceremonies, paid calls on various counterparts to introduce himself and exchange views on future implementation of technical cooperation projects. Major details of his visits are presented below.

I. Oman, Iran, UAE (October 26 – November 8, 2007)

1. [Oman] Contract Signing Ceremony with ORC <October 30, 2007>

Mr. Masoud Salim Al-Msalmy, General Manager of Oman Refinery Company LLC (ORC), and Mr. Katsuo

Yokoyama signed a memorandum of agreement (MOA) for the joint implementation of the "Study for Process and Operational Improvement in Mina Al-Fahar Refinery in Oman" (FY2007 – 2009). The study aims to enhance process and operational performance levels at the Mina Al-Fahar Refinery, so that ORC may better respond to the increasing demand for

oil in Oman. Over many years, JCCP has continued to introduce Japan's oil refining technologies to ORC, as a fundamental part of its technical cooperation activities, and has built a strong cooperative relationship with ORC. Based on this proven track record, ORC and JCCP have agreed to implement the joint study project.

The signing ceremony took place



Greetings by Ambassador Keiji Omori



Greetings by Mr. Tsuyoshi Kamijo, Deputy Director, METI



Exchange of the MOA
Left: Mr. Masoud Salim Al-Msalmy, General Manager of ORC
Right: Mr. Katsuo Yokoyama, Managing Director of JCCP



Exchange of commemorative gifts
Center: Mr. Yasushi Hotta, President, Cosmo Research Institute Inc.
Right: Mr. Masoud Salim Al-Msalmy, General Manager of ORC

in a reception room at the Grand Hyatt Hotel in Muscat, Oman. H.E. Keiji Omori, Ambassador of Japan to Oman, and Mr. Tsuyoshi Kamijo, Deputy Director of the Petroleum Refining and Reserve Division, the Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry (METI), honored the ceremony with their presence, and spoke briefly on the project's significant role in strengthening the friendly relationship between the two countries and in promoting personnel exchanges. Mr. Msalmy and Mr. Yasushi Hotta, President of Cosmo Research Institute Inc., a participant company in the project, also delivered words of gratitude and expectations for the successful completion of the project, and thanked all parties concerned for their cooperation. Mr. Yokoyama delivered a greeting and extended his appreciation to all parties. The local newspaper covered news of the ceremony, and contributed to increasing public recognition of the JCCP technical cooperation project in Oman.

2. [Oman] Visits to H.E.

Dr. Mohammed Bin Hamad Bin Saif Al-Rumhy, Minister of Oil and Gas, and Sultan Qaboos University <October 31, 2007>

On the day following the signing ceremony, Mr. Yokoyama paid a visit



*MOA signing ceremony
Senior ORC officials, Mr. Nitta, Secretary at the Japanese Embassy in Oman, JCCP members, and members from Cosmo Research Institute Inc., with Ambassador Omori and Deputy Director Kamijo*

to H.E. Dr. Mohammed Bin Hamad Bin Saif Al-Rumhy, Minister of Oil and Gas, to thank him for his cooperation and ask for his continued support of JCCP activities in Oman. Dr. Al-Rumhy spoke favorably about his experience in participating in a technical cooperation project implemented by the Petroleum Energy Center (predecessor of JCCP's technical cooperation department) in 1996, when he was an associate professor at Sultan Qaboos University. He welcomed the developments that JCCP projects have made in Oman since then, and expressed his wish to maintain friendly relations with JCCP.

Dr. Al-Rumhy also explained that

he has been inviting large numbers of university students from Japan to Oman every year since the 1990s, to promote a deeper understanding of Oman. He wishes to extend this activity not only to workers in oil and gas companies in Japan, but to people in many other sectors as well. More recently, Dr. Al-Rumhy has taken strong interest in Japan's technologies for reducing CO₂ emissions, and appears to have large expectations of Japan.

Following the visit to the Ministry of Oil and Gas, Mr. Yokoyama visited Sultan Qaboos University, where he had the opportunity to meet with H.E. Dr. Saud Nasser Ali Al-Riyami, Vice



*At the Omani Ministry of Gas and Oil
Right: H.E. Dr. Mohammed Bin Hamad Bin Saif Al-Rumhy, Minister of Gas and Oil*



*At Sultan Qaboos University
Second from right, front row: H.E. Dr. Saud Nasser Ali Al-Riyami, Vice Chancellor*

Chancellor, and verify the progress of a JCCP project that is currently being implemented jointly with the university.

3. [Iran] Courtesy Call on Mr. Mohammad Reza Nematzadeh, Deputy Minister of Petroleum and President of National Iranian Oil Refining and Distribution Company (NIORDC), and Visit to National Iranian Oil Company (NIOC) <October 29, 2007>

In Iran, Mr. Yokoyama paid a courtesy call on Mr. Mohammad Reza Nematzadeh, Deputy Minister of Petroleum and President of NIORDC, and senior officials of NIORDC. Mr. Yokoyama discussed JCCP's achievements in relation to its training courses and the huge number of participants who have so far participated in them, as well as exchanged views with the NIORDC members on future NIORDC support in implementing JCCP technical cooperation projects in Iran. Mr. Nematzadeh responded in a positive manner, expressing his intentions of prioritizing human resource development as an issue of company-wide importance, based on his previous experience working at National Petrochemical Company (NPC).

Mr. Yokoyama also visited National Iranian Oil Company (NIOC), a major



At NIOC
Left: Mr. S.M.A. Khatibi Tabatabai,
Vice Executive Director

producer and distributor of oil and gas in Iran, and paid a courtesy call on Mr. S.M.A. Khatibi Tabatabai, Vice Executive Director for International Affairs.

4. [UAE] Visit to Mr. Jasem Ali Al-Sayegh, General Manager of TAKREER <November 6, 2007>

In UAE, Mr. Yokoyama visited Abu Dhabi Oil Refining Company (TAKREER), to pay his respects to Mr. Jasem Ali Al-Sayegh, General Manager, as the new managing director of JCCP, and to thank him for TAKREER's cooperation in JCCP projects. Mr. Al-Sayegh expressed his appreciation of JCCP projects and his expectations of further cooperation from JCCP in developing engineers and conducting joint projects.

5. Visits with Other Senior Officials <November 3 – 7, 2007>

In addition to the above figures, Mr. Yokoyama also met with senior officials and leaders of other companies and institutions in Oman and UAE, and exchanged views on their cooperation and implementation of future JCCP activities. Other gentlemen with whom Mr. Yokoyama greeted included Mr. Ahmed Mohammed Al-Haddabi, Acting CEO of Sohar Refinery Company in Oman; H.E. Dr. Hadeef Bin Jouan Al Dhahiri, Vice Chancellor, and H.E. Dr. Maitha Salem Al Shamsi, Assistant Provost for Research Affairs, of UAE University; and Mr. Ali Mohd. Al Jaber, Division Manager of TAKREER's Ruwais Refinery.

The Sixth Scientific Council Meeting with UAE University was held on November 4 and 5, during Mr. Yokoyama's visit to UAE. An article on the details of the meeting is provided in the Topics section of this newsletter.

*<by Wataru Maekawa,
Technical Cooperation Dept.>*

II. Saudi Arabia, Qatar, Kuwait (November 15 – 30, 2007)

1. Contract Signing Ceremony with King Abdulaziz City for Science and Technology (KACST) <November 19, 2007>

H.H. Dr. Turki bin Saud bin Mohammed Al-Saud, Vice President of KACST, and Mr. Katsuo Yokoyama signed a memorandum of agreement (MOA) to conduct a project on "Experimental Application of InSAR Technology in Saudi Arabia to Assess the Effect of Reservoir Activity on Surface Subsidence" (FY2007 – 2008). The signing ceremony took place at the head office of KACST in the Kingdom of Saudi Arabia.

In FY2006, JCCP conducted a preliminary study on the assessment of partial ground deformation (upthrust



At NIORDC
Right: Mr. Mohammad Reza Nematzadeh,
Deputy Minister of Petroleum and
President of NIORDC



Presenting a commemorative gift from
JCCP to TAKREER
Left: Mr. Jasem Ali Al-Sayegh,
General Manager



MOA signing ceremony with KACST
 Right: H.H. Dr. Turki bin Saud bin Mohammed Al-Saud, Vice President
 Center right: Dr. Mohammed ibn Ibrahim Al-Suwaiyel, President
 Center left: H.E. Shigeru Nakamura, Japanese Ambassador to Saudi Arabia

and subsidence) in Saudi Arabia, using InSAR (interferometric synthetic aperture radar) analysis technology, which numerically analyzes InSAR data (microwave data reflected from a satellite) to assess ground deformation. As KACST has taken a strong interest in the technology, JCCP has promptly initiated a study for the creation of a system for technical transfer and data processing, and designed the study with the objective of developing and transferring technology that is capable of managing risks to oil facilities and areas caused by ground deformation in Saudi Arabia.

The signing ceremony was attended by Dr. Mohammed ibn Ibrahim Al-Suwaiyel, President, H.H. Dr. Turki bin Saud bin Mohammed Al-Saud, Vice

President, and Dr. Tariq A. Alkhalifah, Director, on the KACST side; and by H.E. Shigeru Nakamura, Ambassador of Japan to Saudi Arabia, Mr. Masanori Tsuruda, First Secretary, and Mr. Tadanori So, Second Secretary, from the Japanese Embassy in Saudi Arabia, as well as Mr. Hirokazu Kanai, Executive Director of Nichiyo Engineering Corporation, and a representative from Central Computer Services Co., Ltd. (CCS), as representatives of participant companies on the Japan side.

Firstly, Dr. Al-Suwaiyel expressed his appreciation and his sincere wishes for the success of the project and for the further deepening of the cooperative relationship between JCCP and KACST. Dr. Al-Saud also expressed his gratitude for the implementation of the “extremely



Article featured in the local newspaper: “KACST and JCCP have signed an MOA for a joint study, with the attendance of H.E. Ambassador Nakamura”

significant technical project,” and conveyed his expectations of its successful completion as well as his hopes that it will lead to the implementation of many other cooperation projects in the future. Ambassador Nakamura stressed the significance of Saudi-Japan technical cooperation as declared by then Prime Minister Shinzo Abe during his visit to Saudi Arabia in spring 2007, and expressed his hopes for the successful implementation of the project, as well as thanked all parties concerned for their cooperation. Mr. Yokoyama, after delivering a few words of greetings as



Exchange of commemorative gifts
 Right: H.H. Dr. Turki bin Saud bin Mohammed Al-Saud, Vice President
 Center: H.E. Shigeru Nakamura, Japanese Ambassador to Saudi Arabia



At the signing ceremony
 Center: Dr. Mohammed ibn Ibrahim Al-Suwaiyel, President

the new managing director of JCCP, pronounced his commitment to the project, and thanked KACST for its continued cooperation over many years. On behalf of the participant companies, Mr. Kanai from Nichiyo Engineering Corporation expressed his firm resolve to carry out the project with success and steadily transfer the InSAR technology to KACST.

After both leaders of the project signed the agreement, presentations were given on example applications of the InSAR technology. KACST reported on an effective application of the InSAR technology in capturing ground deformations caused by an earthquake that had previously struck the northwestern part of the country. The representative from CCS used actual case examples to show how the InSAR technology could be used to capture deformations of the ground surface. The ceremony ended on a successful note, and was covered by local newspapers. Implementation of the project is expected to promote further understanding of JCCP activities in Saudi Arabia.

2. Visits to JCCP Counterparts in Saudi Arabia, Qatar, and Kuwait

(1) King Fahd University of Petroleum and Minerals (KFUPM)

<November 20, 2007>

Mr. Yokoyama met with H.E. Dr.



Attendees of the meeting with KNPC

Center: Mr. Sami F. Al-Rushaid, previous Chairman of KNPC (current Chairman of KOC)

Second from left: Mr. Fahed Fahhad Al-Ajimi, Deputy Managing Director

Third from left: Mr. Asa'ad Ahmad E. Al-Saad, Deputy Chairman

Khaled S. Al-Sultan, Rector, and Dr. Sahel N. Abdul-Jauwad, Vice Rector, and thanked KFUPM for its past cooperation in JCCP activities. The Rector stated that "the university has participated in the HS-FCC project, so investigating the commercialization of the HS-FCC technology is a welcome development, from which the university expects great results."

(2) Saudi Aramco

<November 21, 2007>

Mr. Yokoyama met with Mr. Isam A. Al-Bayat, Vice President, and Dr. Omar S. Abdul-Hamid, Manager, to thank them for their long years of cooperation in JCCP activities, and to seek further development of the cooperative relationship between Saudi Aramco and JCCP. Saudi Aramco thanked JCCP for

its generous support and cooperation, and exchanged views on future technical cooperation projects.

(3) Kuwait National Petroleum Company (KNPC)

<November 28, 2007>

Mr. Yokoyama first paid a visit to KNPC and exchanged views on technical cooperation projects with Mr. Sami F. Al-Rushaid, previous Chairman of KNPC, Mr. Asa'ad Ahmad E. Al-Saad, Deputy Chairman, and Mr. Fahed Fahhad Al-Ajimi, Deputy Managing Director.

(4) KNPC's Mina Abdulla Refinery (MAB)

<November 29, 2007>

Mr. Yokoyama met with Mr. Mohammad Ghazi Al-Mutairi, Deputy



Exchange of commemorative gifts
Left: H.E. Dr. Khaled S. Al-Sultan, Rector



Exchange of commemorative gifts
Left: Mr. Isam A. Al-Bayat, Vice President



*Attendees of the meeting at KNPC's Mina Abdulla Refinery Center: Mr. Mohammad Ghazi Al-Mutairi, Deputy Managing Director
Second from left: Mr. Ousama H. Shammass, Manager*



*Attendees of the meeting at KISR
Second from left: Dr. Nader Al-Awadhi, Deputy Director General
Right of Mr. Yokoyama: Ms. Marafi, Manager
Third from right: Dr. Abdulhameed Al-Hashem, PRSC Director*

Managing Director, and Mr. Ousama H. Shammass, Manager, and exchanged views on the progress, issues, and future strategies of the “Development Study of Residue Hydrocracking to Distillate in KNPC ARD Units (Phase II),” a three-year project that KNPC and JCCP launched in FY2005.

(5) Kuwait Institute for Scientific Research (KISR)
<November 28 & 29, 2007>

Mr. Yokoyama met with Dr. Nader Al-Awadhi, Deputy Director General, and Dr. Abdulhameed Al-Hashem, Director of the Petroleum Research & Studies Center (PRSC), and thanked them for KISR’s long years of cooperation in JCCP activities. Drs. Al-Awadhi and Al-Hashem outlined future issues that KISR, including the PRSC, needs to address in the future, and exchanged views on various cooperation issues. They also expressed

their deep appreciation for the technical cooperation they have received from JCCP to date.

A contract signing ceremony with Qatar Petroleum (QP) was held on November 26, during Mr. Yokoyama’s visit to Qatar. An article of the ceremony is provided in the Technical Cooperation Section of this newsletter.

*<by Takeyoshi Haishima,
Technical Cooperation Dept.>*

Participation in Middle East Petrotech 2010 in Bahrain

The 7th Middle East Petrotech 2010 was held over a three-day period from May 24 to 26, 2010 at the Bahrain International Exhibition & Convention Centre, and JCCP participated in the exhibition part of the event.

Middle East Petrotech is held once every two years under the auspices of Arabian Exhibition Management, and is sponsored by state-run oil companies and petrochemical companies in the Middle East region, such as Bahrain Petroleum Company (BAPCO), Kuwait Petroleum Company (KPC), Saudi Arabian Oil Company (Saudi Aramco), Qatar Petroleum (QP), Petrochemicals Industries Company (PIC), Kuwait National Petroleum Company (KNPC), and Petro Rabigh; and Western oil and petrochemical companies such as ExxonMobil, UOP, Dow Chemical, and Shell. It is the largest international event held in the Middle East, and plays an important role in the development and

exchange of technologies in the oil downstream sector. This year's conference sessions and exhibition evolved around the main theme of "Downstream Challenges: Financing, Market Changes & Technology."

1. Background

JCCP participated in the past three Petrotech events as a booth exhibitor, and has steadily increased its profile by introducing JCCP activities to oil-related companies and institutions from Middle East oil-producing countries. Recognizing that Middle East Petrotech provides an ideal opportunity to widely publicize JCCP activities to Middle East oil-producing countries, we have once again operated a booth at this year's exhibition.

2. Preparation

The JCCP booth occupied an 18-square-meter area, and featured 12 information panels. To attract as many visitors as possible to the booth and promote accurate understanding of JCCP activities within a short time, the booth was designed to make maximum use of limited space, with the following considerations.

- Group the panels according to the two main pillars of training programs and technical cooperation projects to introduce the organizational structure of JCCP while emphasizing international friendship and mutual understanding.
- Keep explanations short, use large-sized text as much as possible, and select photos that have impact and would capture visitors' interest.
- Create a sense of unity by giving all panels a common design element associated with Japan, to visually appeal to visitors.

As a result of these considerations, the booth was designed and arranged as shown in the photos below. Moreover, to promote an understanding of JCCP activities at a glance, a slogan was employed for the first time: "Connected by technology, person-to-person." Under this slogan, the booth displayed tapestries of 4 sub-themes accompanied by two explanatory posters each.



Venue of the 7th Middle East Petrotech 2010



JCCP members



Exhibition panels



JCCP exhibition booth

3. Visitors to the JCCP Booth

During the course of the exhibition period, executive members from sponsor state-run oil companies, including Saudi Aramco, BAPCO, QP, and KNPC, visited each of the booths. Among them was Mr. Mohammed A. Al-Omaid, Executive Director, Refining & NGL Fractionation, Saudi Aramco, who also served as vice chairman of the Middle East Petrotech 2010 Executive Committee. Mr. Al-Omaid, having participated in the JCCP International Symposium held in January as a keynote lecturer, visited the JCCP booth with the fondness of a close associate and expressed delight in JCCP's participation in the exhibition.

The JCCP booth received many visitors from Middle East oil-producing countries, and particularly from Bahrain's BAPCO and Saudi Aramco's Head Office and Ras Tanura Refinery, which are located within close distance to Bahrain.

Many JCCP graduates and members who have taken part in a JCCP technical cooperation project also visited



Mr. Mohammad A. Al-Omaid, Executive Director, Refining & NGL Fractionation, Saudi Aramco (second from right)

the JCCP booth upon spotting the familiar JCCP logo, to exchange news about their present situations. There were many familiar faces, from those who completed a JCCP course just recently, to those who participated in a course more than ten years ago. Some graduates noted that they continued to take an interest in JCCP activities even after completing their respective courses, and have kept track of current developments in JCCP activities through *JCCP NEWS*. Many others said they gained such a valuable experience from their participation in a JCCP course that they actively talk about it with their superiors and recommend their colleagues to also attend. Through such conversations, we reaffirmed the important role that JCCP graduates assume in spreading word about JCCP activities.

There were also many people who have never attended a JCCP course themselves but have heard about JCCP from subordinates and colleagues who have attended a JCCP course or participated in a technical cooperation project. To visitors unfamiliar with JCCP, we used the posters in the booth to introduce JCCP activities and elicited their strong interest. Many even ended up requesting more information on the types of training programs JCCP offers and how to apply for them.

Among the visitors to the JCCP booth, there were those who saw the tapestries and poster slogans and merely stopped by to find out what they mean, as well as those who were simply drawn to the booth by the keywords in and of themselves. For instance, they asked what the expression "Fostering friendship" means and what "Hands-on training" specifically refers to, and gave us the opportunity to provide an overview of JCCP and its activities and to introduce regular training courses by showing them the regular course program for the year. In other words, these interactions demonstrated that the



Visitors at the JCCP booth



Visitors inquiring about participation in a JCCP training program

slogan, which was used for the first time at this event, was highly effective in drawing visitors to the JCCP booth.

In regard to JCCP training programs, the JCCP booth received many requests for participation in a course on environmental and safety issues. With respect to technical cooperation projects, visitors posed many questions concerning water, and learned that JCCP is actively providing cooperation in addressing water-related issues such as refinery wastewater treatment and treatment of crude oil-associated water. These requests and inquiries were indicative of the high level of interest in environmental issues among refineries in Middle East oil-producing countries.

By participating in the Middle East Petrotech 2010 exhibition, JCCP introduced its activities to a wide audience and received greater public recognition in the Middle East. The opportunity to communicate the essence of JCCP activities to a large number of people over the three-day period proved to be extremely beneficial, as the international event brought together diverse parties from the oil downstream sectors in the GCC countries, as well as key figures from major oil-producing countries in the Middle East. Encouraged by this experience, JCCP will seek further opportunities like Middle East Petrotech 2010 to more widely introduce JCCP activities.

<by Masumi Kitahara, Administration Dept.>



Participation in “The 6th Middle East Refining and Petrochemicals Conference & Exhibition” in Bahrain

From May 26 to 28, 2008, “The 6th Middle East Refining and Petrochemicals Conference & Exhibition” (ME Petrotech 2008) was held at the Bahrain International Exhibition Centre, located in Manama, Bahrain, under the auspices of national oil companies of GCC oil-producing countries, including Saudi Arabian Oil Company (Saudi Aramco), Kuwait National Petroleum Company (KNPC) and Bahrain Petroleum Company (BAPCO), as well as western oil and petrochemical companies such as UOP, Shell, and Dow Chemical.

Held once every two years, ME Petrotech is the largest event in the Middle East, for oil and petrochemical business in the oil-producing countries of the region. JCCP participated in the exhibition part of the event for the third time, following its previous participation in the 4th (2003) and 5th (2006) exhibitions.

This year, JCCP was allotted a space at the end of the central aisle of the exhibition floor to set up its booth (18 m²: 3 m x 6 m). Owing to this favorable location, the JCCP booth received more than 1,000 visitors, mainly from oil-related companies in GCC oil-producing countries, throughout the duration of the event, a number far exceeding JCCP’s original expectation.

The booth introduced JCCP using 16 information panels, an introductory DVD on JCCP activities, publication materials including brochures, annual training programs, and newsletters.

A number of the panels used in the previous exhibition were revised this year. A new panel was added to two existing panels that provided an overview of JCCP activities, and the comprehensive view of JCCP activities was designed so that two panels connect to form a single image, to facilitate understanding. Where two panels previously introduced JCCP training courses and recent achievements, two new panels were added to show step-by-step how regular courses and tailor-made courses are implemented, in an easy to understand design using photographs. In the area of technical cooperation projects, a panel provided an overview, another introduced the Joint GCC-Japan Environment Symposium, and seven panels featured representative technical cooperation projects, including the joint international research project with King Fahd University of Petroleum and Minerals (KFUPM) and the joint project on high-severity fluid catalytic cracking (HS-FCC) technology (demonstration study) conducted with Saudi Aramco.



The entrance to the ME Petrotech venue



At the JCCP booth



Using information panels to explain technical cooperation projects

In addition to key figures from major oil-producing countries and top executives of JCCP counterparts such as Saudi Aramco, a large number of people who have heard about JCCP training courses and technical cooperation projects visited the JCCP booth. JCCP members received the strong impression that JCCP activities are becoming more widely recognized in the Middle East region. Nevertheless, few people had a full understanding of both training courses and technical cooperation projects, and many inquired as to why JCCP is providing support to oil-producing countries. Therefore, the exhibition provided the perfect opportunity for JCCP members to personally explain JCCP's overall activities and its mission in detail to each visitor.

The JCCP booth also received visits by many JCCP graduates from JCCP counterparts such as Saudi Aramco, Abu Dhabi Oil Refining Company (Takreer), and BAPCO. Many of them planned to recommend that their colleagues and subordinates



JCCP graduates focusing their attention on an introductory DVD on JCCP activities

attend a JCCP regular course, since they themselves have greatly benefited from participating in JCCP training courses. This indicated a strong need for human resource development in the Middle East. In addition to JCCP graduates, many engineers came to the JCCP booth, inquiring detailed information on technical cooperation projects. Their detailed questions were also indicative of the high level of interest in technical cooperation projects in oil-producing countries.

JCCP values the opinions and requests that were obtained through direct communications with visitors to the JCCP booth, and will use the feedback to further enhance activities in response to their expectations. Events such as this ME Petrotech, which offer opportunities for JCCP to directly interact with parties in the oil industries in Middle East oil-producing countries, are an ideal forum for publicity activities. JCCP will continue to seize such opportunities to introduce JCCP activities and promote greater understanding of its mission.

<by Kaoruko Nakamura, Administration Dept.>



Responding to questions from visitors



JCCP graduates (Saudi Aramco engineers in front of the JCCP booth)



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