

JCCP NEWS

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Topics

- The 30th JCCP International Symposium
- The 20th Joint GCC-Japan Environment Symposium
- Signing of a Basic Agreement on a Special Cooperation Program for Vietnam
- Interview with JCCP Graduates
- Participation in the 20th World Petroleum Congress in Doha and Visit to Qatar Petroleum



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Cover photo by Minoru Horike
(Training Dept.).
Weeping cherry tree
at Mt. Minobu Kuonji Temple

Celebrating JCCP's 30th Anniversary

Yaichi Kimura
President,
Japan Cooperation Center, Petroleum (JCCP)



JCCP celebrated its 30th anniversary last November 26, 2011. Our operations have developed steadily over these past 30 years thanks to the kind understanding and support of all parties concerned in oil-producing countries and our partners in associated institutions in Japan. In deep recognition of everyone's cooperation, I would like to extend my sincerest gratitude to you all.

I have taken the occasion of our anniversary to look back on the prospectus of JCCP's establishment. It states that our objective is to develop and maintain friendly, cooperative relationships between oil-producing countries and Japan, and thereby contribute to the stability of oil demand and supply. As the prospectus was written not long after the two oil crises, it expresses a strong sentiment that getting to know people in oil-producing countries and establishing personal relationships is indispensable. Over the 30 years since then, we have invited more than 20,000 engineers and managers from oil-producing countries to receive training in Japan, and have sent 5,000 Japanese engineers to oil-producing countries to promote technical exchanges. We have also implemented as many as 200 joint projects and created opportunities to address various issues through cooperation between engineers in oil-producing countries and Japan. Thus it can be said that JCCP's history has been one of developing cooperative relationships to promote technical exchanges between points of production in oil-producing countries and Japan. I believe this exchange of technologies has contributed to creating a system for ensuring stable oil supply, from the oil well to the hands of consumers.

During the past three decades, the role of oil has changed, and the expression "stable oil supply" has also come to take on a new meaning. Oil is no longer simply a source of energy, but in today's society, it is also an essential ingredient for functional plastics and synthetic fabrics that have become indispensable and integral to our lifestyles. Similarly, the expression "stable oil supply" has come to be used not only in reference to matters of an urgent nature, but also in terms of ensuring sustainability of oil supply. Furthermore, Japan's position as an oil-consuming country is gradually changing, and the state of the economy in oil-producing countries is also undergoing dramatic changes. We must continue to improve our operations over the next 30 years in order to respond sufficiently to emerging needs in the new era, as well as to changing needs in oil-producing countries.

This situation requires us to work more actively to address the diverse challenges that lie in front of us in even closer cooperation with oil-producing countries. Toward this end, the oil industries in oil-producing countries and Japan need to strengthen dialogues and communication to better understand each other's needs and to engage in friendly competition toward achieving a strong and mutually competitive industry. I strongly believe that friendship and cooperation, the two primary pillars of JCCP's operations, will be key to addressing future issues.

In order for us to fulfill our expected role, I wish to ask all our friends and partners in oil-producing countries and related institutions in Japan for your continued support and guidance.

Messages from JCCP Graduates

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



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

Participant of a regular course on Marketing Management offered in 1988

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

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

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

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

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

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

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



Mr. Mohamed Abdulla Al Azdi
CEO, Abu Dhabi National Chemical Company (ChemWEyaat)

Participant of a regular course on Marketing and Distribution offered in 1983

I had the pleasure and the good luck to be selected by my company, Abu Dhabi National Oil Company (ADNOC), to attend a JCCP marketing course in 1984 along with another colleague. We joined other participants from Saudi Arabia, Indonesia, Nigeria, China, Myanmar and Thailand, and spent roughly a month together receiving training in Japan.

The program included lectures at JCCP and site visits to oil and LP gas marketing and distribution facilities, and provided a great deal of practical knowledge that we could immediately apply to our respective work. I realize now that everything we learned in the course has subsequently proven extremely beneficial throughout our entire careers.

As I was working for ADNOC International Marketing at the time, I was a regular short-term visitor to Japan both before and after participating in the course, and thought I knew Japan relatively well. However, the extended stay in Japan to participate in the course not only helped me gain knowledge of the Japanese oil and gas industry, but also a deeper understanding of the culture of Japanese companies that support the industry's productivity, as well as the cultural and historical dimensions of Japan as a whole. This is based on both my own and my colleagues' experience.

The oil industry in Asia has undergone dramatic changes during the past 30 years, and is still continuing to change. From hereon, it is expected to transform into an integrated oil refining and petrochemical industry and aim to provide greater added value. In conjunction with this transformation, I wish to see JCCP enhance its curriculum with more courses related to the petrochemical industry. Additionally, based on the impression of all course participants that promoting cultural understanding and cultural exchange between oil-producing countries in Japan is also an important part of JCCP programs, I also wish to see more Japanese language and culture sessions along with the technical aspects of the courses so that future participants can gain a deeper sense of the "spirit of creation" that supports Japan's technologies.

Lastly, as one JCCP graduate, I wish JCCP many more years of success and achievement.

The 30th JCCP International Symposium

“Dialogue for Sustainability of Oil Supply and Consumption”



Mr. Yaichi Kimura, President of JCCP (center), and the guest of honor, chairmen, and panelists of the symposium

The 30th JCCP International Symposium was held over two days, from January 25 to 26, 2012, under the auspices of the Ministry of Economy, Trade and Industry (METI), and with the attendance of approximately 300 people from METI, oil producing countries, foreign embassies in Japan, government offices, domestic firms and organizations.

1. Theme

This year's symposium was themed, “Dialogue for Sustainability of Oil Supply and Consumption.” Following the keynote speeches and special lectures given on the first day, two discussion sessions explored the theme in detail on the second day, from the perspectives of “Leadership for Innovation” and “Best Practice for Innovation.”

Oil is an important source of energy that provides 40% of Japan's and 33% of the world's primary energy

supply. As securing a stable supply of oil long into the future is therefore a common priority issue among oil producing and consuming countries, both sides need to deepen mutual understanding through dialogue and cooperate toward establishing a sustainable oil energy system. Based on this awareness, the symposium focused on introducing corporate innovation initiatives being made in each country from the perspectives of leadership development and best practices, and provided an opportunity to establish cooperation.

2. Overview

(1) First Day (January 25): Opening Ceremony

An opening ceremony officially launched the symposium at 2:00 p.m. on January 25. Mr. Yaichi Kimura, President of JCCP, gave an opening address, followed by a greeting from the guest of honor, Mr. Hisayoshi Ando, Director-General of the Natural

Resources and Fuel Department at METI.

Mr. Kimura presented a perspective on this year's symposium as follows: "On March 11th last year, Japan was hit by a major earthquake that left tremendous damage in its wake. From immediately after the earthquake, we received warm words of condolence and relief supplies from our friends in oil producing countries, as well as their help in securing petroleum, LPG, and natural gas supplies. We have no words that can fully express how strong an encouragement this was to us.

"The earthquake has made us realize anew the preciousness of personal relationships between oil producing countries and Japan, and the necessity of petroleum, LPG and other forms of energy to our everyday lives. It has also highlighted the importance of dialogue between oil producing and consuming countries to deepen mutual understanding and to make innovative changes that allow us to fulfill our responsibility of providing a stable supply of oil."

Following Mr. Kimura, Mr. Ando gave an opening greeting, firstly reflecting back on the Great East Japan Earthquake and expressing his deepest gratitude to all stakeholders and oil producing countries in the oil industry for the tremendous support they have given Japan in the wake of the disaster. He also stated that the earthquake has spurred a sweeping review of energy policies in Japan and has ignited a renewed awareness of the importance of oil. Given this situation, he said holding this international symposium on dialogue for sustainability of oil supply and consumption is highly significant, and hopes vigorous and fruitful discussions ensue.

(2) Keynote Speeches

Two keynote speeches were given: "Thoughts for Your Energy" by Dr. Ing. Jeroen van der Veer, Chairman of the Supervisory Board at ING Group N.V. and former CEO of Royal Dutch Shell PLC; and "Global Oil Outlook & Future Challenges" by Dr. Hasan M. Qabazard, Director of the Research Division at OPEC-Organization of the Petroleum Exporting Countries.

In their speeches, both Dr. van der Veer and Dr. Qabazard talked about how new technological developments have expanded the production of shale oil and have greatly increased the world's capacity for oil supply. They emphasized that oil can still contribute to development of the global economy as a source of energy, that technology offers infinite possibilities, and that we must continue our challenge to develop

new technologies. Dr. van der Veer also stated that in a society that is becoming increasingly complex, making decisions concerning policies for stable oil supply is extremely difficult, but leaders have the responsibility to make the right decisions and to lead other companies in any circumstances. To do so, he explained that leaders must adhere to three basic principles; that is, they must (1) constantly acquire the latest technologies, as technologies offer infinite possibilities; (2) have the capacity to lead and to take responsibility even on large complex projects; and (3) have reliable partners who can provide cooperation in realizing large energy development projects.

Dr. Qabazard stated that oil producers have a responsibility to ensure stable oil supply, and that well-timed investments will play a critical role in the development and broader application of new oil resources. He then called on all oil producers and consumers to cooperate in taking a responsible approach, saying that the research, development, and deployment of technology have a cost and require significant investments, and that a proper environment needs to be created that would allow oil producers to continue making upstream investments with a commitment to satisfying oil demands in the future.

Summaries of the two keynote speeches are provided on pages 13 to 18 in this issue of *JCCP NEWS*.

(3) Special Lectures

The keynote speeches were followed by three special lectures.

Dr. Fereidun Fesharaki, Chairman of FACTS Global Energy, Inc., gave a lecture on "Asia and Middle East Oil Markets Post Fukushima," and discussed the demand-supply balance of crude oil and oil products in Asia and



Dr. Fereidun Fesharaki, Chairman, FACTS Global Energy Inc.



Mr. Abdulhakim A. Al-Gouhi, General Manager, Ras Tanura Refinery, Saudi Aramco



Ms. Salma Al Hajjaj, Director, Center for Leadership Development, Kuwait Petroleum Corporation (KPC)

the Middle East as a whole, mainly in reference to the major changes that have occurred in the global oil supply-demand structure owing to the development of shale oil, and the changing structure of the global oil industry accompanying economic growth in Asian countries.

Mr. Abdulhakim A. Al-Gouhi, General Manager of Ras Tanura Refinery, Saudi Aramco, gave a lecture on “Saudi Aramco Ras Tanura Refinery Best Practices,” and introduced Saudi Aramco’s initiatives to improve the environmental quality of its oil products through the application of best practices and to increase added value by making effective use of distillates.

Lastly, Ms. Salma Al Hajjaj, Director of the Center for Leadership Development at Kuwait Petroleum Corporation (KPC), gave a lecture on “Coaching: An Innovative Way to Sustainability,” in which she discussed KPC’s various initiatives and future issues. She explained that KPC is making Group-wide efforts to integrate its upstream and downstream businesses to increase the Group’s added value, and is taking active steps to develop leaders under the direct supervision of the CEO, based on the recognition that the development of human resources capable of leading the innovation is essential realizing its goal. She also stated that KPC’s greatest challenge lies in creating a corporate culture where current leaders take the initiative in fostering the next generation of leaders based on their own experience.

(4) Reception

After listening to the keynote speeches and special lectures, all participants and guests were invited to join a reception hosted by JCCP. Following a brief greeting by Mr. Hisayoshi Ando from METI, Mr. Bakheet Sh. Al Rashidi, Deputy Managing Director at Kuwait

National Petroleum Company (KNPC), also gave a few words of greeting on behalf of the representatives from oil producing countries, and Mr. Mitsunori Takaogi, President of JX Holdings, Inc., made a toast.

In his greeting, Mr. Al Rashidi stressed the precious value of oil as a finite resource, and said we must make the most of it for the benefit of humanity. Toward this end, he emphasized the need for oil producing and consuming countries to fulfill their respective responsibilities and mutually cooperate with each other.

(5) Second Day (January 27): Discussion Sessions

The program for the second day was divided into two discussion sessions: Session 1 in the morning (chair: Mr. Mitsutoshi Hamamura, Director/Senior Executive Officer, Toyo Engineering Corporation), and Session 2 in the afternoon (chair: Mr. Hiroji Adachi, Executive Officer and General Manager, JX Nippon Oil & Energy Corporation).



Mr. Bakheet Sh. Al Rashidi, Deputy Managing Director, Kuwait National Petroleum Company (KNPC)



Session 1



Session 2

1) In Session 1, themed “Leadership for Innovation,” four panelists each gave a presentation on initiatives taken at their company to develop the next generation of leaders. Ms. Premhatai Napalai (Vice President, Leadership & Talent Management Development, PTT Public Company Limited) gave a presentation on “Building and Harnessing Executive Bench Strength — Realizing PTT Group’s Goal of Becoming a Fortune 100 Company by 2020”; Mr. Raed H. Al-Rabeh (Director, Professional Development Dept., Saudi Aramco) on “Young Leadership Development”; Prof. Dr. Hamed Al Dhahab (HRS General Manager, Human Resource Services, Oman Oil Refineries and Petroleum Industries Co. (Orpic)) on “Orpic Sustainable Leaders”; and Mr. Hisashi Osone (Managing Director, Toyo Engineering India Limited) on “Cultural Challenges in Globalization — Toyo Engineering Experience.”

- *Chairman Hamamura’s Summary of Session 1*
Today, oil companies and engineering companies in

oil producing and consuming countries face the challenge of expanding their business in the global market, and are addressing this challenge by innovating and transforming their corporate culture. As all panelists in this session have pointed out, the key to successful corporate innovation is having the right leader, and fostering such leaders is a strategic challenge to all companies.

To develop next-generation leaders, companies need to clarify and disseminate corporate principles and values in the form of MVV—mission, value and vision—among all employees, and to have top management executives themselves invest both their time and effort in fostering leaders with a clear image of what type of leaders are needed. It is also necessary to give promising young people the opportunity to serve as project managers and gain firsthand knowledge in implementing a project based on their own decisions and responsibility.

Both oil producing and consuming countries are aiming for the same goal. The key to success lies in engaging in friendly competition for mutual development



Plenary session

into stronger companies. It is important that we deepen our understanding of each other, make efforts for greater innovation, and strengthen mutual cooperation to ensure better utilization of our precious petroleum resources.

2) In Session 2, four panelists gave presentations related to the theme of “Best Practice for Innovation.” Mr. Abdulghafoor Mohammed Abduljabbar (Director General, North Refineries Company (NRC), Ministry of Oil) gave a presentation on “Challenge of Iraq to Construct World-class Refining Industry”; Mr. Bakheet Sh. Al Rashidi (Deputy Managing Director, Planning & L.M., Kuwait National Petroleum Company (KNPC)) on “Best Practices for Innovation of Oil Industry”; Mr. Abdulla Ali Al Mansouri (CSDM, Manager, Corporate Support Division, Abu Dhabi Oil Refining Company (TAKREER)) on “Environmental Aspects in Refineries and Projects”; and Mr. Hidetoshi Ueno (Deputy General Manager, Negishi Refinery, JX Nippon Oil & Energy Corporation) on “JX Nippon Oil & Energy’s Challenges for Best Practices.”

- *Chairman Adachi’s Summary of Session 2*

In Session 2, presentations by each of the panelists on the main theme of the session, “Best Practice for Innovation,” illustrated the firm resolve of each company to maximize the value of oil, take initiatives to enhance corporate competitiveness, and become strong companies capable of supporting their nation.

To ensure that humanity can continue to enjoy the benefits of oil for as long as possible, oil producing countries are striving to upgrade their refineries with the application of advanced technologies that can not only turn heavy oil distillates to fuel, but could also crack them to make them lighter and even convert them to petrochemical feedstock. In regard to training, conscious efforts are being made to develop human resources with the capacity to promote improvement and greater efficiency in the oil refining and petrochemical sectors. Meanwhile, oil consuming countries, for their part, are upgrading their refining facilities in the effort to optimize processes and promote effective utilization of oil and energy conservation.

The panelists in this session commonly stressed the importance and need to innovate oil refineries and petrochemical plants in response to the changing

demand structure, and to implement best practices toward fulfilling that goal. They also introduced the creative efforts that their company is making to establish appropriate systems and training frameworks, in their pursuit of best practices. The expression “best practice” sounds nice, but the important thing is to come up with a mechanism for executing these practices.

We may have our differences as oil producing and consuming countries, but we are both working toward the common goal of maximizing and making the best of oil resources. The Japanese oil and engineering industries therefore wish to share their experience and technologies with oil producing countries to help realize advanced and robust refineries with the active cooperation of all.

3. Closing Statement

After the discussion sessions, Mr. Masataka Sase, Executive Director of JCCP, took the podium to deliver a few words in closing. He said that while the oil industry experienced various events in the past 30 years, we have nevertheless been able to secure a stable supply of oil. We have been able to maintain a proper demand-supply balance thanks to deep mutual understanding between oil producing and consuming countries, and to the establishment of a mechanism to resolve any issues that might impact the stability of supply. This has made us realize anew that dialogue is indispensable between oil producing and consuming countries, and that we must continue to make an effort to establish mutual understanding and cooperation. In terms of the fact that the presentations in today’s discussion sessions have made us think about this important issue of dialogue, this symposium has served its purpose well.

This year’s JCCP International Symposium has once again provided an ideal forum for exchanging views toward the establishment of a sustainable oil supply system among frontline leaders in the oil downstream sector in oil producing countries and Japan. JCCP will continue to promote dialogue between the two sides of the oil industry through forums such as this symposium, to strengthen mutual understanding and contribute to the stable supply of oil.

Please visit JCCP’s website (<http://www.jccp.or.jp>) to see the presentation materials from the symposium.

<by Hisayoshi Tanda, Administration Dept.>

The 30th JCCP International Symposium Program
 “Dialogue for Sustainability of Oil Supply and Consumption”

Date	Time	Proceedings
Jan. 25 (Wed)	14:00 – 17:10	Opening ceremony
		Opening address Mr. Yaichi Kimura, President of JCCP
		Guest-of-honor speech Mr. Hisayoshi Ando, Director-General, Natural Resources and Fuel Department, Agency for Natural Resources and Energy, METI
		Keynote speeches Dr. Ing. Jeroen van der Veer, Chairman, Supervisory Board, ING Group N.V. (Former CEO, Royal Dutch Shell PLC) Dr. Hasan M. Qabazard, Director, Research Division, OPEC—Organization of the Petroleum Exporting Countries
	18:00 – 20:00	Reception
Jan. 26 (Thu)	9:30 – 12:00	Session 1 “Leadership for Innovation”
	13:30 – 16:00	Session 2 “Best Practice for Innovation”
	16:00 – 16:10	Closing address: Mr. Masataka Sase, Executive Director of JCCP

Keynote Speeches

Country	Speaker	Speech Title
Netherlands	Dr. Ing. Jeroen van der Veer Chairman, Supervisory Board, ING Group N.V. (Former CEO, Royal Dutch Shell PLC)	Thoughts for Your Energy
Austria	Dr. Hasan M. Qabazard Director, Research Division, OPEC—Organization of the Petroleum Exporting Countries	Global Oil Outlook & Future Challenges

Special Lectures

Country	Speaker	Speech Title
USA	Dr. Fereidun Fesharaki Chairman, FACTS Global Energy Inc.	Asia and Middle East Oil Markets Post-Fukushima
Saudi Arabia	Mr. Abdulhakim A. Al-Gouhi General Manager, Ras Tanura Refinery, Saudi Aramco	Saudi Aramco Ras Tanura Refinery Best Practice
Kuwait	Ms. Salma Al Hajjaj Director, Center for Leadership Development, Kuwait Petroleum Corporation (KPC)	Coaching: An innovative way to sustainability

Session 1: Leadership for Innovation

Chairman: Mr. Mitsutoshi Hamamura

Director/Senior Executive Officer, Engineering Management Unit, Toyo Engineering Corporation

Country	Speaker	Speech Title
Thailand	Ms. Premhatai Napalai Vice President, Leadership & Talent Management Development, PTT Public Company Limited	Building and Harnessing Executive Branch Strength — Realizing PTT Group's Goal of Becoming a Fortune 100 Company by 2020
Saudi Arabia	Mr. Raed H. Al-Rabeh Director, Professional Development Department, Saudi Aramco	Young Leadership Development
Nigeria <i>(canceled)</i>	Engr. Augustine Olusegun Oniwon Group Managing Director, Nigeria National Petroleum Corporation (NNPC)	Sustaining Global Energy Supply —The Role of Nigeria
Oman	Prof. Dr. Hamed Al Dhahab HRS General Manager, Human Resources Services, Oman Oil Refineries and Petroleum Industries Co. (Orpic)	Orpic Sustainable Leaders
Japan	Mr. Hisashi Osone Managing Director, Toyo Engineering India Limited	Cultural Challenges in Globalization —Toyo Engineering Experience

Session 2: Best Practice for Innovation

Chairman: Mr. Hiroji Adachi

Executive Officer and General Manager, Refining Department, Refining Technology & Engineering Division, JX Nippon Oil & Energy Corporation

Country	Speaker	Speech Title
Iraq	Mr. Abdulghafoor Mohammed Abduljabbar Director General, North Refineries Company (NRC), Ministry of Oil	Challenge of Iraq to Construct World Class Refining Industry
Kuwait	Mr. Bakheet Sh. Al Rashidi Deputy Managing Director, Planning & L.M., Kuwait National Petroleum Company (KNPC)	Best Practices for Innovation of Oil Industry
UAE	Mr. Abdulla Ali Al Mansouri CSDM, Corporate Support Division Manager, Corporate Support Division, Abu Dhabi Oil Refining Company (TAKREER)	Environmental Aspects in Refineries and Projects
Japan	Mr. Hidetoshi Ueno Deputy General Manager, Negishi Refinery, JX Nippon Oil & Energy Corporation	JX Nippon Oil & Energy's Challenges for Best Practice

Keynote Speech

Thoughts for Your Energy

Dr. Ing. Jeroen van der Veer
Chairman, Supervisory Board,
ING Group N.V.
(Former CEO, Royal Dutch Shell PLC)



1. Stable Supply of Energy

Today, energy issues are a global concern, and various myths about the oil and energy industry are going around. For example, they include myths that “natural gas reserves will run dry,” “shale gas is dangerous,” “oil will run out of reserves,” “nuclear power generation is dead,” “energy savings or energy efficiency will only be marginal from now on,” “biofuels compete with food,” “subsidies on renewables accelerate innovation,” and “electric cars are the solution.” However, they are not all true, and to deal with them, we must give order to them and approach them with logic.

2. Choosing from among Diverse Values

Diverse values exist in the society in which we live. In a philosophy that I call “broken triangle,” I envision the public, politicians and companies on the three corners of the triangle, with their respective set of values. The difference in values has increased distrust on all sides of the triangle, such that it is very difficult to implement solutions. Even if all sides are aware of the need to address energy issues and derive possible solutions, things are not easy in today’s society.

3. Long-term Perspective

At Shell, we learn that viewing things in the long term is helpful in reaching an agreement among the public, politicians, and companies. In fact, there are three aspects relevant to the energy industry that most people can agree on.

The first point is that energy demand in the world will probably double in 40 to 50 years. We will go from 7 to 9 billion people in the world, and the middle class in Asia will start to drive cars and own air conditioners.

We assume that energy efficiency will also improve, but if that does not happen, energy demand will double even faster.

The second point is that we need an energy mix. On the supply side, it is the government, and not companies, that determines the supply of energy and what the energy mix will be. It leads society to accept that energy mix through subsidies and taxation. The problem in placing the energy mix in the hands of the government is that some politicians think we can do it all with renewables and do not need fossil fuels. However, if we look at total demand doubling in the world, and if we consider the high unit cost of renewables today, it is easy to come to the conclusion that we need all of it in the energy mix. It is not a choice.

The third point is that controlling carbon dioxide costs a lot of money. Various initiatives have been taken to date to reduce CO₂ emissions, but we all know that there are no easy solutions. All solutions will necessarily cost money.

4. New Changes

Changes are constantly occurring in the energy industry, so we need to keep a constant eye on new aspects, or what I call game-changers. I think there are four important game-changers in today’s society.

The first is shale gas. Until about 20 years ago, many companies believed there are natural gas reserves to last only about 50 years. However, thanks to the development of shale gas production, reserves for gas production and consumption may now last for more than 200 years. Shale gas can be considered a disruptive technology brought about by a discontinuity in thinking.

The second game-changer is the change in how people around the world now see the future of nuclear power. Nuclear may not come back, but if it does, future

planning permissions would take longer and it would be more expensive, due to all sorts of safety precautions, thus changing the competitive position of nuclear power for a considerable time in the future.

The third is the zero tolerance of the public in regard to environmental accidents. Such accidents may or may not happen according to different operational practices, but the important message is that they simply should not happen. We expect the oil industry to work without causing any major environmental accidents. I call this zero tolerance.

The fourth is the new model of environmental NGOs. They exploit the legal system, and by doing so, they delay developments for many years. This means very slow development or no development at all especially for large projects in a world where we must find one way or another to cope with the doubling of demand.

5. Consensus Building

In the beginning I talked about the broken triangle. The public, politicians and companies, with their respective set of values, need to reach a consensus on how to make progress in spite of the broken triangle. What is foremost necessary in reaching a consensus is to logically identify win-win relationships. This may not be easy, but there are four keys to achieving logical win-win situations.

The first is cooperation between oil producing and consuming countries. For instance, Shell works together with the Japanese, and since some years ago, it has joined hands with Saudi Aramco as co-shareholder of Showa Shell. This is a win-win situation, which I expect to be very stable in the long term.

The second is long-term contracts. The Japanese have imported LNG for decades based on long-term contracts. This is a solution worthy of compliment, as long-term contracts justify infrastructure development, as well as a readiness to step up energy policies. Moreover, long-term contracts serve both producers and consumers by supporting the development and cooperation of energy supply and demand.

The third is dialogue between producers and consumers. We have the IEA, we have the IEF, we have JCCP, and of course we have OPEC as forums for discussion between oil producing and consuming countries. I remember having been at conferences in the past where OPEC and the IEA basically engaged in quarreling, but we do not see this type of confrontation

nowadays. Granted, there may be differences in view, but all parties engage in fruitful discussions, create scenarios, and exchange views with each other based on facts and scientific reasoning. This is extremely helpful.

The fourth is new forms of cooperation in energy development projects. Most people realize that if oil prices go too high, an umbrella would need to be made for renewables, but renewables will never be cheap. If oil prices go too low, easy oil would become scarce, leaving only difficult oil that would demand a certain price to justify the necessary investments. Under this situation, however, some positive signs can be seen in the development of oil in the Arctic area. That is, new forms of cooperation are emerging, bringing together not only companies and governments, but also NGOs. Some NGOs are against this type of framework, but others realize that development of gas and oil reserves in the Arctic is inevitable, and if so, they ought to cooperate in setting a standard in order to do a responsible job. This is an example of a solution that may work in the world of a broken triangle.

6. Response to Changes

Things happen that we do not expect. Shell is known to create long-term scenarios that look forward 50 years, but updates those scenarios every five years, because things happen that are not expected. If something happens often over a period of, say, 20 years, it will likely happen again, but still, it is valid to create scenarios, because things happen that we do not expect.

In the latter half of the 1990s, the price of oil had gone below \$10 per barrel. Shell created a daring scenario wherein the price of oil would return to about \$40 per barrel within some years. Nobody believed in this scenario, but in fact, oil prices went from below \$10 to close to \$100 in a few years. In the early 2000s, most companies in the United States decided to secure capacity for LNG imports from the Middle East to deal with declining production. However, now they are considering how to export LNG from the United States, as a result of the development of shale gas. In other words, shale gas development progressed much faster than anyone had expected.

7. Leadership Roles in Times of Uncertainty

Leaders must continue to take command of their company even in times of uncertainty and broken trust.

Through my experience at Shell, I believe it helps to have a basic philosophy that would allow you to deal with whatever surprises the future may have in store.

As a CEO at Shell, I emphasized three basic philosophies. The first is to have good technology and consistently acquire new technology. The development of new technologies for shale gas production is a good example of how technology can change the world of energy. The second is to achieve operational excellence and to build the capacity to lead and to take responsibility in large, complex projects. For example, Shell implemented a gas-to-liquid project in Qatar, which cost close to \$20 billion, but completed it within the sealing of the final investment decision, more or less on time. This was quite an achievement. The third is to have attractive partners, whether in producing countries or consuming countries. It is important to have long-term relationships, because you cannot be on your own in this complex world of energy. You need partners who stand by you in difficult times, as well in good times. I used my visit here to pay my respects to the Chairmen of Mitsubishi and Mitsui. For decades, Shell worked

with Mitsubishi and Mitsui in the Sakhalin project. We went through some difficult times, but in the end we all shook hands and made a success of it. This shows why relationships with experienced partners are extremely important for the future.

8. Looking to the Future

When I joined Shell, I forecasted that I may have a job for 20 or 30 years at the most before oil and gas run out. My daughters asked me what I would do after Shell, because they were told at school that there will no longer be oil and gas in the future. Well, I have worked 40 long years at Shell, and oil still exists. I am still convinced about my theory to have good technology, operational excellence, and project partners, and that we can still draw new pictures for oil and gas reserves and find ways to minimize CO₂. Fifty years from now, I will not be here, but I hope somebody will be standing here at JCCP saying that we have done a good job for the future of oil for both producing and consuming countries.

Keynote Speech

Global Oil Outlook & Future Challenges

Dr. Hasan M. Qabazard
Director, Research Division,
OPEC—Organization of the Petroleum
Exporting Countries



1. Global Economy and Oil Supply-Demand Today

(1) Global Economy

As we all know, what began as a sub-prime real estate problem in the United States quickly spread across Europe, resulting in a downturn of most OECD economies. 2009 is now remembered for the worst recession the world has seen in many decades. The developed countries of the world supplied large amounts of money to the market to stimulate the economy, but the

global economy is still weak, and the economic outlook for 2012 remains uncertain.

However, even amid a prolonged downturn, Asia is experiencing robust growth. While average growth in OECD countries has been pegged at less than 0.7% over the last five years, growth in Asia has been close to 6% during the same period. The dynamics of these various economic trajectories reflect the evolving structural changes in the global economy, which also has implications on future oil demand patterns.

(2) Demand

In OECD countries, targeted energy policies in recent years have reduced oil demand to 1995-96 levels, to less than 46 million barrels per day. This corresponds to a decline in demand by around 4 million barrels per day during the last five years. Meanwhile, demand mainly for petrochemical feedstock and automotive fuel has been growing in Asia, and particularly in China, India and the Middle East countries, to 6.2 million barrels per day over the same five years. This more than offsets the OECD decline, so that world oil demand is seen as growing by 1.1 million barrels per day in 2012, to 89 million barrels per day.

(3) Supply

There have been new discoveries on the supply side as well, leading to a notable expansion of global oil reserves. Technology has spurred the growth of shale gas, tight oil and Canadian tar sands, helping transform unconventional resources into conventional ones. We should remember that only 40 years ago, offshore oil was considered unconventional, but today, it accounts for about 30% of the global oil supply. Last year, rising investment in shale developments has led to an 18% rise in the number of operating rigs in the United States and a supply increase of nearly 300,000 barrels per day.

In 2012, non-OPEC supply is forecast to increase by 700,000 barrels per day to an average of 53.1 million barrels per day with major contributions from tight oil development in the United States and development of non-conventional oil in Brazil, Canada, Colombia, Australia and Russia. This is way above trend growth. Today, OPEC production has reached 30.8 million barrels per day, its highest level in three years.

(4) Demand-Supply Balance

The oil market today is well supplied and balanced. Supply disruption in the MENA region last year has been fully accommodated, there has been no shortage of oil anywhere in the world, and spare capacity remains at comfortable levels.

Commercial stocks in OECD are currently at around 57 days of forward demand cover, which is above the five-year average. In addition, the steady buildup in commercial stocks and SPR (strategic petroleum reserve) stock in non-OECD countries such as China and India is continuing. In fact, China has increased its SPR stock by 23 million barrels to 460 million barrels in 2011.

2. Medium to Long-term Oil Supply-Demand Outlook

In 2011, OPEC published “World Oil Outlook” on its website, and forecasted a global energy demand increase under all scenarios from 2015 to 2035.

(1) Primary Energy Demand

Primary global energy demand to 2035 is seen as increasing by 51%, even assuming significant energy efficiency gains. The dominant growth factor will be demand for fossil fuels in non-OECD countries. Overall, fossil fuels will still make up more than 80% of total global energy demand in 2035. However, the share of oil will fall to below 30%, while that of coal will remain similar to today, at around 29%, and that of gas will increase to 25%.

(2) Oil Demand

Global oil demand is expected to reach 93 million barrels per day by 2015 and around 110 million barrels per day by 2035, from the 88 million barrels per day in 2011. No increase in oil demand is expected from OECD countries in the long term, but instead, the key to future oil demand growth will be the transportation sector in non-OECD countries. It will account for 88% of total demand increase in the period up to 2035.

(3) Supply

On the supply side, the longer-term outlook sees increases in conventional oil supply from the Caspian and Brazil, as well as steady increases in non-conventional oil such as biofuels, oil sands and shale oil. This is more than enough to compensate for the expected decline in conventional oil in mature regions such as North America and the North Sea. Total non-conventional oil supply outside OPEC is expected to rise by more than 11 million barrels per day over the period from 2010 to 2035.

Total NGL (natural gas liquids) supply from OPEC and non-OPEC will increase by 6 million barrels per day over the same period, from 10.5 million barrels per day in 2010 to almost 17 million barrels per day by 2035. The total increase in non-crude liquid supply will satisfy more than three-quarters of demand increases to that year.

OPEC crude supply will rise throughout the period, reaching just over 39 million barrels per day to 2035. The share of OPEC crude in total supply is not expected to be markedly different from current levels.

When looking at these long-term forecasts, it is important to stress that there are plenty of resources to meet these growth patterns. Oil, conventional and non-conventional resources are clearly plentiful for the foreseeable future.

3. Technical Innovation

(1) Technical Innovation and Oil Reserves

Technology has played, and continues to play, an important role in extending the reach of the industry, reducing costs and unlocking additional resources. For instance, new technologies and scientific innovation fuelled by continuous R&D investments in the industry have changed the way reserves are identified, developed and produced. This has led to a growth in reserves and an expansion in the world's resource base. As a result, it is estimated that more than 30% of the world's resource base still remains to be turned into proven reserves, with total original recoverable resources estimated at 3.5 trillion barrels.

(2) OPEC's Supply Responsibility

The research, development, and deployment of technology, however, have a cost, and significant investment is required. Even so, OPEC member countries are continuing to invest in additional capacities. They currently have around 132 upstream projects on the table for the five-year period from 2011 to 2015, which are expected to result in an estimated net increase of oil supply capacity by around 7 million barrels per day over the medium term. This further emphasizes the organization's commitment to market stability, to providing sufficient and secure crude oil supplies to the market, and maintaining adequate spare capacity with which to respond to any unforeseen supply constraints.

(3) Price Stability

It is important to emphasize, however, that oil producers have genuine concerns over security of demand. In particular, producers require more clarity about future demand levels. This includes a better understanding of proposed policies and taxes in oil consuming countries that could affect oil use and future demand levels and the possible effects and impacts of technological changes that could impact fuel consumption.

In one of the alternative future scenarios considered by OPEC, factors such as efficiency improvements to car

engines, a shift to hybrid vehicles and more aggressive policy support for alternative fuels are seen reducing oil demand by 7 million barrels per day by 2035. This new scenario points to investment requirements of only \$290 billion, whereas in OPEC's reference case they reach \$480 billion. The difference represents a hefty investment uncertainty gap of around \$190 billion. Needless to say, it is difficult to make plans with such staggering uncertainty. Therefore, if oil producers are to continue making upstream investments, they need to know more about pending environmental and transportation policies in consuming countries. This will help them better understand and anticipate future demand levels.

(4) Investment Safety

When discussing investments, we should not forget that the right price environment and secure, sustainable demand are needed to ensure the necessary levels of investment in the oil industry.

Unfortunately for the past few years, we have seen great volatility in crude prices driven by speculative investments in energy commodities, and such instability has threatened numerous investment projects. In fact, OPEC experienced a situation in 2008 that actually led to a deferral of investment in various projects in member countries.

While OPEC has repeatedly said that it has no target for price, we have always reiterated that the industry's continued growth requires a stable and enabling price. Price may be neither too high nor too low. It must allow producers to invest to meet future demand, and it must not impede global economic recovery.

4. Eradicating Energy Poverty

Before I conclude, I would like to highlight one further issue that is of global importance: that is, the need to alleviate and hopefully eradicate energy poverty. We need to remember that 1.4 billion people have no access to electricity, and that some 2.7 billion people rely on biomass for their basic needs. This means that almost 40% of the world's population use energy sources that are not only less efficient, but are also damaging to both the people using them and the environment.

Sustainable development is a high priority for all OPEC member countries. It is also the main objective of the assistance that they provide to other developing countries, both directly and indirectly by other means.

Energy poverty is an issue that needs the urgent and critical attention of world leaders.

5. Summary

The broad global outlook that I have described shows many important features, but can be summarized into the following five points.

- (1) The resource base is clearly there, and technology innovation continues to extend the possibility of unlocking resources and enhancing recovery rates.
- (2) There are still many challenges. For example, uncertainty over future demand is a risk to upstream investments. Therefore, a better understanding of proposed energy and transportation policies, and greater demand predictability are needed so that timely investments can continue.
- (3) We need greater sustainability. We need to speak more about sustainability of both demand and supply. In this regard, this conference has introduced an expression that better captures the realities of our globalized, interdependent world.
- (4) We need to continue to look for ways to enhance producer-consumer collaboration. In this spirit, OPEC has participated in activities of the

International Energy Forum and other international organizations. We have also established dialogues with the European Union, with Russia and China, and, alongside the World Bank, the OECD and the IEA, have been heavily involved in collaborative work related to the G-20 Energy Agenda. We need to enhance our understanding of all the industry's various stakeholders, as doing so is in everyone's best interests. It is essential that we better appreciate each other's viewpoints, are realistic in our targets and goals, and are more pragmatic in our discussions.

- (5) We must realize that none of us can act alone. We are all interconnected by trade networks, investment flows and communication links.

Our goal must be one of stability, where a clear and consistent market environment enables the industry to continue to develop, produce, transport, refine and deliver energy in an efficient and economic manner. This will benefit producers, consumers, and the present and future generations, and hopefully deliver a better standard of living for all peoples around the world, as well as greater hope that tomorrow will be better than today.



The 20th Joint GCC-Japan Environment Symposium

—Challenges for a Sustainable Environment in Oil and Gas Industry—

1. Objective

The GCC-Japan Environment Symposium is held annually to bring together environmental experts from the six GCC countries (Saudi Arabia, Kuwait, Bahrain, Qatar, UAE, Oman) and Japan with the objective of promoting mutual understanding, information exchange, and technical developments through the sharing of environmental improvement and conservation measures in each country.

The 20th symposium, themed “Challenges for a Sustainable Environment in Oil and Gas Industry,” was held over the three-day period from November 22 to 24, 2011, in Abu Dhabi, UAE, with United Arab Emirates University (UAE University) and JCCP as co-organizers and special support from Abu Dhabi National Oil Company (ADNOC).



*H.H. Sheikh Nahayan Mubarak Al Nahayan,
Minister of Higher Education and Scientific Research and
Chancellor of the UAE University*



Opening ceremony

2. Overview

This year was a milestone year, marking not only the 20th holding of this symposium, but also the 40th anniversary of UAE and the 30th anniversary of JCCP. H.H. Sheikh Nahayan Mubarak Al Nahayan, Minister of Higher Education and Scientific Research and Chancellor of the UAE University, remarked in his opening speech, “Twenty, thirty, forty—these numbers suggest that

this is a significant symposium,” as he expressed his delight at joining JCCP in organizing the symposium and extended his appreciation to ADNOC for its special support. He also said, “We are here because thirty years ago JCCP seized the initiative to promote understanding and cooperation between Japan and the GCC countries,” and that JCCP has since sustained its initial action and developed the annual symposium into a landmark event that assembles scientists and professionals from GCC countries and Japan to communicate and exchange knowledge on better understanding of the improvement and rehabilitation of the environment through utilization and application of innovative technologies. “We cannot easily realize our goals for environmental protection,” he said, but he is confident that everyone’s presence at the symposium reflects a strong interest in the huge promise of generating and sharing scientific knowledge as a basis for making sound environmental policies, and that the symposium will advance knowledge and understanding and conclude with inspiration to take new and effective actions.

H.E. Mr. Tatsuo Watanabe, Japanese Ambassador to the United Arab Emirates, spoke next, representing



*H.E. Mr. Tatsuo Watanabe,
Japanese Ambassador to the UAE*



Mr. Yaichi Kimura, President of JCCP



*Prof. Dr. Kenji Yamaji, Director-General,
Research Institute of Innovative
Technology for the Earth (RITE)*

the Japanese side and first expressing his honor in participating in the commemorative symposium. He also noted that next year marks the 40th year of diplomatic relations between UAE and Japan. Back then, Tokyo had been struggling with air and river pollution problems, but over the years, UAE and Japan have established a strong relationship based on energy resources and worked positively to address environmental problems, to ultimately transform UAE into a modern city abounding with the beauty of nature and Tokyo into a city of blue skies and clear rivers that provide a habitat to an array of fish. He said he strongly hoped the symposium would be of tremendous benefit to everyone involved in addressing environmental issues.

Mr. Yaichi Kimura, President of JCCP, also gave an opening greeting, which began with a message of gratitude to the GCC countries for their support and encouragement in the wake of the Great East Japan Earthquake that rocked Japan last March. He said he has never before felt so keenly the significance of a stable supply of energy and oil, in particular, and Japan's bonds with the GCC countries who play an important role in providing stability, and expressed his profound thanks to their long-standing friendship. He also extended his sincerest appreciation to the many institutions not only from the six GCC countries but also from Japan that have lent their presence to this milestone event, and stressed his wish that the symposium would further strengthen friendly ties between the GCC countries and Japan.

Following the opening speeches, Prof. Dr. Kenji Yamaji, Director-General, Research Institute of Innovative Technology for the Earth (RITE), gave a

keynote presentation titled "Policy and Technology Scenarios towards a Sustainable Energy System." He said that "sustainability is an essential keyword for the 21st century," and that "energy and global warming are critical themes to be tackled in order to achieve a sustainable society." Mentioning the three technology scenarios (baseline scenario, ACT scenarios, and BLUE scenarios) presented by the IEA in Energy Technology Perspectives 2008, he noted that the set of BLUE scenarios, which targets a 50% reduction in CO2 emissions from the energy sector by 2050, emphasizes the importance of the electricity and transportation sectors and investments for low-carbon technologies. Meanwhile, Japan had already been taking initiatives toward a low-carbon society since before the Great East Japan Earthquake, but after the earthquake, policies for further promotion of renewable energies have also come to share the spotlight as a priority issue. Dr. Yamaji stressed that technological research, development, and diffusion are necessary for non-fossil energy, energy-efficient technologies, and CCS technologies for fossil fuels. Moreover, in addition to technological innovation, he said social innovation will also be required to realize a low-carbon society, environmental harmony must be taken into consideration in development of social infrastructures, and educational and publicity activities need to be encouraged to increase awareness of climate change risks and to encourage lifestyle changes. He concluded by urging the international community to establish an international and multidisciplinary system for solving energy and global warming issues in a comprehensive manner.



Presentation session

Following the keynote presentation, three discussion sessions were held over two days, featuring 16 presentations by experts from the GCC countries and Japan.

First day (November 22)

Session 1: “Air Quality, Carbon Capture & Storage, Alternative Energy Applications”

Second day (November 23)

Session 2: “Oil and Gas Industry Environmental Issues”

Session 3: “Protection of the Marine Environment, Wastewater Treatment”

The speakers and their presentation themes are as shown in the chart on the next pages.

The first day ended with a dinner reception held at the Emirates Palace Hotel and hosted by ADNOC.



Visit to the new UAE University campus

Prominent figures such as Mr. Ali Khalifa Al Shamsi, Director, Corporate Planning & Coordination, ADNOC; Mr. Mohamed B. Al-Qubaisi, Director, Exploration & Production Directorate, ADNOC; and Mr. Ali Rashid Al Jarwan, CEO, Abu Dhabi Marine Operation Co. honored the event, as symposium participants took the opportunity to mingle with each other.

At the end of the second day, Mr. Morihiro Yoshida, Managing Director of JCCP, gave a closing speech. He thanked UAE University for co-organizing the symposium and ADNOC for its special support, and said it was a special honor to receive the attendance of H.H. Sheikh Nahayan Mabararak Al Nahayan at the opening ceremony with his impressive, heart-warming and thought-provoking speech. He said the two-day series of presentations were impressively timely in their themes, and led to meaningful and fruitful discussions. He concluded his speech and closed the symposium by saying that the resolution of environmental problems is an urgent issue for the world, and that since there is much that the GCC countries and Japan can learn from each other, he earnestly hopes the symposium will continue to provide opportunities to forge closer and deeper relations among all countries concerned.

On the third day, a group of speakers from the GCC countries and Japan visited UAE University’s vast new campus that boasts a variety of the latest facilities, while receiving generously detailed explanations from staff members and students of the university.



Local newspaper article on the symposium

3. Summary

The symposium ended on a successful note, with an attendance of more than 150 on the first day and the participation of numerous people from the GCC countries and Japanese companies in the region over the two days of presentation sessions and productive discussions. Since both UAE and Japan face the sea, protection of the marine environment is an issue of particularly strong and serious concern, and will continue to be a theme of high relevance to both countries. In Abu Dhabi, construction projects are going on throughout the city, and further urban development is underway. In conjunction with increases in population, environmental issues are inevitable if they are not properly addressed. This no doubt applies to other GCC countries, as well.

In future, countries that can deal properly with nature will be worthy of attention. Therefore, based on this awareness, mutual exchange of information will become ever more important, and in this respect, this symposium is expected to play at least a small part in promoting technical cooperation.

With news of the symposium appearing in a number of local newspapers on the next day and also broadcast by NHK international broadcasting service, the symposium has contributed to promoting awareness of JCCP activities in the GCC region.

Taking the opportunity of this article, JCCP would like to extend its deepest appreciation to UAE University for its co-organization, ADNOC for its special support, and other relevant institutions for their support and cooperation in bringing the symposium to success.

<by Mieko Onai, Technical Cooperation Dept.>

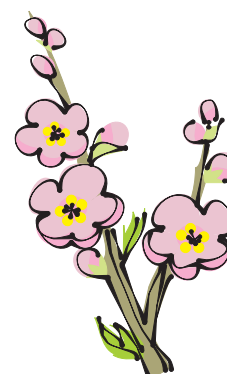
FY2011 Joint GCC-Japan Environment Symposium Program

Opening Ceremony		
Keynote Speech	Japan	Prof. Dr. Kenji Yamaji Director-General, Research Institute of Innovative Technology for the Earth (RITE) "Policy and Technology Scenarios towards a Sustainable Energy System"

	Country	Presentation Title	Speaker
Session 1:	Air Quality, Carbon Capture & Storage, Alternative Energy Applications		
	Session Chair:	Prof. Adel Gastli (Sultan Qaboos University / Oman)	
	Session Co-chair:	Mr. Takashi Sato (JX Nippon Oil & Energy Corporation / Japan)	
1	UAE	ADNOC Air Quality Management System (AQMS)	Mr. Hazem Abuahmad SPC/ADNOC
2	Japan	Associated Gas Utilization: The Pioneer Work of JX Group	Mr. Takashi Sato JX Nippon Oil & Energy Corporation
3	UAE	Selective Removal of CO ₂ and H ₂ S from Pressurized Gas Streams Using Hollow Fiber Membrane Contactors	Dr. Mohamed H. Al-Marzouqi UAE University
4	Japan	IDESORB: VOC Recovery Unit—Environmental Friendly Equipment—	Mr. Satoshi Kibata Idemitsu Kosan Co., Ltd.
5	Oman	Potential of Solar Energy Applications in Oman's Oil Industry	Prof. Adel Gastli Sultan Qaboos University
6	Japan	Cooperative Activities on Energy Business of Showa Shell for the Middle East Countries	Mr. Keiji Fujihara Showa Yokkaichi Sekiyu Co., Ltd.

Session 2: Oil and Gas Industry Environmental Issues			
Session Chair: Mr. Said Abdi Yusuf (Qatar Petroleum / Qatar)			
Session Co-chair: Dr. Shunji Oya (Swing Corporation / Japan)			
1	Japan	Challenges to Better Environment by Effective Use of Water and Solid Waste	Dr. Shunji Oya Swing Corporation
2	Saudi Arabia	Enhance Water Resources Sustainability through Innovative Technology to Maximize Oily Wastewater Reuse	Mr. Mohammed A. Alhajri Saudi Aramco
3	Bahrain	Risk Based Assessment of Contaminated Land & Groundwater	Mr. Ijaz Ashraf The Bahrain Petroleum Company
4	UAE	Bioremediation of Groundwater Contaminated by Oil Spills in the Western Region of Abu Dhabi	Mr. Mohamed Mostafa A. Mohamed UAE University
5	Kuwait	Remediation of Oil Polluted Groundwater Resources of Northern Kuwait: Challenges and Solutions	Mr. Adnan S. S. S. A. Akbar Kuwait Institute for Scientific Research

Session 3: Protection of the Marine Environment, Wastewater Treatment			
Session Chair: Dr. Joydas Thadickal Viswanathan (King Fahd University of Petroleum & Minerals / Saudi Arabia)			
Session Co-chair: Mr. Takao Sumihiro (Abu Dhabi Oil Co., Ltd. / Japan)			
1	UAE	Contribution to the Protection and Enhancement of Marine Environment	Mr. Matwali Shahatah Shobanah SPC/ADNOC
2	UAE	Utilization of Eco-Friendly Materials to Construct Artificial Reefs	Dr. Osama M. Wahba Marine Environment Research Centre
3	UAE	Preservation Project of Coral and Seagrass for Sustainable Oil Field Development	Mr. Takao Sumihiro Mr. Tariq Al Kindi Abu Dhabi Oil Co., Ltd.
4	Saudi Arabia	Oil-related Activities and Environmental Concerns in the Gulf	Dr. Mohammad A. Qurban Dr. Joydas Thadickal Viswanathan King Fahd University of Petroleum & Minerals
5	UAE	Innovative Approaches to the Treatment of Refinery Wastewater	Dr. Muftah El-Naas UAE University



Signing of a Basic Agreement on a Special Cooperation Program for Vietnam

On November 30, 2011, JCCP and Vietnam National Petroleum Corporation (PETROLIMEX) signed a memorandum of agreement (MOA) on further strengthening cooperative ties between the two organizations.

1. Background

In fiscal 2010, JCCP launched a special cooperation program to provide concentrated cooperation to specific oil producing countries. In fiscal 2011, the program was extended to Vietnam in addition to Iraq, and a basic agreement was signed upon discussing the details of the program content with PETROLIMEX. The two organizations agreed as follows:

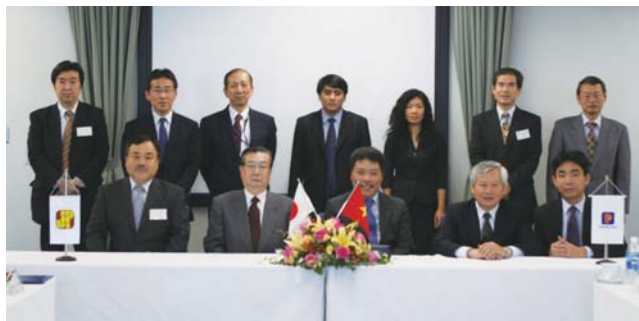
- To promote personnel exchange programs through PETROLIMEX's participation in regular courses, as well as Customized Programs-Japan (CPJ) and Customized Programs-Overseas (CPO);
- To exchange information and survey needs for technical cooperation programs; and
- To hold regular meetings on the above two objectives.

This agreement with PETROLIMEX is JCCP's second such agreement with a major Vietnamese oil company following that signed with PetroVietnam last August 1 (in Hanoi, Vietnam).

2. Signing Ceremony

The signing ceremony commenced at 2:30 p.m. on November 30 in a conference room at JCCP Headquarters in Tokyo, Japan. Mr. Masataka Sase, Executive Director of JCCP, greeted everyone, thanking PETROLIMEX for its understanding and cooperation in the signing ceremony, and for its participation in previous JCCP courses. The two organizations have established a friendly relationship through personnel exchange programs thus far, but he said the addition of technical cooperation programs would promote deeper friendship and closer exchanges, and wished PETROLIMEX further prosperity and development in the future.

Representing PETROLIMEX, Mr. Vuong Thai Dung,



*Signing ceremony with PETROLIMEX:
Mr. Vuong Thai Dung, Deputy Director General
(front row, center)*

Deputy Director General, spoke next. He thanked JCCP for its cooperation, noting that his employees have enhanced their knowledge and skills thanks to JCCP's regular courses, and said he looks forward to further strengthening cooperative ties with JCCP.

Following the speeches, Mr. Dung and Mr. Sase signed and exchanged the MOA, and members of both organizations engaged in a friendly exchange of views and mutually confirmed their agreement to establish an even closer friendship.

Mr. Dung also lent his presence to the opening ceremony for a CPJ on marketing intended for PETROLIMEX and another Vietnamese oil company, which commenced the following week on December 5. In his speech, he once again thanked JCCP for its training programs, and expressed his strong hope of further developing a meaningful relationship with JCCP.

<by Koichi Ito, Operations Dept.>



CPJ participants from PETROLIMEX

Interviews with JCCP Graduates

Taking the occasion of JCCP's 30th anniversary, we paid visits to past participants of JCCP training courses as part of the survey of downstream trends in oil producing countries, and interviewed them on what they have gained from participating in a JCCP course, and what future expectations they have of JCCP.

The group of interviewees included Mr. Shigeo Baba (President, Cosmo Research Institute), and Mr. Takashi Sato (Manager, Global Technical Project Group, Global Business Department, Overseas Business Division, JX Nippon Oil & Energy Corporation) as chairman and member, respectively, of the Committee for the Survey of Oil Downstream Industries in Oil-producing Countries; Mr. Hisayoshi Tanda (General Manager, Planning and Coordination, JCCP Administration Dept.) and Ms. Masumi Kitahara (Manager, Planning and Public Relations, JCCP Administration Dept.) as members of the management office; Mr. Shoichiro Yagi (General Manager) from the JCCP Middle East Office; and Mr. Kenji Nita (General Manager) from the JCCP Riyadh Office.

A summary of the interviews is introduced below.

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

Past participant of a regular course on Marketing Management (TR-7-88) in FY1988

(Mr. Al Zahrani passed away last December 18 while in London to attend a conference on behalf of H.E. Mr. Ali bin Ibrahim Al-Naimi, Minister of Petroleum and Mineral Resources.)

Date of interview: November 15, 2011

Q1: How did you come to participate in a JCCP regular course?

A: Saudi Arabia and Japan have a long friendship that goes way back to 1955. In the 1980s, JCCP's commencement of cooperation to oil producing countries gave us many opportunities to learn about Japanese history, culture, technologies, and experience. I participated in a regular course in 1988. It was a long time ago, but I still have fond memories of that time, and what I learned then is



H.E. Eng. Zeyad H. Al Zahrani, Undersecretary, Saudi Ministry of Petroleum and Mineral Resources (fourth from right)

still relevant to what I do today. It was a precious experience, both to me, personally, and to Saudi Arabia. Speaking as one who has participated in a JCCP training course in the past, I hope the relationship between JCCP and Saudi Arabia will continue long into the future.

Q2: What have you gained from JCCP's training course?

A: I think the greatest achievement of having participated in a JCCP training course is that I acquired clues to understanding the Japanese people. Everyone I met in Japan was friendly and kind. I came to believe that in Japan, "good" people means "good" in all other aspects.

JCCP courses are designed not only to provide practical knowledge through lectures, but to also introduce Japanese history and culture through company visits and field trips. In the course I participated in, a field trip to Kyoto provided an insightful experience in learning about the history through which Japan developed into the country it is today.

Q3: What future expectations do you have of JCCP?

A: In both Saudi Arabia and Japan, the oil industry is undergoing a major transformation and expanding into new businesses, such as the petrochemical and power generation businesses. I think JCCP training programs also need to change along with these new developments. As Japan is known for the high efficiency and high quality of

its technologies in electronics, precision machines, and various other sectors, we hope to receive JCCP's cooperation in acquiring that technical experience.

Mr. Ali Obaid Al-Yabhouni
General Manager, National Gas Shipping
Co., Ltd. (NGSCO) / Abu Dhabi National
Tanker Company Ltd. (ADNATCO)
UAE Governor for OPEC

Past participant of a regular course on Marketing & Physical Distribution (TR-8-97) in FY1997

Date of interview: November 13, 2011

Q1: How did you come to participate in a JCCP training course?

A: I was in charge of oil marketing at ADNOC at the time I participated in a JCCP regular course. With Japan being an important customer to ADNOC, the company decided to provide employees an opportunity to learn about Japan and to foster employees who have proper knowledge about Japan.

Q2: What have you gained from JCCP's training course?

A: In addition to classroom lectures on various technologies, JCCP programs also include company visits and field trips, and provide a wonderful opportunity to travel to many different places in Japan with members of the same course. This experience exposed us to Japanese companies and society in action, and helped us understand Japanese people's thoughts about work, as well as provided an opening to thinking about the



*Mr. Ali Obaid Al-Yabhouni, General Manager,
NGSCO/ADNATCO*

secrets behind Japan's remarkable development. By personally participating in a regular course, I gained a good understanding of the values and behavior of the Japanese people, and after returning to UAE, I was able to communicate better with people in charge of procurement in Japanese oil companies and trading houses. I think JCCP provides a foundation for getting to know about Japan through its training courses.

Q3: How has JCCP's training course benefited you in your work?

A: The Japanese people value long-term relationships of trust. In business, there are good times, and there are bad times. In regard to crude oil purchase contracts with ADNOC, there are times when a purchasing party desires a greater purchase volume, and times when it desires a smaller purchase volume. Japanese companies, however, never change their contract quantity with ADNOC no matter what the circumstances. They think about the future, and place priority on maintaining good business with ADNOC. We also look at our business with Japanese companies from a long-term perspective and value our relationship with Japan, because we understand and accept the way the Japanese think. Additionally, in rigid conformity to term-based crude oil contracts, which are renewed yearly, Japanese companies have unfailingly renewed their contracts every year up to the present. For this reason, we call our contracts with Japanese companies "ever-green" contracts. By the same token, our relationship with Japan is an "ever-green" relationship.

Q4: What future expectations do you have of JCCP?

A: JCCP and the ADNOC Group have a long history of mutual interaction, and JCCP's contributions are well known at ADNOC. Ever since JCCP commenced its training courses 30 years ago, we have been sending our employees to attend the courses in Japan, and still continue to do so. I think this steady interaction speaks for itself on what ADNOC thinks about JCCP.

Mr. Mohamed Abdulla Al Azdi
CEO, Abu Dhabi National Chemical
Company (ChemWEyaat)

Past participant of a regular course on Marketing & Physical Distribution (TR-2-83) in FY1983

Date of interview: November 14, 2011

Q1: What were your impressions from participating in a JCCP course?

A: In the course I participated in, visits to Japanese refineries, an oil tank facility and an aviation fuel supply facility were especially helpful, as it allowed me to confirm with my own eyes the reality of how Japanese companies manage their production and distribution sites. The cultural field trips and Japanese language session were also helpful.

Japan is an important business partner to the ADNOC Group, so it is important to ADNOC to understand the Japanese language, as well as to understand the culture and history behind the Japanese people's way of thinking. In order to deepen mutual understanding, I think it is essential to create opportunities for interaction.

Q2: How does ADNOC evaluate JCCP training courses?

A: ADNOC is highly appreciative of JCCP's contribution. Everyone recognizes that significant developments are made at ADNOC after employees participate in a JCCP training course and bring back what they learn. I think this is the primary reason why ADNOC has and still continues to send employees to JCCP courses.



*At ChemWEyaat:
Mr. Mohamed Abdulla Al Azdi, CEO (center), and
Mr. Khalfan Saeed Al Qamzi, Vice President (third from right)*

Q3: What future expectations do you have?

A: I wish to see JCCP provide more courses that more widely cover the oil industry and include petrochemical issues. Until recently, oil refining and petrochemical processing were regarded as separate industries. Today, however, the two fields combined are considered to comprise the oil industry.

ADNOC's future challenges lie in the production of high value-added products such as petrochemical products and lubricating oil, and the development of the power generation business. Advancement into these new fields is necessary to increase the added value of the oil industry, and I therefore expect JCCP to also keep up with this trend.

Mr. Mubarak S. Al-Ketbi
Manager, Crude and Condensate Division,
Marketing and Refining Directorate, Abu
Dhabi National Oil Company (ADNOC)

Special lecturer at the 28th JCCP International Symposium held in FY2009

Date of interview: November 15, 2011

Q1: How does ADNOC view its business with Japan?

A: ADNOC and Japan have a long history that goes back to the 1960s, before Abu Dhabi gained independence. I think the fact that the first export of crude oil from Abu Dhabi was to Japan, is symbolic of our relationship.

Q2: What do JCCP training courses mean to ADNOC?

A: Personal relationships are important in business. Business opportunities expand by holding face-to-face meetings and deepening mutual understanding. At ADNOC, there are many people who have gained a good grasp of Japan and the Japanese people by attending a JCCP course. I think the growing number of such people has significantly facilitated business between ADNOC and Japan.

Q3: What opinions do previous participants of JCCP courses have of the courses?

A: Participants of JCCP courses learn many things not only through lectures, but also by visiting



At ADNOC:

Mr. Mubarak S. Al-Ketbi, Manager (third from right),
Mr. Al Rafaei (right) and Mr. Al Mulla (second from left)



At TAKREER:

Mr. Ja'afar Salem Al Jabberi, Human Resources and
Administration Manager (fourth from right),
Mr. Al Gattan (fourth from left), Mr. Helazallah (left),
and Mr. Al Mutawa (second from left)

Japanese companies for offsite training and by exchanging information with each other during travel and free times. I think this is an important aspect of JCCP courses. Generally speaking, training frequently refers to classroom lectures, but JCCP's programs feature diverse modes of learning, which most participants agree makes the courses more interesting.

Q4: What future requests do you have for JCCP?

A: Mutual cooperation is essential for greater prosperity of both ADNOC and Japan. We both need each other. Therefore, I hope to continue sending our employees to JCCP courses to increase the numbers of employees who have proper understanding of Japan.

**Mr. Ja'afar Salem Al Jabberi
Human Resources and Administration
Manager, Abu Dhabi Oil Refining
Company (TAKREER)**

Past participant of a regular course on Human Resource Management (TR-12-90) in FY1990
Date of interview: November 15, 2011

Q1: What thoughts do you have of JCCP training programs?

A: I myself am a participant of a JCCP course, but so is my predecessor, Mr. Ismail Al Mulla, who has recently been promoted to Assistant General Manager of TAKREER. Mr. Ali Obaid Al-Yabhouni, General Manager of ADNATCO, whom JCCP members interviewed yesterday, and his predecessor, are also graduates. It is widely

known that there are many JCCP graduates among executives of the ADNOC Group.

Q2: How has your participation in a JCCP course helped you establish your career?

A: Developing a career is similar to stacking blocks one by one to build a house. By participating in a JCCP course, I acquired an opportunity to study the Japanese human resource management system. What impressed me most was the underlying principle of lifetime employment. To enjoy the benefits of lifetime employment, the Japanese people dedicate themselves to their company and work hard until retirement. I think herein lies the key to the growth of Japanese companies. In hindsight, I think my experience in attending a JCCP course was one of the building blocks of my career.

**Mr. Emad Abdulkarim
Manager, Naphtha/Mogas/LPG Sales,
International Marketing, Kuwait
Petroleum Corporation (KPC)**

Past participant of a regular course on Refinery Management (TR-8-02) in FY2002
Date of interview: December 11, 2011

Q1: How did you come to participate in a JCCP regular course?

A: Back at the time, I was in charge of oil export operations. After participating in a JCCP regular course, I experienced various different departments, and am now manager for overseas sales of naphtha, gasoline and LPG in the

International Marketing Department. I also had many opportunities to do business with Japanese companies.

Q2: What were your impressions of the JCCP course?

A: The 18-day regular course I participated in included not only classroom lectures, but also company visits and field trips, which took us to various regional cities and exposed us to Japanese culture and traditions and the Japanese people's commitment and sense of responsibility toward quality. Through this experience, I gained a deeper understanding of Japan. It was enlightening to learn how each and every individual works with a strong sense of responsibility for his/her duties and how they interact with others with respect.

The Internet was not as developed then as it is today, so information about Japan was limited, and we could only learn about the country through TV and movies. Participating in the course allowed me to personally meet people in Japan and get to know the real Japan, and thereby deepen my understanding about the country.

Q3: How has the course benefited you in your work?

A: In my many occasions of doing business with Japanese people, my knowledge of the business practices of Japanese companies has allowed me to avoid misunderstandings and to act appropriately. Therefore, I believe that my exposure to Japanese society while attending a JCCP regular course has been especially useful in facilitating smooth business transactions with the Japanese. My work is to conduct trade, so I must engage in difficult negotiations with my customers. Sometimes

Kuwait has the upper hand, and at other times, Japan has the upper hand. Yet, in any situation, I feel that the key to continue doing business over the long term is to settle negotiations on grounds that leave some room for compromise, without driving the other party into a corner. I was able to take in this style of interaction precisely because I had the opportunity to personally get to know the Japanese people.

Another memorable aspect of my participation in a regular course is that I was able to meet people from different countries who engage in the same job as me, which was a rare opportunity. Engaging in conversation with these people came as a fresh reminder that there are diverse views in the world, even among our group of oil producing countries. Furthermore, case-study presentations made by each participant on an issue they face and how they have resolved it opened our eyes to new issues that could eventually occur in our own countries. I learned that problems are opportunities for challenge, opportunities that open new possibilities, and opportunities that present the potential to produce benefit. This thinking served me well when I assumed my current position. By participating in a JCCP regular course, my portfolio of friends expanded to include friends at Saudi Aramco, ADNOC and QP. For this, I am truly grateful to JCCP.

Q4: What expectations do you have of JCCP?

A: Japan relies on Kuwait for oil supply, and Kuwait values Japan as an important customer. Kuwait and Japan thus have a relationship in which they mutually need each other. In order for both countries to grow, each needs to be strong. At the same time, we must also strengthen the relationship of our two countries. Through JCCP training courses, we have come to understand the values of the Japanese people. In the same way, I hope the Japanese people will also come to understand the values of the Kuwaiti people.



Mr. Emad Abdulkarim, Manager, Naphtha/Mogas/LPG Sales, International Marketing, KPC (center)

Mr. Alaa Al Naqi
Team Leader, Planning and Economic
Study, International Marketing, Kuwait
Petroleum Corporation (KPC)

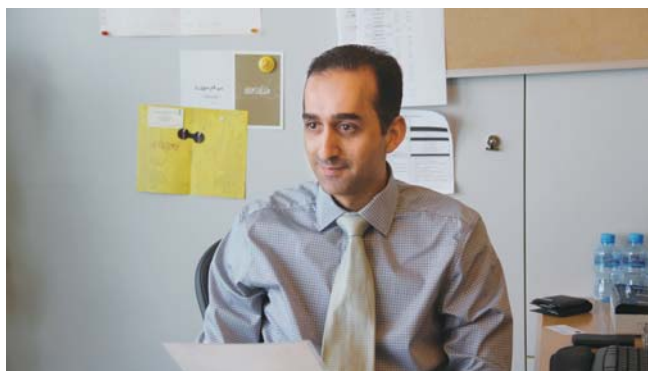
Past participant of a regular course on Automotive Fuel Production Technology (TR-2-02) in FY2002
Date of interview: December 11, 2011

Q1: What were your impressions from participating in a JCCP training course?

A: I learned many things by participating in a JCCP regular course, not only through lectures, but also from what I observed and heard in Japanese society. I have attended more than 30 training programs to date, but the JCCP course was probably the most memorable of all. I have deep respect for my lecturers even today. My greatest memory of the regular course I attended is having met many people who engage in the same job as me. In fact, I still keep in touch with the other participants of the course. They are good friends even after 10 years, and we always see each other whenever I visit their countries.

Q2: How has the course benefited you in your work?

A: The International Marketing Department at KPC undertakes the transactions of crude oil and oil products with Japanese oil companies and trading firms. Japan is thus an important customer, so I think it is important that employees in the department have proper understanding of the culture and business practices of Japanese companies. It is highly commendable that JCCP has continued to provide opportunities for KPC staff to deepen their understanding of Japan through its training courses.



Mr. Alaa Al Naqi, Team Leader at KPC

Mr. Fahad Al-Shatti
Chief Representative, Kuwait Investment
Ltd. (KIL)

Past participant of a regular course on Marketing & Physical Distribution (TR-14-07) in FY2007
Date of interview: October 21, 2011

Q1: What is your present job?

A: I am currently on temporary loan to KIL's Beijing Office from Kuwait Petroleum Corporation (KPC). KIL is a Chinese affiliate of the Kuwait Investment Authority, and I am in charge of developing investment opportunities in China.

Q2: How did you come to participate in a JCCP training course?

A: I attended a regular course on marketing management in 2007. At the time, I was in charge of crude oil marketing at KPC, and had just been assigned to the KPC Beijing Office. Prior to that, however, I had many opportunities to do business with Japanese companies as a marketing manager at the KPC Head Office in Kuwait, and had been impressed by the diligence and sincerity of the Japanese people. Even when a problem arose and I would consult them about possible countermeasures, they would tell me frankly what can and cannot be done. From that time on, I became interested in Japan's unique corporate culture and work practices.

Q3: What have you learned in the regular course?

A: After attending the 18-day course, I realized that the traits that I had seen in the Japanese people I did business with are not characteristic of certain groups of businessmen only, but are normal standards of Japanese society in general. Everywhere I went, the Japanese people were kind, and talked openly about whatever I wanted to know. Before going to Japan, I had heard that communicating with the Japanese people is a difficult task, but I found out that the difficulty lies only in the language problem, and that it is not at all difficult to reach out to them.

Another large benefit was having gained confidence about Japan's economy. Before going to Japan, the Japanese economy had been suffering a slowdown, and I had thought future



Mr. Fahad Al-Shatti, Chief Representative, KIL (center)

growth was not to be expected. However, once in Japan, I saw that Japan's economic power is strong, and that the country is a promising and stable export destination for our crude oil.

Q4: How has the course benefited you in your work?

A: The Japanese people place importance on time. JCCP courses were planned down to the minute, and were precisely implemented as planned. This experience made me aware of the value of time, which is an important and necessary aspect of all international businessmen.

Q5: What other impressions do you have?

A: I still keep in touch with the other participants of the course. We were all from an oil producing country, so in this sense, we were competitors, but participating in the course gave us a useful insight into what each country thinks of Japan. I realized then that it is much more meaningful to see other people not as competitors, but as friends and partners.

Q6: How would you evaluate JCCP training courses?

A: JCCP courses are composed not only of classroom lectures, but also various events, such as traveling and dining together with other participants, all of which present new discoveries. I am still grateful to all our lecturers.

Mr. Majid Al Sharji
Capability Coach, Oman Refineries and Petroleum Industries Company (Orpic)

Past participant of a regular course on Human Resource Management (TR-55-01) in FY2001 and a regular course on Refinery Management (TR-9-04) in FY2004

Date of interview: December 10, 2011

Q1: How did you come to participate in a JCCP regular course?

A: I attended a regular course on Human Resource Management in fiscal 2001. The other participants were from a variety of countries but were engaged in the same job as me, so it was stimulating to be able to mutually share our experiences. The second time I participated in a regular course was in fiscal 2004, in a course on refinery management. As with the first course I attended, the course brought together participants from various countries around the world, including Qatar, UAE, Venezuela and Vietnam, in fruitful discussions and mutual learning.

Q2: What kind of work do you currently do with JCCP?

A: I currently act as the counterpart coordinator of a JCCP technical cooperation project, and am working to improve refinery efficiency through technical exchanges with Japanese oil companies. At Orpic, we had been struggling with the operations of our sour gas treatment unit, but we were able to find a solution immediately after



Mr. Majid Al Sharji, Capability Coach, Orpic (second from right)

being shown the same unit in a Japanese refinery. Thanks to Japan, we encountered no problems thereafter.

Q3: What expectations do you have of JCCP?

A: English communication is very important. Those of us in the Middle East region generally find it difficult to understand Japanese people's English, and would like to see a bit more proficiency. However, despite this point, the JCCP lecturers were so gentlemanly in the way they interacted with all of us participants, that we placed absolute trust in them.

Mr. Khalfan Al Saadi
Team Leader, Rotational Equipment,
Oman Refineries and Petroleum Industries
Company (Orpic)

Past participant of a regular course on Project Management (TR-11-07) in FY2007

Date of interview: December 10, 2011

Q1: What were your thoughts after participating in a JCCP regular course?

A: I attended a course on project management in fiscal 2007. Through the course, I was able to gain a direct feel for the history and culture of Japan and the way Japanese companies do business, and was able to understand how Japan came to be a global leader in manufacturing. It was also interesting to exchange information with other participants who engage in similar jobs in different countries, and to learn how work is pursued in other countries. Moreover, as the program offered a combination



Mr. Khalfan Al Saadi, Team Leader at Orpic

of classroom lectures, visits to refineries, and field trips, we were able to keep focused, and never got tired of our day-to-day activities over the entire 18 days of the course.

Q2: How has the course benefited you in your work?

A: The course covered practical aspects of maintenance management, such as the comparison and selection of contractors, examination of alternative plans, and risk analysis. Back at the time, I had just begun to work at a refinery, but as I came to be tasked with more duties and my responsibilities increased, I realized that what I learned at JCCP applies to my real-life work, and was glad I had the opportunity to study at JCCP.

The case-study presentations were also an ideal avenue for mutually sharing experiences. Listening to each trouble case was highly meaningful, particularly as they were troubles that could occur at any of our refineries. It also helped that our lecturer had looked into the design of our refineries and each trouble case in advance and provided his input. In fact, I was surprised with the thoroughness of his preparation.

Q3: What impressions do you have of the Japanese people?

A: I have learned that the Japanese have an extremely strong sense of responsibility toward work. When we visited a certain manufacturing plant, I witnessed plant workers spending meticulous time preparing for their job ahead and applying themselves to their work only after making certain everything is in perfect order. I glimpsed the reason why Japanese products are highly respected for their quality. The JCCP experience was filled with diverse learning opportunities, and has given me a good direction in life.

Details of the interviews and their analysis will be compiled in a report on downstream trends in oil producing countries and utilized for further enhancement of JCCP activities in the future.

<by Hisayoshi Tanda, Administration Dept>

Participation in the 20th World Petroleum Congress in Doha and Visit to Qatar Petroleum

The 20th World Petroleum Congress was held over a five-day period from December 4 to 8, 2011 in Doha, Qatar. JCCP participated in the congress for the first time with its own booth. During our stay in Doha, we members of the JCCP delegation also visited the major departments of Qatar Petroleum (QP) to seek their cooperation in JCCP activities.

1. The 20th World Petroleum Congress in Doha

(1) Overview

The World Petroleum Congress, held every three years in a different venue around the world, is the world's largest gathering for the presentation of the latest news and research achievements in the oil industry and oil-related technologies, and provides a forum for deepening exchanges among diverse participants. The 20th congress was held in Doha, at the Qatar National Convention Center, and featured numerous presentations and exhibits over a period of five days. More than 5,300 delegates from 95 countries attended the event, including roughly 200 participants from Japan. It also drew more than 20,000 visitors, and marked a new attendance record. JCCP also participated in the event, represented by Mr. Kenji Nita, General Manager of the Riyadh Office; Mr. Hisayoshi Tada, General Manager of the Administration Department; and Ms. Masumi Kitahara, Manager of the Planning and Public Relations Division.



Venue of the World Petroleum Congress: Qatar National Convention Center (QNCC); 40,000m²; 10,000-person capacity; designed by Arata Isozaki



JCCP signboard designed in the image of a service station

(2) Background

In April 2010, the Japan National Committee for the World Petroleum Council invited JCCP to participate in the 20th World Petroleum Congress, and JCCP gladly accepted the offer to set up a booth at the exhibition, thinking that the gathering of oil industry stakeholders from around the world would be an optimum venue to introduce JCCP activities. Moreover, as this was the first time for the congress to be held in the Middle East, JCCP wished to cooperate as much as possible with Qatar, the host country, toward the event's success.

(3) Participation

1) Objectives

The primary objective of the JCCP booth was to introduce JCCP's activities and communicate the cooperation it has extended to oil producing countries over the past 30 years. Another objective was to take the occasion of the event, which would be attended by



JCCP's booth

many partner countries of JCCP activities, to reunite and re-establish ties with JCCP graduates and important dignitaries who have taken part in a JCCP project or event in the past.

2) JCCP's Booth

JCCP's booths at previous exhibitions mainly focused on introducing JCCP activities using information panels and video, but a completely new approach was adopted this time, and a creative booth was set up that incorporated visual attraction elements.

The design and concept of the booth originated from the following principles.

- To attract as many visitors as possible with a distinctly Japanese appearance
- To provide a communication space designed with a welcoming atmosphere
- To create a place for reunions with JCCP graduates and key dignitaries

3) Visitors

Visitors to the JCCP booth were invited to take a picture against a backdrop showing an image of a Japanese garden, and were given a printout of the photo on the spot. The distinctly Japanese atmosphere of the photo was extremely popular among visitors, who at one point had to stand in line for their turn.

4) Reunion with JCCP Graduates and Key Dignitaries

To utilize the occasion of the congress to reunite with JCCP graduates and key dignitaries in JCCP counterpart organizations and to update JCCP's roster of participants, prior steps were taken to inform them a few months in advance of JCCP's participation in the congress via email and *JCCP NEWS*. Owing in part to this preparation, numerous JCCP graduates not only

from Qatar, but also from the GCC countries, Pakistan, China, Indonesia, Iran and various other countries came to visit the JCCP booth.

The JCCP members at the booth delighted in seeing familiar faces, and took the opportunity to confirm their current addresses and ask for their support in future JCCP activities. Since notice of JCCP's participation was sent to the 500-some JCCP graduates in Qatar a number of times, a large majority of them paid the booth a visit. Moreover, graduates brought other graduates, so that the booth achieved its goal of acting as a place for reunion. The photo shoot that was provided to attract visitors also proved effective, and the electronic roster system allowed on-the-spot updating of roster entries and registration of their face shots.

The JCCP booth also received a visit by H.E. Dr. Mohammed Bin Hamed Al-Rumhy, Minister of Oil and Gas of Oman, who has supported JCCP activities over



JCCP graduates from QP Mesaieed Refinery: Mr. Abdul Aziz M. Al-Khori, Operations Manager (second row, right) (participated in TR-16-87), and Mr. Al-Jasim, Maintenance Manager (front row, left) (participated in a member company initiated course in Nov. 2000), and other members from QP Mesaieed Refinery



Mr. Mohammed Al-Hitmi, Executive Director, Qatar Petroleum International (center) (participated in TR-8-03), and other members from QP



*H.E. Dr. Mohammed Bin Hamed Al-Rumhy,
Minister of Oil and Gas of Oman (front row, left)*



Mr. Musab Al-Mahruqi, CEO of Orpic (center)

many years, and also by Mr. Musab Al-Mahruqi, CEO of Orpic, to whom we introduced JCCP activities and sought future support.

Owing to the advance notice of JCCP's participation via JCCP News and email, many JCCP graduates from Qatar and neighboring countries took the time to visit the JCCP booth. Many of them now hold important positions in their organization and take on important responsibilities in their respective department. They said that memories of their participation in a JCCP training course remain strong in their mind, that their experience has benefited them in their work, and that they feel an affinity toward the Japanese people, as a testament to the achievements made by JCCP activities.

By hosting the World Petroleum Congress in Doha for the first time in the Middle East, Qatar was able to increase its recognition in the world as a leading oil and

gas producing country. The country has played an active part in the international community by bidding to host the Olympic Games and winning the bid to host the World Cup, but its hosting of the World Petroleum Congress has further enhanced its presence as a leader in the global energy sector. For Japan's part, it has supported Qatar's strong commitment to implementing a successful congress by participating in the congress in concert with other Japanese organizations and companies under the guidance of the Japan National Committee for the World Petroleum Council.

2. Visit to Qatar Petroleum (QP)

We took the occasion of our visit to Doha to also visit the major departments at Qatar Petroleum (QP) to seek their cooperation and participation in JCCP activities.

(1) Corporate Training Department

On December 4, we visited QP's Corporate Training Department and met with Mr. Ali Nasser Telfat, Corporate Training Manager. The members introduced JCCP's training activities to Mr. Telfat, thanked him for his department's support of JCCP thus far, and asked for his department's continuous participation in JCCP courses.

In response, Mr. Telfat said that JCCP courses provide ideal opportunities for QP employees to experience a foreign culture and broaden their perspectives, as they characteristically bring together people in the same type of job from countries around the world and thereby allow participants to get to know and exchange views with people from various different countries. In this regard, QP prefers to participate in regular courses that are open



Updating JCCP's roster of graduates using the electronic roster system



*At the QP Corporate Training Dept.:
Mr. Hermie Lingat, Programme Development Supervisor
(left end); Mr. Ali Nasser Telfat, Corporate Training Manager
(second from left); and Mr. Nawaf Rashid Al-Kaabi,
Senior Training Supervisor (second from right)*



*Mr. Abubakr Amer Al-Saiari, Chairman,
Qatarization Strategy Committee*

to participants from various countries to customized programs. Then, Mr. Telfat noted that Mr. Nawaf Rashid Al-Kaabi, Senior Training Supervisor, who was also present at the meeting, is also a JCCP graduate (participated in a training management course in 2004), and that he has learned many details from Mr. Al-Kaabi. Mr. Telfat also introduced us to Mr. Hermie Lingat, Programme Development Supervisor, who cooperates in encouraging relevant QP departments to participate in JCCP regular courses. We informed them that regular courses, which had resumed in Osaka in September after a temporary suspension following the March earthquake, have returned to being implemented regularly in Tokyo. Thanks to the cooperation and support of Mr. Telfat and other officers of the QP Corporate Training Department, we received six registrations for three courses scheduled to commence in April.

(2) Qatarization Strategy Committee

On December 7, we paid a call on Mr. Abubakr Amer Al-Saiari, Chairman of the Qatarization Strategy Committee, which promotes the capacity building of Qataris as a national strategy and the establishment of a scheme that would allow Qatari workers greater opportunities to assume important positions in Qatari companies. We asked Mr. Al-Saiari about his views and impressions of JCCP training activities, as he has participated in an HRM course in 2006. Mr. Al-Saiari reflected back on his experience in learning many things from his participation in the 21-day course, noting that the course was planned down to the minute and

precisely implemented according to plan. He said this strongly impressed on his mind that time is a precious management resource. He also said the experience allowed him to gain a glimpse into the secret of Japanese companies' productivity not only through the course program, but also through exposure to Japanese culture, including the way the Japanese think and behave. Since this proved to be extremely useful to his career, Mr. Al-Saiari expressed his wish to provide young Qatari workers the same opportunity as he had to experience Japanese corporate culture.

(3) HRM Administration Division, General Services Department

On December 7, the JCCP delegation met with Mr. Rida Nazim Agha, Acting Director of Administrations and Manager of General Services. Mr. Rida previously participated in an HRM course in 2004, and remembers his experience well. He said he originally wanted to participate in a JCCP course not only to study human resource management practices, but to also see for himself how Japanese companies have achieved global success. By participating in a course and obtaining the opportunity to visit various companies, he learned that Japanese society is founded on rigid ethics. Managers disclose policies to employees, and employees apply themselves to their work with a strong sense of responsibility and contribute to their company. Mr. Rida said that being able to deepen his understanding of the secret of Japanese companies' success through a careful look at the Japanese people, social systems, and



Mr. Rida Nazim Agha, Manager, General Services

culture had a significant influence on his corporate life. In a country where Qatarization is a national strategy, there is constant debate over whether the issue lies in the “quantity” or “quality” of Qatari workers. However, according to Mr. Rida, he and his people are able to keep focused on promoting Qatarization in terms of quality,

owing to his precious Japanese experience. Lastly, Mr. Rida said he would convey the JCCP delegation’s message to Mr. Ahmad Al-Mawlawi, Director of Administration, who was away on business.

The occasion of the World Petroleum Congress in Doha allowed us to reunite with many JCCP graduates and key dignitaries. It is usually difficult to attract target people in a full venue, but sending an advance notice via email proved to be extremely effective. The idea of providing a photo shoot against a realistic image of a Japanese garden amused visitors who came to the JCCP booth, and the booth allowed JCCP graduates and key dignitaries to re-establish their relationship with JCCP. Using whatever short time was available to visit important figures at Qatar Petroleum also yielded significant results. Following this example, JCCP intends to make effective use of international conferences and exhibitions to update its roster and continue to deepen friendships with JCCP graduates—JCCP’s most precious assets.

<by Masumi Kitahara, Administration Dept.>



For Improved Training Practicality (Part 1)

—Training Simulator Upgrade—

1. Introduction

Distributed control system (DCS) was introduced in 1975. Since immediately after JCCP's establishment, the Instrumentation Group installed DCS training simulators in JCCP Headquarters located in the Sunshine 60 Building to promote hands-on training using actual machines. JCCP presently owns two brands of simulator, and provides easy-to-understand, practical training through exercises in basic DCS functions and lectures on a broad range of functions, including those of related systems. However, for improved practicality, one of the two simulators has recently been upgraded, as described below.

2. Background

2.1 Introduction of DCS

JCCP was established in 1981. In designing its training programs, the Instrumentation Group focused on DCS, which was just beginning to be introduced around the world, recognizing that lectures alone would be insufficient to satisfy participants' needs, and that training using actual machines is necessary. In its second year, JCCP thus adopted Yamatake Honeywell's TDCS-2000 system and began offering lectures and practical training on the basic functions of DCS, including data input/output, calculation, and networking.

2.2 Installation of a Miniature Plant

While training courses using an actual machine were begun, a standalone DCS system unconnected to field devices lacked impact when explaining control functions, which are the most important of all DCS functions. Therefore, a miniature plant was also installed and connected to the DCS to realize the same equipment configuration as a real DCS and complement DCS training. The miniature plant comprised four water tanks, and provided hands-on experience in such control processes as basic control (PID control), cascade

control and feed-forward control. Eventually it led to the installation of the training simulator that is currently being used. The DCS and miniature plant were thereafter expanded, the DCS was updated to a newer version, and the entire setup was upgraded to the real-to-life setup that it is today (before the recent upgrade), comprising two training simulators, Yamatake Honeywell Advanced-PS and Yokogawa Electric CENTUM CS-3000, each connected to three independent miniature plants. Using these devices, JCCP offers hands-on training in tuning control parameters, building and registering operational screens and control logic, and other operations related to controlling the level of the miniature plants.

3. For Improved Training Practicality

Fieldbus, safety instrumented systems (SIS), wireless—these are popular keywords in today's instrumentation field. Although the current training facility offers practical training, it is not in tune with the latest trends represented by these keywords. Therefore, with the aim of improving the training practicality, facilities incorporating the latest technologies in the instrumentation field have been introduced on the occasion of the recent upgrade.

The latest DCS from Yamatake (Harmonas-DEO) was introduced from a comprehensive perspective, taking the following points into consideration in building the overall system.

(1) Latest instrumentation

To provide training in the latest instrumentation systems, such as the fieldbus, wireless instrumentation, and safety instrumentation systems

(2) Associated systems

To provide training that also incorporates advanced control, operational assistance systems, and other such associated systems

(3) Visualization

To visualize the flow of information between field devices and DCS, and with other associated devices



Old training simulator (upgraded in 2001; Yamatake Advanced-PS R530 DCS)



3.1 Latest Instrumentation

There has been no construction of new refineries in the Japanese oil industry in over 30 years, so there has been no opportunity to introduce a fieldbus or other new instrumentation systems. In the Middle East and elsewhere, fieldbuses are increasingly taking the place of conventional instrumentation systems in the newer refineries. They have characteristics that conventional instrumentation systems do not; for example, they allow bidirectional communication, transmission of self-diagnosis results and other diverse types of information, and design of cable lengths in segment units composed of multiple devices. Since early on, JCCP courses on instrumentation have provided lectures that explain these points, but without the use of the actual device. Therefore, taking the occasion of the upgrade opportunity, JCCP recently introduced a fieldbus. Additionally, the HART protocol, which is widely used around the world today, has been introduced to provide training in three types of instrumentation device, including the conventional

device. A wireless system, which is not yet applied to control processes but is nevertheless a subject of interest among users, has also been introduced to provide training in wireless remote monitoring.

3.2 Associated Systems

As part of DCS training, JCCP has, since the beginning, provided lectures on advanced control systems as an associated system. In Japanese refineries and plants today, there is much activity related to the introduction and development of operation support systems that allow easy construction of automated operation systems. From the safety perspective, SIS and emergency shutdown (ESD) systems are also closely related to DCS. In fact, the most common type of ESD system in Japan is the dedicated relay-type system.

However, the situation overseas is different. In most cases, a safety instrumentation system is introduced to correspond to the desired safety level, and then ESD logic is built around that system. In consideration of this



New training simulator (upgraded in 2011; Yamatake Harmonas-DEO R400 DCS)



difference, JCCP has made it possible to provide training in advanced control and operation support systems by installing the interface on the DCS side and connecting it to an existing PC. In regard to SIS, an actual logic solver was installed to provide practical training on the design and production of interlocked sequences that works with the miniature plants and hypothetical plants (simulators).

3.3 Visualization

In the case of conventional instruments, each field instrument is connected to a DCS by cable. Any training participant knows this, but few people have probably ever seen which part of the DCS the cable is actually connected to. Similarly, few people have probably had the opportunity to understand the basic flow of data, where information is transmitted from the sensor to the DCS, and from the DCS to an advanced control system or other higher system via interface (OPC). Similarly, it might be difficult to envision how a fieldbus sends

and receives data in segment units, as data transmission differs from conventional devices. Based on the awareness that visualizing such flows of data so that they are readily apparent from the outside is important to understanding the system, JCCP has devised a way to allow easy confirmation of wiring connections.

4. Future Issues

The new system was installed last November, and was put to use in regular courses, as scheduled. Once again, training using actual machines has received high evaluation. However, as various functions have been introduced as part of the new system, a certain amount of time may be needed to provide practical training and lectures in complete form. At any rate, JCCP will utilize the newly introduced advanced hardware and software to provide even more practical courses, and continue to keep an eye on future technical developments to efficiently respond to emerging needs in oil-producing countries.

<by Kazuhiro Suzuki, Training Dept.>



Regular Course on Material Problems and Their Countermeasures

1. Overview

This course aimed to provide knowledge on problems related to the materials and welding of refinery equipment and their countermeasures, and was intended for refinery material engineers and welding engineers. It was designed not only to provide training in Japan's advanced material development and production technologies, welding technologies, inspection technologies, and quality control in reference to pressure vessels used in refineries around the world, but also to introduce and analyze damage cases and their countermeasures, and to discuss theories and the implementation of welding technologies that are indispensable to equipment repair. In addition to pressure vessels, the course also provided a perspective on material and welding issues and countermeasures for general equipment as well.

Ranging in age from 27 to 43 and averaging 33 years, the participants were a group of young and energetic inspection engineers from 10 countries, whose duties and responsibilities pertain strongly to the content of the course.

The course ran from November 1 to 18, 2011.

2. Course Details

2.1 Overall

(1) Course Objective

Ensuring equipment reliability is indispensable to safe and stable long-term refinery operations. To maintain this reliability, it is important to prevent equipment deterioration or to predict and minimize the rate of deterioration. In this respect, mechanical engineers have an important responsibility to take proper action against equipment deterioration based on an accurate understanding of the mechanism of various deterioration processes (corrosion and wastage, material changes, cracks and fatigue, etc.). Moreover, in anticipation of a deterioration condition manifesting itself in the form of damage, they must also acquire knowledge of countermeasures for preventing damage from spreading and cultivate skills for repair (welding,

etc.) and maintenance of equipment functions.

Based on the above understanding, this course aimed to provide knowledge on the mechanisms of equipment (material) deterioration and their countermeasures, as well as the necessary skills for welding and other repair work, by introducing theories and damage cases and examining production-side improvement measures, onsite responses and actual management methods.

(2) Course Content

At JCCP Headquarters, JCCP lecturers gave a general overview of maintenance management and maintenance technologies in Japanese refineries, and external lecturers provided knowledge of welding theories and technologies in general. Group discussions were also held as a means for learning how to seek the real cause and take proper action against corrosion, material degradation, and other such types of damage.

As part of practical training, an engineering company provided training regarding various cases of damage to plant materials, from the perspective of their mechanism, inspection and diagnosis technologies, analysis and countermeasures. Following this, two plant equipment manufacturers provided training on pressure vessel materials and production technologies, inspection and diagnosis technologies, and reliability assessment; a welding rod manufacturer provided training on welding design and technologies and repair technologies; a maintenance company provided training on maintenance, inspection and repair technologies for process plants and tanks; and a refinery provided training on actual methods of equipment (materials) management and real onsite damage and repair cases.

By incorporating not only lectures but also onsite hands-on training, the course offered a comprehensive, well-balanced and practical program to participants in charge of equipment maintenance in their countries.

2.2 Training at JCCP

(1) Refinery Maintenance Activities

(Lecturer: Kenji Saito)

This lecture on refinery maintenance management

focused on TPM (total productive maintenance) activities and autonomous maintenance activities by refinery operators. In regard to risk-based maintenance, a case study on corrosion damage was used as an example to understand how risks are assessed and balanced with cost to prepare a repair plan through exercises and discussions.

(2) Maintenance Management of Static Equipment in Refineries

(Lecturer: Hiromitsu Saito)

This lecture provided knowledge of material characteristics and regulations that need to be understood when selecting refinery equipment materials, as well as an understanding of codes and design conditions and a discussion of selection methods. A damage case example was used to explain the process of seeking the real cause of damage and its countermeasures, and various inspection methods and their applications were introduced, including new inspection methods that allow inspection of pipes from the outside, self-propelled inspection methods, and inspection methods that allow inspection of pipes from the inside, such as the method of direct inspection inside the pipe by inspectors and pig inspection methods.

(3) Welding Theories and Application and General Welding Technologies

(Lecturer: Mr. Takeshi Yamada, The Advanced Materials Processing Institute Kinki Japan)

This lecture introduced basic theories and applied technologies related to metal welding and cutting. Information about the latest processing technologies and applications of stainless steel and special alloys provided an important opportunity for participants in charge of equipment maintenance to acquire new technologies and knowledge related to their work.

(4) Oil Refinery Plant Troubles and Countermeasures

(Lecturer: Mr. Katsumi Yamamoto, External Lecturer, Japan Society of Corrosion Engineering)

This lecture introduced case examples of damage to aging plants in the oil industry in Japan and abroad. A group exercise session was also held in which participants mutually discussed, exchanged knowledge and information, and presented the results of their discussion concerning an actual damage case given as an example. This active, participatory exercise proved

to be an extremely meaningful and productive session to all participants.

2.3 Offsite Training

(1) The Japan Steel Works, Ltd., Muroran Plant

Members of Muroran Plant introduced various topics related to forged products such as high-pressure reactors and gas turbine rotors, including their material characteristics and production technologies, degradation/damage and their countermeasures, repair technologies, and inspection and diagnosis technologies. Additionally, a plant tour allowed the participants to actually see the production process and experience Japan's technologies.



At the Muroran Plant of Japan Steel Works, Ltd.

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

The refinery introduced the computerized system that has been built to centrally control various types of information, such as equipment registers for each facility, repair histories, design specifications, equipment diagrams, inspection logs, and repair schedules, and provided a detailed explanation of the system's functions, charts and diagrams, and usage procedures.



At the Muroran Refinery of JX Nippon Oil & Energy Corporation

(3) Taseto Co., Ltd., Fujisawa Plant

At the company's Fujisawa Plant, the lecture on actual damage cases in the refinery and welding repair technologies covered many issues that were familiar to the participants, and resulted in an active exchange of questions and answers. The introduction of material welding designs and repair technologies and the analysis of case examples of damage repair technologies were also highly appreciated.



At the Fujisawa Plant of Taseto Co., Ltd.

(4) IHI Corporation, Production Engineering Center

The staff at the Production Engineering Center gave an introduction of the pressure vessel production technology and the latest welding technologies. They also provided hands-on training in other advanced technologies such as their high-quality, high-speed automated welding system, and laser and hybrid welding technologies.

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

At the company's head office, a lecture was given on the maintenance, inspection and repair technologies for plant facilities and tanks, from a practical approach that incorporated a materials test, a metallographic inspection using an electron microscope, and a Q&A session.

The participants also deepened their understanding of the important role of the maintenance company in the inspection of refinery facilities in Japan.



At the head office of Shinko Plantech Co., Ltd.

(6) Chiyoda Corporation, Head Office

A hands-on lecture provided knowledge on corrosion damage cases specific to each major refining process unit and materials degradation and damage in high-temperature regions, using graphs based on abundant data. It comprehensively and systematically covered a broad range of topics from principles to actual cases related to the damage, corrosion, materials degradation and mechanical damage to units and the metallurgical approach to such damage.

3. Summary

At an average age of 33, the young engineers who attended the course exhibited an eagerness to absorb Japan's technologies, experience and knowledge that have helped maintain the aging plants at Japanese refineries for close to 50 years since their construction. While the course was charged with an air of purpose, however, the presence of two female participants brightened the atmosphere and added to the pleasant and informative training experience.

<by Hiromitsu Saito, Training Dept.>

Regular Course on Information and Control Systems Utilized in Refineries

1. Introduction

This course was originally an intensive course on advanced control, but it was reorganized two years ago to cover not only advanced control but also other representative systems used in refineries, to better respond to participants' needs. The first several days of the course were dedicated to laying the foundation of the course in general, by introducing the Japanese oil industry, a brief history of JCCP's establishment, and an overview of systems used in Japanese refineries.

A total of 14 participants from nine countries attended the course, including six instrumentation and control engineers, three process engineers, and five system engineers.

2. Course Content

2.1 Training at JCCP

(1) Recent Information Systems

(Lecturer: Mr. Hiroshi Osaka, Osaka Systems Planning, Inc.)

Mr. Osaka explained about information and control systems that are used in refineries and gas plants, not only from the Japanese perspective, but also from a worldwide perspective. He introduced the history of information and control systems also in reference to the



Lecture at JCCP Headquarters (Lecturer: Mr. Osaka)

difference between continuous and batch processes, and placed particular focus on PIS (plant information system) as a core information system in plants. He introduced other systems as well, such as systems for management of quality data, asset management systems, and systems for displaying indicators that are especially relevant to refinery operations.

Temperature, pressure, and flow rate data used in each system are sent to a DCS from a transmitter and are then supplied from the DCS to various servers via interface (OPC). Explanation of this basic flow of data seemed to provide a highly useful reference to the participants.

(2) Process Control Theory and Practice

(Lecturer: Mr. Kazuhiro Suzuki, JCCP Instrumentation Group)

To provide a basic understanding of control systems, this course included a lecture on basic control theories using CAI and control practice using an actual control system (DCS). PID control was examined as a representative type of basic control, and methods of enhancing PID controller were discussed. There are three parameters to PID, and in order to establish these parameters, it is necessary to understand the behavior of the process that is to be controlled. A video explanation of the theory of PID control, followed by CAI-based exercises facilitated the understanding of this procedure.

After a discussion of control theories, participants practiced controlling the level of water in a water tank using an actual DCS. By tuning the parameters for process control in manual, auto, and cascade modes, they gained a direct feel for process behaviors.

(3) Operation Support System

(Lecturer: Mr. Taisuke Ishida, Yokogawa Electric Corporation)

Most Japanese refineries adopt alarm analysis software and systems that support the automation of operational functions. Therefore, this lecture provided an explanation of the background to introduction of these systems and their basic functions, followed by exercises in creating simple to slightly more advanced applications



Lecture at JCCP Headquarters (Lecturer: Mr. Kutsuma)

using actual software. The application that was made last was applied to an actual system (DCS) as a new practical initiative. While operating an actual system, the participants seemed impressed by the machine's automatic operations according to a preset order. One of the participants commented that, although he has worked with alarm analysis software before, he gained greater understanding of how to use it from this course.

(4) Overview of Distributed Control Systems

(Lecturers: Mr. Riichirou Suzuki, Mr. Seiichi Nagura, Mr. Yasuhiro Kutsuma, Yamatake Corporation)

In addition to lectures on the input/output functions and inner calculation functions of a DCS, JCCP's Yamatake-brand DCS (Harmonas-DEO) was used to provide practical training in identifying the origin of an alarm from system messages after intentionally setting off an alarm by disconnecting the wiring of an actual station.

In regard to field instruments, an explanation was given of the characteristics of three types of device—fieldbuses, which have recently become popular, HART, and conventional devices. Furthermore, recent trends in alarm management were discussed, and a demonstration was given of Harmonas-DEO's alarm analysis function. There were some questions from the participants about how to handle system alarms and actions for alarm acknowledgment, which indicated that they had gained a proper grasp of alarm management and related applications through the short yet fact-filled lecture.

(5) Modernization of instruments

(Lecturer: Mr. Yuki Mikami, JGC Corporation)

Mr. Mikami lectured on points for consideration

when upgrading an analog instrumentation system to DCS, as well as on trends in control and information systems, with reference to experiences and actual examples on the contractor side. After introducing recent trends in the instrumentation sector, his lecture covered all relevant topics of the course, including the fieldbus, which is garnering widespread attention in recent years, the standardization of communication (OPC), and safety instrumentation. As a specialist in the field, Mr. Mikami gave an extremely detailed explanation of safety instrumentation, in particular. To participants in charge of planning a shift from a pneumatic system to DCS, the lecture seemed to provide a particularly meaningful reference.

2.2 Offsite Training

(1) Yokogawa Electric Corporation, Mitaka Headquarters

After giving a brief overview of the history of Yokogawa's DCS systems and their introduction to countries around the world, head office staff introduced the functions of the latest DCS CENTUM VP and SIS (safety instrumentation system). They also provided details of the functions of CENTUM VP, FCS (field control station) and a fieldbus in the demonstration room, and introduced remote operations using a mobile unit. The lecture as a whole provided a good opportunity to learn about technical trends in DCS peripheral equipment.



Offsite training at Yokogawa Electric Corporation

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

Following an introduction of the refinery, staff members discussed a broad range of topics, including an

overview of the refinery's computer system, the history of DCS, an introduction of the laboratory automation system (LAS), case studies of advanced control, and an explanation of the refinery-wide monitoring system. In regard to advanced control, an outline was given of model predictive control, followed by an explanation of some of the characteristic functions of the model predictive control that is used in the refinery. This seemed to provide useful reference particularly to participants who are control engineers.

(3) Idemitsu Kosan Co., Ltd., Chiba Refinery

In the morning, members of the training center gave an overview of the refinery and explained the refinery's Real-time Operation Management System. In the afternoon, the participants visited the refinery and toured its two control panel rooms, where they observed up close the operational management system and blend control based on model predictive control. With respect to blend control, an explanation of the online analyzer used in the system provided the participants with useful reference for future introduction of the system.

(4) Emerson Japan, Ltd., Chiba Solutions Center

The company provided a lecture mainly on wireless instrumentation (Wireless HART) and the company's latest DCS (DeltaV), as requested by JCCP. The explanation of wireless instrumentation was highly technical, including theories and a number of wireless standards, but there were many questions about the service life of wireless batteries and other detailed aspects of wireless instruments. As wireless instrumentation is undoubtedly one of the hottest topics today, JCCP hopes to continue offering offsite training in the topic in the future.

<by Kazuhiro Suzuki, Training Dept.>



Offsite training at JX Nippon Oil & Energy Corporation's Marifu Refinery



Offsite training at Idemitsu Kosan's Chiba Refinery



Offsite training at Emerson Japan's Chiba Solutions Center

CPJ Seminar on Environmental Management for Iraq

A Customized Program-Japan (CPJ) on environmental management in the refinery was held for a group of 20 engineers from the Ministry of Oil-Iraq from October 25 to November 4, 2011, as requested by the ministry.

1. Background and Objective

Iraq is taking active measures to strengthen environmental regulations against air pollution, noise pollution, and other such environmental problems, and as part of this initiative, the Ministry of Oil-Iraq requested a hands-on course on practical environmental measurement techniques and other such skills.

In response to needs in oil producing countries that have been identified from feedback provided in the past by regular course participants, the program also provided knowledge of soil treatment and treatment of oilfield-produced water. Additionally, environmental risk assessment and Clean Development Mechanism (CDM) were also included in the program as requested by the Ministry of Oil.

2. Participants

A diverse group participated in the course, including three refinery members, one from the Ministry of Oil, one from a research institute, five from oilfield departments, three from gas field departments, five from pipeline and other departments, and two from a training department. As this was the first time for training department members to participate in a JCCP training program, their participation was taken as an indication of Iraq's strong commitment to environmental improvement.

3. Course Content and Main Points

(1) Training at JCCP

1) Environmental management in Japan, tank sludge treatment, CDM through flare gas treatment

2) Environmental management in a refinery

(Lecturer: Mr. Masaaki Kuwahara, Cosmo Research Institute)

This lecture discussed the environmental management framework in Japanese refineries, related laws, and measurement interval based on actual examples.

3) Air pollution countermeasures, environmental risk assessment, CDM

(Lecturer: Mr. Yoshiki Sasaki, JGC Corporation)

Mr. Sasaki provided an overview of the calcium sulfate method as a method for removing SO₂ from gas discharged from a sulfur recovery unit, and the low-NOx burner and ammonia injection method as methods of lowering NOx levels. He also joined in a discussion in which a participant proposed to produce sulfuric acid directly from hydrogen sulfide and use it to control the pH of cooling water in the refinery.

4) Case studies

To provide an interactive training program, participants were asked in advance to prepare a presentation on an environmental issue for discussion with other participants of the course. Some of the issues they presented included the following:

- There is a sense of crisis over the possible impacts of air pollution (SOx) accompanying crude oil production and oil spills from refineries and pipelines, particularly on the famous Tigris River.
- Leakage due to inadequate corrosion-proofing of pipelines and leakage as a result of thievery are becoming serious issues.
- The treatment of sludge and waste oil generated from oil fields is not working well.

While shedding light on issues confronting Iraq, the presentations also highlighted the possibility that Japan's environmental technologies could be put to effective use to help improve refinery management and environmental measures in Iraq.



Environmental measuring



Soil purification

(2) Offsite Training

1) Shimadzu Corporation: Environmental measuring instruments and plant wastewater treatment facilities

Shimadzu Corporation provided training on the basics of measuring COD (chemical oxygen demand) and TOC (total organic carbon). The participants were given a special tour of the company's wastewater treatment facility, and gained first-hand experience in seeing how environmental measuring instruments are actually used in the field.

2) Chugai Technos Corporation: Environmental measurement practices and environmental risk assessment

Chugai Technos Corporation provided a practical training program that included an observation of the COD and SS (Suspended Solids) measuring process, noise measuring process and atmospheric sampling, and hands-on experience in taking a sensory odor test (smell test).

3) Japan Underground Oil Storage Co., Ltd., Kushikino Plant: Underground storage system, wastewater treatment

Since many of the participants work in the upstream sector, a visit to Japan Underground Oil Storage Co. was included among the offsite training sites for the first time, for training in pipeline maintenance and leakage prevention.

4) Hitachi Plant Technologies, Ltd.: Produced water treatment

Staff members of Hitachi Plant Technologies provided practical training in produced water treatment, which included technical explanations at the company's laboratory, a tour of its showroom, and a visit to a test plant in the Ariake district of Tokyo.

5) Nippo Corporation: Soil purification

At Nippo Corporation, the participants received a tour of a cleanup plant for contaminated soil and studied methods for utilization of treated soil. They also visited an industrial waste treatment facility and acquired information about treatment methods for each type of waste substance.

4. Summary

The oil industry in Iraq plays an important role in reconstruction efforts in the country. For smooth operations in the industry, including the expansion and construction of refineries, proper environmental management is imperative. In post-evaluations of the course, all 20 participants gave high marks, saying that the course was "highly beneficial" or "beneficial" to their work. JCCP hopes Japan's successful environmental initiatives will contribute to the future of the oil industry in Iraq.

<by Bunsuke Kariya, Training Dept.>

CPJ Seminar on Upgrading Processes of Heavy Oil for PetroVietnam



Participants and JCCP staff

A Customized Program-Japan (CPJ) on heavy oil upgrading was held for a group of participants from PetroVietnam, from November 30 to December 8, 2011.

1. Background and Overview

The course was organized in response to a request from PetroVietnam, and was designed for a group of selected engineers from the company.

Prior to this course, a Customized Program-Overseas (CPO) on upgrading processes of heavy oil was held in Ho Chi Minh City from September 5 to 8. As it was extremely well received, a course on the same theme was implemented in Japan, as requested by PetroVietnam. The course program was designed upon mutual consultation and approval between PetroVietnam and JCCP.

2. Planning

To respond to PetroVietnam's strong request for practical training, visits to two representative catalyst manufacturers in Japan were included in the program. One was to JGC Catalysts and Chemicals Ltd.'s Kitakyushu Operation Center, which frequently provides offsite training for JCCP regular courses, and the other was to Nippon Ketjen Co., Ltd.'s Niihama Division,

for the very first time. Both facilities supplemented the course with a highly practical training program.

3. Participants

The 15-member group from PetroVietnam (12 men, three women) was headed by Mr. Nguyen Le Binh, Deputy General Manager, Training & HRD Division, and comprised six members from the head office, four from Binh Son Refining and Petrochemical Company Ltd., three from PetroVietnam Research and Development Center for Petroleum Processing, and two instructors from PetroVietnam's training and education departments. In terms of age, their average age was 33. Of these participants five had also participated in the previous seminar held in Vietnam in September.

4. Training at JCCP

(1) Japan's Oil Industry

This lecture provided a general picture of Japan's oil industry by covering the following topics: primary energy trends in Japan; the status of petroleum within Japan's total energy composition (share and importance of petroleum); the physical distribution of crude oil and oil products from import to sales; and primary petroleum distributors, their share, and the locations and capacities

of their refineries. As PetroVietnam has plans to build its second and third refineries in the future, this lecture seemed to provide an extremely useful reference.

(2) Heavy Oil Upgrading

This lecture emphasized the importance of heavy oil upgrading processes, and explained the characteristics of each process and economically efficient combinations of processes in reference to specific examples of their application in actual refineries. The participants noted that the highly systematic explanations helped them to better understand the importance of diverse upgrading processes.

(3) Catalytic Cracking Technologies (FCC, RFCC) and Heavy Oil Hydroprocessing Technologies (Lecturer: Mr. Hidetoshi Tani, Toyo Engineering Corporation)

This lecture provided a basic understanding of the FCC process, the more advanced RFCC process, and H-Oil process, including their differences in licensor and other aspects. The reference material for troubleshooting of FCC operational troubles was well organized and informative, containing equipment precautions and countermeasures accompanied by specific examples.

6. Offsite Training

(1) JGC Catalysts and Chemicals Ltd., Kitakyushu Operation Center

Staff members of the Kitakyushu Plant provided training in the production processes, quality management, and performance evaluation mainly of an FCC (fluid catalytic cracking) catalyst and HDS (hydrodesulfurization) catalyst. Mr. Yasuharu Furukawa, Managing Director and General Manager of the Kitakyushu Operation Center, also lent his presence and actively promoted further development of the plant's friendly relationship with JCCP in the future.

(2) Nippon Ketjen Co., Ltd., Niihama Division

Nippon Ketjen's Niihama Plant was included as a CPJ offsite training destination for the first time, and provided a tour of a pilot plant in the hydroprocessing catalyst regeneration facility and an overview of the catalyst recycling business. An active Q&A session ensued, and made for an extremely meaningful training session.



Offsite training at Idemitsu Kosan's Chiba Refinery

(3) Idemitsu Kosan Co., Ltd., Technical Training Center and Chiba Refinery

The Chiba Refinery is Idemitsu Kosan's main refinery located in the Keiyo industrial complex. For this course, refinery staff provided training on topics of particular interest to the participants, including an introduction of the company and refinery, a detailed explanation of the FCC and RFCC units within the heavy oil upgrading process, and knowledge of FCC and RFCC catalytic components, structure and yield.

7. Observations

By implementing this course on heavy oil upgrading in Vietnam and Japan as a set, details of topics that could not be fully covered in Vietnam were able to be provided in Japan. The entire program was carried out as planned without any problems, and the intended results were successfully achieved. All 15 participants from PetroVietnam displayed earnest and enthusiastic attitudes, maintained firm discipline as a group, and applied themselves to the program with a bright and cheerful demeanor. They said the course provided them with a comprehensive picture of Japan's oil industry.

In Vietnam, the country's first refinery is currently in operation. With plans to construct the second and third refineries hereafter, it is essential for PetroVietnam to acquire heavy oil upgrading technologies to ensure trouble-free refinery operations. JCCP feels that having gathered young engineers from PetroVietnam and implemented this training program has great meaning to the future of both Vietnam's and Japan's oil industries.

<by Takaaki Yuasa, Training Dept.>

CPJ Seminar on Petroleum Marketing and Distribution Held for a Joint Group of Members from Vietnam

1. Background

JCCP has designated Vietnam as a counterpart for its special cooperation program this year, and has subsequently entered a basic agreement with PetroVietnam last August and with Petrolimex last December.

Vietnam presently has one refinery, but has plans to build additional refineries in the future. Thus it requested a customized program in Japan on the physical distribution of oil products.

The content and dates of the program were discussed with the aim of holding the program at the earliest possible time, and it was agreed that, as the first stage, a program would be implemented in Japan for a joint group of members from both PetroVietnam and Petrolimex.

2. Overview

Upon close consultation with both companies, the program was decided to be held over a period of 12 days. As this is shorter than a typical regular course by about a week, the program was designed on a full and tight schedule. It included three days of lectures at JCCP Headquarters ((1) Japan's oil industry & oil marketing and distribution; (2) Oil market in Asia; (3) World energy situation) and six days of offsite training ((1) JX Nippon Oil & Energy Corporation, Head Office; (2) Cosmo Oil Co., Ltd., Sakaide Refinery; (3) JFE Steel Corporation, West Japan Works; (4) JX Nippon Oil & Energy Staging Terminal Corporation, Kiire Terminal; (5) San-ai Oil Co., Ltd., Haneda Branch; (6) Tatsuno Corporation, Yokohama Plant).

The 22-member study group was the largest ever for a customized program, and comprised 10 members from PetroVietnam and 12 members from Petrolimex. It also included 10 women, and was essentially a young group of middle-level employees mostly in their early 30s.

3. Content

The lecture on "Japan's oil industry and oil marketing

and distribution" covered various aspects of the oil industry in Japan, including the necessity of stockpiling oil to maintain stable supply, the development of alternative fuels that can be used in place of oil, post-deregulation changes in the oil industry, excessive competition in the marketing sector and the weakening of the oil industry, and the reality of the oil taxation system.

The lectures on "Reality and future trends in Asia's oil market" and "World energy situation" presented a global perspective and focused on the latest oil market situation in Asia, where economic growth in China and India are driving a rapid surge in demand for oil, and on the world energy situation in general, in relation to global environmental issues.

In addition to the lectures, visits were made to six oil facilities throughout Japan.

At JX Nippon Oil & Energy Corporation's Head Office, the first place visited, a lecture was given on the volatile hydrocarbon recovery technology and the development of new automotive fuels. The company's initiatives against environmental issues such as global warming and knowledge about biofuels and other new automotive fuels pertained to issues that Vietnam faces, and elicited strong interest and questions from the participants.

The second destination was Cosmo Oil's Sakaide



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

Refinery, where the study group received a lecture on the physical distribution system of oil products in the refinery and toured its tanker shipping facility and crude-oil receiving facility. The participants seemed particularly impressed with the refinery's thorough enforcement of product safety and quality control and environmental countermeasures.

The third destination was JFE Steel Corporation's West Japan Works, which provided a technical lecture on building and maintaining pipelines and a tour of the plant, and thoroughly impressed the participants with its overwhelming operations and size.

The fourth destination was JX Nippon Oil & Energy Staging Terminal Corporation's Kiire Terminal. The participants inspected a tanker docked at the crude-oil pier from a boat, and after landing on the terminal site they enjoyed the rare experience of stepping inside a tank that was open for inspection and also of climbing out onto the rooftop. They also received classroom lectures on the role, functions, operational management and environmental safety management of the terminal, and were duly impressed by its impeccable record of zero accidents and thorough safety and environmental measures.

The fifth place visited was San-ai Oil's Haneda Branch, where the participants received a lecture and tour of the aviation fuel supply system and an opportunity to observe a small tanker's receipt of products at the pier. They seemed especially thrilled to personally observe the thoroughly safety-oriented process of supplying fuel to aircraft in the maximum-security apron area of the airport.

The last place visited was Tatsuno Corporation's Yokohama Plant. The participants observed the production process of weighing machines and the quality management of products, and then visited a service station where the company's weighing machine is actually used. They inquired about many things, as it was the first time for them to personally observe the latest style of self-service gasoline stations that handle gasoline weighing machines, car-wash machines, automobile safety inspection services, and products other than oil.



At San-ai Oil's Haneda Branch

4. Summary

PetroVietnam is active in the oil upstream sector, while Petrolimex is active in the downstream sector. While the business realms of the two companies differ, they are partial competitors in the marketing sector. For this reason, there were some initial worries about communication between the two groups of participants, but such worries were unnecessary, as both groups immediately opened up to each other and deepened their friendship by exchanging information and views. In fact, throughout the program they actively shared their views and asked questions in an extremely genial atmosphere.

Unlike regular courses, customized programs are attended by a group headed by a leader who is pre-selected by the counterpart country or organization. In this program as well, the selected leader acted with a sense of purpose and responsibility, and facilitated the smooth implementation of the program.

In the case of training programs on marketing, more weight is placed on offsite training than classroom lectures. To JCCP's relief, this approach was also highly appreciated by all participants of this recent program.

JCCP hopes this program has helped participants deepen their understanding of Japan, and has played at least a small part in contributing to Japan's stable oil supply.

<by Kazuo Kojima, Training Dept.>

CPO Seminar on Maintenance Management Held in Oman

Oman Oil Refineries and Petroleum Industries Company (ORPIC) and JCCP co-sponsored a seminar on maintenance management intended for engineers and managers in maintenance departments.

ORPIC was founded recently in June 2011 by a three-way business merger between Oman Refineries and Petrochemicals Company LLC (ORPC), Aromatics Oman LLC (AOL) and Oman Polypropylene LLC (OPP), so this was the first customized program to be implemented by the new organization.

As requested by ORPIC, the seminar placed focus on maintenance management of rotary machines and static equipment in the refinery and on risk and safety management related to maintenance, and was held from October 23 to 26, 2011 at Sohar Refinery's training center.

1. Overview

The seminar was titled "Maintenance Management," and covered a broad range of issues, including the maintenance management of rotary machines and static equipment, periodic maintenance management and risk management, safety management in the refinery and TPM activities. Participants were not only maintenance engineers, but also included from a diverse range of employees engaging in processes, operations and environmental safety.

A total of more than 120 participants pre-registered for the seminar, with roughly 30 to 40 participants attending each course.



Opening ceremony

2. Content

(1) Maintenance Management of Rotary Machines

This lecture introduced case examples of preventive maintenance activities for pumps (management of vibration measurement, lubricating oil, and bearing temperature) that are performed by operators in most refineries in Japan, based on actual records and data on the reduction of malfunctions and improvement of operating rates through steady implementation of maintenance management activities. Additionally, methods were introduced for ensuring reliability of rotary machines, including simulator training on vibration management and vibration frequency analysis of large rotary machine (gas turbine) bearings, and a video presentation was shown on the disassembly, inspection, repair and reassembly of a gas turbine. As the counterpart personnel member on the ORPIC side was well-versed in issues regarding gas turbines, he and JCCP lecturer Shintaro Miyawaki engaged the other participants in a highly interactive exchange of views.



Lecture on maintenance management of rotary machines by JCCP lecturer S. Miyawaki

(2) Maintenance Management of Static Equipment

This lecture provided knowledge of the latest inspection methods and evaluation of static equipment in refineries (towers and vessels, heat exchangers, pipes), and covered such issues as the selection of materials when manufacturing equipment; the advantages



JCCP lecturer H. Saito answering a question from a participant

and disadvantages of each material; and the damage mechanism and corrosion and damage examples of different types of materials, including carbon steel, stainless steel, low-alloy steel and high-tensile steel. It also introduced various damage and accident cases in refineries in Japan and abroad, namely a case of rupture of the drain separation tank of a reciprocating compressor, a bursting of a Breech-lock heat exchanger, a rupture of a pipe in a hydrodesulfurization unit, a bursting of the reactor in a hydrodesulfurization unit, and a blowup of a hydrogen sulfide amine absorption tower. These cases were then analyzed from the perspectives of metallurgy, structural studies, and anti-corrosion measures, and a discussion of their fundamental causes and countermeasures ensued.

Following the above, JCCP lecturer Hiromitsu Saito lectured on pipe inspection technologies, with a focus on the measuring principle, scope of application and measurement accuracy of the magnetic saturation eddy-current examination method, the multi-ultrasonic inspection method, the ultrasonic TOFD method, and the long-range ultrasonic inspection method.

(3) Period Maintenance Management and Risk Management

Japanese refineries are maintained with the support and cooperation of engineering companies, equipment manufacturers and various academic organizations to ensure safe and stable operations. In contrast, most refineries in Oman and other GCC oil-producing countries are maintained by in-house technicians (dedicated mechanics). Despite this difference, however, ensuring equipment reliability and continuing safe and stable plant operations is a common issue to oil industries in Japan and abroad. As a management method for addressing this issue, a lecture was given on risk-based

inspection (RBI) and reliability-centered maintenance (RCM) methods, with reference to an example of their introduction to a certain Japanese refinery and actual data on the effectiveness of their introduction.

Risk management was also discussed in terms of the probability of the risk that corrosion damage at the top of a distillation tower might cause external leakage, and in the case a leak occurs, the consequences that could be expected from the scale of damage. The participants then took part in an exercise on “decision-making based on risk,” where they came up with an ideal countermeasure by comparing a number of possible countermeasures with respect to cost and risk reduction.



Lecture scene (Mr. Hamoudi and JCCP lecturer K. Saito)

(4) Safety Management and TPM Activities in the Refinery

Among the various safety activities implemented in a refinery, this lecture focused specifically on safety activities related to shut-down maintenance (SDM). When a video presentation introduced safety activities that are performed by all refinery workers and partner company employees before the start of the day’s operations, such as the “radio exercise,” “shoulder massaging exercise,” and “uniform inspection,” the participants seemed surprised and impressed by the uniformity and disciplined actions of the workers.

In relation to shut-down maintenance and large-scale work, the lecture explained that the Industrial Health and Safety Organization requires the installation of a special safety management organization pursuant to the Industrial Safety and Health Act. The activities of the Occupational Health and Safety Council and other safety activities (regular safety patrol of construction sites, notice boards for safety activities, safety lectures before the start of working hours) were introduced using photos.

TPM activities were introduced as a means of

eliminating the typical organizational barrier between operations departments and maintenance departments (interdepartmental obstacle: “I operate, you repair”). The JCCP lecturer (Kenji Saito) referred to his experience in illustrating how facility reliability can be maintained only when voluntary maintenance activities by the operations departments and professional maintenance by the maintenance departments function as the pair of wheels of a cart, and how TPM can be used as a valid tool toward that end.

3. Observations

As mentioned earlier, ORPIC was established by a three-way merger between ORPC, AOL and PPO. At the time of the seminar, it had been concentrating on solidifying its organization and strengthening its functions. Yet even during this important period, it recognized the importance of improving the capacity of engineers in the operations and engineering departments and of handing down knowledge and skills among the engineers as a means for enhancing equipment reliability and continuing safe and stable operations as the newly



Presentation of the completion certificate

established ORPC. The foresight of ORPIC’s HRM and training departments to plan for this seminar is certainly worthy of respect.

JCCP hopes the mutual understanding and cooperation framework established between Oman and Japan through long years of efforts among the relevant parties will continue to grow and strengthen through the implementation of JCCP activities.

<by Kenji Saito, Training Dept.>



Lecturers and participants on the final day of the seminar

CPO Seminar on Carbon Management Held in Kuwait

1. Background

Kuwait is one of most important crude oil suppliers to Japan. Last year, the country presented Japan with a gift of 5 million barrels of crude oil to help recovery efforts in the wake of the Great East Japan Earthquake. Last June, JCCP took the occasion of its campaign to renew its training programs to hold a conference with members of the environmental department at Kuwait Petroleum Corporation (KPC). It sought to examine the possibility of co-sponsoring a seminar with relevant departments in Kuwait and to work out details in line with needs in the country. As a result, KPC made a formal request for the joint implementation of a carbon management seminar.

In preparation for the seminar, the Kuwaiti side organized a preparatory group headed by Ms. Rasha A. Maarafi from KPC and composed of members from KPC, Kuwait National Petroleum Company (KNPC) and Kuwait Oil Company (KOC). Following careful preparation with the JCCP side regarding the lecturers, the seminar program, and the level of participants, the seminar was held from December 12 to 14, 2011 in an auditorium at the KPC Head Office, with the attendance of KPC top executives.

In recent years, oil-producing countries have seen a rising interest in reducing greenhouse gas emissions, and particularly in energy conservation measures and the effective utilization and storage of carbon dioxide gas. In



Japanese lecturers and the moderator of the seminar, at the KPC Head Office

Kuwait as well, relevant departments in the oil industry are working to promote such initiatives and cultivate new projects under the leadership of KPC. Under this situation, the KPC side recognized the need to develop specific capacities for cultivation of new projects through training on energy conservation and greenhouse gas reduction and storage technologies of Japanese companies, as well as on carbon financing and other such mechanisms, and thus implemented the CPO seminar with JCCP, with the attendance of its top executives.

2. Content

The seminar was divided into two parts: Part 1 as a general, open session for a wide range of participants from throughout the KPC Group; and Part 2 as an intensive session for a smaller group of selected members. The first day of the seminar took the form of presentations, attended by Mr. Bader Al-Khashti, Managing Director, other members of top management, and approximately 45 employees from the KPC Group. In addition to the Japanese lecturers, two members on the KPC side also gave presentations as a new undertaking in this particular seminar, to deepen mutual understanding. The second and third days of the seminar comprised a workshop, in which a small group of 15 participants enjoyed the opportunity to discuss various issues with experts from relevant fields.

Upon consultation with the KPC side, the seminar as a whole broadly covered policy trends, technologies, and finance issues, with the aim of developing capacities



Opening speech by Mr. Bader Al-Khashti, Managing Director, KPC



Open presentation by JCCP lecturer in an auditorium at KPC

to cultivate new projects on energy conservation, underground storage, and carbon management. Lecturers on the Japanese side included JCCP lecturers (Shintaro Miyawaki and Tetsuo Arii) and specialists from Mitsubishi Heavy Industries, Ltd. (Mr. Masaki Iijima), JGC Corporation (Mr. Yoshiyuki Watanabe), Mitsubishi UFJ Securities Holdings Co., Ltd. (Mr. Vladislav Arnaudov) and other such specialists in their respective fields.

(1) Day 1

Following an opening statement by Mr. Al-Khashti and a greeting by Fumihiro Tone, General Manager of JCCP's Training Department, the following presentations were given.

Session 1: Greenhouse Gas Policies in the Oil Industry

From the Kuwaiti side, Mr. Atif Al-Jamaili, Manager, and Dr. Naresh Akkur gave a presentation on KPC's greenhouse gas reduction policies and initiatives. An active discussion ensued, with questions also being raised from KPC Group executives attending the session. The speakers also lectured on trends in international talks on global warming, the feasibility of implementing countermeasure projects in the oil industry, and global warming countermeasures in the oil industry in Japan. The presentation provided a wealth of new knowledge from Japan and around the world, and was highly favorably received by all participants.

Session 2: Low-carbon Technologies in the Oil Industry

This presentation focused on the latest carbon management technologies. It provided a general overview of future technical trends, including Japan's advanced technologies and commercial achievements and visions for

a low-carbon society, and promoted greater understanding of future project development potentials in Kuwait, as well as of Japan's cutting-edge technologies.

(2) Day 2

Moving the venue to a smaller seminar room, the second day of the seminar took the form of a workshop for interactive discussions.

Session 3: Carbon Underground Storage and Greenhouse Effect Management in the Oil Industry

Session 4: Effective Flare Gas Utilization Technologies and Power Generation Technologies

These two sessions were attended by participants from various departments at KPC who are in the position to promote new project development. Based on the awareness that there is much potential for reducing greenhouse gas emissions from various departments in the upstream and downstream sectors of the oil industry, the sessions covered a wide range of topics, including energy conservation, flare gas and effective CO₂ utilization technologies that have particularly high emission reduction effects, as well as underground storage technologies and CDM methodologies, in discussion format. By holding active exchanges with specialists, the participants said they were able to gain practical understanding of relevant new technologies and financing methods.

(3) Day 3

Session 5: Carbon Finance (Case Studies)

Session 6: New Project Development Exercise

Using specific projects implemented in other oil-producing countries, these two sessions featured case studies of such issues as energy conservation, flare gas reduction and CO₂ underground storage. By examining



Small-group training

specific projects that have already been implemented from the technical and economic perspectives, they provided a practical frame of reference to develop similar new projects in Kuwait. Furthermore, by studying the process of new project development in specific terms, the participants in effect took the first preparatory step toward developing new projects in Kuwait. The sessions provided highly pragmatic training, and led to proposals for Kuwait-Japan cooperation projects and specific feasibility studies, as well as other post-training cooperation schemes.

At the close of the seminar, Mr. Bader Al-Khashti once again lent his presence and personally presented a commemorative token to each participant, in an act that indicated the KPC top management's strong interest in employee training. In light of the success of the recent seminar, the KPC side expressed its wish to implement another joint seminar with JCCP within the year on waste management and new energy technologies. Additionally, on the following day, the JCCP delegation received an invitation from a member of Kuwait Institute of Scientific Research who participated in the workshop, and held an exchange of information for future cooperation.

3. Summary

The seminar incorporated a number of new initiatives as discussed below, with the following results.

(1) Joint implementation with relevant KPC departments and establishment of a preparatory organization on the KPC side

A preparatory organization of relevant members from KPC and other related companies was established and facilitated detailed preparations with JCCP. As a result, thorough preparation went into implementing a seminar that fully satisfied the needs of the counterpart country in terms of the selection of lecturers, the seminar content, and

range of participants. Furthermore, the attendance of KPC's managing director and other executives added prestige to the seminar. This undertaking showed that meticulous planning for customization with relevant departments in the counterpart country from the preparatory stages is indispensable to a successful seminar.

(2) Combination of open presentation sessions and small-group training sessions

By combining an open, symposium-style session in a large auditorium with small group workshops, a large number of participants from throughout the KPC Group, including top management members, was able to attend the seminar. This two-part structure also elevated the quality of training, as well as contributed to increasing recognition of JCCP training activities within KPC.

(3) Capacity-building for new project development

Because the objective of the seminar was capacity-building for new project development, a large number of participants from various sectors of the KPC Group was able to attend, and in combination with mutual discussions among participants, the seminar produced emergent effects within KPC. At the same time, specific discussions with lecturers from Japanese companies provided an opportunity to explore the possibility of developing new projects.

In light of the success of the recent seminar, Kuwait requested another seminar related to the environment (waste management), and requests were received for training in environmental topics from other GCC countries as well. JCCP, for its part, will take the successful implementation of this seminar as a model for improving and renewing future training programs through joint preparation with the counterpart country to more closely respond to its needs.

<by Tetsuo Arij, Training Dept.>



Members of the seminar after the closing ceremony: Mr. Bader Al-Khashti, Managing Director, KPC (center)



After a meeting at KISR

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



Participants of the seminar

1. Objective and Background

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

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

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

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

2. Content

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

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



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



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

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

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

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

group activities, such as the Tool Box Meeting (TBM), danger prediction activities, near-miss incidents and the 5S activities, with particular emphasis on the 5Ss as an important part of visualization efforts.

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

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

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



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

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

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

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



Initial cleaning

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

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

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

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



Report of activity results



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

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

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

3. Observations

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



Before pump improvement



After pump improvement



Before improvement of the compressor area



After improvement of the compressor area

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

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

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

<by Fumihito Tone, Training Dept.>

Report on the Training Cooperation Program

—Saudi Arabia and Qatar—

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

1. Saudi Aramco

(1) Training & Development Department, Dhahran Head Office

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

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

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

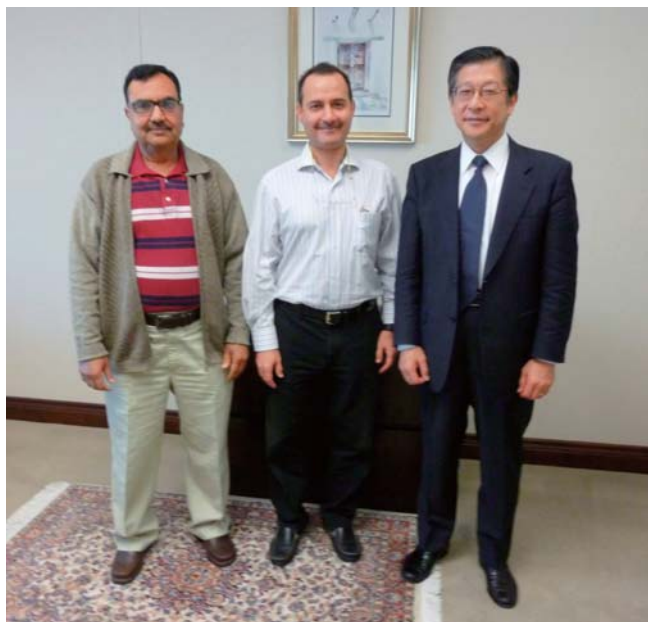
transformation, and expect JCCP to also keep up with this change and provide timely training. They have large expectations of JCCP. Saudi Aramco sends its employees to receive training in South Korea, China and Malaysia, but places priority on training in Japan. Why? This is because everyone buys Japanese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

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

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

(2) Refining & NGL Fractionation Administration Area

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



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

(3) Jeddah Refinery

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

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

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

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

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

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

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

(5) Gas Operation Administration Area

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

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



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

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

2. Qatar Petroleum

(1) Gas Operations Department (Mesaieed)

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

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

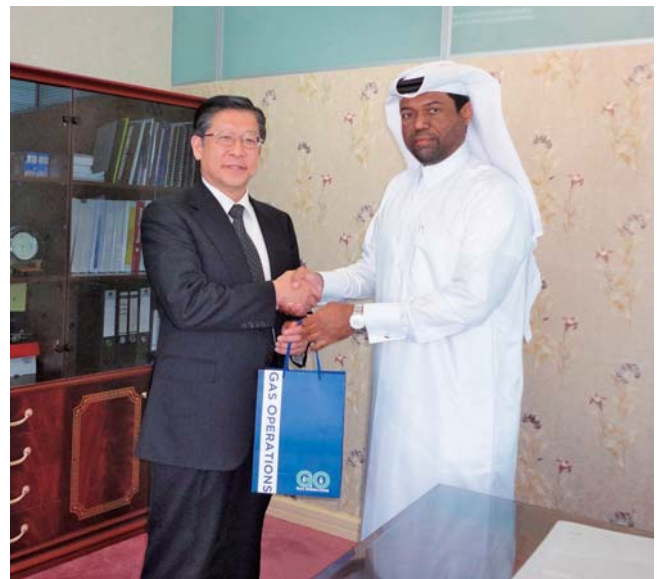
studies as an effective component of regular courses based on his experience. He also said he understands that JCCP strives to improve its courses every year by incorporating participants' feedback, and that he realizes that the content of a course may not be the same even if the course name remains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

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

(2) Corporate Training Department

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

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



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

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

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

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

3. Summary

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

At Saudi Aramco, in particular, the scope of

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

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

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

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

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

(2) Technical tradition

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

(3) Follow-up of training objectives and results

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

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

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

<by Fumihito Tone, Training Dept.>



JCCP Regular Courses Completed

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

Lecturer: Akio Hoshino

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

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

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



<13 countries / 19 participants>

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

Lecturer: Kenji Saito

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

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

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



<12 countries / 17 participants>

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

Lecturer: Takaaki Yuasa

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

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

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



<9 countries / 14 participants>

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

Lecturer: Hiromitsu Saito

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

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

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



<10 countries / 16 participants>

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

Lecturer: Akio Hoshino

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

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

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



<12 countries / 19 participants>

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

Lecturer: Kazuhiro Suzuki

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

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

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



<9 countries / 14 participants>

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

Lecturer: Tetsuo Arie

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



<14 countries / 19 participants>

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

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

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

Lecturer: Hiromitsu Saito

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



<12 countries / 18 participants>

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

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

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

Lecturer: Fumihiro Tone

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

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

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



<11 countries / 15 participants>

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

Lecturer: Masayuki Jimbo

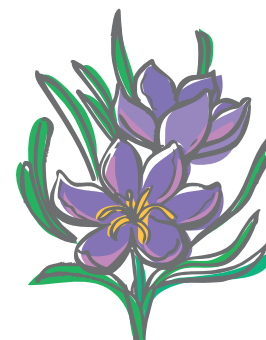
Content: Petroleum Industry in Japan;
Workshop for Business Skill Development: "Negotiation and Financial Accounting in Marketing"; World Energy Situation;
Refinery Shipping System of Petroleum Products;
Refinery Site Observation of Shipping Facilities;
Crude Oil Terminal; Distribution of Petroleum Products;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

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

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



<9 countries / 18 participants>



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



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

1. Background

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

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

2. Overview

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

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

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

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

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



Commemorative photo taken after the opening ceremony



Exchange of commemorative gifts in the opening ceremony

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

On the Japanese side, Dr. Junzo Kasahara, Senior Advisor in the Scientific Systems Solutions Division at NTT Data CCS Corporation (and Professor of Emeritus, The University of Tokyo), introduced the ACROSS continuous seismic monitoring system, which is a Japanese 4D monitoring technology that KACST and JCCP are presently developing and testing in a joint project, and called attention to the effective and outstanding aspects of the technology.

In a final panel session, Dr. Zhdanov and Dr. Kasahara discussed future technologies and goals in the field of seismic monitoring and wrapped up the presentation sessions of the workshop.

On January 11, the last day of the workshop, most of the lecturers, KACST members and some 50 participants traveled to Al-Wasia, a city located approximately 120 km from Riyadh, and visited the water abstraction site where an ACROSS unit and a monitoring station are installed and being tested. They received detailed explanation of the ACROSS technology from relevant

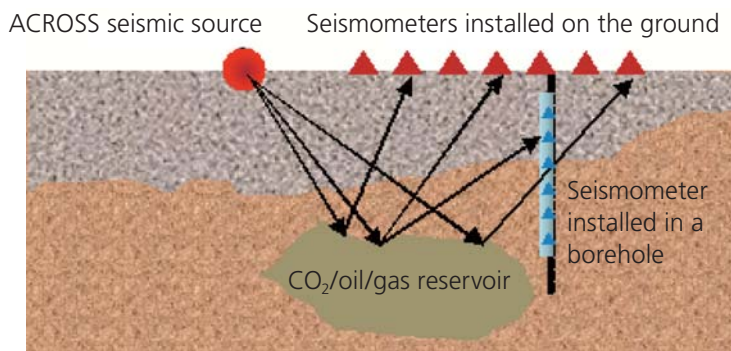
members from KACST and NTT Data CCS while observing the actual unit under test operation. This completed the agenda of the workshop, which concluded amid much appreciation and satisfaction.

3. Conclusion

The workshop provided a highly interactive forum for exchanging information and views on innovative technologies in the field of subsurface change monitoring. It also elicited widespread interest and inquiries about the JCCP technical cooperation project in Saudi Arabia and the ACROSS technology after an overview of the project and the workshop were introduced in a local newspaper and also broadcast on the NHK “Biz Spot” program in the evening on January 16.

The workshop was also extremely successful in the respect that it stimulated strong interest in the KACST-JCCP joint project (ACROSS demonstration test) among international experts who participated in the workshop from around the world, and that it elicited feedback hoping for the continuance of an enhanced workshop as a forum for information exchange and technical transfer toward development of technologies in the field of surface and subsurface monitoring.

<by Toshifumi Amemiya, Technical Cooperation Dept.>



Schematic diagram of a continuous monitoring system

Workshop on Refinery Processing Technologies and Research (UAE)

1. Background

JCCP is presently implementing a technical cooperation project in UAE called “Support to the Operation of TAKREER Research Centre (TRC) Phase-II.”

As part of this project, TRC, JCCP and Idemitsu Kosan Co., Ltd. held a joint workshop at TRC on November 29, 2011, following the previous workshop held a year ago.

2. Overview

JCCP has implemented two technical cooperation projects to date with TAKREER, as shown below, with the aim of strengthening the friendly relationship between UAE and Japan by transferring Japanese oil refining technologies and know-how and thereby contributing to developing human resources and giving competitive strength to refineries in UAE.

- (1) 2005 – 2009: Support for Establishment of TAKREER Research Centre (TRC) in UAE (Phase I)
- (2) 2010 – present: Support to the Operation of TAKREER Research Centre Phase-II

During Phase I, which was considered the establishment phase of the project, the building was constructed and the pilot plant and other relevant analysis

equipment were finished being installed by the end of fiscal 2009.

Subsequently, Phase II was launched in fiscal 2010. So far, operations of the pilot plant have been stabilized, tools for evaluation and analysis of hydrocracking catalysts have been introduced, and technical studies have been held to promote the involvement of refineries.

The recent workshop was held with the participation of roughly 50 members from TRC, the TAKREER Head Office, the Petroleum Institute (PI), Idemitsu Kosan Co., Ltd., JCCP and other institutions, and featured a total of ten presentations, including three from TRC, two from PI and five from Idemitsu Kosan. Idemitsu Kosan’s presentations were given by five members from the company’s Technology & Engineering Center and its Advanced Technology Research Laboratories, and focused on catalyst evaluation technologies and operational analysis technologies.

For each theme, the presentations and Q&A sessions combined were limited to 30 minutes, but active discussions ensued and added to the successful implementation of the workshop. Particularly with respect to the presentations given by Idemitsu Kosan, many words of praise were heard, saying that they had direct relevance to improving profits in refineries, and that they were both easy to understand and extremely informative. The presentations given by TRC and PI were also extremely interesting and highly professional, and included references to past studies.

At the end of the workshop, Dr. Abdelhakim Koudil, TRC Manager, led the participants in a review of the workshop and a frank exchange of views on future improvements, and closed the workshop with an agreement to open future workshops not only to TRC, but also to members from the TAKREER Head Office and refineries, and to further enhance the program, so that it could take root as a regular event among JCCP’s activities.

3. Conclusion

TRC showed extremely strong interest in holding technical exchanges through workshops such as this



TRC building (3 stories): completed in April 2009 in the eastern suburbs of Abu Dhabi

recent one, as well as in the activities of Idemitsu Kosan's technology and R&D departments, and many of the participants expressed their wish to see this workshop develop further into a forum for information exchange and technical transfer. This forward-looking response is not only reassuring, but has also heightened motivation for the continued implementation of the joint project.

<by Toshifumi Amemiya, Technical Cooperation Dept.>



Participants of the workshop (November 29, 2011)

Workshop Program by TAKREER and JCCP (Idemitsu Kosan Co., Ltd.)

	Opening Ceremony	
	Introduction	Dr. Abdelhakim Koudil TAKREER Research Centre (TRC) Manager
1	Heavy Oil Upgrading Using RDS/RFCC Process Technology	Mr. Seiichiro Eguchi Hydroprocessing Technology Manager, Process Technology, Technology & Engineering Center, IKC
2	Hydrotreating Alone in Hydrocracker: Concepts & Possibilities	Mr. Abodh Pathak Process Engineering Leader, TRC
3	Challenge to Residue HDS Catalyst Regeneration	Dr. Ryuichiro Iwamoto Chief Researcher, Process Technology, Technology & Engineering Center, IKC
4	Kinetic Modelling for Naphtha Catalytic Reforming Reactors	Dr. Haitem Hassan-Beck Process Engineering, TRC
5	Elemental Analysis Methods of Hydrotreating Catalysts: Application to New and Used Catalyst Analysis	Ms. Mitsuko Murata Researcher, Analytical Technology Center, Advanced Technology Research Laboratories, IKC
6	FCC Process for Producing Propylene and Ethylene from Straight Run Naphtha	Dr. Gnana Pragasam Catalyst Research Leader, TRC
7	Development of High-activity Catalyst for Hydrodenitrogenation of Light Cycle Oil	Mr. Satoshi Kajitani Researcher, Catalysts & Energy Research Laboratory, Advanced Technology Research Laboratories, IKC
8	Hydrotreating/Hydrocracking Crude Oil on SiC-supported Catalysts	Dr. Radu Vladea Research Professor, The Petroleum Institute
9	FCC Process Revamp with the Latest Reactor Technology	Mr. Shinji Akashi Chief Associate, Process Technology, Technology & Engineering Center, IKC
10	Multi-scale Simulation of Particulate Systems Case Study: Two-fluid Simulation of FCC Units	Dr. Abdallah Berrouk / Dr. Hui Zhao Assistant Professors, The Petroleum Institute
11	Open Discussion and Close	Participants and Attendees

The 21st Saudi Arabia-Japan Joint Symposium

On November 27 and 28, 2011, JCCP and King Fahd University of Petroleum and Minerals (KFUPM) organized the 21st Saudi Arabia-Japan Joint Symposium on oil refining and petrochemical catalyst technologies, with the participation of the Japan Petroleum Institute (JPI).

The 21st symposium was held over two days, featuring eight sessions, such as on hydroprocessing and olefin production processes, etc. On the Japanese side, seven researchers gave presentations on their latest R&D achievements.

The symposium opened on November 27 with an opening statement by Dr. Khaled S. Al-Sultan, Rector of KFUPM, followed by words of greetings from Dr. Takashi Tatsumi from JPI, who acted as leader of the group of Japanese speakers, and Mr. Hideki Nomura, General Manager of the JCCP Technical Cooperation Department, representing JCCP.

The presentations covered topics related to the latest catalyst production technologies and trends in the oil refining and petrochemical sectors. The Japanese side gave seven presentations, including those related to JCCP technical cooperation projects, the Saudi Arabian

side gave nine presentations, and members from other countries gave four presentations, for a total of 20 presentations in all. Dr. Hideshi Hattori, Professor Emeritus at Hokkaido University, and Dr. Katsuomi Takehira, Professor Emeritus at Hiroshima University, who both engaged in providing research and guidance at KFUPM under a JCCP dispatch program, were among the audience of some 80 who attended the symposium.

Dr. Robert Grubbs, professor at the California Institute of Technology, who won the 2005 Nobel Prize in Chemistry, gave a special speech for the second year in a row, and members from Université Pierre-et-Marie-Curie in France and Technische Universität München in Germany also gave presentations at this year's symposium. Participation of these foreign researchers was an indication that the symposium is gradually acquiring international recognition.

Through its presentations and discussion sessions, the symposium offers an important opportunity for providing useful information to researchers in Saudi Arabia, and will continue to play an important role in strengthening technical cooperation between Saudi Arabia and Japan.

<by Sadao Wada, Technical Cooperation Dept.>

Session themes

Day 1	
Session 1	Hydroprocessing
Session 2	Aromatics and Oil Modeling
Session 3	Olefins Production/Processing
Session 4	Catalytic Cracking

Day 2	
Session 5	Novel Catalytic Applications
Session 6	Nanocrystals and Gas Adsorption
Session 7	Metathesis and Organometals
Session 8	Polymerization and Esterification



Registration and reception at KFUPM Research Center



(From the third person from the left in the front row)
Mr. Nomura, General Manager of the JCCP Technical Cooperation Dept.; Mr. Takashi Tatsumi, JPI;
Dr. Khaled S. Al-Sultan, KFUPM Rector

Japanese speakers and their presentation themes (in random order)

1	Dr. Sachio Asaoka University of Kitakyushu	Catalytic Roles of Nano-sized Oxides Composed with Zeolite for Hydrocracking, Catalytic Cracking and Reforming
2	Dr. Koichi Segawa Sophia University	Catalyst Developments for Production of Sulfur-free Fuels: Effect of Ni Promoter & Chelating Reagent on Ni-MoS ₂ HDS Catalysts
3	Dr. Takahiro Torii Idemitsu Kosan Co., Ltd.	Detailed Compositional Analysis for Kinetic Modeling of Heavy Oils
4	Dr. Takashi Tatsumi Tokyo Institute of Technology	Improvement of Performance of ZSM-5 Catalysts for Cracking of Naphtha
5	Mr. Takahisa Horie JGC Catalysts and Chemicals Ltd.	Upgraded Technology of Residue FCC Catalyst
6	Dr. Toshimitsu Suzuki Kansai University	New Catalyst Support Material for Fischer-Tropsch Synthesis
7	Dr. Mikio Miyake Japan Advanced Institute of Science & Technology	Preparation of Shape and Size Controlled Metal Nanocrystals and Their Application as Novel Model Catalysts



The 13th Kuwait-Japan Joint Symposium



(Front row) Mr. Takanori Yamashita, First Secretary at the Embassy of Japan in Kuwait (fourth from right);
Mr. Ahmad Saleh Al-Jemaz, Deputy Managing Director, Shuaiba Refinery, KNPC (fifth from right);
Dr. Naji Al-Mutairi, Director General, KISR (sixth from right);

Dr. Toshihide Baba, Professor at the Tokyo Institute of Technology and leader of the group of Japanese speakers (eighth from right)

The 13th Kuwait-Japan Joint Symposium on “Advancement in Oil-refining Processes” was held on January 17 and 18, 2012 in Kuwait, jointly hosted by JCCP, Kuwait Institute for Scientific Research (KISR), and Kuwait National Petroleum Company (KNPC), and with the participation of Japan Petroleum Institute (JPI).

The symposium has been held annually in Kuwait under the theme in the process catalyst field or the refinery equipment maintenance field. However, from the last 12th symposium, the theme was expanded to more generic theme to accommodate broader participation from among academics, company researchers, and field engineers. The 13th symposium was held at KISR’s Petroleum Research & Studies Center (PRSC) in Al-Ahmadi with the participation of over 70 people. On

the Japanese side, six speakers were asked to give a lecture.

The opening ceremony began with words of greeting from Mr. Ahmad Saleh Al-Jemaz, Deputy Managing Director of KNPC’s Shuaiba Refinery, and Dr. Naji Al-Mutairi, Director General of KISR, on the Kuwaiti side; and from Mr. Takanori Yamashita, First Secretary at the Embassy of Japan in Kuwait, Dr. Toshihide Baba, Professor at the Tokyo Institute of Technology and leader of the group of Japanese speakers, and Mr. Hideki Nomura, General Manager of the Technical Cooperation Department at JCCP, on the Japanese side.

In his speech, Dr. Al-Mutairi expressed his wish to create a new comprehensive scheme of technical cooperation to further strengthen cooperative ties with JCCP.

A touching moment came when a Japanese speaker extended gratitude to the people of Kuwait for the 5 million barrels of oil presented to the people of Japan in the wake of last year’s Great East Japan Earthquake, and triggered an appreciative round of applause from the audience.

The symposium featured a total of 14 speeches and presentations, consisting of a keynote speech and five presentations from the Japanese side, including those given by members of JCCP technical cooperation projects being implemented in Kuwait, and a keynote speech and seven presentations from the Kuwaiti side.



Seminar scene: Participants of the symposium in the KISR PRSC auditorium in Ahmadi

Speakers included five members from KISR, two from KNPC, one from Kuwait University, and six from Japan.

The large expectations placed on this annual symposium in Kuwait and on the results of technical

cooperation with Japan were interpreted as an indication that JCCP is playing an increasingly significant role in strengthening the relationship between Kuwait and Japan through technical exchanges between the two institutions.

<by Sadao Wada, Technical Cooperation Dept.>

Japanese speakers and their presentation themes (in random order)

1	Dr. Toshihide Baba Tokyo Institute of Technology	Crucial Role of Volume of Zeolite Cavity for Selective Production of Propylene from Ethylene
2	Dr. Noritatsu Tsubaki University of Toyama	Zeolite Capsule Catalysts for New Chemical Process
3	Dr. Toshimasa Takanohashi National Institute of Advanced Industrial Science and Technology (AIST)	Supra-Molecular Asphaltene Relaxation Technology for Heavy Oil Upgrading
4	Dr. Naoya Saito JX Nippon Oil & Energy Corporation	High Severity FCC: A New Process to Maximize Light Olefin Production
5	Dr. Norihito Chiyoda Cosmo Oil Co., Ltd.	Development of New FCC Catalyst for Octane Number Enhancement in FCC Gasoline
6	Dr. Isao Mochida Kyushu University	Molecular Characterization and HDM/HDS Reactivities of Kuwait ARs

Technical
Cooperation

Design and Evaluation of a Pilot Plant for the Treatment of Refinery Wastewater in UAE

This project was implemented by JCCP with the participation of JX Nippon Research Institute, Ltd. (JX-NRI) as part of JCCP's joint technical cooperation program funded by a subsidy of the Ministry of Economy, Trade and Industry (METI) for projects in oil-producing countries.

1. Background

Countries in the Middle East are major suppliers of crude oil and gas to Japan, and enjoy a robust economy centered on the oil and gas industries. Accompanying their economic development, there has been a rapidly

growing interest in global warming countermeasures and problems of air and water pollution in the country. Given the increasing awareness of the need to address environmental issues in the UAE, the counterpart country of this particular project, UAE University (UAEU) has selectively implemented environmental projects with the cooperation of Abu Dhabi Oil Refining Company (TAKREER), a subsidiary of Abu Dhabi National Oil Company (ADNOC).

UAEU is a distinguished national university in UAE established in 1976 under the initiative of the late Sheikh Zayed Bin Sultan Al Nahayan. It is located in Al-Ain, a historical city that has flourished from ancient times

owing to its oases. The university is presently undergoing an expansion, with the construction of the new Maqam campus in addition to the existing Jimi campus, both within Al-Ain, in testament to its remarkable growth.

Ruwais Refinery, the selected site of the project, is TAKREER's principal refinery, and plays a central role within the Ruwais industrial zone located 240 km west of Abu Dhabi. It was constructed in 1981 with a crude-oil processing capacity of 120,000 b/d, but repeated improvements have been made thereafter, including the construction of the world's largest condensation plant. Today, it is once again under construction to double its crude-oil processing capacity.

This project was launched at UAEU in fiscal 2005 in conjunction with another environmental study on the removal of acid gases from natural gas. Thereafter in fiscal 2007, the two studies were separated and pursued as individual projects.

2. Overview

The project began with an analysis of process wastewater at the Ruwais Refinery to assess its properties. Back at the time, refinery wastewater tended to have relatively high COD (chemical oxygen demand) levels and phenol amounts, in particular, compared to regulatory levels, so it was necessary to remove these substances before anything else.

Conventional technologies were considered ineffective for the treatment of highly contaminated refinery wastewater. Therefore, the project aimed to develop an efficient treatment method by combining the characteristics

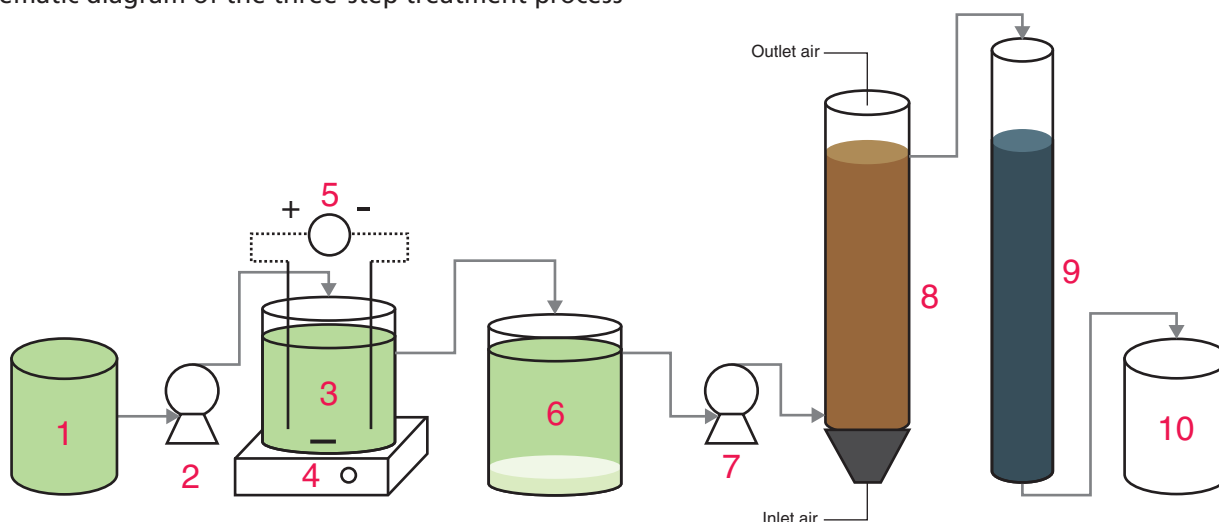
of three technologies, including electro coagulation, biotreatment, and activated carbon adsorption.

With respect to electro coagulation, optimum conditions for the wastewater at the Ruwais Refinery were established through repeated laboratory tests under various operating conditions. The advantages of electro coagulation are that it generates less waste material compared to the conventional coagulation-sedimentation method because it requires no chemicals, and that it allows easy adjustment of start/stop times and operating conditions simply by controlling electric currents and voltage.

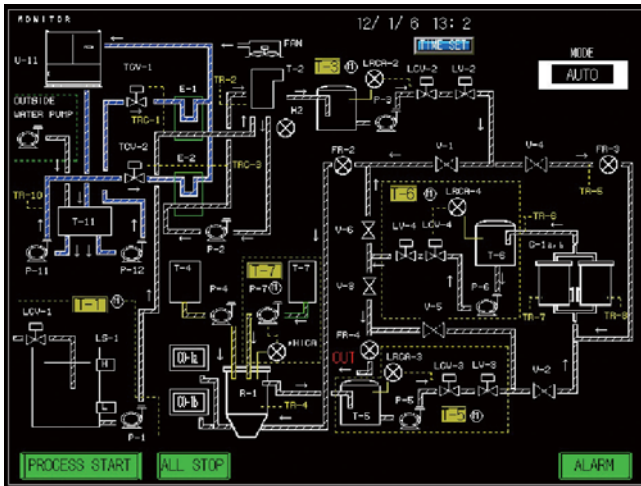
Biotreatment was adopted mainly for the purpose of removing phenol and its derivatives from wastewater. The bioreactor uses polyvinylalcohol (PVA) gel as a microorganism carrier, and consists of a spouted bed to remove phenol by fixing phenol-degrading bacteria to the PVA gel and creating intense mixing with the cyclic motion of particles within the bed, generated by air injected through an orifice in the bottom of the reactor. For this method, stable control of the reactor was achieved based on expertise accumulated by JX Nippon Oil & Energy Corporation's Negishi Refinery, and optimum operating factors such as carrier size, carrier loading rate, aeration rate, and water flow were determined through tests.

For the activated carbon adsorption method, dates, a local specialty of UAE, were used by experimentally making activated carbon from date pits and comparing it to commercial activated carbon. As a result, it was confirmed that activated carbon made from date pits could provide roughly the same performance level as

Schematic diagram of the three-step treatment process



1. Raw water tank; 2. Raw water pump; 3. Electro coagulation unit; 4. Magnetic plate; 5. DC power supply; 6. Static tank; 7. Pump; 8. Bioreactor; 9. Activated carbon adsorption column; 10. Treated water tank



Operation screen of the pilot plant control sequencer



Wastewater treatment pilot plant

their commercial counterparts. Since large amounts of date pits are generated as waste, their disposal had been a problem, but it is hoped that the project would shed light on a possible solution to this issue.

Methods for combining the above three treatment units were studied with the result that a new three-phase wastewater treatment process consisting of electro coagulation – biotreatment – activated carbon adsorption would be most efficient in treating wastewater. The optimum operating conditions for each treatment unit were also established.

To test the practicality of the study results thus far obtained, the construction of a pilot plant composed of the above three treatment units began in fiscal 2010 as Phase II of the project. The plant has been installed at the Ruwais Refinery and will be used to actually treat wastewater at the refinery to test the performance of the new system.

The electro coagulation unit that forms the core of the pilot plant was purchased from Powell Water Systems, Inc. (USA) and taken to a domestic plant manufacturer to be combined with a spouted bed bioreactor, an activated carbon adsorption column, a cooling unit for controlling treatment temperatures, and a steam generating unit for recycling activated carbon.

Taking into consideration its transportation to UAE, the plant was designed to have a small footprint, with its

principal parts compact enough to fit inside two 40-foot containers and one 20-foot container. The operation panel is an LCD touch-panel that allows easy and accurate functionality.

The plant was completed in February 2012 and installed in the Ruwais Refinery in April, toward commencement of a demonstration test.

3. Results

The new wastewater treatment process was developed with the aim of satisfying ADNOC's environmental standards for wastewater, which are said to be the world's most stringent. It is also the fruit of long years of research by Dr. Muftah El-Naas, Associate Professor in Chemical Engineering, and a research team at UAEU.

The results of their research have been regularly reported to a scientific council every six months and discussed with council members from JCCP, JX-NRI, UAEU and TAKREER.

Given the increasing importance of the environmental sector today, it can be said that the technical exchanges and meaningful results that have been achieved in the sector among UAEU, TAKREER, JX-NRI and other relevant institutions through this project have raised expectations of further cooperation between UAE and oil industry institutions in Japan.

<by Masahiko Shibata, Technical Cooperation Dept.>

Announcement

Please Help Us Update Our Roster

Thank you for reading *JCCP NEWS* as always.

JCCP has reached a significant milestone in its history and celebrated 30 years of operations last November.

In commemorating this achievement, we extended our deepest appreciation to you all for your support and cooperation in our activities.

All of you who have participated in a JCCP training program in the past (graduates) are a precious asset to JCCP. We therefore wish to take this occasion to confirm your current addresses and update our roster of former participants so that we may reconnect and maintain contact with you into the future.

Our current roster mostly shows information that you provided at the time you participated in a JCCP training program, and could be outdated by now. If there have been any changes in your affiliation (position), email address, or any other contact information, we ask that you provide the latest information on the attached form and return the form to JCCP's Planning & Public Relations Group. Those of you who return the form to us are entitled to receive the latest issues of *JCCP NEWS* and announcements and invitations to exhibitions and reunions.

Also, if you know of anyone who is a former participant but is not receiving copies of *JCCP NEWS*, or anyone who wishes to update his/her contact information, we would appreciate it if you would forward this message and the attached form to that person.

Thank you for your cooperation.

Yoshi Tanda
General Manager, Planning & Coordination

Masumi Kitahara (Ms.)
Manager, Planning & Public Relations

Personnel Changes

Riyadh Office

Outgoing Personnel



Kenji NITA

Incoming Personnel



Junichi KASUYA

Technical Cooperation Department

Incoming Personnel



Masatoshi YOKOZUKA



Editorial Postscript

This issue of *JCCP NEWS* contains a report on two major international conferences. Particularly in summarizing the keynote speeches made by Dr. Ing. Jeroen van der Veer and Dr. Hasan M. Qabazard at the JCCP International Symposium, our Secretariat has read and reread the tape transcripts both in Japanese and English and taken great pains to make sure the contents are consistent with the actual speeches. We hope you would take a moment to read them through.

This issue also contains messages from two JCCP graduates, as in the previous issue, as well as interviews at their office with JCCP graduates on their thoughts about Japan and expectations toward JCCP. By sharing their voices of experience with our readers, we hope to gain understanding and support. Additionally, having provided their cooperation in JCCP activities, companies and organizations have been looking forward to each issue of this newsletter. We will therefore try to include articles about our cooperating companies as much as possible in future issues of *JCCP NEWS*.

Masumi Kitahara
JCCP News Editor
Planning & Public Relations Group



Japan Cooperation Center, Petroleum (JCCP)

Headquarters

Sunshine 60 Building 58F, 3-1-1 Higashi-Ikebukuro, Toshima-ku, Tokyo 170-6058, Japan

• Administration Department	TEL. +81-3-5396-6000	FAX. +81-3-5396-6006
• Operations Department	TEL. +81-3-5396-6001	FAX. +81-3-5396-6006
• Training Department	TEL. +81-3-5396-6909	FAX. +81-3-5396-6006
• Technical Cooperation Department	TEL. +81-3-5396-8021	FAX. +81-3-5396-8015

Overseas Offices

• Middle East Office	• Riyadh Office
#904, Al-Ghaith Office Tower, Hamdan St., P.O. Box 51828, Abu Dhabi, U.A.E.	Al Oula Building, 5th Floor, Flat No.508 Al Mohamadiya, King Fahd Road P.O. Box 61356, Riyadh 11565, Kingdom of Saudi Arabia
TEL. +971-2-627-4410 FAX. +971-2-626-2166	TEL. +966-1-207-9540 FAX. +966-1-207-9539

URL: <http://www.jccp.or.jp> E-mail: webmaster@jccp.or.jp