Japan Cooperation Center, Petroleum

JCCP NEWS

No. 115 2013 May

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Topics

JCCP NEWS No. 115 May 2013

Table of Contents

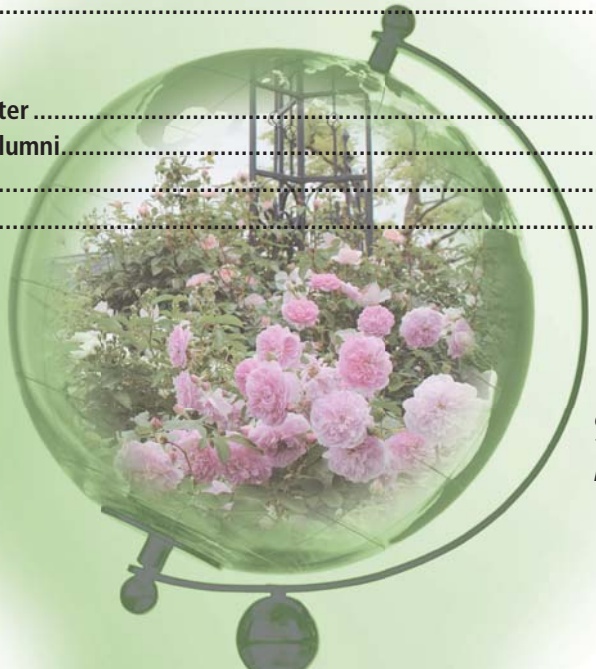
Topics

Personnel Exchange Programs

Technical Cooperation

Graduates' Voices

Announcements



Cover photo
Taken by: Ryo Tsuji
Location: Minori Favorite Garden

The 31st JCCP International Symposium
"Communication and Cooperation: For Sustainable Future of Oil Industry"

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

The 31st JCCP International Symposium was held over two days, from January 30 to 31, 2013, under the auspices of the Ministry of Economy, Trade and Industry, and with the attendance of approximately 350 people from inside and outside of Japan.

1. Theme

The theme of this year's symposium was "Communication and Cooperation: For Sustainable Future of Oil Industry." It was explored in detail in two discussion sessions held on the second day, with a focus on "Change of Business Environment in Oil Downstream and Human Resources Development" in the morning and "Change of Business Environment in Oil Downstream and Innovation of Technology" in the afternoon.

Global demand for oil is on the rise. Therefore, measures for securing a stable supply of oil need to be considered not only from the perspective of emergency preparedness, but also from the perspective of achieving sustainable utilization of oil far into the future. Based on this awareness, members from oil-producing and consuming countries exchanged views on the medium- to long-term outlook of oil demand, issues for securing a stable supply of oil, and the development of human resources and technologies to address those issues in the two-day symposium, with the objective of creating opportunities for producer-consumer cooperation toward sustainable development of the oil industry.

2. Overview

(1) First Day (January 30): Opening Ceremony

An opening ceremony was held at 2:00 p.m. on January 30, featuring an opening address by Mr. Keizo Morikawa, President of JCCP, followed by a greeting from the guest of honor, Mr. Hisayoshi Ando, Director-General of the National Resources and Fuel Department at METI.

In his speech, Mr. Morikawa spoke as follows: The global energy outlook is facing a major turning point today. Japan experienced an unprecedented nuclear crisis in March 2011, which prompted many countries to review their energy policy. Dramatic developments have also been made in the new energy sources of shale gas and shale oil. At the same time, however, both oil-producing and consuming countries have the responsibility to prevent further global warming and be conscious of their use of oil so we may hand this precious resource to future generations. In the face

of such changes, we must strengthen the industry's foundation and fulfill our responsibility of supplying sufficient energy to people in our societies by acquiring a good grasp of developments in global energy supply and demand and doing our best to address the challenges that come our way, keeping our eyes open to the latest technological developments, and developing excellent human resources for the future of the oil industry. Lastly, Mr. Morikawa expressed his hope that the two-day symposium will be fruitful to everyone in the audience, and that they will gain fresh perspectives on the themes presented in the speeches and discussion sessions.

Next, Mr. Ando spoke as follows: Almost two years have passed since the 3/11 disaster. During this time, oil-producing countries have been of tremendous help in allowing us to provide fuels to people in disaster-stricken areas. I would like to express my greatest appreciation to you all. Through this experience, we recognized anew the good relations that exist between Japan and oil-producing countries, and strengthened our resolve to continue these relationships over the long term. The theme of this year's symposium is "Communication and Cooperation for Sustainable Future of Oil Industry." It tells us that both oil-producing and consuming countries share the same view of the importance of maintaining a stable supply of resources. I hope we can strengthen our cooperative relationship through this symposium.

(2) Keynote Speech

Following the opening greetings, Dr. Fatih Birol, Chief Economist, International Energy Agency (IEA), gave a keynote speech on "World Energy Outlook," and summarized the important message of the IEA publication *World Energy Outlook 2012* released last November, as follows: "The key message I would like to share with you today is the very fact that the foundations of the global energy system are shifting, and shifting rather rapidly. Players who are able to understand the shift will be able to position themselves, their countries, their companies, and their family budget, and those who cannot understand what is happening will be the losers. Therefore, it is important to understand those shifts.

"I believe there are three drivers of this shift. The first is the resurgence of oil and gas production in selected countries, namely the United States, Canada and Iraq. The development of non-conventional oil and gas resources such as shale gas, tight oil and Canadian oil sands by the United States and Canada, and the large-scale development of oil resources in Iraq, are particularly important.

"The second driver is on the nuclear front. After Fukushima, we saw some countries changing their nuclear policies toward a lower share of nuclear power in their energy mix. If nuclear power goes down, something has to go up in order to fill the gap, and this will have implications on the global energy picture.

"The third driver of the shift is energy efficiency. Energy efficiency has been talked about for many years, but for the first time I can personally observe a growing momentum on energy efficiency in terms of legislation—not in terms of words, but in terms of legislation and legal steps."

In view of these three drivers, Dr. Birol said it should be clear to anyone's eyes that the global energy system will be changing dynamically in the future, and went on to discuss the various elements of change. A detailed summary of Dr. Birol's speech is provided on pages 10 to 13 in this issue of *JCCP NEWS*.

(3) Special Lectures

Dr. Birol's keynote speech was followed by four special lectures.

1) *Oil Sustainability in Carbon Constrained World—The Doha Climate Gateway: Challenges Beyond 2012*
Mr. Abdullah Al Sarhan
Energy and Environment Advisor, Office of the Assistant Minister for Petroleum Affairs, Ministry of Petroleum and Mineral Resources, Kingdom of Saudi Arabia

Mr. Al Sarhan based his lecture on the Doha Climate Gateway that was adopted by the COP18 conference held in December 2012, and discussed Saudi Arabia's resolve to do its part in mitigating climate change as a member

Special lecture: Mr. Abdullah Al Sarhan, Energy and Environment Advisor, Ministry of Petroleum and Mineral Resources, Kingdom of Saudi Arabia

of the Framework Convention on Climate Change. He also noted that oil and natural gas will continue to be an important part of the global energy mix, and that sustainability of those energy resources is a vital issue to both oil producers and consumers. Furthermore, Mr. Al Sarhan stressed the importance of technology innovation in mitigating climate change, and described Saudi Arabia's technological development initiatives.

2) *Strategic Shifts in the Global Oil Equation*
Dr. Fereidun Fesharaki
Chairman, FACTS Global Energy, Inc.

Dr. Fesharaki explained that in the oil upstream sector, the increased production of non-conventional oil resources such as shale gas and tight oil is changing the global oil supply-demand balance, as well as the balance of power between oil-producing and consuming countries, and that in the oil downstream sector, the active construction of large-scale refineries in oil-producing countries is shifting the center of global oil downstream operations from oil-consuming countries to oil-producing countries. As a result, Dr. Fesharaki said there will be a clear distinction between those who will survive and those who will not, according to the law of the survival of the fittest, and predicted the future of the oil industry.

Special lecture: Dr. Fereidun Fesharaki, Chairman, FACTS Global Energy, Inc.

3) *Kuwait National Petroleum Company $40 Billion Mega Investment Plan*
Mr. Hatem Ibrahim Al-Awadhi
Deputy Managing Director – Projects,
Kuwait National Petroleum Company (KNPC)

Mr. Al-Awadhi spoke about KNPC's $40 billion mega-investment plan that includes a clean fuel project consisting of the construction of new refineries and clean fuel production processes by 2020, and the company's vision to establish a presence as a leader in the global oil industry. To bring the project to success, Mr. Al-Awadhi said human resources are the most important element, and explained how KNPC is making company-wide efforts for their development.

Special lecture: Mr. Hatem Ibrahim Al-Awadhi, Deputy Managing Director – Projects, KNPC

4) *Saudi Aramco—Technology in Human Resource Development*
Mr. Jamil F. Al Dandany
Director of Education Partnerships, Saudi Aramco

Mr. Al Dandany explained Saudi Aramco's strategic goal of becoming the world's leading oil company, and introduced the company's efforts to achieve that goal. According to Mr. Al Dandany, Saudi Aramco is expanding both its oil upstream and downstream operations on a global scale, and is developing pragmatic personnel through training programs that adopt the latest technologies, based on the awareness that the key to success lies in the development of outstanding human resources to support those operations.

Special lecture: Mr. Jamil F. Al Dandany, Director of Education Partnerships, Saudi Aramco

The four special lectures provided the understanding that the world's oil industry is undergoing major changes, and that the development of outstanding human resources capable of taking charge of these changes is a priority strategic issue to triumph as winners.

(4) Reception

A reception was held after the keynote speech and special lectures. Mr. Ken Watanabe, Director, Petroleum Refining and Reserve Division, National Resources and Fuel Department, METI, gave a welcome speech, followed by Mr. Andrew Laah Yakubu, Group Managing Director, Nigerian National Petroleum Corporation (NNPC), who led a toast after giving a brief greeting.

Mr. Andrew Laah Yakubu, Group Managing Director, NNPC

(5) Second Day (January 31): Discussion Sessions

The program for the second day consisted of Discussion Session 1 in the morning and Discussion Session 2 in the afternoon.

1) Session 1

(9:30 – 12:00; Chaired by: Mr. Morihiro Yoshida, Managing Director of JCCP)

In Session 1, four panelists gave presentations on the theme of "Change of Business Environment in Oil Downstream and Human Resources Development," and discussed their company's initiatives to develop next-generation leaders with an eye to creating a new era for the oil industry.

The panelists were: Mr. Husain Ali Sanasiri, Team Leader, Executive Performance Management, Kuwait Petroleum Corporation (KPC); Ms. Raiha Azni Abdul Rahman, Vice President, Human Resource Management Division, Petroliam Nasional Berhad (PETRONAS); Mr. Ali bin Abdullah Al-Riyami, Director General of Oil and Gas Marketing, Ministry of Oil and Gas (MOG), Oman; and Mr. Andrew Laah Yakubu, Group Managing Director, Nigerian National Petroleum Corporation (NNPC).

As chairman of Session 1, Mr. Yoshida summarized the session as follows: In this session, representatives from four companies gave presentations on the theme of "Change of Business Environment in Oil Downstream and Human Resources Development." All four companies have a large social responsibility in their respective countries to provide a stable supply of oil and gas, and are making bold corporate changes with a clear agenda to fulfill their responsibilities into the future.

To achieve future growth, it is essential to make sincere efforts to introduce new technologies that respond to changes in the business environment and to develop human resources who can deal with those changes. Each of the four companies represented in this session places emphasis on human resource development and endeavors to develop people by actively introducing effective training methods.

Outstanding personnel form the foundation of competitive companies. The development of human resources therefore has high priority in achieving continuous growth in any company. Moreover, while the development, improvement and steady implementation of educational programs is important to developing human resources, it is important above all else to generate greater consciousness in each employee and guide them so they can pursue their own potentials through personal development.

Since each country has its own history, culture and unique circumstances, personnel development strategies must be based on distinct values in each country and company. However, at the same time, it is also important to interact with those in other countries who face similar issues and mutually learn from each other's experiences.

Much was learned from the four presentations today. It would be wonderful if Japan and oil-producing countries can continue to hold exchanges and mutually cooperate in building strong companies.

2) Session 2

(13:30 – 16:00; Chaired by: Mr. Hideto Matsumura, Director, Senior Executive Officer, Cosmo Oil Co., Ltd.)

In Session 2, five panelists gave presentations on the theme of "Change of Business Environment in Oil Downstream and Innovation of Technology," and introduced new technological challenges made in their companies.

The panelists were: Mr. Ardhy N. Mokobombang, Vice President, Strategic Planning, Business Development & Operational Risk – Refining Directorate, PT Pertamina (Persero); Mr. Sultan Abdul Rahman Al Bigishi, Vice President, Operations Division, Ruwais Refinery, Abu

Dhabi Oil Refining Company (TAKREER); Ms. Nihad Ahmed Moosa, Director General, State Company for Oil Projects (SCOP), Ministry of Oil-Iraq; Mr. Uthman A. Al-Ghamdi, Manager, Operations Department, Ras Tanura Refinery, Saudi Aramco; and Mr. Yukinori Kawashima, Assistant General Manager - Production Control, Yokkaichi Refinery, Cosmo Oil Co., Ltd..

As chairman of Session 2, Mr. Matsumura summarized the session as follows: Today, five panelists gave presentations that focused on the advancement of oil refining, collaboration with the petrochemical industry, pipeline and tank yard development plans, research frameworks for the above and the demonstration of new technologies. Indonesia is addressing its growing domestic demand for oil by pursuing a new vision for the refining business to be achieved by 2025. In Abu Dhabi, a technical development center has been established for the development of refinery assistance technologies and human resources. In Iraq, a large-scale infrastructure construction project has been launched with the aim of increasing its crude oil export capacity. In Saudi Arabia, a new project initiative has been launched with the aim of improving the quality of oil products and establishing a cooperative relationship with the petrochemical industry. The Japanese presentation introduced the flare gas recovery technology that Cosmo Oil has commercialized in cooperation with TAKREER. All of the presentations offered important themes pertaining to future oil supply-demand trends and environmental countermeasures. They also illustrated worldwide technical trends in energy conservation and environmental technologies and the diversification of products in collaboration with the petrochemical industry as a means for strengthening refinery competitiveness.

Today's panelists all emphasized the necessity of making national efforts to develop technologies in cooperation with domestic and foreign partners, instead of outsourcing technical development to external licensors and other such foreign institutions, as has been done up to now. Behind this understanding lies an evolving environment in which companies can no longer expect to survive international competition without tackling new challenges. Moreover, tackling new challenges requires pragmatic human resource development at all stages of operation, through onsite experience in refining, storage and transportation operations, and not by studying books.

Cosmo Oil cultivated the flare gas recovery system as its own technology developed jointly with Toyo Engineering, and succeeded in its practical application to the Ruwais Refinery in cooperation with TAKREER. That this successful experience provided a rare opportunity for personal development to young engineers in UAE and Japan is a source of pride and honor to Cosmo Oil.

The oil industries in oil-producing countries and Japan alike have accumulated vast experience and technologies through refinery operations. To continue to survive in the coming era, oil-producing countries and Japan need to mutually exchange and share their technologies and expertise. We can expect to see the rise of new, competitive refineries from such cooperation between oil-producing countries and Japan. On a closing note, I therefore ask that greater efforts than ever before be made to deepen mutual exchanges among our countries.

3. Closing Statement

After the discussion sessions, Mr. Masataka Sase, Executive Director of JCCP, took the podium to deliver the closing message. He first noted that events of significant bearing on the energy supply-demand balance are occurring one after another in today's world, including the large increases in global demand for energy, uncertainties in the future of nuclear power generation, the potentials of shale oil and gas development, and full-scale reconstruction and increased oil production capacity in Iraq. Mr. Sase said that these topics have been addressed from various angles by the panelists of this year's international symposium, who presented a direction for dealing with them through human resource development and technical innovation initiatives over an information-filled, fruitful two days. Reiterating the objectives of the JCCP International Symposium, which are to create an opportunity for exchanges among energy experts from oil-producing countries and Japan and contribute to the stable supply and demand of energy by deepening mutual understanding, Mr. Sase stated that the objectives have again been met this year owing to the participation of a large number of people from inside and outside of Japan, and thanked everyone on behalf of JCCP.

* Presentation materials from the symposium are available on JCCP's website (http://www.jccp.or.jp) for your reference.

<by Hisayoshi Tanda, Administration Dept.>

The 31st JCCP International Symposium Program

"Communication and Cooperation: For Sustainable Future of Oil Industry"

Date	Time	Proceedings
Jan. 30 (Wed)	14:00 – 17:35	Opening ceremony Opening address Mr. Keizo Morikawa, 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. Faith Birol, International Energy Agency (IEA) Special lectures Mr. Abdullah Al Sarhan, Ministry of Petroleum and Mineral Resources, Kingdom of Saudi Arabia Dr. Fereidun Fesharaki, FACTS Global Energy Inc. Mr. Hatem Ibrahim Al-Awadhi, Kuwait National Petroleum Company (KNPC) Mr. Jamil F. Al Dandany, Saudi Aramco (on behalf of Mr. Nasser Al-Nafisee)
	18:00 – 20:00	Reception
Jan. 31 (Thu)	9:30 – 12:00	Session 1 "Change of Business Environment in Oil Downstream and Human Resources Development"
	13:30 – 16:00	Session 2 "Change of Business Environment in Oil Downstream and Innovation of Technology"
	16:00 – 16:10	Closing address: Mr. Masataka Sase, Executive Director of JCCP

Keynote Speech

Country	Speaker	Speech Title
France	Dr. Faith Birol Chief Economist, International Energy Agency (IEA)	World Energy Outlook

Special Lectures

Country	Speaker	Speech Title
Saudi Arabia	Mr. Abdullah Al Sarhan Energy and Environment Advisor, Office of the Assistant Minister for Petroleum Affairs, Ministry of Petroleum and Mineral Resources, Kingdom of Saudi Arabia	Oil Sustainability in Carbon Constrained World The Doha Climate Gateway: Challenges Beyond 2012
USA	Dr. Fereidun Fesharaki Chairman, FACTS Global Energy, Inc.	Strategic Shifts in the Global Oil Equation
Kuwait	Mr. Hatem Ibrahim Al-Awadhi Deputy Managing Director – Projects, Kuwait National Petroleum Company (KNPC)	Kuwait National Petroleum Company $40 Billion Mega Investment Plan
Saudi Arabia	Mr. Jamil F. Al Dandany, Director of Education Partnerships, Saudi Aramco	Saudi Aramco – Technology in Human Resource Development

Session 1: Change of Business Environment in Oil Downstream and Human Resources Development

Chairman: Mr. Morihiro Yoshida
Managing Director, Japan Cooperation Center, Petroleum (JCCP)

Country	Speaker	Speech Title
Kuwait	Mr. Husain Ali Sanasiri Team Leader, Executive Performance Management, Kuwait Petroleum Corporation (KPC)	K-LEAD – Journey to the Corporate Academy
Malaysia	Ms. Raiha Azni Abdul Rahman Vice President, Human Resource Management Division, Petroliam Nasional Berhad (PETRONAS)	Building a Sustainable Human Capital Strategy – Building Own Timber
Japan *(canceled)*	Mr. Nobutaka Nohara Associate Executive Officer, General Manager, Corporate Administrative & Financial Affairs Division, JGC Corporation	Development of Globally Competitive Human Resources
Oman	Mr. Ali bin Abdullah Al-Riyami Director General of Oil and Gas Marketing, Ministry of Oil and Gas (MOG)	Oman's Future Oil and Gas Industry
Nigeria	Mr. Andrew Laah Yakubu Group Managing Director, Nigerian National Petroleum Corporation (NNPC)	Change of Business Environment in Oil Downstream and Human Resources Development

Session 1 panelists

Session 2 panelists

Session 2: Change of Business Environment in Oil Downstream and Innovation of Technology

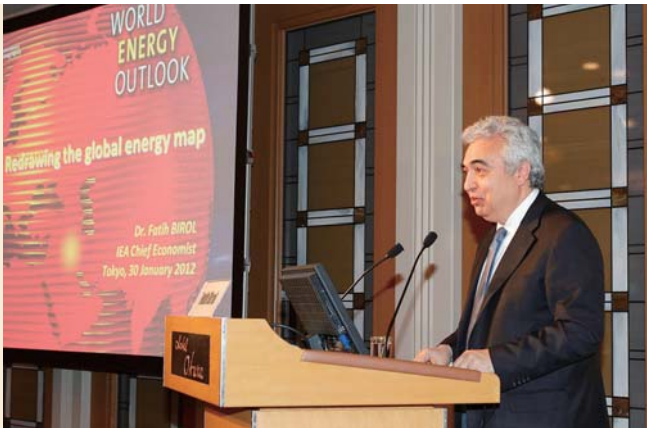
Chairman: Mr. Hideto Matsumura
Director, Senior Executive Officer, Cosmo Oil Co., Ltd.

Country	Speaker	Speech Title
Indonesia	Mr. Ardhy N. Mokobombang Vice President, Strategic Planning, Business Development & Operational Risk – Refining Directorate, PT Pertamina (Persero)	Meeting the Energy Challenge in the World's Largest Archipelago
UAE	Mr. Sultan Abdul Rahman Al Bigishi Vice President, Operations Division, Ruwais Refinery, Abu Dhabi Oil Refining Company (TAKREER)	Strategy of TAKREER on R&D for Sustainable Future of Refining Industry
Iraq	Ms. Nihad Ahmed Moosa Director General, State Company for Oil Projects (SCOP), Ministry of Oil-Iraq	Blueprint for Iraqi Oil & Gas Infrastructure Development and Plans for Pipeline Network and Storage in Oil Industry
Saudi Arabia	Mr. Uthman A. Al-Ghamdi Manager, Operations Department, Ras Tanura Refinery, Saudi Aramco	Ras Tanura Refinery Clean Fuel Project Fosters Technology to Gain Efficiency
Japan	Mr. Yukinori Kawashima Assistant General Manager – Production Control, Yokkaichi Refinery, Cosmo Oil Co., Ltd.	Flare Gas Recovery Project at TAKREER Ruwais Refinery

Keynote Speech

World Energy Outlook

Dr. Faith Birol
Chief Economist
International Energy Agency (IEA)



IEA published *World Energy Outlook 2012* last November, presenting projections for global energy demand-supply balance through to 2035 and measures for achieving an energy-efficient world. Today, I wish to explain what types of issues IEA deems necessary to address in order to stabilize the global energy balance between now and 2035.

1. Message of *World Energy Outlook 2012*

Let me start by telling you a bit about where we are in the global energy picture today. The key message I would like to share with you based on our *World Energy Outlook 2012* is the very fact that the foundations of the global energy system are shifting, and are shifting rather rapidly.

Players who are able to understand the shift will be able to position themselves, their countries, their companies, and their family budget, while those who cannot understand what is happening will be losers. Therefore, we think it is important to understand the shift.

I believe there are three dimensions of this shift, or three drivers. The first is the resurgence of oil and gas production in selected countries. There are three that are especially crucial here: the United States, Canada and Iraq. We see strong growth and further growth potential in these countries, which will change major dynamics.

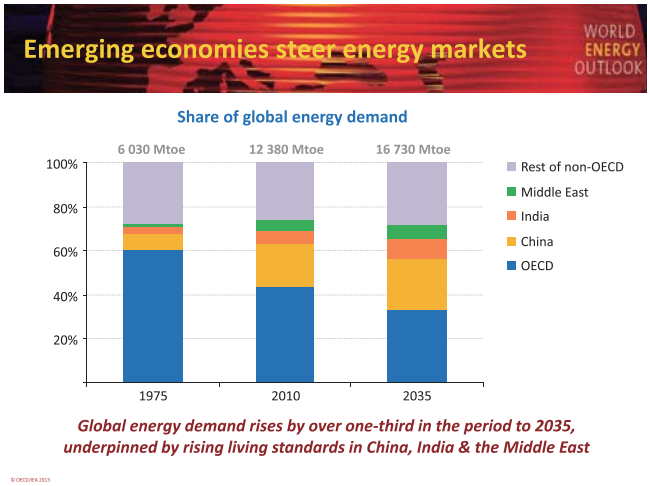
The second driver is on the nuclear front. After Fukushima, we saw some countries changing their nuclear policies. Germany, Switzerland, and Italy have closed the doors on nuclear power. France says it would like to see a lower share of nuclear power in the French energy mix. These changes in policies will have implications on the global energy mix and CO_2 emissions. At the same time, if nuclear power goes down, something has to go up in order to fill the gap, so there will be implications on the global energy picture.

The third driver of the shift in the global energy system comes from an unexpected corner. Energy efficiency has been talked about for many years, but for the first time I personally observe a growing momentum on energy efficiency in terms of legislation—not in terms of words, but in terms of legislation and legal steps.

In the current 5-year plan, China has set a very ambitious energy efficiency target. If China reaches that target, there will be implications for all of us in terms of the global energy picture. The United States recently set fuel efficiency standards for cars. This is also very important for the global oil markets in the coming years. Europe, as well, issued a European energy efficiency directive, a legal basis for efficiency improvement. Thus we see a growing momentum on energy efficiency, not only in terms of words, but also in terms of legal steps.

2. Future Trend in Global Energy Demand

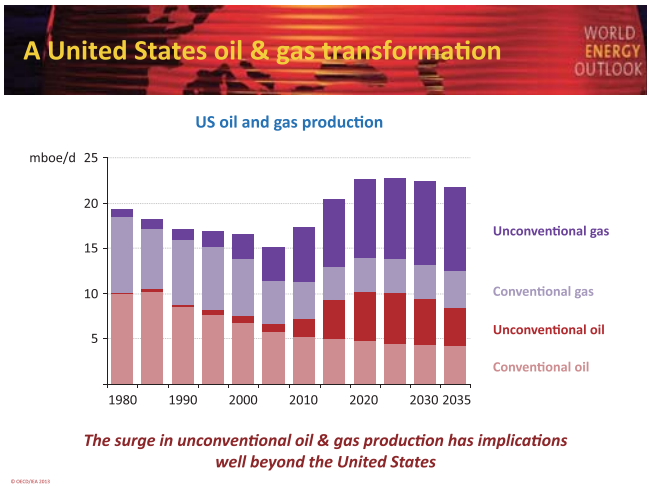
From here, let me turn to the future and see what is happening. When we look at the global energy demand in the coming years, we see that the countries I am representing here today—the OECD countries and the IEA countries—used an amount of energy corresponding to about two-thirds of the global energy demand in the mid-1970s when IEA was founded. However, soon the share of our member countries will decrease to one-third. Then where will demand growth come from? It will come from China, India and the Middle East countries themselves. So the message is clear. The center of gravity of global energy use is moving to the East slowly but surely, which means that investments, attention and policies need to be geared toward the East as well, together with the use of energy.



Global energy demand rises by over one-third in the period to 2035, underpinned by rising living standards in China, India & the Middle East

3. U.S. Energy Independence and Its Implications

Conventional oil production in the United States has been declining year by year, but as a result of new technologies, we are now seeing a reversal of that trend. It is showing a V-trend, namely owing to unconventional oil. According to our projections, in a few years' time the United States will be the number-one oil producer in the world. Note, however, that I said "producer." Saudi Arabia will remain, for many years to come, the number one oil exporter in the world. Producers and exporters differ from each other.



The surge in unconventional oil & gas production has implications well beyond the United States

On the natural gas front, again conventional gas in the United States has been declining for many years, but as a result of the shale gas revolution we see an increase in total gas production in the United States. Very soon the United States will be the number one natural gas producer in the world, overtaking Russia.

Within 10 years' time, the United States will be the number one oil producer in the world as well as the number one natural gas producer in the world. This will have major implications on the economy, energy policy, and maybe even on foreign policy.

4. Changes in the Relationship between the Middle East Oil-producing Countries and Europe, the United States, and Asia

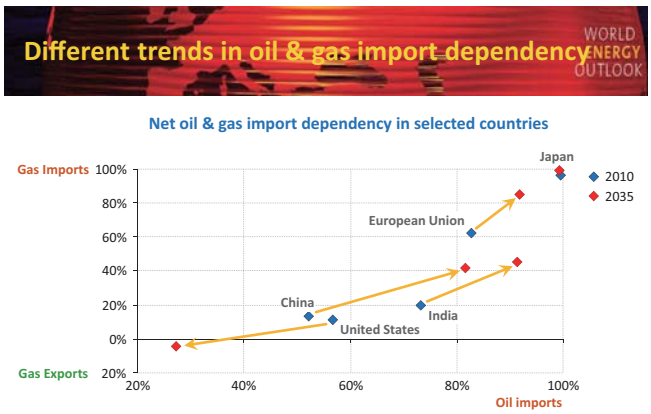
One of the implications of the changing status of the United States will be on the Middle East. Until recently, the United States was importing a significant amount of oil from the Middle East countries. As a result of these developments, therefore, U.S. imports from the Middle East may well be reduced to a minimum, if not to zero. At the same time, the pattern of Middle East exports will change as well. Until recently, 50% of Middle East exports went to the West and 50% to the East, but about 90% may now go to Asia.

There will also be an ever-growing oil-trade link between the Gulf countries and Asian economies. I am sure this oil-trade link will be multiplied or added to by different links ranging from trade of other commodities, investment patterns, foreign policy, and various other issues.

5. Implications on Energy Security

Changes in the oil and gas markets have implications on energy security. Energy security is a very crucial topic for many countries. In China, India and Europe, we see a growing reliance on oil and gas imports, and energy security is becoming a major concern.

There is one exception: the United States, which



While dependence on imported oil & gas rises in many countries, the United States swims against the tide

is going completely in the opposite direction, toward improving energy security. In terms of gas, we expect the United States will be a gas exporter very soon, and its oil imports will decrease to a minimum.

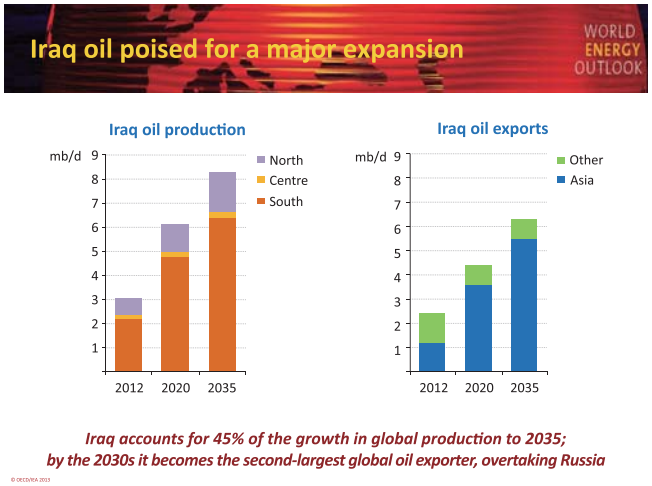
The United States has made large steps toward energy self-sufficiency, owing not only to the growth in domestic oil production, but also to the improvement in the energy efficiency of cars and trucks, which put downward pressure on domestic oil demand. Increasing domestic oil production and decreasing domestic oil consumption translated into the success story of the United States making great strides toward self-sufficiency.

This success story is thus not only attributable to North Dakota, but also to Detroit, the home of many car manufacturers. It is a joint effort between production growth and decline in consumption as a result of efficiency.

6. Global Implications of Oil Resource Development in Iraq

In our *World Energy Outlook 2012*, one country we looked at in depth is Iraq. We studied Iraq from A to Z, from oil and gas to electricity and water. As a result, our projections show that there is strong potential for Iraq to contribute to global oil markets.

In just the last two years, we have seen growth in Iraq of about 800,000 b/d. We believe Iraq will have a production of around 6 million b/d by 2020, with potential for further growth thereafter.



Iraq accounts for 45% of the growth in global production to 2035; by the 2030s it becomes the second-largest global oil exporter, overtaking Russia

When we look at trade, 50% of Iraqi oil exports go to Asia and 50% to the rest of the world at present. However, this will change drastically, so that about 80% of Iraqi oil will go to Asia. A country that I wish to highlight here is China. According to our analysis, more than 30% of the growth in Iraqi oil production will come from oil fields that are either owned by Chinese companies or by a consortium that includes Chinese companies. Iraqi oil will go to Beijing, and from Beijing a significant amount of investment will go into Iraqi's oil, electricity, and other sectors. We call this the B-to-B trade (Baghdad-to-Beijing trade). It is growing stronger, as both countries need and complement each other.

By 2035, almost 90% of Middle Eastern oil exports go to Asia; North America's emergence as a net exporter accelerates the eastward shift in trade

7. Foreign Cooperation for Oil Development in Iraq

We are witnessing very impressive growth in Iraq. This growth, which is very important for the global oil markets, should not be taken for granted, however. There are at least two major challenges for that picture to be realized.

One is the lack of governance. The oil sector in Iraq does not have a hydrocarbon law that all stakeholders agree on. There are differences between the central government and regional governments that should be resolved as soon as possible so that badly needed investment can come into the country and allow production export revenues to grow.

If our central scenario is to be realized, our numbers show that in 20 years' time Iraqi GDP will reach the current GDP level of Saudi Arabia. The country has the potentials to prosper rapidly if the oil revenues are there. In order to secure oil revenues, there is a need to establish, as soon as possible, a hydrocarbon law that everyone agrees on. This is the first challenge before production growth can be achieved.

Second, there are infrastructure problems. The bulk of oil growth in Iraq will come from four super giant fields

around Basra in the South. These four super giant fields are at the heart of the growth in Iraqi oil production. However, there is a problem with the availability of injection water that is needed for production. The availability of natural water, the aquifer, is limited in Iraq, so what is needed is to pump seawater into the fields. To this end, there are plans for seawater projects in Iraq, which we hope will be implemented quickly to maximize oil production. There are also challenges in increasing the capacity of oil export terminals.

These are the two major problems that stand in the way of the central scenario: governance in the oil sector in Iraq and technical challenges. If these challenges are not overcome, we may see much lower production growth, or what we call delayed growth. This is neither good for Iraq, nor for consumers. Therefore, we must hope that these two challenges in Iraq—governance in the oil sector and technical problems—are resolved as soon as possible.

One more point about Iraq. Today in Iraq, there are shortages of electricity. According to our analysis, an Iraqi citizen receives only 8 hours of electricity per day. This is a serious issue, and the Iraqi government is making huge efforts to bring new power to the system.

As we have recommended to the Iraqi government, we hope to see less oil and more natural gas in electricity generation. Many fields in Iraq have a major flaring problem, and a project is therefore being implemented to address the issue. We hope to see the flaring fixed and more natural gas used in Iraq.

8. Summary

Today, governments have an extremely difficult job in terms of the energy sector, because they need to reconcile different priorities: energy, environment and economy. Certain things that may be good news for energy may be bad news for the economy or environment, or something that looks interesting from an environmental point of view may not work well for the energy sector or have negative implications for the economy. Therefore, energy decisions need to be weighed carefully as to their implications on the three determinants, as well as to the structural long-term needs of a given country.

Global energy production—oil, gas and their use—is changing, and this change will have major economic and geopolitical implications. To see, observe, and understand these changes, and to set the correct policies for energy, the economy and foreign policy is crucial for all of us.

Our numbers show that Iraq will play a crucial role in the oil markets in the coming years with its huge oil and gas reserves that allow low-cost energy production. However, two challenges confront Iraq before it can play this decisive role in the global energy market and for the country's very destiny itself.

There are two trends, which are both difficult to understand. One is that CO_2 emissions are increasing, as is the frequency of extreme weather events. The other trend is that attention given to climate change is decreasing. Climate change is slipping off the international energy policy agenda and receiving less and less attention. This means that even if we find a solution for climate change, it will be expensive; and the more expensive it is, the more difficult it will be to convince the world to reach an agreement. We may well be seeing ourselves in a vicious circle in terms of climate change.

However, energy efficiency is within reach. The awareness that most energy efficiency policies can be implemented using existing technologies is important to achieving a sustainable and economically viable energy system.

Let me finish with one last point. This is not a prediction but a hope. Four years ago, in *World Energy Outlook* when it was published and again in Tokyo, I predicted that an unconventional energy revolution—a shale revolution—is starting. That prediction came true. Now, my hope is to see another unconventional energy revolution, but this time one for energy efficiency. As my closing words, I wish to say that Japan is a very good example to inspire this revolution.

Thank you very much for your attention.

<Summary by: Hisayoshi Tanda, Administration Dept.>

The 21st Joint GCC-Japan Environment Symposium (Preliminary Report)

Important figures and panelists of the symposium

The 21st Joint GCC-Japan Environment Symposium was held on February 5 and 6, 2013 in Doha, Qatar. Co-organized by JCCP and Qatar Petroleum (QP), this year's symposium was themed "Sustainable Environment, Climate Change and Renewable Energy for Oil and Gas Industry."

An opening ceremony kicked off the symposium on the 5th, with opening speeches given by Dr. Ali Hamed Al-Mulla, Manager of Corporate Environment & Sustainable Development at QP; H.E. Mr. Kenjiro Monji, Japanese Ambassador to Qatar; and Mr. Morihiro Yoshida, Managing Director of JCCP. An audience of more than 160 from the GCC countries and Japan filled the venue, including Dr. Takashi Tatsumi, Director and Executive Vice President of the Tokyo Institute of Technology (leader of the Japanese delegation).

After the opening ceremony, Dr. Tatsumi gave a keynote speech on "Tackling Challenges to Sustainable Energy and Environment."

Following the keynote speech, a total of 23 technical papers were presented by experts from the GCC countries and Japan, in three presentation sessions and a forum held over the course of the two-day event. Session 1 covered "Carbon Capture & Storage, Alternative Energy Applications," Session 2 "Oil and Gas Industry Environmental Issues" and Session 3 "Protection of the Marine Environment, Wastewater Treatment," while the forum examined "Best Environmental Practices in Refineries." Active discussions took place in all sessions and the forum, and presentations on Japan's advanced environmental technologies particularly elicited strong interest from GCC experts.

The forum was the first undertaking of its kind in the symposium. Focusing specifically on environmental issues in refineries, it featured presentations and discussions on best environmental practices by speakers representing refineries in the GCC countries and Japan, and provided an opportunity to exchange practical information among refinery experts.

After the forum, Dr. Al-Mulla closed the symposium with a speech of appreciation to all symposium participants, JCCP and QP.

In a press conference held after Dr. Tatsumi's keynote speech, Dr. Al-Mulla and Mr. Yoshida responded to questions from the press about JCCP activities in the region and about the environment symposium. News of the press conference and symposium was extensively reported in seven local newspapers on the following day (three English-language newspapers and four Arabic newspapers), and contributed to increasing public recognition of JCCP's presence in Qatar.

Prior to the opening of the symposium, the Japanese delegation was given the honor of visiting with H.E. Dr. Mohammed Bin Saleh Al-Sada, Minister of Energy & Industry, Chairman & Managing Director of QP. Thus on the 4th, a delegation composed of Dr. Tatsumi, Mr. Yoshida, Mr. Junichi Kasuya, General Manager of the JCCP Riyadh Office, and Yukiteru Watanabe, Deputy General Manager of the Technical Cooperation Department at JCCP, paid a courtesy call on the Minister.

JCCP would like to extend its deepest appreciation to everyone who cooperated in the successful implementation of the symposium.

<by Yukiteru Watanabe, Technical Cooperation Dept.>

* The names of the panelists, their presentations and other such details will be provided in the next issue of *JCCP NEWS*.

JCCP Alumni Meeting

1. Purpose of the Meeting

In November 2012, JCCP organized and held the First JCCP Alumni Meeting with three specific objectives, namely to: (1) verify the effects and evaluation of JCCP personnel exchange programs and technical cooperation projects in counterpart oil-producing countries in order to improve future activities and strengthen personal exchanges between the countries and Japan; (2) strengthen further relations between counterpart oil-producing countries and Japan by requesting their continued support and cooperation in JCCP activities and building a network of JCCP counterpart oil-producing countries; and (3) maintain contact with JCCP alumni, many of whom have become executive officers and managers in state-run oil companies in their respective countries and now contribute to the stable import of crude oil supplies to Japan.

2. Reason for Holding the Alumni Meeting in UAE

UAE was selected to host the first meeting for three reasons: (1) UAE is an extremely important country to Japan, as it is the second-largest supplier of crude oil and fourth-largest supplier of natural gas to Japan (as of 2011); (2) Japan has a stake in UAE's oilfields; and (3) there are more than 650 JCCP alumni in UAE (as of Sept. 30, 2012, including multiple participation) and the largest ratio of alumni who hold important posts in national oil companies and associated companies compared to other countries.

3. Overview of the Alumni Meeting

First, a meeting was held with the managers of human resource development departments from Abu Dhabi National Oil Company (ADNOC) and Abu Dhabi Oil Refining Company (TAKREER). With regard to JCCP training programs, the managers (1) requested the implementation of more customized programs in Abu Dhabi and (2) expressed their desire for programs that introduce Japanese ceremonies and formalities that are deeply related to market transaction practices in Japan and Japan's unique customs and culture underlying those formalities and ceremonies (particularly programs that handle finance, that would help improve communication skills and practical skills for engaging in transactions and negotiations in foreign economies).

Second, a discussion was held with important figures in UAE to hear their requests and expectations of future JCCP activities. Mr. Sultan Ahmed Ajlan Al-Mehairi, Director Marketing & Refining, ADNOC ('89 alumnus), said that UAE is appreciative of the cooperation JCCP has extended to UAE to date, and sets high hopes on the numerous results produced thus far and on JCCP's continued cooperation in the future. Mr. Jasem Ali Al-Sayegh, CEO, TAKREER ('89 alumnus), thanked JCCP for the favorable results of personnel exchange programs and technical cooperation projects, expressed strong interest in refinery wastewater projects and photovoltaic projects, and requested environmental and energy conservation projects to be moved forward. H.E. Dr. Maitha Salem Al Shamsi,

Opening ceremony
(Mr. Masataka Sase, Executive Director of JCCP)

Mr. Jasem Ali Al-Sayegh, CEO, TAKREER (right)

Minister of State, acknowledged that JCCP has made many significant achievements in UAE, but suggested the future implementation of technical cooperation with Abu Dhabi University or other universities, as well, besides UAE University.

Third, a questionnaire was distributed and collected from JCCP alumni. As a result, 88.2% of respondents said JCCP training has greatly benefited them in their present duties. More specifically, 44.8% said offsite training (visits to corporate head offices, refineries, etc.) was most beneficial, followed by 31.1% who cited exposure to Japanese history and culture, and 24.1% who mentioned lectures at JCCP Headquarters. With respect to areas in which they wish to receive technical cooperation, quality control, energy conservation, wastewater treatment and renewable energies topped the list.

JCCP alumni

4. Reunion

A reunion was held at the Beach Rotana Hotel in Abu Dhabi on November 28, 2012. JCCP alumni in UAE were broadly invited to attend, and as a result, 110 people from UAE turned out for the gathering. Combined with 40 members from Japan, the reunion was a grand affair attended by around 150 people.

Many important figures in UAE also graced the event with their presence. They included the following:

- TAKREER
  Mr. Jasem Ali Al- Sayegh, CEO ('89 alumnus)
  Mr. Ismail Al Mulla, Senior Vice President ('89 alumnus)
- National Gas Shipping Company (NGSCO) and Abu Dhabi National Tanker Company (ADNATCO)
  Mr. Ali Obaid Al-Yabhouni, CEO ('97 alumnus)
- Abu Dhabi National Chemicals Company (ChemaWEyaat)
  Mr. Mohamed Abdulla Al Azdi, CEO ('83 alumnus)
- ADNOC Distribution
  Mr. Abudulla Salem Al Dhaheri, General Manager ('95 alumnus)
- UAE University
  Dr. Nabil A. Ibrahim, Chancellor
  Dr. Reyadh A. Almehaideb, Dean of Engineering

JCCP alumni

Many other alumni who currently hold important positions in major departments in their organizations also gathered for the reunion and fondly reminisced about JCCP. Everyone retained a favorable impression not only of their training experience, but also of Japan itself, including Japan's history and culture, and said if the occasion arises, they would like to revisit Japan and receive JCCP training once again.

On the Japanese side, the reunion was attended by H.E. Mr. Yoshihiko Kamo, Japanese Ambassador to UAE, other staff of the Japanese Embassy in UAE, and members from Japanese oil companies in UAE. JCCP was represented by Mr. Masataka Sase, Executive Director; Mr. Morihiro Yoshida, Managing Director; and relevant officers. Ambassador Kamo said it was wonderful to see UAE and Japan deepen mutual understanding through such opportunities as the reunion.

The reunion was also a showcase of Japanese culture, and included a performance of classical Japanese dance, displays of Japanese flower arrangements (*ikebana*), and offerings of Japanese cuisine.

5. Summary

The JCCP Alumni Meeting achieved the following two main results.

First, JCCP was able to gain an accurate grasp of the needs in UAE through meetings with managers of human resource development departments in such organizations as ADNOC and TAKREER. The UAE side had more requests than could be immediately met, but these requests provided a basic direction for incorporating the needs of the participating side in future training programs.

Second, the large turnout of JCCP alumni in UAE to the reunion provided an indication of JCCP's strong presence in UAE and UAE's strong interest in Japan. It also strengthened networks and exchanges not only between UAE and Japan, but also within UAE.

JCCP intends to hold alumni meetings again in other oil-producing countries, with the aim of grasping the needs in each country and contributing to the expansion of both Japan's and JCCP's presence in the region.

<by Kosuke Inoue, Administration Dept.>

Executive Meeting in Uzbekistan

Mr. Masataka Sase, Executive Director of JCCP, visited Uzbekistan from October 14 to 18, 2012, to hold policy dialogues with the top management of state-run oil companies in the country as part of his mission to strengthen mutual understanding and cooperation through personal exchanges in oil-producing countries.

1. Uzbekneftegaz National Holding Company

Uzbekneftegaz is a national holding company that controls oil and gas businesses in Uzbekistan through its six operating companies. JCCP received participants from Uzbekistan for the first time in 1998, and thereafter began receiving participants on a full scale from 2004. Approximately 80 participants from Uzbekistan have attended JCCP training programs to date.

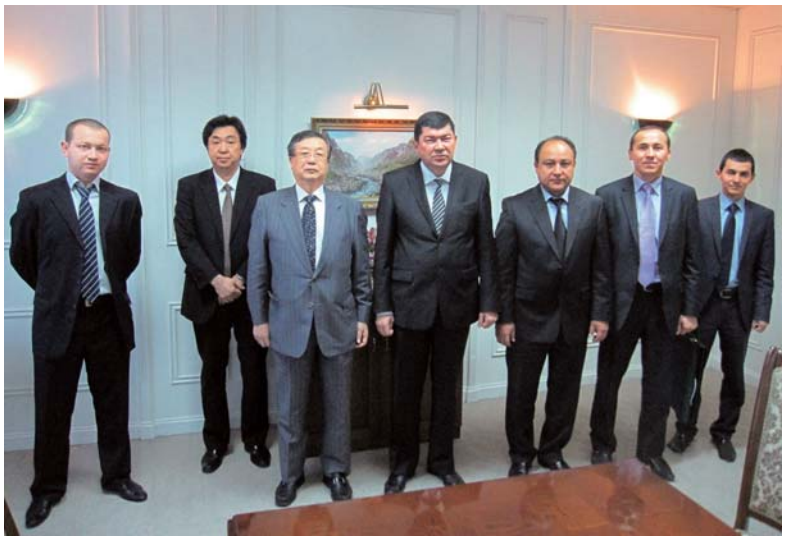
On his recent visit to Uzbekistan, Mr. Sase paid a call on the Head Office of Uzbekneftegaz in Tashkent and met with Mr. Shokir N. Fayzullaev, Chairman of the Board.

Mr. Fayzullaev warmly welcomed Mr. Sase, mentioning the long relationship between Uzbekneftegaz and JCCP. He also expressed his appreciation of JCCP training, and explained that Uzbekneftegaz employees who have received training at JCCP are making the most of what they learned in their duties. Many employees have participated in JCCP training since 1998, and as many as 10 have already completed their training at JCCP this year, while another 26 candidates are presently being selected for future training.

Mr. Sase also thanked Uzbekneftegaz for its cooperation in maintaining good relations with JCCP, and explained how he is taking the occasion of JCCP's 30th anniversary to visit various counterpart countries and ask for their continued cooperation, as well as expressed JCCP's intent to provide training that specifically responds to needs in Uzbekistan for customized programs. He also gave a general description of the aftermath of the Great East Japan Earthquake and nuclear accident, and provided reassurance that JCCP is now operating without any repercussions from the disaster.

Mr. Fayzullaev, in return, offered words of condolence to the victims of the disaster, and stressed his belief that the Japanese people are a resilient people who can continue to move forward even after such devastation. He also lauded JCCP for its smooth implementation of training programs despite having suffered serious damage, and exchanged views with Mr. Sase regarding various topics, including a request for training in petrochemical fields that use natural gas, a resource Uzbekistan is rich in, and a request for photovoltaic technology, as Uzbekistan is blessed with many sunny days.

Before bringing the meeting to a close, Mr. Sase



At Uzbekneftegaz: Mr. Shokir N. Fayzullaev, Chairman of the Board (center)

At Uzneftmahsulot: Mr. Radjabov Sharif Hamidovich, Deputy of Chairman (center)

reiterated his wish to continue holding information exchanges with Uzbekneftegaz in the future so that JCCP can provide training that meets the needs of the company as much as possible.

2. Uzneftmahsulot Oil Refining Company

Uzneftmahsulot is a downstream operations company affiliated with Uzbekneftegaz, and operates two refineries (Fergana Refinery, Bukhara Refinery) and 23 oil terminals. Among the subsidiaries of Uzbekneftegaz, it is the most closely related to JCCP. Mr. Sase met with Mr. Radjabov Sharif Hamidovich, Deputy of Chairman of the company.

In the meeting, Mr. Sase thanked Uzneftmahsulot for continuously sending participants to JCCP training courses, and explained that he is taking the occasion of JCCP's 30th anniversary milestone to personally visit counterpart countries to exchange views and hear their needs.

Mr. Hamidovich also thanked JCCP for offering effective training to Uzneftmahsulot employees, and explained that those who have received JCCP training have brought back and are using the results of their training to their advantage, and that the company is currently selecting training candidates for 2013 from among personnel who have good command of English.

In response to the language issue, Mr. Sase explained that a Russian interpreter could be arranged in a Customized Program-Japan (CPJ), and Mr. Hamidovich responded positively, saying he would like a specific plan formulated as early as possible.

3. Gubkin Russian State University of Oil and Gas, Tashkent Branch

In Uzbekistan, the Tashkent Branch of Gubkin Russian State University of Oil and Gas is considered an educational institution affiliated with Uzbekneftegaz. Thus, with their arrangements, Mr. Sase had the opportunity to visit the university and meet with Dr. Saidahmedov I. M., Executive Director.

Dr. Saidahmedov explained that the Tashkent Branch was founded in 2007 as a university specializing in oil and gas engineering (upstream operations such as exploration and excavation) by the order of President Islam Karimov. It has about 600 students, with approximately 100 slated to graduate this year. Most graduates go to work for Uzbekneftegaz subsidiaries, Russian companies such as Gazprom, Rosneft and Lukoil, and other foreign oil companies such as Petronas. The university also offers employee training following employment.

The JCCP side gave an overview of JCCP activities and introduced case examples of cooperation with universities such as the King Fahd University of Petroleum and Minerals in Saudi Arabia. In response, the Tashkent side enquired about the possibility of JCCP cooperation in the form of lecturers for practical seminars held at the Tashkent Branch, for example, and the two sides agreed to examine the possibility in detail. Additionally, when the JCCP side mentioned that JCCP training courses receive participants from Lukoil and other Russian oil companies on a continuous basis, Dr. Saidahmedov also enquired about the possibility of

At the Tashkent Branch of Gubkin Russian State University of Oil and Gas: Dr. Saidahmedov I. M., Executive Director (front row center)

A lecture on excavation at the Tashkent Branch

cooperation between the main branch of the university in Russia and JCCP, thus creating a generally positive atmosphere during the entire meeting.

4. Summary

The meeting was a first between executive officers of Uzbekneftegaz and JCCP, but Mr. Fayzullaev, Chairman of the Board, and other members under him all exhibited a good understanding of JCCP activities and the relationship established between Uzbekneftegaz and JCCP to date, and actively proposed new cooperation concepts, such as for the addition of customized programs and regular courses about the gas and petrochemical sectors. As a result of working-level discussions held mutually after the JCCP delegation's return to Japan, a Customized Program-Japan (CPJ) on instrumentation was agreed to be implemented in March 2013 as a concrete achievement of the visit. JCCP hopes to examine further areas of cooperation based on the recent exchange of information that was held with key executives in Uzbekistan.

<by Akio Yamanaka, Operations Dept.>

Topics

Executive Meeting in Kuwait

From January 7 to 9, 2013, Mr. Masataka Sase, Executive Director of JCCP, visited Kuwait to attend the JCCP/KPC Water and Waste Management Conference co-organized by KPC and JCCP, and to exchange views with important figures in Kuwait's oil industry. He was accompanied by Mitsuyoshi Saito, Executive Counselor, and Junichi Kasuya, General Manager of the Riyadh Office.

Details of the above-mentioned seminar are provided in "Environment Conference with KPC" (Tetsuo Arii, Training Dept.) in a later section of this newsletter.

1. Meeting with H.E. Mr. Toshihiro Tsujihara, Japanese Ambassador to Kuwait

On January 7, the JCCP delegation visited Ambassador Tsujihara, who had just arrived in Kuwait the past October to take up his post at the Japanese Embassy. The meeting was also attended by Mr. Yamamoto, First Secretary at the embassy in charge of economy.

At the Embassy of Japan in Kuwait:
H.E. Mr. Toshihiro Tsujihara, Ambassador (second from left)

Mr. Sase first thanked the Ambassador for accepting JCCP's request for him to address the Environment Conference scheduled to be held the next day. Then, he gave an account of joint projects and activities JCCP is currently implementing in Kuwait and other Middle East countries, and asked for the embassy's continued support

of JCCP operations. Ambassador Tsujihara described the recent situation in Kuwait and his personal impressions of the country, and shared his views on various other topics of interest related to Kuwait.

2. Meeting at KPC: Mr. Farouk H. Al Zanki, CEO, and Mr. Abdullatif A. Al Houti, Managing Director – Planning

On January 8, the JCCP delegation visited Kuwait Petroleum Company (KPC) and met with Mr. Farouk H. Al Zanki, CEO, and Mr. Abdullatif A. Al Houti, Managing Director – Planning. Mr. Sase began the meeting by thanking KPC for co-organizing the Environment Conference, and proclaimed a new beginning to the friendly relationship between Kuwait and Japan.

Mr. Al Zanki also thanked JCCP in return for the assistance it has extended to Kuwait and KPC through the years, and expressed his hopes of further strengthening cooperation with JCCP in the future, to deal with the diverse problems and issues facing Kuwait today. He also requested the implementation of training programs within a longer-term framework.

Mr. Al Houti said he respects the efforts of the Japanese government and local communities to protect their environment, and shared his thoughts on a wide range of topics, from the world energy situation to Japan's elections.

At the KPC Head Office:
Mr. Farouk H. Al Zanki, CEO (center) and
Mr. Abdullatif A. Al Houti, Managing Director – Planning (left)

At the OAPEC Head Office: H.E. Mr. Al Naqi, Secretary General (right)

3. Meeting at OAPEC with H.E. Mr. Al Naqi, Secretary General

On January 9, the JCCP delegation visited H.E. Mr. Al Naqi, Secretary General of the Organization of Arab Petroleum Exporting Countries (OAPEC). Dr. Samir Kareish, Director of Technical Affairs Dept., also attended the meeting. Mr. Sase said he was extremely pleased to establish a friendly relationship with OAPEC and wished for the successful implementation of the OAPEC-JCCP conference scheduled to be held in February. In response, Mr. Al Naqi thanked JCCP for its cooperation and also expressed his hopes for the February conference, while Dr. Kareish explained the status of preparation for the conference and the situation in Cairo, where the conference will be held.

4. Summary

Year 2011 marked the 40th anniversary of diplomatic relations between Kuwait and Japan. Taking the occasion of this milestone, Kuwait and Japan have spent the year before last and last year holding a variety of commemorative events, which have brought the two countries closer together than ever before. Although a year has passed since then, the heat of congratulatory excitement has not yet cooled down. As Kuwait exhibits considerable interest and resolve to address various environmental issues, its strong wish for the transfer of Japan's technologies and experience in the environment field was readily apparent. The JCCP delegation especially felt that KPC and OAPEC are pinning stronger expectations on JCCP's cooperation than ever before.

<by Junichi Kasuya, General Manager, Riyadh Office>

Environment Conference "Water and Waste Management" Held Jointly with KPC

JCCP and Kuwait Petroleum Corporation (KPC) jointly held a two-day environment conference on Water and Waste management on January 8 and 9, 2013, at the JW Marriott Kuwait Hotel. Environmental issues related to water and waste management are serious concerns in Kuwait.

The conference began with opening speeches from H.H. Mr. Farouq H. Al Zanki, Deputy Chairman of the Board and CEO of KPC, H.E. Mr. Toshihiro Tsujihara, Japanese Ambassador to Kuwait, and Mr. Masataka Sase, Executive Director of JCCP. Owing to careful preparations made by the KPC preparatory committee, the conference was attended by a large audience of some 150 guests, including many important figures related to KPC, and received extensive coverage by local TV news and newspapers.

As a forum for introducing Japan's joint public-private initiatives and new technologies for recycling resources, the conference provided valuable insight into advancing environmental initiatives in Kuwait in cooperation between Kuwait's oil industry, JCCP and Japanese companies.

1. Background to Implementing the Conference

Last year, JCCP implemented a seminar on carbon management for the first time with KPC. It was a timely seminar held amid increasing interest in the global environment, and attracted the attendance of many members from the KPC Group. Given the success of the seminar, KPC and JCCP discussed implementing a joint conference again this fiscal year, and decided to organize a conference themed on the environment (water and waste management), based on the awareness that water and waste issues are major concerns in Kuwait today.

In Kuwait, there is a particularly strong interest in the treatment of produced water, wastewater in the refinery, and related technologies. To establish a foothold for solving Kuwait's water and waste issues, KPC and JCCP agreed to utilize the framework of JCCP's training program to hold a conference on water and waste management, in which KPC would report on its initiatives in regard to the relevant issues, and the Japanese side would introduce Japan's advanced technologies and best practices.

Careful preparations were made by a cross-sectional preparatory committee composed of members from KPC Group companies. The committee was headed by Dr. Fatemah Al Shatti, Manager, Environmental Department, and operated under the supervision of Mr. Abdullatif Al Houti, Managing Director, KPC. Owing to the committee's efforts, a highly interactive and meaningful conference was held, with eight Japanese speakers introducing new technologies and practices

Rising for the national anthem:
H.H. Mr. Farouq H. Al Zanki, CEO, KPC (center); Ambassador Tsujihara (left); Mr.Sase, Executive Director, JCCP (right)

Opening speech by Mr. Al Zanki

applicable to KPC, and four KPC speakers introducing advanced initiatives currently being made in Kuwait.

2. Conference Program

On the first day, opening speeches were given by H.H. Mr. Al Zanki, H.E. Mr. Tsujihara, and Mr. Sase. They all stated that the conference was highly pertinent, as cooperation between Kuwait and Japan in the field of oil and environment is instrumental to strengthening cooperative ties between the two countries. They also expressed their mutual appreciation for the implementation of the conference and for the preparatory efforts that were made to ensure its success.

Eight Japanese speakers gave presentations on Japan's advanced water and waste treatment technologies, commercial initiatives, and the present status of research and development, from the standpoint of the feasibility of their application to Kuwait. They also introduced environment-related technical cooperation projects that JCCP is implementing in cooperation with various oil-producing countries. Four KPC speakers gave presentations on relevant environmental issues and the status of advanced initiatives by KPC Group companies. Through these presentations, both Kuwaiti and Japanese members deepened their mutual understanding of the relevant environmental issues and potential environmental technologies in Kuwait.

Session 1: Environment Policy and Management

This session introduced Arabian Oil Company's advanced initiatives for treatment of produced water, Kitakyushu City's advanced waste management initiatives, and waste treatment initiatives in Japan's oil industry. Particular focus was placed on introducing Japan's efforts to create a resource-recycling society through private-public cooperation in establishing legal systems, building infrastructures and implementing pilot projects. Also highlighted were the present situation and achievements made in promoting waste reduction and resource recycling in Japan through inter-industry cooperation. It is hoped that these presentations offered inspiration for future waste management and resource recycling in Kuwait's oil industry and other industries as well.

KPC speakers gave reports on Kuwait's initiatives for the treatment of produced water and oil-contaminated soil in oil production sites, and exhibited their increasing awareness of the issues and positive attitude to addressing them. Additionally, the Japanese side introduced a new approach to waste and wastewater reduction by utilizing heavy oil treatment process technology.

Session 2: Water and Waste Management

Lecturers from Japanese companies gave presentations on advanced waste treatment technologies, water treatment and reuse technologies, and the current development status of produced water treatment technologies. They also introduced case examples of their companies' initiatives to address environmental issues in oil-producing countries by applying commercially proven technologies in Japan and abroad and advanced technologies under development. As elemental technologies related to water treatment that have been developed in Japan might be applicable to the treatment and utilization of produced water and wastewater in Gulf oil-producing countries, a number of commercial initiatives, pilot projects, and other active initiatives of Japanese companies in the Gulf region were also introduced.

Session 3: Water Treatment and Reuse Technology

This session introduced new technologies for the reuse of produced water and refinery wastewater, advanced initiatives for the cascade recycling of water

Speech in Session 3

and other water-related technologies. Particular focus was placed on introducing projects implemented in the Gulf oil-producing countries by Japanese companies and relevant JCCP technical cooperation projects. As the issue of treating and effectively reusing wastewater is a major common interest to all oil-producing countries in the Gulf, where water resources are limited, the Kuwaiti participants expressed strong interest in the Japanese initiatives that were introduced in this session.

Session 4: New Project Development

In this session, KPC speakers gave presentations on a wastewater treatment plan for a new refinery, and the present state and future initiatives of oil production sites in Kuwait. The presentations introduced case examples that showed the KPC Group's commitment to future water and waste countermeasures, and their strong interests in new technologies from Japan.

(1) Japanese speakers and presentation themes

1) Mr. Hidenori Oe, Arabian Oil Co., Ltd.
   "Produced Water Management in the Oil Field" (JCCP Technical Cooperation Project)
2) Dr. Kenichi Fujimoto, Kitakyushu International Techno-cooperative Association
   "Proactive Challenging toward Sound Material Society in Kita-Kyushu City"
   "Water Environment Restoration and Development of Advanced Water Recycling System"
3) Tetsuo Arii, JCCP
   "Waste and Water Management of Petroleum Industry in Japan"
4) Mr. Naoto Aoyama, JGC Corporation
   "Heavy Oil Upgrading—Simple, Clean, Minimal Waste"
   "Water Recycle System In-situ Production"
5) Mr. Shintaro Miyawaki, JCCP
   "Reuse of Refinery Water for Ecological Engineering"

Panelists of Session 4 "New Project Development"

Japanese speakers

6) Mr. Toshihiko Kobayashi, Swing Corporation
   "From Waste to Valuables"
   "Our Experience of Produced Water Treatment"
7) Dr. Bassem Osman, Hitachi Plant Technologies, Ltd.
   "More than 100 years in Business: Hitachi Group Contributes to a Sustainable Environment"
   "Compact Membrane STP to Cope with Infrastructure Demand in GCC"
8) Dr. Mark Sueyoshi, Shimizu Corporation (JCCP Technical Cooperation Project)
   "Environmental Engineering Research Activities in GCC"
   "Pilot Trials for Oilfield Produced Water Treatment"

(2) KPC speakers and presentation themes

1) Dr. Schaun Smith (KGOC)
   "Crude Oil-impacted Soil and Impoundment Remediation: A Case Study in Environmental Engineering Optimization at the Wafra Oil Field, Kuwait"
2) Eng. Mohammed Al-Otaibi (KOC)
   "Oil-Water Separation Challenges in S&EK Oil-field"
3) Eng. Ahmad Al- Majed (KNPC)
   "Wastewater Treatment System for Al-Zour Refinery Project"
4) Eng. Salman Al-Qabandi (KOC)
   "Challenges and Benefit of Managing Effluent Water in West Kuwait Facilities"

3. Summary

The conference was a new attempt among previous JCCP training programs in terms of the following points.

(1) Participation of KPC management executives in a JCCP training program

A group of top executives participated in a JCCP

training program for the first time in this conference. On the Kuwaiti side, they included H.H. Mr. Al Zanki, CEO, and other executive officers of KPC Group companies. On the Japanese side, H.E. Mr. Tsujihara, Japanese Ambassador to Kuwait, and Mr. Sase, Executive Director of JCCP, took part in the conference. The attendance by these executives was expected to deepen understanding of JCCP training programs among the top management of the KPC Group and establish a foothold for promoting future programs. Moreover, the participation by large numbers of KPC management executives and members provided an ideal opportunity to promote recognition of JCCP training programs to as many KPC Group employees as possible.

(2) Public recognition of JCCP training programs in an oil-producing country

Owing to careful preparations made by the KPC preparatory committee, the conference received coverage by local newspapers and TV news, and the KPC Group and JCCP's cooperation in implementing the training program was widely reported in Kuwait. The extensive publicity stimulated recognition of JCCP training programs among not only those in state-run oil companies in Kuwait, but also the general public.

(3) Cooperation with the KPC preparatory committee

As a result of KPC organizing a preparatory committee from members of K-companies and having the committee spend several months making careful preparations in cooperation with JCCP, the selection of lecturers, lecture themes, participants, and other details of the conference closely matched the needs of KPC. This approach reaffirmed that engaging in detailed cooperation with the counterpart department in the partner country from the preparatory stage is important to achieving successful results, and that the process of preparation itself is important to strengthening the relationship of trust with the partner country. JCCP believes that involving the partner country's business and operating departments in the preparatory process of JCCP training programs will come to be even more important hereafter in providing even better programs.

(4) Matching the needs of oil-producing countries and the seeds of Japan's technologies

The conference mutually introduced the needs for environmental countermeasures in oil-producing countries and the seeds of technologies in Japan to provide a business matching opportunity. Oil-related environmental issues in oil-producing countries include a complexity of technical, economic and institutional elements, but since Japanese companies could provide flexible technical solutions to them, JCCP hopes to provide training programs like this conference again hereafter, that would contribute to deepening mutual understanding between Kuwait and Japan and strengthening the cooperative relationship between the two countries.

Given the successful completion of this conference, JCCP has already received a new and continuing request for a customized program on environmental issues from the Kuwaiti side, as well as requests for new environmental training programs from other Gulf oil-producing countries. Encouraged by these responses, JCCP will make it a point to make meticulous preparations in response to the needs of each partner country and aim to offer renewed and improved training programs in the future.

<by Tetsuo Arii, Training Dept.>

KPC Preparatory Committee and speakers:
Mr. Abdullatif Al Houti, Managing Director, KPC
(front row, sixth from the left)

[New Course]Regular Course on Finance and Accounting Management

1. Background and Objective

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

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

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

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

2. Course Content

2.1 Training at JCCP

(1) Japan's Oil Industry

This lecture introduced the various fields of Japan's oil industry and helped participants gain better understanding of the Japanese market. By comparing the major crude oil markets in the world, including the U.S., EU, China and India, the participants broadened their perspective as crude oil exporters. Furthermore, learning that EU acquires half of its oil supplies by pipeline from Russia and that the United States acquires half of its oil supplies similarly by pipeline from Canada and Mexico reminded us of the importance of our relationships. In this respect, many participants voiced views that placed JCCP activities in high esteem.

(2) Workshop on Negotiation and Financial Accounting

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

Workshop on negotiation and financial accounting

Workshop on procurement

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

(3) Workshop on Procurement

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

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

(4) Workshop on Oil Derivative Transactions

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

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

2.2 Site Visits

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

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

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

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

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

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

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

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

3. Observations

Upon completion of the course, I am very pleased to have had many compliments from managers and participants who seek various perspectives about their corporate activities. From their feedback, we became quite confident that this course was satisfactory for many participants, and have decided to continue this course from now onward. For future improvement, we will consider providing more information about program details to help participants decide whether the course offers what they seek, and if they choose the course, to immediately send some textbooks for preparation prior to the course. These improvements would be beneficial to participants of this course, which includes some very advanced contents for such a short period as ten days.

<by Masayuki Jimbo, Training Dept.>

Personnel Exchange

CPJ Women's Course on CSR of Japan's Oil Companies for Qatar and UAE

This Customized Program was held in Japan for female employees from Qatar and UAE. This was JCCP's first time to offer a program for women only.

1. Background and Overview

JCCP received a request from Qatar and UAE to implement a customized course for a group of women only. The group was to be comprised of three women from Qatar and seven women from UAE, ranging in their jobs from general affairs to engineering. JCCP therefore organized a course themed on corporate social responsibility (CSR), as it pertains to both administrative and technical personnel. It was designed to introduce case examples of CSR initiatives in Japan's oil industry as a frame of reference for fulfilling CSR in the participants' companies, and to provide a comparison of the respective characteristics of CSR initiatives in three major oil companies in Japan. It also provided an understanding of two of the most important aspects of CSR: environmental management and relationship with local communities. At an engineering company that was visited for offsite training, the company's approach to ensuring CSR in its facility design, construction and operation was presented in a way that would prove useful to promoting projects in the participants' countries.

The course was implemented over a period of 11 days, from October 9 to 19, 2012.

2. Course Content

(1) Overview of Japan's Oil industry and CSR Initiatives

This lecture provided an overview of the oil situation in Japan, including the status of oil imports, changes in product demand, and the reality of oil companies in Japan. From the perspective of understanding the meaning of CSR, it focused on the efforts that are being made by Japanese oil companies to do their part in contributing to society.

(2) Global Energy Situation

(Lecturer: Mr. Mitsuyuki Maeda, Energy & Innovation Research Institute)

This lecture was designed based on the realization that widely collecting and analyzing information on global energy situations and acquiring knowledge and information about the energy industry as a whole from a global perspective are essential to CSR initiatives in oil companies, and examined various oil-related circumstances and the status and role of petroleum. It also presented a detailed comparison and outlook between the future of petroleum and other energies, and encouraged participants to form their own thoughts on

energy. The lecture covered a wide range of topics, but the participants seemed to absorb them well.

(3) JX Nippon Oil and Energy Corporation (JX), Head Office & "SOENE House"

The participants were introduced to the CSR initiatives of one of Japan's leading oil companies through a tour of its "SOENE House," a model house that proposes new living environments utilizing new energy technologies developed by JX. Organized from the female perspective, the tour captured the interest of all participants, who listened to explanations with great attention and asked many questions. At the JX Head Office, the participants learned about JX's initiatives for fulfilling CSR by the oil industry as a whole, received an overview of oil development projects that JX is implementing in UAE and Qatar, and renewed their friendship with JX members who were previously posted in the two countries. A get-together was also organized with female employees at the JX Head Office, which proved to be a lively occasion to exchange views on the similarities and differences in women's work in Japan and the participants' countries.

Discussion with women staff at JX

(4) Cosmo Oil Co., Ltd., Head Office

This offsite training session by Cosmo Oil was held in a conference room at Cosmo Research Institute. Following an overview of the company, the participants received a detailed explanation of CSR initiatives and sustainable corporate activities implemented by the company, with particular emphasis on various initiatives and volunteer activities that place importance on the company's relationship with society. The lecture provided an effective introduction to visiting the Sakaide Refinery on the following day.

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

At the Sakaide Refinery, the participants first watched an introductory video of the refinery and received a detailed outline of its history and operations. The mention of the refinery's closing next fiscal year elicited many questions as to its reasons. The participants also received a presentation on the community contribution activities and social responsibility initiatives implemented by the Sakaide Refinery, which particularly emphasized its efforts to maintain a harmonious relationship with local residents and to conserve the environment.

During the tour of the refinery, the participants expressed interest in the compact arrangement of the units, and asked specific questions about the inspections and other aspects regarding the external corrosion of insulators.

(6) Toyota Motor Corporation, Head Office & Takaoka Plant

The participants first visited the Toyota Kaikan Museum operated by the Toyota Head Office and learned about the company's CSR initiatives as a leading company in its industry, and about its diverse social contribution activities. At the main Takaoka Plant, the participants observed various examples of kaizen activities within the assembly process, and were especially impressed to learn that employees' ideas have largely shaped the people-friendly assembly lines. After the plant tour, they were given a detailed explanation particularly of the framework and policy for responding to questions and complaints from customers.

(7) JGC Corporation, Yokohama Head Office

At JGC Corporation, the participants first received an overview of the engineering company's CSR activities in an easy-to-understand manner. An example was introduced, in which bread and cookie sales are organized and held during the company's lunchtime hours as an employee welfare project implemented in conjunction with local efforts to support people with disabilities. The participants actually visited the place where the sales were held and experienced the activity for themselves. They then learned about JGC's environmental initiatives through the activities of Earthwatch Japan, an NPO which JGC sponsors, and about its technological initiatives, mainly with a focus on its carbon dioxide capture technology, flare gas reduction technology, and technologies related to renewable energies and low-carbon infrastructures. Engineers in the

group asked many questions and seemed to appreciate the highly specialized content of the lectures.

Lecture at JGC Corporation

(8) Idemitsu Kosan Co., Ltd., Chiba Refinery & Plant

Following an introduction of the company and its Chiba Refinery, the participants toured the refinery, where they spotted a TPM activity board in a meeting room next to the control room of Refining Section No. 1 and asked various questions in its regard. They also showed interest in a skills acquisition chart that shows at a glance the skills level of each employee in the section, and were strongly impressed with the 5S efforts in the tool shed. In the presentation on Idemitsu Kosan's corporate philosophy and CSR activities, the participants learned that activities the company has maintained since its establishment to promote human respect and environmental harmony at its refineries and plants precisely correspond to its CSR activities. A large number of questions were asked, indicating the participants' strong interest in CSR.

At Idemitsu Kosan's Chiba Refinery

3. Observations

The course in general was highly evaluated by the participants, all of whom said the experience will benefit them in fulfilling their future duties. At some of the offsite facilities, the use of interpreters facilitated greater understanding among the participants. Taking this cue, JCCP will closely consult with each cooperating company the next time the course is held, and recommend the use of interpreters where they might be necessary.

Since this was a course for women only, a female staff member was assigned as the course sub-coordinator. By paying greater attention and responding to details that a male coordinator would not notice, the assignment of a female sub-coordinator probably contributed to the participants' overall evaluation of the course.

As requested by Qatar and UAE, the course was broadly themed on corporate social responsibility (CSR), and was attended by participants from a wide range of fields, from administrative to technical fields. The CSR theme thus proved to be extremely appropriate for a course intended for women only. In fact, although the recent course comprised women from areas including engineering, personnel management, administrative affairs, environmental safety and CSR, no one had issues with the course content and the course was able to be implemented smoothly. Thus, in the future, JCCP will consider proposing a women's course on CSR to other countries as well.

<by Fumihiro Tone, Training Dept.>

CPJ Seminar on TPM Activities for Refinery Maintenance Management for Iraq

A Customized Program-Japan (CPJ) on TPM activities for refinery maintenance management was held for a group of maintenance engineers from oil refineries and gas plants in Iraq from January 15 to 25, 2013, in response to a request from the Ministry of Oil-Iraq.

1. Overview

Along with the progress of reconstruction efforts in Iraq, oil refineries and gas plants have become vital to the stable supply of oil products in Iraq. Thus, ensuring stable operations and proper maintenance of refinery facilities has become an issue of urgent concern.

To address this need, the seminar was held with the attendance of a group of 20 selected engineers. The group included one engineer from the Ministry of Oil, four from the North Refinery Company, five from the Mid-Land Refinery Company, five from the South Refinery Company, two from the North Gas Company, and three from the South Gas Company.

The seminar was designed to provide knowledge of TPM (total productive management) activities in Japan, where the practice originated, and to offer hands-on training in autonomous maintenance and the latest in maintenance management at refineries that incorporate TPM in their maintenance activities.

Initially, the Ministry of Oil-Iraq requested a seminar for practical training in Iraq, but with due consideration to various circumstances in the country, a seminar was agreed to be held in Japan.

2. Training at JCCP

(1) Japan's Oil Industry

The lecture began with a description of Japan's geography, followed by an overview of the development of the oil industry in Japan. It discussed trends in the ratio of oil in Japan's primary energy mix, examined the present state and issues regarding oil distributors in Japan, their market share, and the locations and sizes of their refineries, and covered issues related to crude oil import destinations, policies for processes up to the stockpiling of oil, and recent trends in the oil industry. The lecture also used a video to introduce Japan's cultural characteristics and maintenance management practices.

(2) Maintenance Management and Safety Management by TPM Activities in the Refinery

This lecture aimed to share an understanding of the purpose and role of maintenance by providing an overview of maintenance in the refinery and explaining the methods for maintenance management employed by oil companies in Japan. It also defined and gave a general description of TPM, and discussed how TPM activities came to be introduced to refineries as a means for improving maintenance management practices. In relation to the latter, examples of serious accidents that have occurred at oil complexes in Japan were introduced, including accidents caused by such factors as facility design flaws, failure to change management, deterioration of safety culture and violation of regulations, and natural disasters, along with the explanation that human error and management system flaws are at the very root of most accidents. Additionally, the lecture discussed ideal management practices and explained the importance of the role of managers in increasing motivation in the workplace, and introduced representative TPM small-group activities such as the Tool Box Meeting (TBM), hazard prediction activities, learning from near-misses, and the 5S policy.

(3) Group Discussion on "Problems and Countermeasure in My Section"

After making a round of offsite training destinations, a group discussion session on "Problems and Countermeasure in My Section" wrapped up the seminar. The participants were divided into three groups with careful attention to achieve an equal balance in terms of job level, affiliation and age, and decided on a leader and presenter among each group.

To come up with a discussion theme, group members wrote problems they face on separate post-its, categorized them according to genre, and selected an issue of high priority. They then shared a common understanding of the selected theme and analyzed the cause of the issue based on the 5-why, 4M and fishbone analysis methods.

Ultimately, they aimed to prepare their own action plan for solving the issue. All three groups selected an issue related to the maintenance of equipment they are in charge of, and analyzed its causes by combining the 4M and fishbone methods. All three groups attempted to solve their problem by examining the quickest method for restoring the relevant facility to its initial state. This clearly showed that in Iraq, returning equipment to its initial state is a pressing issue, and efficiency improvement can be addressed only after that is done. Because discussions ran deep and one day was not enough to fully examine all possible causes, none of the groups went as far as to create an action plan. In future seminars, 1.5 days may need to be allotted to this group discussion session. However, many participants rated the discussion as having been extremely meaningful.

Group discussion

3. Offsite Training

(1) Sankyu Inc., Maintenance Center

Sankyu's Maintenance Center first introduced the company and the goal and role of the Center, and explained its engineer training programs that are respectively geared toward university, technical college and industrial high school graduates. Additionally, an explanation was given of the framework for training foreign maintenance managers in reference to a case example of rotary machines, and provided understanding of the Center's initiatives in training local personnel in foreign countries. The Center also directs its efforts to improving the technical abilities of maintenance managers, as introduced through numerous examples. Additionally, EagleBurgmann, which resides in the Maintenance Center, provided a general description of mechanical seals and its framework for technical assistance.

Here, the participants particularly appreciated the exposure to the heavy machinery and the latest technologies that are used in actual maintenance activities.

At Sankyu's Maintenance Center

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

Following an introduction of the company and the Chiba Refinery, the participants received a general overview of the objectives, history and effectiveness of TPM activities. They learned that Idemitsu's TPM activities are composed of the four pillars of maintenance innovation, safety and environment innovation, production innovation, and business innovation, and received a detailed explanation of maintenance innovation. With regard to autonomous maintenance activities, an explanation was given of the process of initial cleaning and visualization activities, and with regard to professional maintenance, a description was given of activities that helped to reduce malfunctions by changing the mechanical seal of rotary machines. The case examples facilitated understanding of the effectiveness of autonomous maintenance, and provided useful information to the participants. After receiving a lecture on TPM activities, the participants toured the site of an atmospheric distillation unit and directly observed various Kaizen and visualization activities.

The program provided by Idemitsu Kosan was highly evaluated by the participants, and is expected to be extremely beneficial to their future activities.

At Idemitsu Kosan's Chiba Refinery

(3) Toa Oil Co., Ltd., Keihin Refinery

At the beginning of the program at Toa Oil's Keihin Refinery, a general description that linked the state of oil demand-supply in Japan with the refinery's unit composition provided the understanding that the refinery is well-suited to meeting domestic demand for oil and enjoys high profitability. The participants then learned about the refinery's maintenance framework and maintenance activities based on the PDCA cycle, as well as about risk-based inspection (RBI) and reliability-centered maintenance (RCM). They also received detailed explanations of Furmanite repair technologies, creep inspections of hydrogen reforming tubes using a creep inspection robot introduced by Toa Oil, and the decoking of a VDU furnace using high-pressure helical water jet, with reference to photos and abundant data. After these lectures, the participants walked through the refinery site and confirmed the real maintenance situation.

At Toa Oil's Keihin Refinery

(4) JGC Corporation, Yokohama Head Office

After an introduction of the company and its activities in Iraq, the participants received a lecture on risk management and the significance of OSHA and PSM in preventing plant accidents and malfunction in reference to case examples of serious accidents that have occurred in the past. The main points of RCM were summarized in Q&A format for easy understanding, and RBI was discussed using case examples. Additionally, the participants received a description of JGC's Inspection Data Management System and its initiatives to extend plant life, as well as a description of the thermal spraying technology as a method of equipment repair. Active discussions were held among the participants and JGC staff members and made for a highly effective training program.

At JGC Corporation's Yokohama Head Office

(5) Mitsubishi Heavy Industries, Ltd., Yokohama Works Kanazawa Plant

The participants received a presentation that introduced Mitsubishi Heavy Industries' entire businesses. The technical explanation of steam turbines covered their scope of applicability, structure and characteristics, and presented specific case examples to explain the key points of preventive maintenance. In regard to boilers, examples of past malfunctions were introduced, and a detailed lecture was given on the status of malfunctions and countermeasures for parts that are particularly susceptible to problems. The lectures on steam turbines and boilers by an expert in this field were extremely easy to understand. In a tour of the shop floor, the participants experienced the vibrant operations of the plant.

At Mitsubishi Heavy Industries' Kanazawa Plant

4. Summary

In a prior report, all 20 participants noted that they participated in this seminar so they could solve a problem they face in their workplace. After completion of the seminar, most of them said they derived some type of solution and future direction, and others expressed a strong desire to implement TPM activities in their workplaces and to use what they learned in this seminar to take initiative in solving their problem by themselves. As rigorous guidance and a strong spirit of challenge are needed to genuinely solve problems, the lecturers of this seminar hope to plan some type of program for practical guidance when circumstances allow.

<by Fumihiro Tone, Training Dept.>

CPJ Seminar on the Environment for LUKOIL

A Customized Program-Japan on environmental issues was held for a group of experts from various departments of Russia's leading oil company, LUKOIL (Nizhegorodnefteorgsintes Group). The program ran from October 23 to November 6, 2012.

1. Background

A CPJ seminar themed on environmental management technologies was designed in response to a request from LUKOIL for a broad-scoped training program that includes visits to refineries, lectures on environmental countermeasure technologies, TPM activities, energy conservation and Japanese-style human resource management, and a visit to an engineering company.

2. Training Content

2.1 Training at JCCP

(1) Japan's Oil Industry

This lecture introduced the characteristics of Japan's oil industry and provided an understanding of the importance of the Japanese market to Russia. The participants showed strong interest in Japan, through the existing Sakhalin Project.

(2) TPM Activities

The first part of the lecture introduced the history and actual status of TPM activities, and discussed the approach to changing corporate culture by enhancing the quality of its people and facilities. The latter part introduced the 5S activity, the "8-irazu (8 unnecessary things to do)" activity, visualization measures, and practical case examples of the 5Ss in the office. TPM requires people to change the way they think based on an understanding that "facilities will change if people change, and if facilities change, the company can change." This lecture allowed the participants to gain a good grasp of this basic concept of TPM.

(3) Energy Conservation in the Refinery

Energy conservation is an important issue and crucial challenge to Japan as an energy importer. Thus, this lecture provided a broad understanding of energy conservation by introducing the principles of Japan's energy-saving law, voluntary initiatives of Japan's oil industry, the top-runner method of improving energy efficiency in individual products, awareness-raising activities based on an awards system, and case examples of energy conservation in refineries.

(4) Wastewater Treatment

(Lecturer: Mr. Muramatsu, Swing Corporation)

Mr. Muramatsu from Swing Corporation gave a systematic lecture on wastewater regulations and various wastewater treatment technologies that are actually used in refineries. He captured the participants' strong interest by introducing new treatment technologies such as the membrane bioreactor and denitrification technologies for treatment of associated water and eutrophication prevention. In Japan, refinery wastewater is fundamentally discharged into the sea, but in Russia, it is discharged into rivers, so stricter wastewater management is required.

(5) Japanese-style Human Resource Management

This lecture covered a broad range of topics related to Japanese-style human resource management, including the historical background of the Japanese system, the Japanese people's values centered on harmony and teamwork, and the transition from a seniority-based system to a merit-based system, as well as the contradictions of those systems.

2.2 Offsite Training

(1) Shimadzu Corporation, Head Office and Sanjo Works

(Lecturers: Mr. Nishikawa, Ms. Tanaka)

At Shimadzu Corporation, the participants were introduced to analysis equipment that forms the basis of environmental management, and learned about the company's environmental activities and initiatives to reduce environmental loads in relation to ISO 14001. They also visited the assembly line of actual analyzers, and learned first-hand about the meticulous manufacturing processes that are unique to Japan and about policies and training systems that enhance employee motivation.

At Shimadzu Corporation's Head Office and Sanjo Works

(2) Chugai Technos Corporation
(Lecturers: Mr. Kougezoe, Ms. Matsubara, Mr. Fukuma)

At Chugai Technos Corporation, the participants received lectures on environmental analysis and monitoring, environmental risk assessment, and soil remediation using microorganisms. They also experienced the analysis of odors while touring an actual laboratory, and gained an understanding of Japan's high level of environmental awareness by witnessing the large amount of water analysis being performed on a daily basis. The two human resource managers among the participants received a specially organized lecture from Mr. Fukuma on human resource systems in environmental analysis businesses.

(3) TLV Co., Ltd., Kakogawa Works
(Lecturers: Mr. Martinez, Ms. Fujiwara)

At TLV's Kakogawa Works, the participants received comprehensive training on steam trap management and energy conservation, from the basics to practical demonstrations using an actual machine. Among the participants, the two human resource managers received a specially organized lecture from Mr. Fujiwara on personnel management in the manufacturing industry.

(4) Cosmo Oil Co., Ltd., Yokkaichi Refinery
(Lecturers: Mr. Suzuki, Mr. Kumagai, Mr. Kamishiro)

At Cosmo Oil's Yokkaichi Refinery, the participants learned about personnel development and labor management in the refinery, the company's energy conservation initiatives, environmental management practices, and quality control. They expressed great surprise at the close proximity of refineries and residential areas in Japan, and deepened their understanding that refineries cannot co-exist with neighboring residents without proper environmental countermeasures.

(5) JGC Corporation, Yokohama Head Office
(Lecturers: Mr. Arai, Mr. Tanaka, Ms. Morishita)

The participants received lectures on air pollution countermeasures (desulfurization, denitrification) and the carbon dioxide capture and storage technology. As expected from LUKOIL's request to visit an engineering company, the participants expressed strong interest in JGC's broad-ranging initiatives being implemented in foreign countries. Additionally, the two human resource managers among the group received a special lecture from Ms. Morishita on training systems in an engineering company.

(6) Green Consultant Co., Ltd.
(Lecturer: Mr. Hayama)

The participants visited the company's contaminated soil treatment plant and learned how treated soil is reused. They also visited an industrial waste treatment facility and learned about the treatment methods of each relevant substance. Since lubricating oil will soon be required to be recycled in Russia (more than 20% of production will be required to contain recycled oil), the participants showed strong interest in the waste oil recycling plant.

3. Summary

In Russia, there seem to be large expectations of Japan's cooperation in exchanging information on various technologies and introducing new facilities, as the automation of production facilities and environmental countermeasures have only begun to be addressed in recent years. Since the participants were a group of diverse members from the finance, environment, fuel oil, personnel, lubricating oil, and management departments and an oil storage/tank facility, serious consideration to future environmental countermeasures is expected to be made hereafter from various angles.

<by Bunsuke Kariya, Training Dept.>

CPJ Seminar on Petroleum Marketing and Distribution for Petrolimex

A Customized Program-Japan on petroleum marketing and distribution was held in Japan for a group of executive-level employees from the Petrolimex Group of companies from December 3 to 14, 2012, in response to a request from Petrolimex.

1. Background

Vietnam has only one refinery at present. It has plans to construct its second and third refineries, but experience and knowledge are lacking in regard to the supply chain from refineries to oil storage facilities and service stations.

Based on the knowledge that Petrolimex specializes in petroleum marketing and distribution, the seminar was designed to provide an understanding of the supply chain in the oil downstream sector in Japan, specifically to executive-level employees from companies affiliated with Petrolimex.

2. Overview

For maximum relevance to Petrolimex's main business, "petroleum marketing and distribution" was selected as the main theme of the seminar, as it was in a CPJ seminar implemented in December 2011.

Also as with last year's CPJ seminar, the program was scheduled to run for a relatively short 12 days, with three days allotted to lectures at JCCP and six days to offsite training.

The study group was composed of 18 members from Petrolimex's Head Office and Group companies throughout Vietnam. The majority of the members—14 members including two women—were management executives averaging 46 years of age.

3. Content

3.1 Training at JCCP

(1) The Oil Industry and Petroleum Marketing and Distribution in Japan

This lecture discussed Japan's oil industry as a whole, in terms of the necessity of oil stockpiling to maintain stable oil supply, the development of alternative fuels to take the 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.

(2) Reality and Future Trends in Asia's Oil Market

An economist lectured on the latest oil market situation in Asia, where demand is surging due to the growth of the Chinese and Indian economies, and presented information that is directly related to business, such as the crude oil market mechanism and trends in crude oil prices, based on abundant data.

(3) World's Energy Situation

This lecture discussed the world's energy situation based on abundant data on energy demand-supply trends, with reference to global environmental issues and monetary and fiscal issues.

In particular, the discussion about global energy issues and nuclear power, which are issues of strong concern in Vietnam, provided the management executives a good opportunity to cultivate a global perspective.

3.2 Offsite Training

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

In front of a crude oil stockpiling tank (JX Nippon Oil & Energy Staging Terminal Corporation, Kiire Terminal)

In a conference room, the participants first received a lecture on the terminal's role, functions, operational management, and environmental and safety countermeasures. They then toured the control house, the lifeline of the terminal, and observed the centralized management system that uses the latest computers and projectors for crude oil receiving and delivery.

In the explanation of the TVR system (system for treatment of waste gas from tankers) that the company commercialized for the first time in the world, the participants learned of its important contribution to the environment and to the effective utilization of energy.

(2) JX Nippon Oil & Energy Corporation, Fukuoka Oil Depot

A classroom lecture first gave an overview of the oil depot, including its functions, characteristics, and individual facilities. Then in a tour of the site, the participants observed a tank truck driver unloading a shipment from a shore-based unloading facility and the computerized ordering system in the control room. Furthermore, at a shipping and receiving facility on the pier, they observed close-up the implementation of safety work, from the docking of domestic vessels to the discharging of oil cargo.

Inspection of an ordering system in the control room (JX Nippon Oil & Energy Corporation, Fukuoka Oil Depot)

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

In the morning, the participants received a presentation that introduced the company and refinery, then toured the refinery. Slides and a DVD were used to present an overview of the refinery, including its role, characteristics and status. The refinery tour provided views of sea-based and land-based shipping facilities from inside a bus.

In the afternoon, the participants received a lecture and inspected the refinery's physical distribution system for oil products. Furthermore, in the central control room, they observed a fully rationalized transportation system that is based on computerized delivery management and the actual state of safety and quality management in the refinery.

(4) Centrair Fueling Facilities Co., Ltd.

At Centrair Fueling Facilities, a company contracted by Central Japan International Airport to operate and manage fuel receiving, storing and supply facilities in the airport, the participants learned about the jet fuel supply system for aircraft.

In the morning, they received a lecture on an overview of the airport and fueling facility and work contents of the company's receiving, quality control and facility management operations, and toured those facilities. In the afternoon, they gained a precious opportunity to observe close-up the fueling of an aircraft using a hydrant system on the apron of the airfield.

Inspection of a fueling activity on the airfield apron (Centrair Fueling Facilities Co., Ltd.)

(5) Cosmo Oil Co., Ltd., Head Office

At Cosmo Oil, the participants first received a lecture on the company's physical distribution system. Detailed descriptions were given of the ordering center's computerized central management system and the distribution of oil from the tank truck shipping terminal to service stations, while showing photos of each relevant site.

The participants learned the significant role of the shipping terminal's high-tech trucking system and the wireless control system between tank truck drivers and service stations in increasing efficiency and rationalizing

the operations of the physical distribution department.

The lecture on the safety management system of a transportation company discussed the Japanese-style PDCA cycle and taught the importance of the corporate manager taking direct interest and getting involved in ensuring safety management through a top-down approach.

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

At Showa Shell Sekiyu, a lecture first gave an overview of the company and the oil industry in Japan, which provided an understanding of the fierce competition in the oil industry and the company's management policies and marketing strategies.

A lecture was also given on the status of activities of the company's marketing department, with detailed discussions of marketing policies and strategies, including the relationship between distributors and dealers/retailers, service station support strategies, differentiation strategies, and measures for increasing customer satisfaction.

In addition, a lecture on the company's physical distribution system covered the actual state of advanced physical distribution systems, business tie-ups with other companies (barter transactions with refineries and oil tank facilities), and the status of marine and land transportation.

4. Summary

Winter came to Japan earlier than usual, bringing cold temperatures to all training destinations despite it still being early December. JCCP members worried that the participants were not used to cold weather, but fortunately everyone completed their training in good health.

However, there was a language barrier and the help of an employee translator was needed, but good cooperation between the participants and the translator allowed for relatively smooth training.

The seminar received extremely high marks in evaluation forms from the participants. Since training programs on oil marketing and physical distribution can provide first-hand experience and understanding of the flow of oil products in Japan from the refinery to service stations, JCCP hopes to continue offering such programs as CPJ seminars in the future.

JCCP is happy that management executives from companies of the Petrolimex Group gained a favorable impression of JCCP and Japan through their participation in this seminar. As the JCCP counterpart personnel in Petrolimex have also requested the continued implementation of the seminar in the future, JCCP will take this into consideration with hopes of contributing in any way to strengthening the friendly relationship between Vietnam and Japan.

<by Kazuo Kojima, Training Dept.>

Personnel Exchange

CPJ Seminar on LNG Handling Technologies for Petrovietnam

A Customized Program-Japan on Gas Processing for LNG was held for a group of participants from Petrovietnam, from November 12 to 22, 2012.

1. Background and Overview

JCCP organized a CPJ seminar for a group of selected engineers from Petrovietnam in response to a strong request from the company, as it pushes forward a plan to construct the country's first LNG receiving terminal by 2015.

The curriculum was designed based on prior

At Kobe Steel, Ltd.

consultation and mutual consent between Petrovietnam and JCCP regarding the detailed content of lectures. The group was comprised of 15 participants, including two LNG procurement and marketing officers and 13 engineers. Three were from the head office, six from Petrovietnam Gas Corporation (PVGAS), and two each from Petrovietnam Engineering Corporation (PVEngineering), Petrovietnam Oil Corporation (PVOil) and Binh Son Refining and Petrochemical Co., Ltd. (BSR).

2. Course Planning

To provide practical training as requested by Petrovietnam and allow as many visits as possible to LNG-related facilities, offsite training at six facilities was fitted into the program. They included the following: the Yokohama Head Office of Mitsubishi Heavy Industries, Ltd.; Yokohama Head Office of JGC Corporation; Kobe Steel, Ltd. Takasago Works; Kansai Electric Power Co., Inc., Himeji No. 1 Power Station; Osaka Gas Co., Ltd., Himeji Plant (LNG terminal and production and shipping terminal); and Kawasaki Heavy Industries Co., Ltd. Sakaide Works. At Sakaide Works, arrangements were made so that the participants could visit an LNG vessel before it goes into service.

At JCCP Headquarters, lectures were given by external lecturers who were highly popular in regular courses held in the past: Mr. Takayuki Nogami from JOGMEC and Mr. Tomoya Sato and Mr. Yoshihiro Yamaguchi from Chiyoda Corporation (LNG tank/LNG liquefaction technology).

3. Content

(1) Japan's Oil Industry

This lecture covered Japan's oil industry in general, including primary energy trends, the status of oil among all energies (share and importance of oil), the physical distribution of crude oil and products and their import to sales, oil distributors in Japan and their respective share, and the location and capacity of refineries operated by each distributor.

(2) LNG Tank Technologies / LNG Liquefaction Technologies

Lecturers: Mr. Tomoya Sato & Mr. Yoshihiro Yamaguchi, Chiyoda Corporation

Mr. Sato gave a lecture on LNG tank technologies in the morning, and Mr. Yamaguchi gave a lecture on liquefaction technologies in the afternoon. The lecture on LNG tank technologies provided detailed information on design specifications and standards and the inner structure of each type of tank, and invited the participants to ask questions about various aspects of LNG tanks to reconfirm what they learned from practical training.

(3) Trends in the Global LNG Industry

Lecturer: Mr. Takayuki Nogami, JOGMEC

Mr. Nogami first lectured on the role and functions of JOGMEC and the present state and future outlook of the LNG industry. He captured the participants' interest and attention with his lecture, which he also provides at universities and on cable TV programs and constantly keeps updated. The participants seemed fascinated to learn about the future outlook of global LNG projects and about the demand-supply balance of LNG, and appreciated the ideal and rare opportunity to view the entire world from a broad perspective.

4. Offsite Training

(1) Mitsubishi Heavy Industries, Ltd., Yokohama Head Office

The participants first received an introduction of the company, followed by a lecture on LNG gas boilers, turbines, and power generators, and expressed particular interest in the introduction of case examples of boiler problems and the latest inspection methods for their prevention. At the Mitsubishi Minatomirai Industrial Museum, they studied a miniature model of the IGCC (integrated gasification combined-cycle) technology in the Environment/Energy Zone and learned about the company's advanced technologies with keen interest.

Additionally, the company's location in the Yokohama Minatomirai district offered the participants an excellent view and a taste of the excitement of Japan's modernistic model city.

(2) JGC Corporation, Yokohama Head Office

JGC Corporation gave an introduction of the company, followed by a lecture on the worldwide installation status of LNG plants; a second lecture on the physical properties of LNG and other basic matters, details of the LNG chain from the gas field to the liquefaction plant process, and the transportation and flow of LNG up to the receiving terminal; and a final lecture on the details of LNG receiving terminal facilities. Coming from a company that has vast

experience in designing LNG plants and made abundant achievements in implementing LNG projects particularly in the Middle East, information about the latest status of LNG plant construction and other broad aspects of LNG plants carried significant weight.

(3) Kobe Steel, Ltd., Takasago Works

The participants first received a lecture on various compressors, including the BOG (boil of gas) compressor that is one of Kobe Steel's specialties, followed by detailed descriptions of the structure of an LNG vaporizer and a brazed-aluminum heat exchanger called ALEX. They then had the opportunity to take a close look at each work process on the shop floor. The participants seemed to appreciate learning about the latest technologies related to LNG heat exchangers.

(4) The Kansai Electric Power Co., Inc., Himeji No. 1 Power Station

The participants visited the Himeji No. 1 Power Station, which is equipped with a combined-cycle gas turbine, to actually observe the equipment and facilities of an LNG-fired thermal power plant, the largest LNG consumer in Japan, and to study their operations and maintenance.

They seemed to appreciate the opportunity to carefully examine and receive detailed explanations of the high power-generating efficiency of the combined-cycle gas turbine technology.

(5) Osaka Gas Co., Ltd., Himeji Plant

Himeji Plant has the world's largest surface-type LNG tanks, and shares an LNG receiving pier with its neighbor, Kansai Electric Power Company's Himeji No. 1 Power Station. For this reason, two receiving pipelines extend from the pier to Kansai Electric and to Osaka Gas. An interesting lecture was given on the management and operation of LNG tanks and the supply of LNG to the market, and elicited many questions from the participants.

(6) Kawasaki Heavy Industries Co., Ltd., Sakaide Works

Kawasaki Heavy Industries is Japan's representative LNG vessel manufacturer and the world's leader

At Kawasaki Heavy Industries' Sakaide Shipyard

particularly in the field of older Moss-type tanks. The participants had the opportunity to tour the manufacturing site where aluminum alloy panels are assembled into parts of a specific size and forged into spherical tanks. The works was visited for the first time in a JCCP training program, and was highly appreciated by the participants, who also enjoyed touring an LNG ship immediately before casting off.

5. Observations

This CPJ seminar ended successfully without any particular mishaps, and the program achieved its intended results. All 15 members from Petrovietnam completed their entire training agenda with diligence and concentration.

The participants were a relatively young group averaging 33 years of age, and were strongly motivated to learn about LNG technologies, as Petrovietnam has plans to soon launch a new project. Petrovietnam requested the implementation of a training program with an eye toward the construction of the company's first LNG receiving terminal (Thi Vai: 100,000 KL capacity LNG tank; basic design of the receiving terminal to be undertaken by Tokyo Gas Engineering Co., Ltd.) slated to be completed in 2015. The seminar was thus implemented in support of this project. Its successful implementation with the participation of young engineers from Petrovietnam is expected to prove highly meaningful to the future of the energy industry in both Vietnam and Japan.

<by Takaaki Yuasa, Training Dept.>

CPJ/CPO Seminar on the Latest Technologies for Power Plant Facilities for Vietnam

1. Background

In Vietnam, domestic demand for electricity has increased conspicuously in recent years, as previously discussed in detail (*JCCP NEWS* No. 113, August 2012), and has prompted Petrovietnam to increase its electric power supply by operating a state-of-the-art combined-cycle power generating facility that uses the company's own supply of natural gas. Under this situation, Petrovietnam is directing priority efforts to achieving increased stability and efficiency of its power plant facilities, and has sought an opportunity to acquire the latest technologies toward that end. JCCP thus planned and organized customized programs (CPO/CPJ) in response to Petrovietnam's request.

Part 1 of the seminar consisted of a six-day Customized Program-Overseas (CPO) in Ho Chi Minh City. Part 2 was a 12-day Customized Program-Japan (CPJ) for a group of selected participants from Petrovietnam. As with a similar seminar that was held last year, the lectures given in Part 1 of the seminar were complemented by practical technical training of various equipment and facilities in Part 2. Based on this concept, the seminar aimed to deepen and increase participants' understanding of power plant facilities, and was implemented according to schedule.

2. Part 1 (in Vietnam)

(1) Dates

July 30 to August 4, 2012 (6 days)

(2) Lecturers

Four lecturers gave lectures on their respective fields of specialty. In addition to a lecturer from JCCP's Training Department (Shintaro Miyawaki), they included Mr. Yuki Kogure (Hitachi, Ltd.), Mr. Takashi Suzuki (Suzuki Technical Consulting Ltd.), and Mr. Mikio Yoshikawa (Babcock-Hitachi K.K.).

(3) Participants

A total of 40 middle-level operating engineers and manager-class employees from Petrovietnam's electric power departments attended Part 1 of the seminar. They were from various companies affiliated with Petrovietnam, including the Petrovietnam Power Generation Department, Nhon Trach Power Plant, Ca Mau Power Plant, Dung Quat Refinery, Petrovietnam Fertilizer and Chemicals Company, and a number of project engineering companies.

(4) Program Content

In line with the needs of Petrovietnam, the program covered the following technical fields through lectures and Q&As by experts in the respective fields.

1) Reliability improvement technologies for dynamic equipment (JCCP)
2) Case examples of Kaizen activities for efficiency improvement of facilities and equipment (JCCP)
3) Latest maintenance technologies for steam turbines (Hitachi, Ltd.)
4) Technical development of high-performance turbines (Hitachi, Ltd.)
5) Water treatment technologies for boilers (Suzuki Technical Consulting Ltd.)

At Nhon Trach Power Plant

Opening ceremony

6) Corrosion prevention technologies for boilers (Suzuki Technical Consulting Ltd.)
7) Water quality management technologies for cooling water (Suzuki Technical Consulting Ltd.)
8) Optimization technologies for energy-saving boilers (Babcock-Hitachi K.K.)
9) Latest combined-cycle technologies (Babcock-Hitachi K.K.)
10) Supplementary discussions, explanations and Q&A related to all themes
11) Case studies of Nhon Trach Power Plant

3. Part 2 (in Japan)

(1) Dates

October 22 to November 2, 2012 (12 days)

(2) Participants

A group of 15 middle-level mechanical engineers and manager-class employees from Petrovietnam's electric power departments participated in Part 2 of the seminar. They were from various companies affiliated with Petrovietnam, as mentioned above in Section 2 paragraph (3).

(3) Site-visit Training Destinations and Program Content

Site-visit training was implemented at the facilities of JCCP member companies and other destinations as shown below. At all destinations, training was organized that closely matched the jobs and operations of the participants, and fulfilled the objectives of the program by providing deep understanding of the equipment manufacturing process and key technologies at each company and plant. The program particularly captured the participants' strong interest by introducing supercritical turbines, which have advanced greatly in recent years, and the latest technologies of next-generation power plants.

1) Yokogawa Electric Corporation, Head Office: Latest instrumentation technologies for efficiency improvement of power plants
2) Hitachi Nico Transmission Co., Ltd., Omiya Factory: Latest gear technologies for large rotary machines

Practical training at Woods Corporation

At Hitachi Works

3) Hitachi, Ltd., Hitachi Works: Latest technologies and diagnostic techniques for power generating turbines
4) Babcock-Hitachi K.K., Kure Works: Latest technologies for power generating boiler systems
5) Woods Corporation: Governor functions and reliability improvement technologies
6) Osaka Gas Co., Ltd., Semboku Power Plant: Latest technologies for LNG-fired combined cycle power plants
7) Sakai Photovoltaic Power Station: Latest technologies for sustainable and renewable power generation

At Yokogawa Electric Corporation

4. Summary

The themes selected for the seminar all represented key technologies that are indispensable to improving the reliability of mechanical devices that compose the heart of turbines and boilers, in particular, among the facilities of a power plant. As they are important issues that pertain directly to stable and efficient operations in Petrovietnam's operational departments, the seminar was planned and designed to closely satisfy Petrovietnam's needs with the cooperation of JCCP member companies.

JCCP intends to continue offering CPO-CPJ combination programs like this one in the future, with hopes that they will open the path to the formulation of even more timely and beneficial training programs in the personnel development field and will strengthen the direction toward the implementation of even more practical courses in the future.

Furthermore, JCCP is entertaining the idea of applying this approach to regular courses as an initiative that would correspond to the future direction of JCCP activities. Planning and organizing programs that allow the results of customized training to be shared by even larger numbers of participants in oil-producing countries is expected to promote the overall effort to renew and improve future training programs.

As a specific example, JCCP is preparing to offer a new course by further deepening and developing the program content of this customized program for Vietnam and reorganizing it into a new curriculum. The new course will be intended for management-level engineers and middle-level mechanical engineers in the Middle East and Gulf countries and other major oil-producing countries.

By the time this newsletter reaches our readers in oil-producing countries, the content of a new regular program will have taken shape and the necessary arrangements toward the creation of a new regular course will be complete. JCCP looks forward to receiving greater participation in JCCP training programs from oil-producing countries in the future.

<by Shintaro Miyawaki, Training Dept.>

CPO Seminar on Power Plant Instrumentation and Control for Refinery and Petrochemical Plant Engineers

1. Background

In Vietnam, total demand for electricity is growing at an annual rate of more than 15%. To support this growing demand, Petrovietnam and its subsidiaries are building or are planning to build a number of new power plants. At the same time, existing power plants have strong needs for technical training for efficiency improvement and increased capacity. At the Dung Quat Refinery, as well, there are plans to strengthen its capacity, and thus a request has been made for training related to power facilities in refineries and petrochemical plants.

In response to Petrovietnam's request, JCCP has already implemented a customized program on boilers and turbines last year. As a second initiative, a Customized Program-Overseas (CPO) on the operations of utilities in power plants, refineries and petrochemical plants was recently organized and held at the headquarters of Petrovietnam Fertilizer and Chemicals Corporation (PVFCCo) in Ho Chi Minh City.

2. Overview

The seminar began with an opening message from Mr. Dang Quoc Hung, Deputy General Manager of the Human Resources & Training Division at PVFCCo, followed by self-introductions by all members and a brief introduction of JCCP prior to commencing the first day's lectures.

(1) Overview of Instrumentation and Control in a Power Plant

(Lecturer: Mr. Norinao Sato, Yokogawa Electric Corporation)

This lecture introduced Yokogawa Electric's electric power applications, instrumentation and control systems, field devices, and described and discussed instrumentation technologies for in-house power generation based on the participants' responses to a preliminary questionnaire. The participants had many questions particularly about field devices, as a local employee of Yokogawa Electric gave a brief lecture on field devices in Vietnamese.

Responses to the preliminary questionnaire from the Dung Quat Refinery revealed a variety of issues the participants currently face, such as difficulties in excessive airflow control (O_2 control) accompanying the switch between mono fuel and mixed-fuel (gas and oil) combustion; the surge in burner pressure when using fuel gas; and problems arising from the instability of grid frequency. A further hearing was held to better understand each issue, and the best current answers and proposals were given by Mr. Sato and Mr. Seiji Kuniyoshi, another lecturer who provided his support.

Mr. Sato, Yokogawa Electric Corporation

(2) Safety Instrumentation System in a Power Plant

(Lecturer: Mr. Yoichiro Inoue, Invensys Process Systems)

In the first half of the lecture, Mr. Bernard Kwek, who rushed over from Singapore, introduced an overview of safety instrumentation and the basic functions of the company's safety instrumentation system (SIS). Then, Mr. Inoue introduced various solutions and case examples related to power plants.

In his lecture, Mr. Bernard discussed the background to why an SIS became necessary, and introduced SIS functions, the differences between duplex redundancy and triplex redundancy, and representative examples of

their application. He also emphasized the necessity of separating SIS and DCS (distributed instrumentation system). During Mr. Inoue's lecture, a participant asked about countermeasures to specific problems related to bearing temperature, to which not only Mr. Inoue, but the other participants as well, proposed various ideas that provided useful reference.

Mr. Inoue, Invensys Process Systems

(3) Optimization of Utilities

(Lecturer: Mr. Junichi Watanabe, Invensys Process Systems)

Generally when building a process optimization system, it is divided into three stages: the data reconciliation stage, optimization stage, and advanced control stage. In describing data reconciliation, the importance of recognizing errors was emphasized. With respect to APC, process identification, prediction and control in model predictive control were described in detail. In regard to optimization, he gave a careful description of the relationship between processes and utilities by drawing diagrams, followed by an explanation of optimization functions. Mr. Watanabe also introduced specific examples of utility optimization in Japanese refineries and optimization in Thailand.

Mr. Watanabe, Invensys Process Systems

When a participant asked about loss management solutions, Mr. Watanabe drew a diagram of an entire refinery to facilitate understanding of an example of loss management using data reconciliation technology.

(4) Controller Tuning

(Lecturer: Kazuhiro Suzuki, JCCP)

Knowledge of controller tuning was provided through lectures and practical training as an important and useful technology to instrumentation and control engineers. After introducing control theories using a video and reviewing their important points, practical training in CAI provided a visual understanding of the differences in controller behavior according to different tuning parameters. It is well known that the greater the time constant, the more difficult tuning becomes. To illustrate this principle, an example was introduced that showed how an attempt to control viscosity failed to deliver the intended control performance.

Practical training using CAI

3. Summary

A number of programs on power facilities have been implemented to date, mainly with a focus on the mechanical aspects of boilers and turbines. This time, therefore, a seminar was planned with a focus on in-house power facilities in refineries and petrochemical plants. By implementing a preliminary questionnaire, programs pertaining directly to power facilities were organized so that specific issues could be discussed. A program on utility optimization and management was also prepared from the perspective that utility facilities are an integral part of refinery and petrochemical plant facilities.

In the post-seminar evaluation, many participants noted their desire for even deeper knowledge in regard to each of the programs, as well as their wishes to receive training in Japan. As a regular course related to electric power will be offered beginning in fiscal 2013, the participants' feedback of this seminar will be taken into consideration when implementing the course and also when designing other customized seminars in Vietnam as well as in other countries.

<by Kazuhiro Suzuki, Training Dept.>

Members and participants after completion of the seminar

Personnel Exchange

CPO Seminar on Practical Training of Latest Process Control Technology for Oil & Gas Industry for SEIC in Russia

A Customized Program-Overseas (CPO) on Practical Training of Latest Process Control Technology for Oil & Gas Industry was held from September 17 to 21, 2012, for engineers at the Sakhalin Energy Investment Company Ltd. (SEIC) in Russia.

The seminar was designed to provide a forum for technical discussion on Japan's latest technologies and utilization issues between lecturers and SEIC engineers, who are the actual users of such technologies. It was held at SEIC's production facility, located at the southern tip of Sakhalin Island, which also has an LNG shipping terminal on the same site. An old port city called Korsakov is located nearby, and offers regular ferry services from Wakkanai in Hokkaido, but the area around the production facility is surrounded by undeveloped wilderness. Most employees who work at this facility commute from their homes in Yuzhno-Sakhalinsk, the administrative center of Sakhalin Oblast. The Japanese members of the seminar also spent a little over an hour commuting to the facility every day with Mr. Vadim Legenkin, the officer in charge of the seminar on the SEIC side, who generously provided transportation in his car.

1. Objectives and Background

Sakhalin, Russia is less than an hour away from Hokkaido by plane, and is one of the nearest foreign lands to Japan. It is home to the Sakhalin-2 Project, a project for collecting and shipping natural gas and other

Maps of Sakhalin and the Sakhalin-2 Project

natural resources that are found in the northeastern part of Sakhalin Island. The liquefied natural gas (LNG) produced in the project is one of the most important sources of energy to Japan and highly valued as an eco-friendly fuel. SEIC, the counterpart of the recent seminar, is the central operator of this Sakhalin-2 Project.

SEIC is owned by Gazprom, Royal Dutch Shell, and Japanese trading companies, and already possesses many leading-edge facilities and technologies. SEIC's relationship with JCCP began in May 2010, when SEIC sent its employees to participate in a JCCP regular course for the first time. The number of participants from SEIC has continued to increase since the following year.

The seminar promoted deeper understanding of JCCP in addition to providing knowledge of themes presented by SEIC, and was organized with a focus on providing information by which SEIC could judge which of Japan's cutting-edge technologies to introduce, and the pros and cons of introducing those technologies.

2. Content

(1) Day 1

After the opening ceremony, which consisted of opening speeches and an introduction of JCCP, a lecture on the basics of facility operation management (alarm management systems) was given. It was a topic that was strongly requested by SEIC, and prompted many questions from the participants, regardless of it being only the first day of the seminar.

(2) Days 2 & 3

On the second day, the seminar took place at the LNG terminal amid the raging winds and rain of Typhoon 16, which had traveled northward to Sakhalin during the previous night. The fallen trees that used to line the streets in Yuzhno-Sakhalinsk city spoke of the harsh northern environment.

Training session

Participants of SEIC and lecturers

Lectures on this day were on the latest facilities and software, and covered safety instrumentation systems, wireless instrumentation systems, advanced process control, various operational support software, and computer simulation technologies.

Since each theme had direct relevance to the participants' duties, deep discussions took place regarding specific examples of malfunctions in SEIC's technologies, methods of improving their utilization, and a comparative examination of different brands of equipment. In the discussion on operational support software, SEIC members introduced a best practice in which they estimated an efficiency improvement of roughly 20% in the start-up/shutdown of refinery units.

Wireless instrumentation systems and other technologies that have yet to be introduced to SEIC were also discussed, but the participants were already aware of their importance, and asked detailed technical questions, for example on how to maintain their functions in Sakhalin's uniquely cold climate. It almost seemed a separate seminar could be held on this theme alone.

(3) Day 4

Bad weather continued until the last day of lectures, and while there were initial concerns about whether the lecturer could arrive safely from Japan, the lecture was delivered as scheduled.

The theme of the lecture focused on the expansion and integration of new information systems, and was quite an ambitious one, which unfortunately highlighted the differences with SEIC's systems. Nevertheless, detailed and practical initiatives, including a specific demonstration of real-time communication with Japan and South Africa via the Internet, captured the participants' interest and attention.

(4) Day 5

During the first four days of the seminar, discussions and lectures provided information by which SEIC could gauge which of Japan's cutting-edge technologies are worth introducing or should be introduced in the future, and the pros and cons of introducing those technologies. On the last day, a wrap-up meeting summarized those discussions and, along with the participants' course evaluations, verified that the initial objectives of the seminar have been achieved. A closing ceremony was then held.

After the closing ceremony, the Japanese delegation and SEIC participants toured the control room in the LNG plant located adjacent to the seminar venue before officially bringing the five-day seminar to a close.

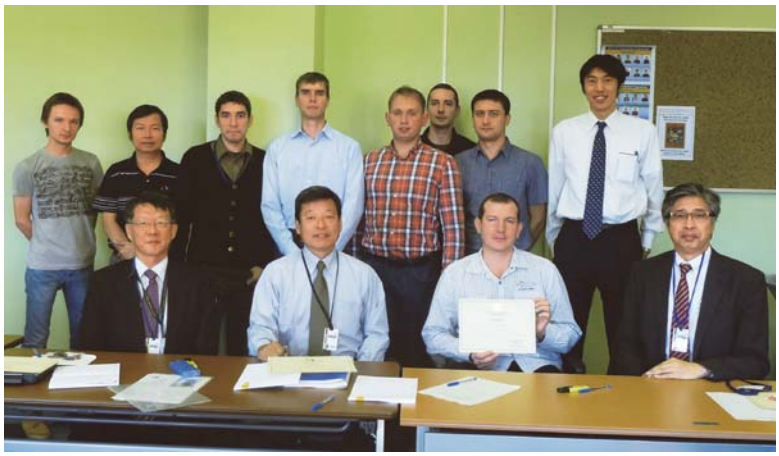
3. Observations

Japan's energy policies have undergone a major change after the Great East Japan Earthquake of March 11, 2011 and the Fukushima nuclear disaster, and the role of LNG has become more important than ever before. At the same time, this situation has strengthened the significance of Sakhalin as the nearest oil-producing country and oil-producing region to Japan, located only about an hour away from Chitose Airport and roughly 100 kilometers from Wakkanai Port in Hokkaido.

Holding the seminar on Sakhalin Island also underscored the strong ties between Sakhalin and Japan. For example, one step outside Yuzhno-Sakhalinsk Airport, the streets are filled with Japanese cars, markets in the city offer a surprising abundance of Japanese products, and buildings dating back to the Japanese colonial period are found in large numbers in the city, some of which are open to the public as museums. Furthermore, as most SEIC employees who participated in the seminar have the privilege of using regular corporate flights to Chitose and could visit Japan relatively easily, they shared stories about Niseko being the best ski resort in Japan, where the best sushi restaurants are in Sapporo, and various other tidbits about Japan, while a certain participant who is learning the Japanese language with his children approached the Japanese lecturers during each break to try his Japanese and ask if it is correct.

Considering the high evaluation of this seminar, JCCP, as well as the lecturers who participated and the companies to which they belong, have agreed to respectively formulate specific plans for future implementation.

<by Teruhiko Sasaki, Training Dept.>



Closing ceremony:
(Front row, right to left) Mr. Osaka, Mr. Legenkin, Mr. Nagami
(Back row, right) Mr. Ishida

CPO Seminar on World Energy Situation Held at ADNOC

A Customized Program-Overseas (CPO) on World Energy Situation was held over a four-day period, from September 17 to 20, 2012, in UAE.

1. Background

When JCCP members visited Abu Dhabi National Oil Company (ADNOC) under the Training Cooperation Program (TC) in February 2010, an executive officer of ADNOC's marketing department requested the implementation of a customized program in Japan. In response to this request, an 11-day Customized Program-Japan (CPJ) on Petroleum Marketing and Physical Distribution was implemented in October 2010.

In a working-level meeting held thereafter, ADNOC and JCCP agreed to send Japanese experts to UAE to hold a CPO on World Energy Situation, intended for young middle-level employees who engage in business in ADNOC's international marketing department.

Opening speech from ADNOC

2. Content

(1) Day 1: The Energy Situation and Oil Industry in Japan

The first part of the lecture on Japan's energy situation discussed the Japanese government's energy policies and future energy trends with a main focus on the electricity situation and nuclear trends that have become serious concerns in Japan since the March 11, 2011 earthquake disaster.

The second part of the lecture on Japan's oil industry covered such topics as the history of deregulation in the oil industry, the reality of excessive competition seen in today's liberalized oil market, the historical background and present state of oil stockpiling, and the importance of the stable supply of oil, all from the perspective of an oil-consuming country.

The lecture also shed light on future trends, including the structural decline in oil demand that is expected hereafter given the aging society and decreasing population in Japan, and Japan's initiatives to prevent global warming and promote renewable energies.

(2) Day 2: World Energy Situation

(Lecturer: Mr. Mitsuyuki Maeda, Energy & Innovation Institute)

This lecture discussed the environment and factors affecting the world oil industry with a focus on trends seen in the OPEC and non-OPEC countries. In addition to providing information that directly pertains to business and the economies of oil-producing countries, such as trends in the cost of crude oil and natural gas, the lecture also provided an understanding of the financial crisis in Europe, the mechanism of the banking crisis precipitated by the subprime loan problem in the United States and the ensuing Lehman shock, and trends and forecasts regarding Western economies.

Particularly in regard to global issues, such as about the world's crude oil reserves, which are issues of major concern to oil-producing countries, as well as production forecasts and trends in global-scale climate

Lecture by Mr. Mitsuyuki Maeda, Energy & Innovation Institute

change, satellite photos and other visual aids were used to facilitate understanding.

Discussions on the present state and forecast of Japan's nuclear power generation since the March 11 earthquake elicited active questions and answers and exchanges of views.

(3) Day 3: Present State and Outlook of Renewable (Alternative) Energies

This lecture primarily focused on solar power generation as an issue of highest concern that is being addressed in UAE and other countries in the Middle East. It also provided specific explanations and case examples of the development status of solar, wind, bio and geothermal power generation by countries around the world, as well as their mechanism, economic efficiency, investment status, and problem areas.

The part of the lecture on the shift toward renewable energies and nuclear power that is already underway in the GCC countries captured the participants' strong interest and engaged them in a heated Q&A.

(4) Day 4: Trends in the Asian and Global Oil Markets

(Lecturer: Mr. Nagata)

This lecture provided an overall knowledge of the crude oil market in Asia, which is ADNOC's main export destination, as well as of the global crude oil market. From a global perspective, it discussed the price mechanism in the crude oil market; the characteristics of benchmark crude oils such as WTI, Brent and Dubai crude; and movements toward the reorganization of the crude oil futures market in Europe and the United States.

The participants engaged in serious exchange of Q&A with the lecturer, because the flow of speculative money to the financial market and crude oil futures market greatly affects crude oil prices and is a major concern to the economies of oil-producing countries.

Lecture by Mr. Yasuhiko Nagata, The Institute of Energy Economics, Japan

Participants engaging in discussion in a workshop

In studying the future trends of crude oil prices and alternative energies, the participants were divided into small groups for discussion and presentations. They held extremely active exchanges of views and gave impressive group presentations, in a testament to their constant and serious consideration of the issues.

3. Summary

The participants were a small group of 14 members, including 13 from the ADNOC head office and one from TAKREER's Abu Dhabi Refinery. However, the size of the group was optimal for the seminar, as it provided ample time for mutual interaction between the participants and lecturers instead of limiting their experience to one-way receiving of information from lecturers. All members of the group of young, mid-level employees attended the lectures every day with keen interest and took part in active questions and answers and exchanges of views with the lecturers, thus making the seminar highly meaningful.

The group included five female employees, illustrating the increasing ratio of female employees at ADNOC as well as at state-run oil companies in other Middle East countries, and underscored the significance of employing female employees, particularly in head office departments.

The questions and answers and exchanges of views unexpectedly revealed how seriously many of the participants are thinking about the coming post-oil era. Their future role and performance is something to look forward to.

The seminar was originally requested by ADNOC's marketing department, but the participants from the department demonstrated that the company has strong

interest not only in oil and gas, but also in other energy sources such as nuclear power and renewable energies.

In the evaluation form completed by the participants, almost all expressed their desire to participate in a training program in Japan, much to the lecturers' honor, and indicated anew ADNOC's strong interest in JCCP training.

Among the oil-producing countries in the Middle East, Japan's relationship with UAE particularly goes back a long way. Thus UAE is a friend and important partner to Japan. We hope JCCP training will continue to increase the number of Japanophiles in UAE and further deepen bonds between the two countries.

<by Kazuo Kojima, Training Dept.>

Commemorative photo taken after completion of the seminar

Personnel Exchange

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

1. Purpose and Background

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

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

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

2. Content

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

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

Following Tone, Mr. Sakaino from JGC Corporation lectured on maintenance management in the refinery (daily maintenance and periodic maintenance, facility reliability improvement). In the first half of the lecture on daily maintenance and periodic maintenance, Mr. Sakaino succinctly discussed the technologies that are needed for periodic maintenance, with particular focus

on items that are required for effective improvement of facility reliability. In the latter half, Mr. Sakaino provided an overview of the risk management concept and explained the theory and application of RCM (reliability-centered maintenance) to facility reliability improvement. Toward the end of the session, the participants were divided into groups to discuss and study a case example of a BP Texas accident and its causes. Their serious approach to the discussion and pertinent comments to each other's presentations demonstrated their high level of knowledge.

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

Additionally, a workshop was held in which the participants were required to explain a problem they currently face in a manner that all other participants could easily understand by drawing a diagram of their problem. This exercise was effective in facilitating mutual understanding among participants from different departments.

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

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

On the third day, Messrs. Takeishi and Yasutake from Idemitsu Kosan Co, Ltd. introduced and discussed TPM activities implemented in Idemitsu's refineries. Mr. Takeishi first gave a general outline of TPM activities, frameworks, and key points for establishing TPM activities in the refinery. Mr. Yasutake then discussed voluntary maintenance activities with reference to case examples of activities at each stage of maintenance. To impress upon the participants that the first step of maintenance is initial cleanup, in which "cleanup equals inspection," an exercise was held in identifying defects in photos of pumps before maintenance. Close to 70% of the participants were able to identify only five defects at the most. However, as the objective of the exercise was not only to identify the major defects, but to make close observations and discover as many defects as possible, the result was not necessarily satisfactory. Mr. Yasutake noted that new employees at Idemitsu usually identify more than 100 defects, and explained that finding as many specific defects as possible leads to larger numbers of improvements.

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

A group discussion was held on the fourth day. To achieve a good balance in regard to the participants' experience level, positions and age, they were divided into four groups of five members each, and were asked to select a group leader and presenter from among their

members. Each group made a presentation on the theme of "What our section should be like, problems and their countermeasures."

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

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

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

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

Group discussion

Group photo

3. Observations

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

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

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

<by Fumihiro Tone, Training Dept.>

CPO Seminar on Upgrading Processes of Heavy Oil Held at the MPE No. 1 Refinery in Myanmar

Closing ceremony

A Customized Program-Overseas (CPO) was held over a period of four days, from October 22 to 25, 2012, at a training center located in the No. 1 Refinery (Thanlyin) of Myanma Petrochemical Enterprise (MPE) in the suburbs of Yangon.

1. Background and Overview

The customized program was implemented based on a Memorandum of Understanding concerning JCCP-initiative training programs that was signed between Myanmar and JCCP, and heavy oil upgrading was selected as the theme, as it is a priority issue that has been identified in a mutual cooperation project implemented jointly by the Myanmar Ministry of Energy and JCCP. After consultations with the Energy Planning Department in the Ministry of Energy regarding the outline of the program, including the dates and program content, an agreement was reached to implement the seminar.

Opening ceremony: Mr. Ne Lin, General Manager, No. 1 Refinery (left)

Four Japanese lecturers undertook the program. They included Takaaki Yuasa from JCCP, Mr. Yuki Nishimura from JGC Corporation, Mr. Hidetoshi Tani from Toyo Engineering Corporation, and Mr. Rei Hamada from JGC Catalysts and Chemicals Ltd.

The participants were a group of 30 members from MPE, including the deputy director of the head office production department, 17 from the MPE No. 1 Refinery, two from the No. 2 Refinery in Chauk, and 10 from the petrochemical plant in Mann. The seminar began with an opening speech by Mr. Ne Lin, General Manager, No. 1 Refinery, Thanlyin.

2. Program

On the first day, self-introductions were made by all participants, and a DVD presentation introduced

JCCP to the audience. Yuasa (Mr.) then gave a lecture on the history and present status of the oil industry in Japan, followed by a lecture on the characteristics and the need for heavy oil upgrading. He also explained the characteristics of each upgrading process in reference to actual examples of process combinations used in upgrading heavy oil in Japanese refineries. Taking into consideration the participants' varying skill levels, an interactive style of lecture was adopted as much as possible to constantly keep pace with their understanding.

On the second day, Mr. Nishimura from JGC Corporation lectured on the selection of heavy oil upgrading processes. He discussed in detail the thermal cracking process and the integrated gasification combined cycle (IGCC) technology, explaining that IGCC is a particularly advanced heavy oil treatment process that effectively utilizes residual oil to generate electricity. Mr. Nishimura's thorough and detailed responses and answers to the participants' questions were highly appreciated.

On the third day, Mr. Tani from Toyo Engineering Corporation lectured on catalytic cracking technologies (FCC and RFCC) and heavy oil hydrotreatment technologies. His lectures provided easy understanding of a wide range of processes, from simple processes to advanced processes such as RFCC and H-Oil, in terms of differences in licensors and various other aspects, and invited active questions also about new processes.

On the fourth and final day of the seminar, Mr. Hamada from JGC Catalysts and Chemicals Ltd. lectured on the theory of catalytic cracking (FCC) catalysts. He focused on reaction theories, production technologies and catalyst evaluation technologies, and engaged the participants in charge of catalysts in an active exchange of questions and answers.

Lecture by Mr. Yuki Nishimura, JGC Corporation

Seminar venue

In the closing ceremony, Yuasa expressed his hopes that the participants will apply the knowledge they gained in the seminar to their respective jobs.

3. Evaluation and Impressions of the Seminar

This was the second time a seminar was held under the theme of heavy oil upgrading, following the one implemented at Petrovietnam last year. However, being held in Myanmar, a country full of promise owing to the recent transition from a military regime to democracy and the lifting of economic sanctions, the seminar provided an important means for gauging the country's interest in acquiring knowledge about heavy oil upgrading and modernizing its refineries.

One of the main themes proposed methods for the selection of optimal process combinations in terms of the necessity and economic efficiency of each heavy oil treatment process. Another principal theme discussed catalyst technologies that are essential to the advanced treatment of heavy oil. Through exposure to these themes, many participants said they absorbed highly useful knowledge even within a limited time of four days, and affirmed the success of the seminar.

The seminar was held in a training center at the No. 1 Refinery, where there were no air conditioners but only electric fans on the ceiling and walls. Temperatures rose to nearly 35°C and had the lecturers retreating to an air-conditioned anteroom after each hour-long lecture for 15-minute breaks, but the Myanmar participants attended the lectures with concentration and focus. JCCP hopes to continue supporting Myanmar's growth through training programs like this seminar.

<by Takaaki Yuasa, Training Dept.>

Report on the Training Cooperation Program

—Saudi Arabia—

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

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

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

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

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

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

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

2. Professional Engineering Development Division (PEDD)

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

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

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

3. Refining & NGL Fractionation Administration Area

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

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

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

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

4. Training & Development Administration Area

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

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

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

5. Summary

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

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

training activities in Saudi Aramco. Up to now, JCCP has been sending annual programs and individual course programs separately to the head of the Downstream Administration Area, the training center in each refinery and the Training & Development Department. However, in the meeting, it was agreed that JCCP would maintain its relationship with the Downstream Administration Area as before, but will send all training-related documents intended for Saudi Aramco as a whole to Mr. Al-Rabeh, as proposed by Mr. Al-Rabeh himself. As his department has overall control of professional training, centralized responses to JCCP training would be ensured.

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

<by Fumihiro Tone, Training Dept.>

Personnel Exchange

Report on the Training Cooperation Program

—Kuwait and Qatar—

A two-member JCCP delegation visited Kuwait and Qatar under the JCCP Training Cooperation Program, from November 30 to December 5, 2012, with the objectives of strengthening relationships with oil-producing countries to promote the diversification of energy supply in the future, and to seek a direction for the renewal of JCCP training programs. The delegation included Akio Yamanaka, General Manager, Operations Department, and Takaaki Yuasa, Master Lecturer, Training Department.

1. Kuwait

(1) Kuwait National Petroleum Company (KNPC)

The JCCP members visited KNPC's training and human resource development department and met with Mr. Sami H. Malallah, Manager, Training & Career Development, who is JCCP's counterpart in KNPC, and two other officers. They presented an overview of the FY2013 course schedule, discussed the possibilities of customized programs (CPJ/CPO) and heard KNPC's needs. The KNPC officers requested a specific course on "Operations Section Head Training," which would focus not on technical skills, but on building communications skills in the head personnel of operations sections so they may issue precise instructions to their subordinates, as well as on strategic thinking skills to ensure they always bear in mind economical operations.

(2) Kuwait Petroleum Corporation (KPC), Training Center

At KPC's Training Center, the JCCP members

Mr. Malallah, Manager, Training & Career Development (left)

At KPC's Training Center

exchanged views with Mr. Al Aziz R. Al Hadi, Team Leader, Administration & General Services Training, and three other officers.

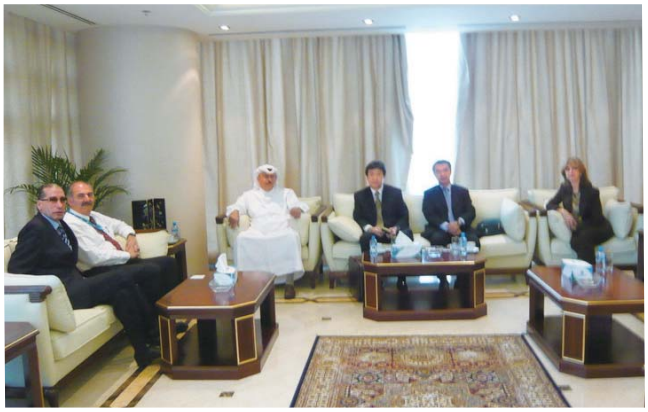
The Training Center, located next to KNPC's offices, has 38 large and small classrooms that can accommodate from five to 100 people. It provides new employee training as well as various other training courses to employees of all KPC Group companies, including KNPC. An extensive array of courses are offered, ranging from 10-day to year-long courses, and features operational exercises using simulators and hands-on training in valve operations. The instructors are all foreign nationals. A German instructor happened to be giving a lecture when the JCCP members visited the center.

2. Qatar

(1) Qatar International Petroleum Marketing Company Ltd. (Tasweeq)

In Qatar, the JCCP delegation first visited the head office of Tasweeq and met with Mr. Abdulla Al Abdulmalek, Executive Director, Administration.

Mr. Al Abdulmalek thanked the JCCP members for the implementation of a customized program at Tasweeq in February 2012, and requested the continued implementation of similar training.



Mr. Al Abdulmalek, Executive Director, Administration (third from left) and Dr. Ibrahim, JCCP counterpart in Tasweeq (left)

(2) Qatar Petroleum (QP)

At the QP Training Center, the JCCP members met with Mr. Ali Nasser Telfat, Corporate Training Manager, and four other officers, and gave a description of JCCP regular courses in general, new changes that have been made to the FY2013 course program, new regular courses, and customized training programs.

The QP officers said they wish to have their Qatari employees take advantage of regular courses and Customized Programs-Japan (CPJ), which would allow them to gain firsthand experience in Japanese customs and practices, and to have their non-Qatari employees benefit from Customized Programs-Overseas (CPO), as CPO seminars held by Japanese experts in Qatar could accommodate a larger number of participants at once.

JCCP counterpart in QP

3. Summary

Both Kuwait and Qatar are actively pursuing nationalization policies, given their economic growth and the increase in the number of younger people. However, while KPC and KNPC are aiming to improve the skills of Kuwaiti nationals by focusing on training young operators and other personnel, QP and Tasweeq, which have high rates of multinational workers, are mainly aiming to develop Qatari managers. JCCP will take this difference into consideration in designing future JCCP training programs.

<by Takaaki Yuasa, Training Dept.>

Report on the Training Cooperation Program

—UAE and Oman—

A JCCP delegation visited UAE and Oman from November 18 to 30, 2012, to exchange views with counterpart departments in oil-producing countries regarding JCCP training programs, hear and assess their needs for human resource development and ask for their continued cooperation in JCCP activities. The delegation consisted of two members, from the Operations Department (Koichi Io) and Training Department (Shintaro Miyawaki).

1. United Arab Emirates

(1) TAKREER (Abu Dhabi Oil Refining Company), Head Office

The delegation first visited the head office of TAKREER, located in a modern building along the coast of the Arabian Gulf, approximately 10 minutes by car from the JCCP Middle East Office, and met with members of the Human Resources & Administration Division, including Mr. Ja'afar Salem Al-Jaberi, Vice President, and four other executive officers. Among them, Mr. Ahmed Herzallah, Head of Career Development Section, and Mr. Sultan Ali Al-Harmoudi, Senior Career Development Officer, attended a JCCP Program Seminar at JCCP headquarters in fiscal 2008, and exhibited strong understanding of JCCP activities and their implementation status.

Customized programs (CPO) on energy-saving technologies, maintenance management and human resource development have been implemented thus far, so TAKREER requested a program on safety management in the refinery in fiscal 2013.

At TAKREER's Human Resources & Administration Division

(2) Abu Dhabi National Oil Company (ADNOC), Head Office

The delegation met with Mr. Mahmood Al Mulla, Administration Coordinator, and Ms. Fatima Al Mutawa, Head, Coordination Department, and confirmed their requests for future training. Mr. Al Mulla attended a JCCP Program Seminar in 2008, and Ms. Al Mutawa participated in a regular course on petroleum marketing in 2001. Based on their experience, they expressed their wish for improved program content from the standpoint of introducing Japanese customs and social practices that have supported Japan's economic growth after the war, and also for a customized program that is specifically designed to develop intercultural communication skills among young employees at ADNOC.

At ADNOC's Administration Department

(3) ADNOC Training & Career Development Division

The delegation met with Mr. Ahmed Al Nuwais, Head, Training & Career Development Division, mainly to discuss the FY2012 JCCP Program Seminar (TCJ; scheduled to be held in February 2013) and invite his participation. The JCCP members explained that the TCJ program is intended specifically for managers in charge of training in oil-producing countries who act as JCCP counterparts, and that they are invited to Japan to personally experience a regular course and exchange views about training programs directly with JCCP staff. JCCP also benefits from the Program Seminar by acquiring views and suggestions for implementation and improvement of future training programs. In these ways, the members stressed that the Program Seminar differs from a regular course.

2. Oman

(1) Oman Oil Refineries and Petroleum Industries Company (ORPIC), Sohar Refinery

The JCCP delegation visited ORPIC's Sohar Refinery, located about two hours from Muscat by car, and met with Mr. Raf de Loenen, Chief Operating Officer, and two staff members.

Mr. de Loenen shared his thoughts about various current issues regarding education and training at the Sohar Refinery. Reflecting on his experience in sending workers to receive training in foreign countries, he said he strongly believes in the importance of applying the results of training to actual work, but the expected goals have yet to be achieved. For this reason, he explained, there is growing need for ORPIC to review its stance on personnel education by examining and discussing taking a systematic approach to training.

The further expansion of facilities at the Sohar Refinery will call for a larger number of new recruits in the future, and training themes pertaining to the development of new employees can be expected to become increasingly important. Thus, the JCCP members conveyed JCCP's standing offer to provide cooperation in the form of customized seminars implemented in Oman by Japanese experts or other forms of training whenever the necessary themes become clear.

(2) Ministry of Oil and Gas (MOG)

The delegation visited the Ministry of Oil and Gas, located in a quiet section of the administrative district in Muscat, and met with Ms. Ghadeer Al-Saleh, Training Analyst, Training Department, who acts as a JCCP counterpart in the ministry. In the meeting, Ms. Al-Saleh mentioned that she is aware of the customized program on carbon management that was held in Muscat in the beginning of the year from an article in *JCCP NEWS*, and said the ministry would like to make a formal request

At ORPIC's Sohar Refinery

At the SQU Oil & Gas Research Center

to JCCP again when next considering implementing a customized program. She also assured the JCCP members that the ministry wishes to maintain the cooperative relationship with JCCP in the area of personnel training.

(3) Sultan Qaboos University (SQU)

At SQU, the JCCP delegation met with Dr. Mark Sueyoshi, College of Engineering, who was scheduled to provide a lecture in a customized program on the utilization of untapped resources and wastewater to be held in Kuwait in January. He was joined by his co-researcher and Dr. Rashid S. Maamari, Director of Oil & Gas Research Center (the Center is the sponsor of Dr. Sueyoshi's research), in explaining the progress of his research. The JCCP members thanked Dr. Sueyoshi in advance for his preparations for giving a lecture in the upcoming CPO seminar, and for his cooperation toward its successful implementation.

3. Summary

JCCP enjoys a good relationship with ADNOC and TAKREER, and a stable relationship of friendship and trust exists between UAE and Japan, as can also be seen in the recent approval to extend Japan's interest in oilfield exploration in UAE after its expiration in 2012.

Oman is another old friend and ally of Japan. It is especially well known that Oman plays an extremely important role in crude-oil security in Japan, particularly as large crude-oil carriers bound for Japan via the Straits of Hormuz pass through the territorial waters of Oman.

As both UAE and Oman are also geographically vital to the stable supply of primary energy in Japan, JCCP hopes its training programs will contribute to further enhancing and strengthening Japan's exchanges and long-standing relationship of trust with the two countries.

<by Shintaro Miyawaki, Training Dept.>

JCCP Regular Courses Completed

TR-15-12 Gas Processing for LNG
October 30 – November 16, 2012 **Lecturer: Tetsuji Kubota**

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

<11 countries / 14 participants>

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

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

TR-16-12 Material Problems and Their Countermeasures
October 30 – November 16, 2012 **Lecturer: Kenichi Morota**

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

<10 countries / 14 participants>

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

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

TR-17-12 Information and Control Systems Utilized in Refineries
November 20 – December 7, 2012 **Lecturer: Kazuhiro Suzuki**

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

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

<12 countries / 15 participants>

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

IT-1-12 Turnaround and Inspection
November 26 – December 7, 2012 **Lecturer: Hiromitsu Saito**

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

<12 countries / 16 participants>

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

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

IT-2-12 Finance & Accounting Management
November 27 – December 6, 2012 **Lecturer: Masayuki Jimbo**

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

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

<9 countries / 18 participants>

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

TR-18-12 Development of New Energy Efficiency Projects
January 15 – February 1, 2013 **Lecturer: Tetsuo Arii**

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

<12 countries / 17 participants>

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

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

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

TR-19-12 Inspection and Reliability Evaluation
January 15 – February 1, 2013 **Lecturer: Kenichi Morota**

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

<12 countries / 16 participants>

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

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

Signing Ceremony for Two Projects under the Special Cooperation Program for Vietnam

Exchanging the signed MOAs

On November 7, 2012, a signing ceremony was held at Vietnam Petroleum Institute (VPI) for the implementation of two projects under JCCP's Special Cooperation Program for Vietnam. Representatives from VPI, a subsidiary of Petrovietnam, and JCCP signed the Memorandum of Agreement (MOA) for the "Research & Development of Evaluation of FCC Additives and HDS Catalyst" and the "Energy Conservation Study on CDU Furnace of Dung Quat Refinery in Vietnam."

VPI will implement both projects with JCCP, with the cooperation of JGC Catalysts and Chemicals Ltd. in the former project and Idemitsu Engineering Co., Ltd. in the latter.

1. Special Cooperation Program for Vietnam

In fiscal 2010, JCCP commenced special cooperation programs for oil-producing countries as a new initiative aimed at providing concentrated support to designated oil-producing countries. The program was extended to Vietnam in fiscal 2011, in addition to Iraq, which was selected as the first counterpart for the program. The first year of the program mainly comprised training programs, and technical cooperation projects have been included in the scope of the program from this fiscal year.

As requested by the Dung Quat Refinery, which is Vietnam's first refinery that is currently in operation, two projects were agreed to be implemented with the aim of providing technical support for the efficiency improvement of refinery units and quality improvement of products at the refinery. It is a theme that would allow Japanese companies to contribute to Vietnam's oil industry by applying their many years of experience in the oil refining sector.

2. Signing Ceremony

The signing ceremony brought together Dr. Phan Ngoc Trung, General Director at VPI, and Mr. Morihiro Yoshida, Managing Director of JCCP, as signers of the MOA, and was held with the attendance of Mr. Michio Daito, Counselor at the Japanese Embassy in Vietnam, Mr. Yasuharu Furukawa, Managing Director and General Manager of the Kitakyushu Operation Center of JGC Catalysts and Chemicals Ltd., and Mr. Toshihiro Yamazaki, General Director of Idemitsu Engineering Vietnam, Co., Ltd.

In the ceremony, Mr. Trung gave a congratulatory speech filled with his appreciation and expectations of the projects, followed by Mr. Daito, who articulated his hopes that the projects will contribute to further developing Vietnam's oil industry. Mr. Yoshida then gave a greeting, stating that Petrovietnam and JCCP have enjoyed an amicable relationship over many years through training activities, and that he hopes the new technical cooperation projects will further stabilize and develop the close friendship between the two organizations. Following Mr. Yoshida, Mr. Furukawa, Mr. Yamazaki and Mr. Phan Minh Quoc Binh, Director,

Petrovietnam Research & Development Center for Petroleum Processing (PVPro; a subsidiary of VPI) gave speeches on an overview of the projects and their expectations of their results.

After the speeches, Mr. Trung and Mr. Yoshida signed the MOA for the two projects. They also exchanged commemorative gifts, posed for a commemorative photo with all participants, and completed the ceremony amid a friendly atmosphere.

After the signing ceremony, the Japanese members toured VPI's exhibition room located next to the seminar venue and learned about the history of VPI from Mr. Trung. In the exhibition room, a panel of a JCCP program held in the past was on display as evidence of the long-standing relationship between the Petrovietnam Group and JCCP. Upon completing the tour, Mr. Yoshida signed the visitor's register as the representative of the Japanese members.

Tour of the VPI Exhibition Room

3. Overview of the Projects

The following is an overview of the two technical cooperation projects.

(1) Research & Development of Evaluation of FCC Additives and HDS Catalyst

Petrovietnam is currently planning to build a new refinery in Nghi Son (200,000 BD), in addition to the Dung Quat Refinery (150,000 BD) that is currently in operation. The new refinery will have a residual FCC (Fluid Catalytic Cracking) unit, just as the Dung Quat Refinery has a residual FCC unit, as well as an RDS (residual desulfurizer) unit that pretreats residual oil and converts it to FCC feedstock with greater degradability. To ensure stable and efficient operations of these units, PVPro was aware that it needed to accumulate catalyst technologies, and thus requested the project. It will aim to fulfill PVPro's needs by transferring technologies for the evaluation of FCC additives and HDS catalysts over a two-year period, from fiscal 2012 to 2013.

Commemorative photo with all members attending the ceremony

(2) Energy Conservation Study on CDU Furnace of Dung Quat Refinery

The Dung Quat Refinery, commonly called Vietnam's No. 1 refinery, is a relatively new refinery that commenced operations in 2009. It has a simple unit configuration, and still has room for improvement in terms of energy efficiency when compared to refineries in Japan. The project will therefore measure and analyze the energy consumption of the furnace of the crude oil distillation column in the Dung Quat Refinery, identify areas for improvement, draft a specific renovation plan, and evaluate the economic potential of that plan.

In the project, an energy-saving study team will be organized composed of engineers from the Dung Quat Refinery to jointly conduct a current state survey and examine areas for improvement with the Japanese members, so that energy-saving ideas and technologies can be transferred to the Vietnamese members.

4. Observations

Technological examinations have already begun to be made in both projects in the beginning of this fiscal year through technical guidance and joint tasks at the working level, and technical transfer is being carried out as originally intended. Given Petrovietnam's high expectations of the projects' results, JCCP hopes their successful implementation will further expand the mutually friendly relationship between Petrovietnam and JCCP and ultimately contribute to the sustainable development of the oil industry in both Vietnam and Japan.

<by Masahiko Shibata, Technical Cooperation Dept.>

TAKREER Research Centre Project Phase II (UAE) —TRC Inauguration Ceremony—

JCCP and Abu Dhabi Oil Refining Company (TAKREER), a subsidiary of Abu Dhabi National Oil Company (ADNOC), have been implementing the TAKREER Research Centre (TRC) Project since fiscal 2006 with the participation of Idemitsu Kosan Co., Ltd., and have recently celebrated the opening of the TRC on November 19, 2012.

1. Background and Overview of the Project

The TAKREER Research Centre was established in a joint project (TAKREER Research Centre Project) between TAKREER and JCCP. The background to implementing the project and the overview of the project are provided below.

(1) TAKREER has long aspired to strengthen its technological capabilities so that it may solve refinery problems on its own, and consulted with JCCP regarding its desire to launch a project for establishing a facility for technical research and engineer training modeled on similar facilities established and operated by Japanese oil companies

(2) JCCP first conducted a feasibility study in fiscal 2005 with the cooperation of Idemitsu Kosan Co., Ltd., and based on the results of the study, designed the TAKREER Research Centre Project as a joint project with TAKREER in fiscal 2006. Thereafter, the project has been implemented in two phases.

1) Phase I (FY2006 – 2009)

Toward the establishment of the TAKREER Research Centre (TRC), the project provided support for the formulation of a master plan, the design of the building, and introduction of a pilot plant and relevant analytical instruments, etc.

2) Phase II (FY2010 – FY2012, present)

Given the completion of the TRC building, the project is now providing support for the stable operations of the pilot plant that was installed based on the master plan created in Phase I, as well as for the evaluation of hydrocracking catalysts, introduction of various analytical instruments, and technical studies for coordination with TAKREER's refineries.

Hereafter, the project will focus on introducing additional pilot plants and equipment and strengthening coordination with TAKREER's refineries for efficiency improvement and optimization of refinery operations.

TRC Building

2. Inauguration Ceremony

The inauguration ceremony was held with the attendance of approximately 50 guests of honor and relevant parties. They included Mr. Jasem Ali Al-Sayegh, CEO of TAKREER; His Excellency Abdulla Nasser Al Suwaidi, Director General of ADNOC, and Mr. Abdul Munim Saif Al-Kindy, CEO of ADCO, as guests of honor; and a large number of senior officials from ADNOC, TAKREER, UAE University, Petroleum Institute (PI) and MASDAR Institute. Attendees on the Japanese side included H.E. Mr. Yoshihiko Kamo, Japanese Ambassador to UAE; Mr. Shigeki Nakashima, Managing Executive Officer and General Manager Manufacturing & Technology Dept., Idemitsu Kosan Co., Ltd., and Mr. Morihiro Yoshida, Managing Director of JCCP.

The ceremony began with the unveiling of a commemorative plaque attached to the wall next to the front entrance of the TRC. After witnessing the unveiling, all members and guests of the ceremony proceeded to the TRC auditorium, where the sponsors and guests of honor gave speeches, commemorative gifts were exchanged, and a general presentation was given of the TRC project.

In his speech, Mr. Al-Sayegh, as sponsor of the project, expressed his appreciation to JCCP and Idemitsu Kosan for their cooperation in successfully implementing the project and bringing it thus far to the inauguration of the TRC. He then said he looks forward to seeing TRC play a greater role in solving technical issues in the refinery and developing human resources, and promised TAKREER's full support of TRC.

Ambassador Kamo spoke next, stressing the importance of JCCP's and Idemitsu Kosan's efforts to transfer Japan's technical capabilities to UAE, and offering the embassy's cooperation for the successful implementation of the project.

Mr. Yoshida explained the background to the TRC project, and stated that the project is one JCCP is

Unveiling of the commemorative plaque at the front entrance of TRC

Speech by the guest of honor in the TRC auditorium

confident of implementing with ideal results, as its theme falls under JCCP's specialty areas. He also extended JCCP's continued support for the continuation and further development of friendly ties between the two organizations.

Dr. Mabruk Issa Suleiman, Deputy Manager at TRC, introduced TRC's history, its current activities, future goals and visions.

After the speeches, all participants toured the TRC's pilot plant facilities and laboratory while receiving explanations from TRC personnel.

Lastly, after completion of the ceremony at TRC, a luncheon was held at a nearby hotel.

3. Summary

The inauguration ceremony was held to commemorate the successful progress and stable operation of the project by TAKREER, and to pledge further development together with all relevant parties and invited guests. The attendance of Mr. Al-Sayegh and the presidents and executive officers of ADNOC and ADCO particularly indicated their strong interest in the project and high expectations for the future.

JCCP hopes the continuous implementation of the project with TAKREER will contribute to further developing the TRC and the mutually friendly relationship between the two organizations.

<by Toshifumi Amemiya, Technical Cooperation Dept.>

The 22nd Saudi Arabia-Japan Joint Symposium

On November 25 and 26, 2012, JCCP and King Fahd University of Petroleum and Minerals (KFUPM) sponsored the 22nd Saudi Arabia-Japan Joint Symposium on oil refining and petrochemical catalyst technologies with the participation of the Japan Petroleum Institute (JPI). The symposium has been held annually at KFUPM since 1992.

This year, the two-day symposium featured 21 presentations in seven sessions on topics such as desulfurization, applied refining processes, and catalytic cracking/conversion, including presentations by seven Japanese researchers on their latest R&D achievements.

On November 24, the day prior to the symposium, Mr. Morihiro Yoshida, Managing Director of JCCP, and members from JPI paid a visit to H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM, to explain the symposium and its significance. The Rector and Vice Rector noted that among the various activities implemented by KFUPM, the Saudi Arabia-Japan Joint Symposium is a highly regarded undertaking that has continued for 22 years, and expressed their expectations for the symposium's further development, including the incorporation of state-of-the-art biotechnology and other frontier themes.

At the opening ceremony (Nov. 25), Dr. Al-Sultan gave an opening speech, stating once again that no project other than this symposium has continued for as long as 22 years, and expressed his hopes for further development and greater focus. On the Japanese side, Mr. Yasunari Morino, Charge d'Affaires, Embassy of Japan in Saudi Arabia, gave a greeting that commended JCCP and JPI for their role in promoting bilateral exchanges between Saudi Arabia and Japan. In response, Mr. Yoshida articulated JCCP's commitment to continue doing its part in promoting technical exchanges between the two countries. Dr. Takao Masuda, Head of the Japanese Delegation, JPI (Professor at Hokkaido University), extended his appreciation to the Saudi Arabian government and the people of Saudi Arabia for their quick offer of support in the wake of the Great East Japan Earthquake.

Courtesy call on H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM (center)

A total of 21 presentations were given, which covered topics related to the latest catalyst production technologies in the oil refining and petrochemical fields. The Japanese side gave seven presentations, including one related to a JCCP technical cooperation project. On the Saudi Arabian side, KFUPM gave four presentations (including a presentation by Dr. Oki Muraza, Assistant

Opening statement by Mr. Yasunari Morino, Charge d'Affaires, Embassy of Japan in Saudi Arabia

Dr. Takao Masuda, Head of the Japanese Delegation

Closing remarks by Mr. Morihiro Yoshida, Managing Director of JCCP

Audience listening to a lecture by KFUPM Research Institute

Professor, Chemical Engineering Dept., KFUPM, who engaged in research at Hokkaido University under the JCCP Research Invitation Program); Saudi Aramco gave four presentations, and Saudi Basic Industries Corporation (SABIC) and King Abdulaziz City for Science and Technology (KACST) gave one presentation each. There were also four presentations from Cambridge University and other foreign institutions.

An article and photo of the symposium appeared in two local Arabic newspapers (*Al-Watan* and *Al-Sharq*), and an article that featured a summary of the speeches by the guest of honors appeared in the English-language *Saudi Gazette*.

The presentations and discussions clearly showed that the symposium provides an important opportunity for sharing and exchanging useful information to researchers in Saudi Arabia and Japan, and plays a significant role in strengthening technical cooperation between the two countries.

<by Sadao Wada, Technical Cooperation Dept.>

(From the left in the first row)
Dr. Masuda, Dr. Al-Sultan, Mr. Morino

Session Themes

Day 1	
Session 1	Oil Desulfurization
Session 2	Bio Based Chemicals
Session 3	Process and Applications
Session 4	CO_2 Capture/Separation

Day 2	
Session 5	Catalytic Cracking/Conversion
Session 6	Catalysis & Adsorption
Session 7	FT/Polymerization

Japanese Speakers and Their Presentation Themes (in order of their presentation)

1	Dr. Masayoshi Soga JX Nippon Research Institute, Ltd.	Examination of conversion strategy of the combusted crude to valuable petroleum products by using 'desulfurization technology on long residue' in the world
2	Dr. Hiroshi Kimura Cosmo Oil Co., Ltd.	Development and evaluation of catalyst (system) for heavy oil hydroprocessing
3	Dr. Takao Masuda Hokkaido University	Conversion of inedible biomass wastes to petroleum-related useful chemicals using iron oxide catalysts
4	Dr. Keiichi Tomishige Tohoku University	Production of biomass-derived chemicals by catalytic hydrogenolysis
5	Dr. Hiroya Seki Tokyo Institute of Technology	Process design and control of dividing wall columns
6	Mr. Shigeyuki Nagano JGC Catalysts and Chemicals Ltd.	Technologies of rare earth free/less for FCC catalysts
7	Dr. Takeshi Shiono Hiroshima University	Precise synthesis of cycloolefin copolymers with novel Ti-based catalysts

Program

Day One, Sunday, November 25, 2012		
OPENING REMARKS SESSION		
7:45	Registration & Coffee Break	
8:00	Opening Remarks	
	1	*H.E. Dr. Khaled S. Al-Sultan, Rector of KFUPM*
	2	*Mr. Yasunari Morino, Chargé d'Affaires of Japan*
	3	*Mr. Morihiro Yoshida, Managing Director, JCCP*
	4	*Dr. Takao Masuda, Head Japanese Delegation, JPI*
SESSION ONE: OIL DESULFURIZATION		
8:30	1	Examination of conversion strategy of the combusted crude to valuable petroleum products by using 'desulfurization technology on long residue' in the world, *Dr. Masayoshi Soga, JX Nippon Research Institute, Ltd. Japan*
9:00	2	Traditional catalysts to achieve future sulfur regulations in diesel, *Dr. Bandar Al-Solami, Saudi Aramco R&DC, Dhahran*
9:30	3	Development and evaluation of catalyst (system) for heavy oil hydroprocessing, *Dr. Hiroshi Kimura, Cosmo Oil Co., Ltd., Japan*
10:00		Coffee Break
SESSION TWO: BIO BASED CHEMICALS		
10:30	4	Conversion of inedible biomass wastes to petroleum-related useful chemicals using iron oxide catalysts, *Dr. Takao Masuda, Hokkaido University, Japan*
11:00	5	Biocatalysis of crude oil streams for conversion of S-containing compounds into chemicals of industrial interest, *Dr. Magdy M. Gad, Saudi Aramco R&DC, Dhahran*
11:30	6	Production of biomass-derived chemicals by catalytic hydrogenolysis, *Dr. Keiichi Tomishige, Tohoku University, Japan*
12:00		Prayer & Lunch Break
SESSION THREE: PROCESS AND APPLICATIONS		
13:00	7	Process design and control of dividing wall columns, *Dr. Hiroya Seki, Tokyo Institute of Technology, Japan*
13:30	8	Bifunctional metals supported on heteropoly Cs salts for hydrogenation reactions, *Dr. Raja Al-Otaibi, Petrochemical Research Institute, KACST, Riyadh*
14:00	9	Novel applications in surface science: a new potential for catalysis research, *Dr. Jan Grabowski, SPECS Surface Nano Analysis, Germany*
14:30		Prayer Break
SESSION FOUR: CO_2 CAPTURE/SEPARATION		
14:45	10	Study of integrated biomass gasification and chemical-looping combustion for CO_2 capture, *Dr. Mozahar M. Hossain, KFUPM/Chemical Engineering*
15:15	11	Preparation of hydrothermally stable γ-alumina-based composite mesoporous membranes & their gas separation behavior, *Dr. Md. Hasan Zahir, KFUPM Chemistry*
15:45		Day One Ends

Day Two, Monday, November 26, 2012		
SESSION FIVE: CATALYTIC CRACKING CONVERSION		
7:45		Registration & Coffee Break
8:00	12	Nanosized of zeolites with one-dimensional pore system and their applications in catalytic cracking, *Dr. Oki Muraza, KFUPM/Chemical Engineering*
8:30	13	Technologies of rare earth free/less for FCC catalysts, *Mr. Shigeyuki Nagano, JGC Catalysts and Chemicals Ltd. Japan*
9:00	14	Framework materials for acid-catalyzed hydrocarbon conversion: understanding coke deposition & enhancing catalyst lifetime, *Dr. James McGregor, University of Cambridge, UK*
9:30		Coffee Break
SESSION SIX: CATALYSIS & ADSORPTION		
10:00	15	Two-dimensional crystals: new materials for catalysis and other applications, *Dr. Robert Young, University of Manchester, UK*
10:30	16	The nature and role of carbonaceous over-layers in ethylbenzene dehydrogenation over alumina supported catalysts, *Dr. Liam McMillan, University of Cambridge, UK*
11:00	17	Modeling of activated carbons for gas adsorption/methane adsorptive storage, *Mr. Mohammed Hashim, Saudi Aramco R&DC, Dhahran*
11:30	18	Nitrogen and methane separation by Molecular Gate™ Adsorbent, *Mr. Hassan Aljama, Saudi Aramco R&DC, Dhahran*
12:00		Prayer & Lunch Break
SESSION SEVEN: FT/POLYMERIZATION		
13:00	19	Genesis of catalyst attrition for slurry phase Fischer-Tropsch synthesis (FTS) and its implication in FTS catalyst design, *Dr. Jin Yaming, SABIC T&I Center, Riyadh*
13:30	20	Ethylene-1-hexane copolymerization: new perspective through modeling of supported catalyst active center distribution & microstructure characterization, *Dr. Muhammad Atiqullah, KFUPM/CRP*
14:00	21	Precise synthesis of cycloolefin copolymers with novel Ti-based catalysts, *Dr. Takeshi Shiono, Hiroshima University, Japan*
14:30		Closing Remarks, Symposium Ends

The 14th Kuwait-Japan Joint Symposium

The 14th Kuwait-Japan Joint Symposium on "Advancements in Oil Refining Processes" was held in Kuwait on January 15 and 16, 2013, jointly hosted by JCCP, Kuwait Institute for Scientific Research (KISR), Kuwait National Petroleum Company (KNPC), and Japan Petroleum Institute (JPI).

The symposium has been held annually in Kuwait, featuring a number of sessions on themes in the fields of catalytic process (heavy oil processing, desulfurization, new fuels) and the refinery equipment maintenance field (corrosion, inspection, materials). It is normally held in an auditorium at KISR, but as the auditorium was under renovation, this year's symposium was held in a hotel in Fahaheel, near KNPC's Mina Al-Ahmadi Refinery.

The opening ceremony began with an opening address by Mr. Ahmad Saleh Al-Jemaz, Deputy Managing Director, Mina Abdullah Refinery, followed by opening speeches by representatives of the Japanese side, which included Mr. Shigeru Yamamoto, First Secretary of the Japanese Embassy in Kuwait; Dr. Atsushi Ishihara, Head of the JPI Delegation (Professor at Mie University); and Hideki Nomura, General Manager of the Technical Cooperation Department at JCCP; and lastly by Dr. Mohammad Salman, Deputy Managing Director, KISR. Following the opening speeches, Mr. Abdullah Fahad Al-Ajmi, Manager, CFP, gave a keynote lecture.

A summary of the speeches and keynote lecture is provided below.

Opening speech by Hideki Nomura, General Manager, Technical Cooperation Dept., JCCP

Opening speech by Dr. Mohammad Salman, Deputy Managing Director, KISR

Mr. Ahmad Saleh Al-Jemaz:

Mr. Al-Jemaz explained that Kuwait plans to establish a four million BD-capacity production framework by 2020, but most of the oil it produces is heavy oil that has low market value. To maximize value, he said Kuwait requires the latest refining technologies, and thus wishes to mobilize the collective strength of KISR, JPI and JCCP such as in this symposium.

Mr. Shigeru Yamamoto:

Mr. Yamamoto first expressed his appreciation for the Kuwaiti leader's visit to Japan and for Kuwait's reconstruction assistance following the Great East Japan Earthquake, and said Japan wishes to maintain their good relations with Kuwait into the future as the largest importer of Kuwaiti crude oil. In this respect, he also said the symposium has great meaning, and hopes it will contribute to the further development of oil refining technologies in Kuwait.

Dr. Mohammad Salman:

Dr. Salman explained that KISR has entered into a four-party agreement with Kuwait Petroleum Corporation (KPC), Kuwait Oil Company (KOC) and KNPC this April, to more strongly promote research efforts in various fields related to oil at its new research center. It will not only focus on reforming oil, but also on new fields such as alternative energies, the environment, clean fuels, and nanotechnology. It will also address the urgent challenge of building a new large-scale refinery.

He then thanked JCCP for helping to enhance

capabilities at KISR through joint projects, and said he hopes to continue the cooperative relationship in the future.

Mr. Abdullah Fahad Al-Ajmi (keynote speaker):

Mr. Al-Ajmi stated that KNPC is aiming to rank among the top 10 oil refining companies in the world. To achieve this goal, he said KNPC will direct its full energy to addressing the pressing issue of building a new refinery.

The symposium comprised four sessions and featured a total of 17 presentations—six by Japanese speakers and 11 by Kuwaiti speakers (KISR: six; KNPC: five).

Judging by the proceedings of the symposium, it was apparent that Kuwaiti members have extremely strong expectations of the results of the symposium and Japan's technical cooperation, and that JCCP's activities for promoting technical exchanges between Kuwait and Japan would be instrumental in furthering the relations between the two countries.

<by Sadao Wada, Technical Cooperation Dept.>

Guests of honor and speakers at the symposium

Seminar scene

Session Themes

Session 1	Heavy Oil Upgrading
Session 2	Clean Fuel Technology
Session 3	Corrosion
Session 4	New Emerging Technologies

Japanese Speakers and Their Presentation Themes (in order of their presentation)

1	Mr. Masato Morita Process Engineer, Hydroprocessing Technology Section, Technology & Engineering Center, Idemitsu Kosan Co., Ltd.	Utilization of ARDS for Residual Oil Upgrading
2	Dr. Atsushi Ishihara Graduate School of Engineering, Mie University	Catalytic Cracking of VGO by Hierarchical Zeolite Containing Mesoporous Silica-Alumina Using a Curie Point Pyrolyzer
3	Dr. Masaaki Haneda Graduate School of Engineering, Nagoya Institute of Technology	Influence of Coexisting SO_2 on the Selective Catalytic Reduction of NO in Diesel Exhaust
4	Dr. Katsumi Yamamoto Corrosion Center, Japan Society of Corrosion Engineering (JSCE)	Overview on Technical Collaboration Project for Newly Planned Corrosion Assessment and Mitigation Technology Program, Kuwait
5	Mr. Kiyoshi Sakaino Manager, Start-Up & Operation Service Department, International Project Division, JGC Corporation	Thermal Spray Coating (TSC) for Refinery and Petrochemical Applications
6	Mr. Tomomi Nakaizumi Research & Development Division, JX Nippon Oil & Energy Corporation	Hydrogen Storage and Transport Technology based on Organic Hydride

Program

Day One, Tuesday, January 15, 2013		
9:00-9:30	Opening Addresses	
	Mr. Fahed Salem Al-Ajmi, Chairman & Managing Director of Kuwait National Petroleum Company (KNPC)	
	Mr. Shigeru Yamamoto, First Secretary of Japan Embassy to the State of Kuwait	
	Mr. Hideki Nomura, General Manager, Japan Cooperation Center, Petroleum (JCCP)	
	Prof. Atsushi Ishihara, Head - Japan Petroleum Institute Delegation (JPI)	
	Dr. Naji Al-Mutairi, Director General of Kuwait Institute for Scientific Research (KNPC)	
9:30-10:15	*Keynote Lecture: Mr. Fahad Al-Ajmi, Manager CFP, Kuwait National Petroleum Company (KNPC)*	
10:15-10:45	Coffee Break	
10:45-12:15	SESSION 1: HEAVY OIL UPGRADING, Chairperson: Dr. Faisal Al Humaidan	
10:45-11:15	Paper 1	Utilization of ARDS for Residual Oil Upgrading, *Masato Morita, Tetsuya Watanabe and Seiichiro Eguchi, Idemitsu Kosan Co., Ltd.*
11:15-11:45	Paper 2	Heavy Oil (Residue) Hydroprocessing and its Deactivated Catalyst Characterization, *Mohan S. Rana, Kuwait Institute for Scientific Research (KISR)*
11:45-12:15	Paper 3	Catalytic Cracking of VGO by Hierarchical Zeolite Containing Mesoporous Silica-Aluminas Using a Curie Point Pyrolyzer, *Atsushi Ishihara, Mie University*
12:15-13:30		Prayer & Lunch Break
13:30-15:00	SESSION 2: CLEAN FUEL TECHNOLOGY, Chairperson: Dr. Narjes Abul	
13:30-14:00	Paper 4	Influence of Coexisting SO_2 on the Selective Catalytic Reduction of NO in Diesel Exhaust, *Masaaki Haneda and Hideaki Hamada, Nagoya Institute of Technology and National Institute of Advanced Industrial Science and Technology*
14:00-14:30	Paper 5	Temperature Programmed Reduction (TPR) of SiO_2-Al_2O_3 Supported Ni, Mo and NiMo Catalysts Prepared with EDTA, *Khalida Al Dalama and R. Navvamani, Kuwait Institute for Scientific Research (KISR)*
14:30-15:00	Paper 6	Clean Fuel Technologies for Diesel and Gasoline, *Subhash Singhal and Bader Al Khaldi, Kuwait National Petroleum Company (KNPC)*
		Closing

Day Two, Wednesday, January 16, 2013		
8:30-10:30	SESSION 3: CORROSION—1, Chairperson: Dr. Hamdy Shalaby	
8:30-9:00	Paper 7	Overview on Technical Collaboration Project for Newly Planned Corrosion Assessment and Mitigation Technology Program Kuwait, *Katsumi Yamamoto, Japan Society of Corrosion Engineers*
9:00-9:30	Paper 8	Unpredictable Behavior of Carbon Steel Tubes in Reactor Effluent Air FIN Coolers of Hydrotreaters, *Saad Al-Dhafiri, Fahad Al-Otaibi, Jadee Ben Eid and Laxma Reddy, KNPC, MAA Refinery*
9:30-10:00	Paper 9	Effect of Aging on the Electrochemical Behavior of 321 Stainless Steel, *K. Ravindranath, H. Gopal, B. Al-Wakaa, L. Al-Ostad and H. M. Shalaby, Kuwait Institute for Scientific Research (KISR)*
10:00-10:30	Paper 10	A Study of Application of Electrochemical Noise Technique in Open Cooling Water System, *H. Al-Mazeedi*, M. Miyazawa and N. Tanoli, Kuwait Institute for Scientific Research (KISR)*
10:30-11:00		Coffee Break
11:00-1:30	SESSION 3: CORROSION—2, Chairperson: Dr. Hana Al-Mazidi	
11:00-11:30	Paper 11	Heavy Oil Corrosivity: Composition and Thermal Stability, *H. Al-Rabiah*, G. Michael, R. Bouresli, R. Kadhmi and N. Moustafa, Kuwait Institute for Scientific Research (KISR)*
11:30-12:00	Paper 12	Heavy Oil Corrosivity: Impact on Refinery Alloys, *H. M. Shalaby*, K. Ravindranath, B. Slubbi and H. Gopal, Kuwait Institute for Scientific Research (KISR)*
12:00-13:00		Prayer and Lunch Break
13:00-13:30	Paper 13	Thermal Spray Coating (TSC) for Refinery and Petrochemical Applications, *Kiyoshi Sakaino, JGC Corporation*
13:30-15:00	SESSION 4: NEW EMERGING TECHNOLOGIES, Chairperson: Mr. Masaaki Haneda	
13:30-14:00	Paper 14	Membrane Applications for Tomorrow?, *Andrés M. Quesada Pérez and Narjes Abul, Kuwait Institute for Scientific Research (KISR)*
14:00-14:30	Paper 15	Hydrogen Storage and Transport Base on Organic Hydride, *Tomomi Nakaizumi, JX Nippon Oil & Energy Corporation*
14:30-15:00	Paper 16	The Supersonic Gas Separator for Gas Processing (Twister), *K.S. Sabapathi, Refinery, Kuwait National Oil Company (KNPC)*
15:00-15:15		Closing Remarks

Researcher Invitation Program

Four researchers from Iraq, Kuwait and Venezuela arrived in Japan between September and October 2012 under the JCCP Research Invitation Program to further their research at Japanese universities and research institutions. The researchers visited JCCP one by one between October and December to present their achievements.

1. Petroleum R&D Center (PRDC), Ministry of Oil-Iraq Ms. Saba Al-Rubaye and Ms. Ban Ahmed (Oct. 9)

Ms. Saba Al-Rubaye, Senior Engineer, and Ms. Ban Ahmed, Assistant Chief Engineer, both from the Ministry of Oil-Iraq's Petroleum R&D Center (PRDC) arrived in Japan in early September. They first received research guidance at the Catalysts Research Center in the Kitakyushu Operation Center of JGC Catalysts and Chemicals Ltd., then received further guidance by Dr. Takeshi Kubota, Associate Professor, Interdisciplinary Faculty of Science and Engineering, Shimane University.

At the Catalysts Research Center, the two researchers first performed an analysis of zeolite catalysts. Then, based on a review of their measuring skills and measurement results, they acquired detailed knowledge of micropore distribution measurement, micropore volume measurement, specific surface area measurement, abrasion resistance testing, particle size distribution measurement (of powder catalysts), quantitative analysis of carbon and sulfur, X-ray diffraction measurement, fluorescent X-ray measurement, electron microscope observation, pellet crushing strength measurement, and ICP and atomic absorption spectrometer. These were analyses that require the use not only of facilities that already exist and are in operation in Iraq, but also facilities that have been decided to be introduced but have not yet been installed or are not yet operational. Even as for the existing facilities, they felt the apparatus are not used to their full potential, and due to the insufficient pretreatment of samples and inadequate formulation of calibration curves, the two Iraqi researchers wished to gain insight into solving these issues.

Ms. Ban Ahmed, Assistant Chief Engineer, PRDC, giving a presentation at JCCP

Ms. Saba Al-Rubaye, Senior Engineer, and Ms. Ban Ahmed, Assistant Chief Engineer, studying in a laboratory

In the latter half of their research at JGC Catalysts and Chemicals, the researchers engaged in the activity measurement of FCC catalysts and hydro-desulfurization catalysts.

Thereafter, from the end of September to the beginning of October, the researchers studied under Dr. Kubota of Shimane University. They engaged in research on "characterization of catalysts by means of gas adsorption and spectroscopy," with a focus on studying catalytic sites and structural changes in carriers during reactions. Catalysts have various properties, such as their composition, solid-state properties, and chemical properties, so it is essential to analyze bulk properties of catalysts and the structural properties of their active ingredients when selecting the optimal catalyst for a given process and developing new catalysts. Based on this understanding, Dr. Kubota proposed various methods for the characterization of catalysts that are used in Iraq.

During their presentation at JCCP, the two researchers deeply thanked JCCP for making possible their research in Japan.

2. Petroleum Research & Studies Center, Kuwait Institute for Scientific Research (KISR) Mr. Hassan A. H. M. Tarish (Oct. 2)

Mr. A. H. M. Tarish, Senior Research Associate from the KISR Petroleum Research & Studies Center, engaged in research in Japan from mid-September to late-October. He performed his research on "electrochemical studies of corrosion with novel techniques" at Venture Academia Co., Ltd., a venture business affiliated with Yokohama National University, under Dr. Shukuji Asakura, Professor Emeritus at the university.

Mr. Tarish has conducted research on many themes to date at KISR, such as on erosion and corrosion, but to further his research, it became necessary to introduce new electrochemical procedures. Thus, he concentrated on building an electrochemical foundation for advancing his corrosion research through laboratory work and gaining knowledge of new methodology.

At JCCP, Mr. Tarish not only gave a presentation on the results of his research in Japan, but also introduced research projects he has undertaken at KISR, such as on VOC recovery, and presented many challenging thoughts and insights.

Mr. A. H. M. Tarish, Senior Research Associate, KISR, giving a presentation at JCCP

Mr. Tarish

Dr. Yilda Margot Romero Perez, Intevep, giving a presentation at JCCP

Dr. Perez (front row, second from the left)

3. Intevep, PDVSA Dr. Yilda Margot Romero Perez (Dec. 14)

Dr. Yilda Margot Romero Perez from Intevep, the research division of the state-owned oil company PDVSA, received research guidance from Dr. Takeshi Kubota, Associate Professor, Interdisciplinary Faculty of Science and Engineering, Shimane University, and Dr. Atsushi Ishihara, Graduate School of Engineering, Mie University, from the end of October to mid-December.

Under Dr. Kubota's guidance, Dr. Perez conducted research on "heterogeneous catalyst preparation and characterization," with a focus on the development of catalyst preparation methods that can selectively form active structures, and on catalytic sites and structure changes in carriers during reactions.

Under Dr. Ishihara's guidance, Dr. Perez conducted tests and analyses related to the "preparation of a hierarchical Y-zeolite containing mesoporous silica-alumina catalyst and its reactivity for catalytic cracking of VGO."

After presenting the results of her research, Dr. Perez said that the opportunity to conduct research in Japan was extremely helpful, and that she has strengthened her resolve to further her research while keeping close contact with the university laboratories that have generously provided their support.

<by Sadao Wada, Technical Cooperation Dept.>

Graduates' Voices

Ms. Ida Halya

Leadership Development Training Manager, Pertamina Learning Center, HR Directorate, PT Pertamina (Persero)

Graduate of a regular course on Human Resource Development (October 2006)

I attended JCCP course program No. TT-1-06 (Training Management) in 2006, and feel very fortunate to be a JCCP alumnus. Almost seven years have passed since, but the benefits of attending the course still continue to support me in fulfilling my job.

There are three important things that I learned from the course, and that have subconsciously helped me acquire positive habits. The first is Japanese culture, namely the discipline, honesty, sincerity, high work spirit and respectful manner of the Japanese people. The second is teamwork spirit. I learned that accomplishing tasks through teamwork delivers better results. The third is making acquaintances with people from many countries. Our friendship has continued, and we still keep in touch with each other, sharing information that is useful to achieve better performance. We are like a big family separated by distance.

I think these three values are recognized by all JCCP alumni at Pertamina, as well as at other organizations. Moreover, they serve to attract many employees and boost the popularity of JCCP courses.

In addition to the above, the experience I gained from participating in a JCCP course will always guide me to be a respectable person, and encourages me to fulfill my duties with the best of my ability and manners.

With these important achievements, please accept my sincere gratitude for the opportunity to acquire these important achievements and to be one of the participants of the prestigious courses of the esteemed organization.

Ms. Papinya Tansamrit

Vice President, Learning & Development Center and Head of Capability and Learning Program, PTT Public Company Limited

Graduate of a regular course on Human Resource Development (October 2004)

There are many things to say about the JCCP Program, which is one of the best programs I have ever attended.

Here are what I acquired from the program and what has benefited me in my job:

For one, I gained deeper understanding not only of Japanese culture, but also of different cultures by interacting with participants from more than ten different countries who attended this program. I also broadened my perspectives by learning about Japanese lifestyles and witnessing Japan's combination of high technology and traditional culture.

Second, I deepened my understanding about the significance of human resource development, and came to realize that different people have different learning styles. Based on this realization, I am now able to use different approaches as appropriate to different people to enhance the value and effectiveness of human resources development.

Third, I established valuable relationships with fellow participants. Going beyond building a network of connections, these relationships allow me to exchange knowledge/ideas and keep updated about HR/HRD news and tools that are useful in my work.

Lastly, I gained knowledge of best practices unique to Japan, which mainly focus on action learning. I have adopted this approach in my working environment and have begun to place more importance on "learning by doing," so that my staff can not only learn from theory but also from real work and on-the-job training.

I believe that everyone who has attended a JCCP program feels the same way as me. I am certain the program will be beneficial to all future newcomers as well.

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 in 2011.
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.

Please Send Us a Message as Alumni

Future issues of *JCCP NEWS* will feature a new section for messages from alumni. Please send us the latest news about what you are up to or photos that you wish to share with others. The Planning & Public Relations Group looks forward to hearing from you.

Thank you for your cooperation.

Yoshi Tanda, General Manager, Planning & Coordination
Masumi Kitahara (Ms.), Manager, Planning & Public Relations

Personnel Changes

Operations Dept.

Outgoing Personnel

Yoshiko KAWASHIMA

Editorial Postscript

I am pleased to present you with the latest issue of *JCCP NEWS*.

This newsletter is issued three times a year in Japanese and English. A total of 211 issues of the Japanese version have been published since it was launched in July 1982, and this precise issue marks the 115th issue of the English version, which was first published in June 1983.

The articles published in this newsletter are planned and edited by a six-member editorial staff composed of a member each from the Operations, Training and Technical Cooperation Departments and three members from the JCCP Secretariat (Planning & Public Relations Group, Administration Department). We do our best to provide the latest information on the implementation status of various activities to stakeholders of JCCP operations in Japan and oil-producing countries.

At the article planning stage, we are especially mindful of creating a reader-friendly publication and of providing at least one new discovery. Training programs and technical cooperation projects are implemented because there is a respective need for them, which emerges from changes in the oil industry in Japan and oil-producing countries. We feel it is our duty to communicate these changes through this newsletter.

We may fall short in many respects, but we ask for your ongoing support, as we endeavor to continue delivering an informative and meaningful newsletter.

Hisayoshi Tanda
Councilor
Administration Dept.

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
#904, Al-Ghaith Office Tower, Hamdan St.,
P.O. Box 51828, Abu Dhabi, U.A.E.
TEL. +971-2-627-4410 FAX. +971-2-626-2166

• Riyadh Office
Al Oula Building, 5th Floor, Flat No.508
Al Mohamadiya, King Fahd Road
P.O. Box 61356, Riyadh 11565, Kingdom of Saudi Arabia
TEL. +966-1-207-9540 FAX. +966-1-207-9539

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