OPEC bulletin

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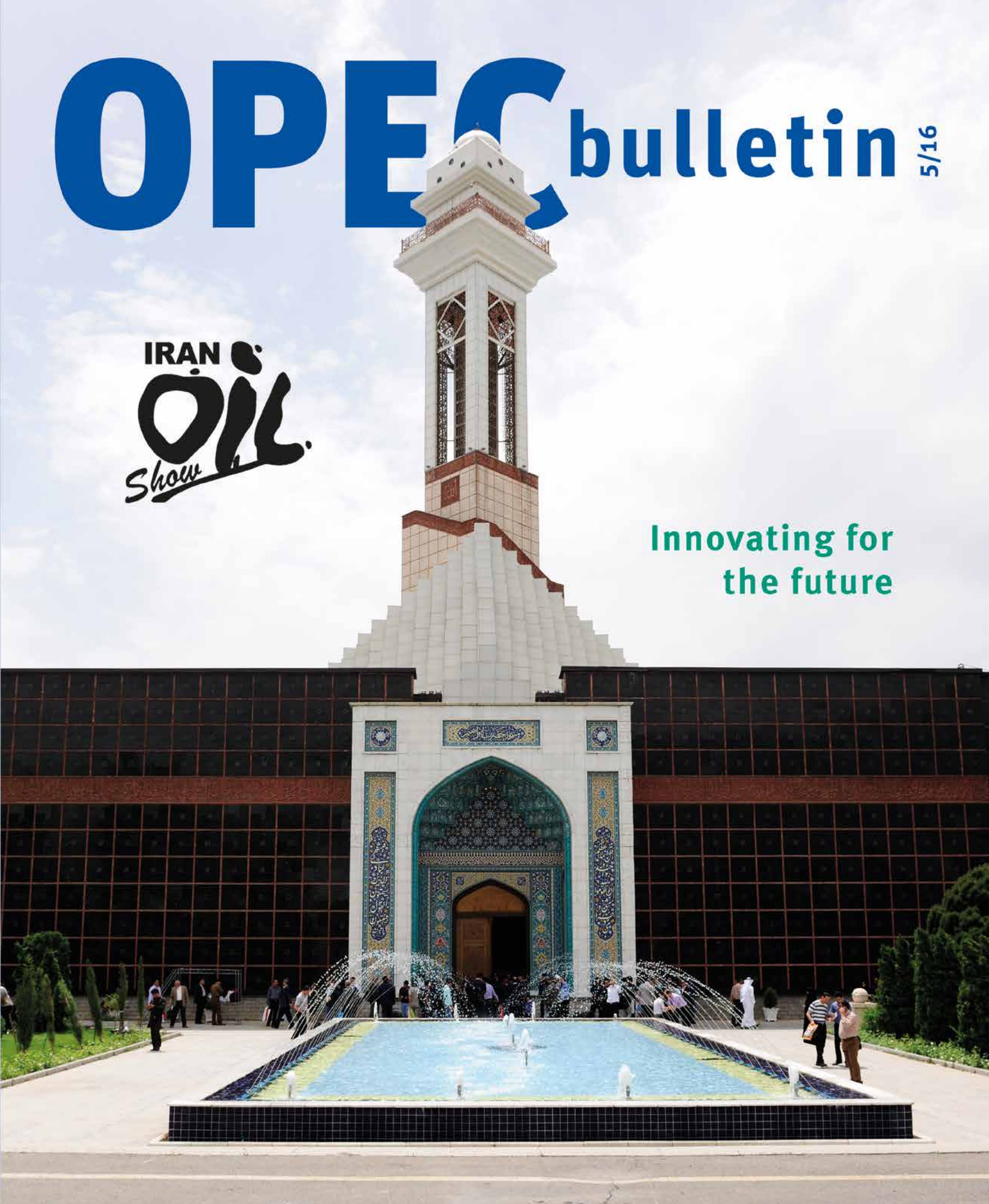

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The ultimate resource

It has been a common response throughout the history of human societies to look elsewhere for solutions to complex challenges. When man first set out across the Tigris-Euphrates river valley, he went not only in search of better living conditions but also knowledge and wisdom.

It is not much different today. Developing countries of the 'global south' — in Africa, Asia, and the Middle East — often find themselves looking to other countries for the newest approaches to economic development and the latest technological innovations.

Sometimes lost in this rush for the 'newest' and the 'latest' is the recognition that local communities often have a better understanding of local challenges, and that the people on the ground may have some of the greatest insights. In short, it is easy to forget that local knowledge — the accumulated wisdom of the ages — often provides the best responses to some of our most intractable problems. It is thus worth remembering that human beings are themselves the bearers of wisdom, and that ingenuity and innovation can often be found within our own societies and among our own people.

All this could not have been more apparent than at this year's *Iran Oil Show.* For four days, international oil companies, national oil companies, and service companies from across the upstream and the downstream gathered in Tehran to renew old friendships, meet with officials, and discuss investment and commercial opportunities. Around 2,000 companies from 38 countries were present at the event, sharing their insights and their know-how with one another. But what was remarkable was that more than half of the companies at the *Oil Show* were from Iran.

There, on display, were examples of home-grown solutions and inventiveness, of knowledge spill-over and local innovation. And this spoke volumes about the ability of IR Iran to creatively find and develop their own approaches to the challenges of the oil and gas industry. It seems that despite the difficulties of recent years, an entrepreneurial spirit has inspired academics, businessmen, researchers and scientists in Iran to find ways to create their own solutions and to achieve their own technological innovations, building on the already existing research prowess of the country's academic institutions. In doing so, they have been able to forge entirely new ways of doing things. And from products to processes, robots to regulators, power packs to water pumps, local resources have been found to be useful in helping the country's industry become leaner, more dynamic and more competitive.

Of course, this flourishing of industry-related innovations is not just limited to Iran. Other OPEC Member Countries, too, have been able to find their own path to a more creative, more dynamic and more competitive energy sector. In this, the role of each country's national oil company, under the inspiring leadership of their respective ministries, should not be overlooked. And together, in various ways, they have each been able to start putting together programmes of action and investment, research and development, that promises to make each country a leader in its own right.

What the *Oil Show* in Iran also demonstrated, as one of our feature articles in this edition suggests, is the country's resilience. That is to say, even without necessarily having access to all the inputs, materials and resources that companies might want or desire, they have still found a way to move forward — and not only move forward but to become more dynamic. In fact, one could even argue that it is an example of how, even under the most adverse external conditions, a society can still find ways to succeed and thrive. One is even tempted to recall the old saying, what does not kill you, makes you stronger.

The OPEC Secretariat has long supported the efforts of its Member Countries to rely increasingly on local human resources and find local ways of doing things. It has, of course, consistently sought to support initiatives that foster communication between producers and consumers and has long strived to enhance the process of dialogue and cooperation that takes place under various bilateral fora — and, of course, under the aegis of the International Energy Forum (IEF).

But perhaps more importantly, the OPEC Secretariat has initiated various mechanisms and meetings designed to enhance the ability of people in each Member Country itself to work competitively, creatively, and productively. In this, events like the annual OPEC Research and Development Forum and the Annual Statistical meeting, both held with Member Country officials, are particularly worth noting.

At such events, the talents and skills of the Organization's Member Countries are powerfully on display. They serve as a reminder of the innate ability that we all essentially have to respond to the challenges we all face. It is thus particularly worth remembering that OPEC Member States have access to one of the most important resources in the world: human capital. And when challenges abound, as they did for Iran, and when the external environment seems too daunting, as it has seemed at times for some of our other Member Countries, then we should remind ourselves that it is the people in these developing nations themselves who may in the end provide the best solutions — and indicate the best way to move forward.

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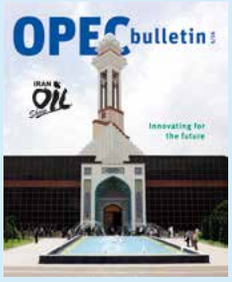

Cover
This month's cover shows the Hazrat Ibrahim Mosque in Tehran (see feature on the Iran Oil Show starting on p8).

Vol XLVII, No 4, May 2016, ISSN 0474–6279

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OPEC is a permanent, intergovernmental Organization, established in Baghdad, on September 10–14, 1960, by IR Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. Its objective — to coordinate and unify petroleum policies among its Member Countries, in order to secure a steady income to the producing countries; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on capital to those investing in the petroleum industry. Today, the Organization comprises 12 Members: Qatar joined in 1961; Libya (1962); United Arab Emirates (Abu Dhabi, 1967); Algeria (1969); Nigeria (1971); Angola (2007). Ecuador joined OPEC in 1973, suspended its Membership in 1992, and rejoined in 2007. Gabon joined in 1975 and left in 1995. Indonesia joined in 1962, suspended its Membership on December 31, 2008, and reactivated it again on January 1, 2016.

Contributions
The *OPEC Bulletin* welcomes original contributions on the technical, financial and environmental aspects of all stages of the energy industry, research reports and project descriptions with supporting illustrations and photographs.

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Saudi Arabia embarks on major national transformation


Reuters

Saudi King Salman Bin Abdulaziz Al-Saud.

Saudi Aramco has pledged its "unequivocal support" for 'Saudi Vision 2030', Saudi Arabia's sweeping national transformation programme that was announced by the Kingdom's leaders in April.

The reforms, announced by Saudi King Salman Bin Abdulaziz Al-Saud and approved by the Kingdom's Council of Ministers, envisage the national energy company transforming itself from an oil and gas firm into a "global industrial conglomerate."

It will become involved in many sectors and services, using its vast financial resources to create jobs and help diversify the national economy beyond crude oil.

Khalid A Al-Falih, Saudi Aramco's Chairman, said of the move: "Saudi Vision 2030 is a pioneering and game-changing plan that will enable sustained economic growth, diversification and job creation to benefit the Kingdom and its citizens for generations to come."

Quoted in the company's official magazine, *Arabian Sun,* Al-Falih, who has since been appointed the Kingdom's new Minister of Energy, Industry and Mineral Resources, stated that Saudi Aramco would continue its commitment and remain fully engaged as a champion of transformation, ensuring that its significant contributions to the overall social and economic development of Saudi Arabia generated an even greater positive impact in the future.

Fundamental shift

On addressing the urgent need to move the Kingdom from an oil-based economy, which is a major thrust of 'Saudi Vision 2030', Al-Falih commented: "There needs to be a fundamental shift in our economic landscape if we are to reduce our unsustainable over-reliance on oil.

"Therefore, accelerating reforms across key economic sectors, privatization of key industries and the creation of a globally competitive small- and medium-sized enterprise sector are essential to delivering Saudi Vision 2030," he asserted.

Al-Falih also observed that the Kingdom was opening itself for further investment.

"The message is clear: Saudi Arabia is opening itself for further investment by those already in the Kingdom, as well as openly inviting potential future investors," he affirmed.

"Investment and export opportunities exist for global companies who want to take advantage of Saudi Arabia's

ready access to infrastructure and abundant supply of energy."

Al-Falih pointed out that Saudi Arabia provided unrivaled competitive advantages and investment opportunities as a manufacturing and trading base to reach global markets. "The government will continue to ease regulations to make the Kingdom one of the most attractive locations in the world to do business," he professed.

Al-Falih made it clear that Saudi Vision 2030 would require a national effort. "The vision is there, the path has been set and the prize is great. Everyone — business and community leaders, partners, suppliers, and most of all Saudi men and women, especially our talented youth — can make a contribution, and everyone must play their part," he maintained.

Khalid A Al-Falih, Saudi Aramco's Chairman, and new Minister of Energy, Industry and Mineral Resources.

Amin Nasser, Saudi Aramco President and Chief Executive Officer, said that Saudi Vision 2030 ushered in an exciting new chapter for the Kingdom.

"As Saudi Arabia embarks on the journey toward the realization of Vision 2030, I am confident in our ability to deliver on our stakeholders' expectations, to achieve the goals of our own strategic transformation, and to create even more promising opportunities through the work we do and the resources we manage," he stated.

Initial public offering

Nasser said the company was very excited about the prospect of a potential initial public offering (IPO) for the company which, he said, would give it the opportunity to deepen its engagement and value-creation impact in the economic transformation of Saudi Arabia, and further showcase Saudi Aramco's excellence locally and globally.

It is understood that under the reform plan, a stake of less than five per cent of Saudi Aramco is to be offered to the public. An initial public offering could be held in 2017 or 2018.

"It is important to remember that even in a period of far-reaching change, some things remain constant: the dedication of our people, the commitment and capabilities of our organization and the can-do spirit that has always been present in Saudi Aramco," commented Nasser.

Going forward, he stated, the company would continue to build on its accelerated transformation and serve as a pillar, role model and champion of transformation in the Kingdom.

Amin Nasser, Saudi Aramco President and Chief Executive Officer.

"Together, our continued efforts, diligence and focus will help to strengthen the company and its future prospects and, in so doing, help to make the Kingdom's economy more diversified, sustainable and globally competitive," he contended.

On maintaining the Kingdom's position as "the world's most reliable supplier of energy," Nasser said: "We remain committed to maintaining the Kingdom's position as the world's top oil exporter and most reliable supplier of energy, while continuing to make strategic investments across the hydrocarbons value chain that will elevate the Kingdom as the global hub for energy."

Speaking on some of the actions needed to attain Saudi Vision 2030, Nasser pointed out that the Kingdom's transformation vision demanded innovation, technology and research and development to spur a new era of industrial growth.

"Saudi Aramco's continued leadership and investments in upstream and new investments in downstream expansion will help drive the widespread and rapid in-Kingdom development of a vibrant population of small- and medium-sized enterprises focused on producing high-value finished and semi-finished products in the petrochemicals conversion sector."

Nasser lauded Saudi Vision 2030 as a major boost for Saudi Aramco's In-Kingdom Total Value Add (IKTVA) localization programme.

He said: "Saudi Vision 2030 will provide tremendous opportunities to strengthen Saudi Arabia's local supply chain capabilities across every industry sector.

"Saudi Aramco's flagship IKTVA programme is essential to attracting inward investments in local engineering; innovation and technology, and manufacturing; and to creating thousands of highly skilled and specialized jobs for Saudis, while embedding an entrepreneurship culture and more agile business climate," he added.

Other Saudi Aramco officials in the Kingdom have also commented on the reforms.

Ahmad A Al Sa'adi, Senior Vice President of Technical Services, said Saudi Vision 2030 called for an accelerated and broad diversification of the economy, driven by entrepreneurship, technological innovation and targeted investment.

"Saudi Aramco's IKTVA programme is one example of how this vision is being put into practice today by promoting the development of localized energy sector businesses so that the company and the Kingdom benefit from a cost competitive local supply chain and the creation of new high-quality jobs for Saudis.

"This is a model that I believe can be expanded upon and extended nationally across many industrial sectors to create thousands of new, well-paid and highly skilled jobs that will appeal to our youthful workforce," he said.

Mohammed Y Al Qahtani, Senior Vice President of Upstream, reaffirmed that Saudi Arabia was a nation blessed with hydrocarbons and while the national economy must reduce its over-dependence on oil, "our unrivaled oil and gas assets will help continue to drive the Kingdom's economic growth, long into the horizon on a sustainable basis."

He stressed that Saudi Aramco possessed the world's highest quality of reserves and product grade quality. "We are the world's lowest cost producer, and our recovery rates are among the highest in the world."

In addition, he said, the company's upstream research and development was focused on increasing recovery from existing assets and optimizing reservoir management and increasing oil and gas exploration and discovery, as well as striving to replace 100 per cent of produced oil with new reserves and growing reserves annually.

"All of these factors are embedded in our strategy to contribute even greater value to the Kingdom's economy.

"As well as supporting our customers through commodities' export, strengthening our role as the world's most reliable energy supplier, Saudi Aramco will continue to support the Kingdom's domestic energy needs: supporting the shift to gas to drive utilities' expansion and improved national energy efficiency; oil to support transport fuel efficiency; and petrochemical feedstock

supply to support rapid economic diversification through the growth of SME manufacturing sectors that are reliant on downstream conversion into high-quality consumer products."

Al Qahtani said Saudi Vision 2030 would consolidate and augment Saudi Aramco's role at the heart of the Kingdom. Critically important, he maintained, was the role that highly skilled local talent would play in creating a more vibrant and diverse economy.

"Saudi Aramco will continue to invest in strengthening its world-class engineering capabilities and training and development programmes. This focused effort will help to ensure that future generations of young Saudis are well prepared to manage the Kingdom's energy resources," he added.

Nabeel A Al-Mansour, General Counsel, explained that Saudi Vision 2030 outlined dramatic actions to be taken which would cut bureaucracy and implement wide-ranging transparency and accountability reforms nationally.

"These steps will make it easier to do business within Saudi Arabia and will, in turn, increase commercial activity, foreign direct investment and job creation. In addition, the prospect of an initial public offering of Saudi Aramco will elevate the international visibility of our strategic decision-making and accountability practices.

"This will promote a greater understanding of Saudi Aramco's business capabilities and increase confidence in our long-term strategic orientation and governance and thus be a positive development for the company," he stated.

Reduce oil over-dependence

Abdallah I Al Saadan, Senior Vice President of Finance, Strategy and Development, asserted that delivering Saudi Vision 2030 would transform the national economy and reduce the over-dependence on oil.

The listing of Saudi Aramco and other privatizations would increase investor confidence in the local stock market and boost foreign direct investment, market stability and overall growth.

"This will be good for the country and for Saudi Aramco and its customers, partners, and suppliers," he said.

Muhammad M Al Saggaf, Senior Vice President of Operations and Business Services, said Saudi Vision 2030 recognized that the Kingdom's people were the Kingdom's most precious resource.

Lowering the national rate of unemployment from 11 per cent to seven per cent by 2030 was a challenging but achievable goal.

Enhancing national education levels, embedding skills for the knowledge economy and increasing women's participation in the workforce were all critical to helping achieve the reforms.

"Saudi Aramco will continue to support initiatives that enrich our workforce with world-class science, technology and engineering skills and training, but also through partnerships that fit with our company and the Kingdom's strategy," he stated.

Al Saggaf said that, for example, through Saudi Aramco's partnership with Tata and GE, the Riyadh Business Process Outsourcing Centre was delivering vital business services efficiently and affordably to customers around the world.

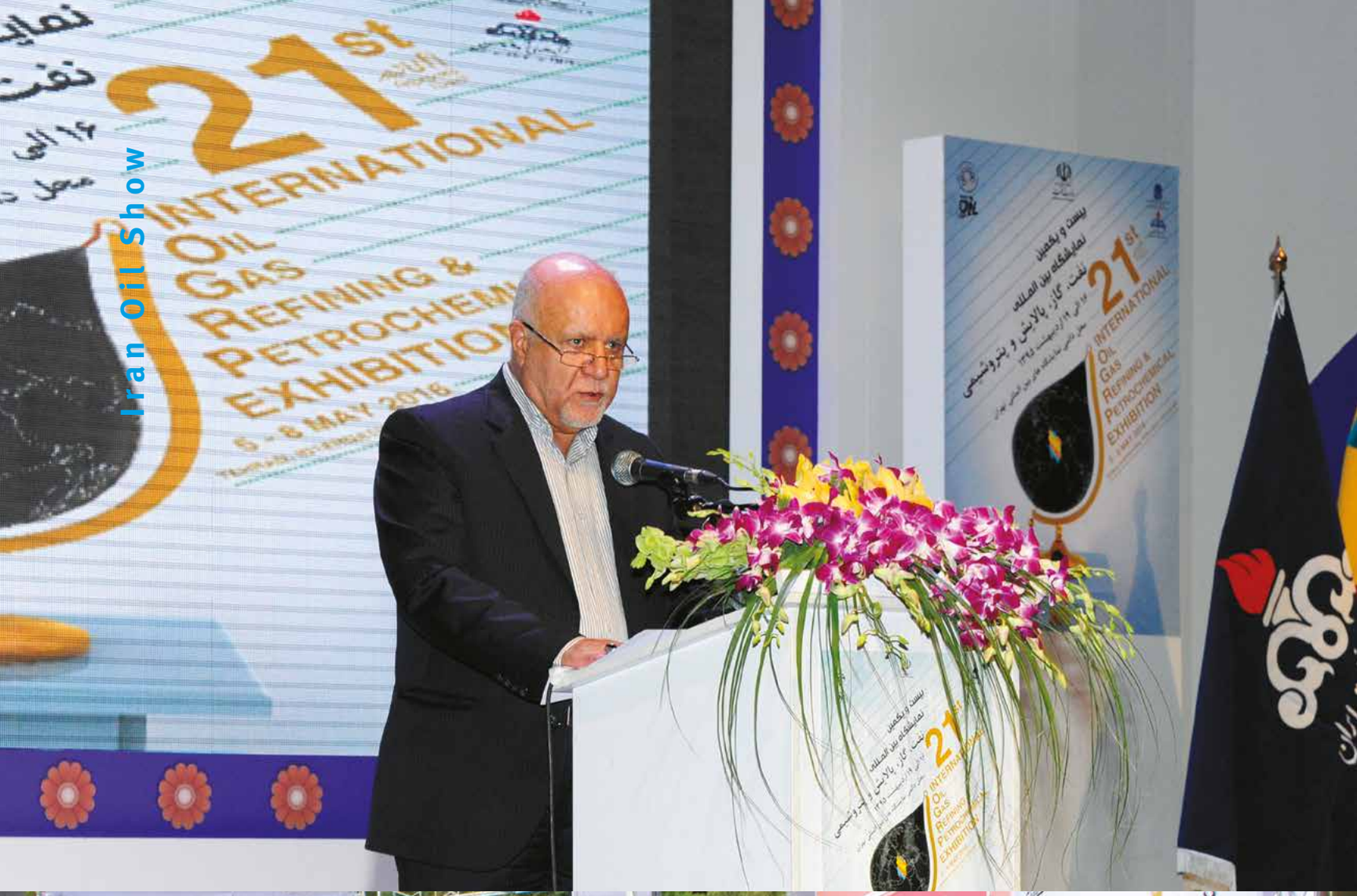
"And it is doing so by employing a skilled and talented female-only workforce in a way that is both customer-centric in terms of excellence of delivery and employee-centric in terms of flexibility," he maintained.

"I am confident that by 2030 the Saudi Vision blueprint will have enhanced and diversified our entire national labour force for the better across many sectors. This is both what we need and what the nation deserves."

Al Saggaf pointed out that Saudi Vision 2030 was very well thought of, ambitious and inspirational.

"It sets the stage for major transformational change in all aspects of the Saudi economy, society and culture.

"That main engine of change would, of course, be the Saudi people, who are the most precious resource," he added.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IRAN OIL Show
INAUGURAL CEREMONY OF
21st INTERNATIONAL
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The resilience of Iran

For the past 21 years, the Islamic Republic of Iran has held an Oil, Gas, Refining & Petrochemical Exhibition in central Tehran. The event has always been well-attended, with corporate executives and company officials flying in from around the world, representing nearly all aspects of the energy industry. This year, however, the turn-out was bigger than ever, with thousands of officials, entrepreneurs, and business leaders seeking to find ways to work together — and perhaps achieve some commercial success in the new 'post-sanctions' era. The OPEC Bulletin's *Mario Fantini filed this report.*

The annual International Oil, Gas, Refining & Petrochemical Exhibition in Tehran — the Iranian Oil Show — is one of the energy industry's big events. Attended by industry players from around the world, it is an opportunity to showcase the latest developments and innovations in the oil and gas industry, in areas ranging from drilling, production, transportation, and storage to surveillance, safety, and oilfield services. Arranged over a small 'campus' several acres in size next to the Enqelab Sport Complex in prosperous north-central Tehran, almost in the shadows of the snow-capped peaks of the Alborz Mountains, the exhibition is one of the biggest events in the industry. Its size can make it seem a bit overwhelming at times — but the charm and warmth of local Iranians keep things moving quite smoothly.

The official opening of the 21st annual exhibition this year was marked by several high-level speeches. First, Deputy Petroleum Minister and Managing Director of the National Iranian Oil Company (NIOC), ***Roknoddin Javadi***, gave an upbeat speech welcoming delegates. He highlighted some important numbers — such as the fact that foreign participation at this year's exhibition was up 64 per cent, given renewed interest in the country's oil and gas industry in the 'post-sanctions' era. He also highlighted the "self-sufficiency and self-reliance" that Iran's oil and gas industry has shown, despite numerous challenges over the years. Javadi ended his speech by underscoring the benefits and importance of working together to facilitate the transfer of technology and investments, particularly through collaborative ventures with other companies. "This," he said referring to the exhibition as a whole, "is a very good start."

The country's Minister of Petroleum, ***Eng Bijan Namdar Zangeneh***, spoke next. He first highlighted the growth and development of Iran as an exporting economy. In fact, he noted that the country had gone from exporting between 1 to 1.5 billion barrels/month to 2bn b/month — and said he hoped and expected it to soon

Es'haq Jahangiri, Iran's Vice President.

reach 2.5bn b/month. He also mentioned the country's growing petrochemicals sector, which is becoming an increasingly important element of the country's economy. "We expect," he said, "that we will have more than $4bn of extra production in the petrochemicals sector." In short, he said in conclusion, "the trend in our industry is positive."

The final speaker was Iran's Vice President, ***Es'haq Jahangiri***. He spoke of the present and the future of the country, and of the new post-sanctions era, highlighting the promising new opportunities that may arise. "Iran has certain potentialities and certain capabilities," he said, that make it a very competitive nation. And to further help the country grow, he suggested that Iran should position itself so that it may become "a very unique hub" of activities — particularly for the energy industry. The Vice President then went on to speak of the paramount importance of investments for the growth of the country's industry, and even noted the structure of new oil contracts, which can be improved. In the end, as the country continues to re-integrate into the global economy and world oil markets, he noted that "Iran should not be absent from the market." And, with time, it should be able to reach — and perhaps even surpass — the levels at which it was at before sanctions.

Each official spoke clearly and emphatically about the importance of this year's exhibition to the nation's economy, and to the future growth of its oil and gas industry. The presence of international companies and organizations was mentioned several times as an example of the renewed interest in Iran's energy industry, and as a sign of the 'new era' the country is entering.

Roknoddin Javadi, Managing Director of the National Iranian Oil Company (NIOC), visits the OPEC exhibition stand. He is seen here talking with Mohammad Moured Ghaffari, from the Petroleum Ministry, who acted as liaison for the OPEC Secretariat team visiting Iran for the event.

Above: The OPEC stand at the show attracted many visitors.

Left: Mohammad Moured Ghaffari, OPEC delegation's local host and official liaison at the Petroleum Ministry.

Global interest

This year's exhibition took place over four days and counted with the participation of 2,000 companies active in the field of energy from 38 different countries. This was the first exhibition of Iran's oil industry after the removal of sanctions and the beginning of the implementation of the Joint Comprehensive Plan of Action. With a 38 per cent increase in the number of international companies, compared with last year, the 21st Oil Show indicated significantly better prospects for the country's oil industry.

Of course, some of the biggest oil majors have not yet returned to the exhibition. But if the mood and sentiment on display this year are any indication, it is only a matter of time until they do. What was clearly apparent from the five days spent in the massive halls, large tents, and elaborate outside pavilions on this industrial campus is that despite barriers, hindrances, and obstacles, and no matter how low crude prices go or how extensive price volatility remains, the oil and gas industry never shies away from challenges — particularly in Iran. One might even say that this year's exhibition was itself a dazzling display of the 'resilience' of the oil industry — and of the host country itself.

As I walked from one large exhibition hall to another, listening to the different foreign languages being spoken, I remembered reading that some words in Farsi can have multiple meanings, depending on the context in which they are used. For instance, I had read somewhere online that the Farsi word for "resilience" can easily translate into "echo" — as in: hearing your own voice being reflected back at you. This was much on my mind during my days at the exhibition, particularly as I visited the stands of different Iranian companies and learned how in recent years, many of them had to learn from themselves, depending on their own inputs, their own innovations, and their own 'voices'.

Local ingenuity and optimism

Local input, local innovation, resilience: these were recurring themes among the staggering 1,100+ Iranian companies represented here. Incredibly, the oil and gas industry in Iran goes far beyond the activities of the NIOC (which its head, ***Roknoddin Javadi***, noted this year celebrates 65 years since its founding). From drilling innovations to engineering solutions, from robotics to lasers, and everything else in between, it was apparent that despite the long period of sanctions, the creativity of the country's industry and its local professionals — with perhaps a dash of Persian ingenuity — has resulted in interesting solutions and solid technical advances in many areas of the upstream and downstream.

MAPVA Group

For example, one small stand — for a company called

MAPVA's CEO, Amir Refahi Oskouei (r), with Mohsen Sadri, their Commercial Manager.

Mohsen Daneshkhah, President and COO of Dana Energy.

MAPVA Industrial Group — highlighted the invention of a team of three Iranian scientists and engineers. "Our company is a science-based company and is focused on energy automation," said ***Mohsen Sadri***, the company's Commercial Manager. Pure science will not help us, he added. Science cannot just remain in university laboratories and has to be applied for it to be useful. And what Sadri and the company's CEO, ***Amir Refahi Oskouei***, were trying to showcase at the exhibition was a small robot — the direct result of such applied science.

The robot looked like a small rectangular creature with extended arms and wheels for 'fingers'. It is, they explained, used for corrosion-mapping, an activity that is usually done manually, with workers standing on precarious scaffolds and often working under dangerous conditions. It is also a time-consuming activity, with two months needed to check for corrosion along a storage tank, for example. "But with this," said Oskouei, motioning to the robot, "you need just three days." The robot — which relies on ultrasounds to scan equipment — transmits information to a central computer (or a hand-held device) where the information can be visualized. It can easily be adapted to fit any critical equipment, he added, and enables engineers to do live assessments and then readily adapt their activities. "There isn't any other one of its kind in Iran," said Sadri proudly.

The robot is just one of hundreds, if not thousands, of innovative new products and services on display at the exhibition. Like the two scientists-inventors from MAPVA, other Iranians have also risen to the challenge of working with limited access to cross-border knowledge and foreign investments, and have found new ways of doing things that rely on local knowledge and local resources. The MAPVA robot seemed to be a perfect example of this: designed and engineered entirely in Iran, it could eventually have benefits far and wide. "We are trying," Sadri added, "to have some applications for our industry, and to also help our country and the region."

Dana Energy

A larger Iranian success story is that of Dana Energy, a private oil and gas company based in Tehran. Established in 2000, the company began activities with seismic projects and then expanded into engineering, procurement, and drilling activities in central and southern Iran. The company is well-known to industry

Shahrabi Farahani (r), Managing Director of Petro Mehr Pardis Co, being interviewed at their exhibition booth.

watchers for being the drilling contractor for the NIOC and for helping to develop the South Pars gas field in the south of Iran. The company's President and CEO, ***Mohsen Daneshkhah***, was at the exhibition and spoke to the *Bulletin*. He was quite optimistic about the future and about the possibility of forging new commercial ties with international companies: "In the past, Iran has had a long history working with Europeans and Americans. So there is no reason that we cannot work with them again," he said, when asked about the outlook for Iran's industry.

While optimistic about the future, Daneshkhah did say he had expected to see more major oil companies like Shell or BP at the exhibition. But he was sure it was just a matter of time. "It only takes a day to destroy confidence; to build it up once more will take time," he said. And there is no reason to think this will not happen, he added, noting that Iran offers many important benefits to the global oil and gas industry: "I think Iran is a stable country," he said, adding that "from an investment point of view, Iranian fields need less investment with respect to other fields in the world." He also noted that production costs per barrel are much less in Iran than in the North Sea or other fields, a fact that foreign companies would probably find hard to resist. "As a private company, we are very hopeful that Iran is entering a better era."

Petro Mehr Pardis Co

Another company that was of interest was the oil and energy equipment manufacturer and services company, Petro Mehr Pardis Co (Pardis, hereafter), which was developed in conjunction with the Iranian government in its effort to support local initiatives, particularly in manufacturing and supply management. Pardis was established through a joint venture between the locally-based Herald Kish Industrial Technology and Petro Mehr Persia, itself a partner with INT Italy and Termics Italy. Together, these various partners offer a range of important activities and services, which range from logistics and procurement engineering, to drilling and compressor stations, refineries, and petrochemicals. "We have found good partners in Europe and also in South Asia," said ***Shahrabi Farahani***, Managing Director of Pardis, in comments to the *Bulletin*. And for this reason, the company is continually looking for possible joint ventures, he added, to continue to facilitate the transfer of know-how and acquire necessary investments.

Asked about the outlook for the country's industry,

Dr Amir Hossein Zamani Nia, Deputy Petroleum Minister for International Affairs, stopped by for a visit at the OPEC stand.

Farahani sounded quite optimistic. "After sanctions, we all want to improve our industry — especially in petrochemicals and gas." So there is great motivation to expand activities in these other areas. More importantly, he added that the country has an amazing pool of talent and extensive human resources. "About 50 per cent of the population is under 30," he noted, which provides excellent opportunities for the future workforce of the country and the industry. "I think if foreign companies come to Iran, they will find a lot of young people full of energy and with good potential to do anything," he said. "Labour costs here are reasonable. Land costs are reasonable." So you have very good opportunities in Iran for those companies willing and able to come, he said, in what on the whole was an excellent and upbeat view of the country's future.

These are just a few of the many views expressed while at the exhibition. The optimism and confidence were truly remarkable — especially considering that the sanctions have not only prevented contractual arrangements between Iranian companies and potential partners in other parts of the world, but have also limited the country's access to the international capital markets, the global financial services industry, and commercial credit and loans from banking institutions abroad. But somehow, despite these seemingly insurmountable hurdles, local companies have worked wonders. And pooling their resources among themselves and using creative financing schemes, small Iranian companies, academic innovators, private developers, and entrepreneurs have all been able to rely on local know-how to help Iran's industry become leaner, tighter, and more efficient — in much the same way that Cyrus II of Persia grew fitter and stronger under the Median rule of King Astyages more than 2,500 years ago.

Needless to say, explaining the full complexity of the international sanctions is well beyond the scope of this article. But what should be clear is that such impediments seem to have functioned to make the Iranian oil and gas industry even more competitive. And on the ground, at the exhibition site as well as back at our hotel where many delegates were staying, it was clear that great things are expected in the coming months and years.

An OPEC presence

While most exhibitors represented commercial interests, there were a couple of stands that highlighted the important consensus-building work that is done by multilateral organizations. On an upper level of one hall was the Gas Exporting Countries Forum (GECF), which had a steady stream of visitors. Separately, at a strategically placed location on the ground floor, the Organization of the Petroleum Exporting Countries (OPEC) greeted visitors with the 13 flags of its Member Countries.

The reactions of visitors when seeing the presence of these two important multilateral organizations varied from initial surprise to sincere interest, and representatives from OPEC were kept busy fielding questions from people wanting to know more about the Organization's history, its research programme, and how OPEC works. "We are glad that you are here," said one young student of engineering who visited the OPEC stand. It makes us feel that we are a major player in the global oil industry, she said.

Many visitors seemed particularly interested in the *Annual Statistical Bulletin (ASB),* which is often used in conjunction with other statistical annuals published by other industry players. Also, the annual *World Oil Outlook (WOO),* OPEC's flagship analytical publication, was distributed to visitors who reacted with great interest. The WOO is the product of modelling and analysis conducted at the OPEC Secretariat, and provides a long-term outlook for both the upstream and downstream industries under various scenarios.

The OPEC delegation's local host and official liaison, ***Mohammad Moured Ghaffari***, who was present at the OPEC stand during the days of the exhibition, noted that a special booth dedicated to OPEC had appeared for the first time at Iran's Oil Show in 2010, on the occasion of the 50th anniversary of the Organization. This year, he added, for the fourth time, representatives from the OPEC Secretariat were participating in the exhibition.

During the exhibition, OPEC's pavilion was visited by some senior officials from Iran's Ministry of Petroleum. The Deputy Petroleum Minister and Managing Director of

Just a sample of some of the companies that attended this year's Iran Oil Show.

the NIOC, ***Roknoddin Javadi***, stopped by, accompanied by ***Dr Akbar Nematollahi***, Managing Director of the Public Relations Department at the Ministry. On the penultimate day of the exhibition, ***Dr Amir Hossein Zamani Nia***, Deputy Petroleum Minister for International Affairs, also stopped by for a visit. He listened with great interest to a description of the kind of work the Organization is engaged in these days, particularly given the recent low price environment. A former OPEC official, ***Dr Mehdi Asali***, now the Director General for OPEC Affairs at the Ministry of Petroleum and OPEC National Representative, also visited the OPEC stand, taking the opportunity to emphasize the importance of Iran's Oil Show and OPEC's participation in the event. ***Javad Yarjani***, the former National Representative of Iran at the OPEC Secretariat, also visited the stand, speaking with great appreciation for the Secretariat's active participation in the Oil Show.

These and other impromptu conversations reminded us that the real work of international business and commerce is done through simple gestures and chats, through the building of relationships and the establishment of friendships. Without the trust that only friendship engenders, commercial activities are too often reduced to flat, contractual arrangements that leave little room for the human dimension. The players in the Iranian oil and gas industry, whether large or small, seem to understand this intuitively.

The spirit of collaboration

As the exhibition ended and final, fleeting conversations were had with other exhibitors, one thing was made clear: that a spirit of friendship and collaboration really does underpin events like this. It matters little whether history or prior events have caused unexpected outcomes, or whether the languages used are dramatically different; what matters more is openness, the willingness to work together despite the challenges that may lie ahead.

And as the stands were taken down, the flowerpots removed, and all remaining promotional materials distributed to the last remaining visitors, finding ways to move forward despite differences seemed to be the key message.

It is this spirit of dialogue, collaboration, and cooperation — and the investments, technology transfer, and joint ventures that can result from it — that will continue to characterize growth in the oil and gas industry, and in Member Countries like Iran. And it is this spirit that was made manifest this year in the hallways and pathways of the 21st Oil, Gas, Refining & Petrochemical Exhibition in Tehran.

MENA energy investment to hit $900 billion over next five years

Despite the prevailing low crude oil prices and slump in spending in 2015, total committed and planned energy investments in the Middle East and North Africa (MENA) region, including Iran, will reach $900 billion over the next five years.

That is the view put forward in a new report published by the Arab Petroleum Investments Corporation (APICORP), the multilateral development bank that is owned by the Organization of Arab Petroleum Exporting Countries (OAPEC).

The report — *'MENA Investment Outlook: Big plans in uncertain times',* states that despite uncertainties in the region's investment outlook, APICORP estimates a 19 per cent increase in total MENA energy investment activity over the next five years, representing an increase of $145bn from the year before — to $900bn.

"Global investments in oil and gas fell by 20 per cent in 2015, compared with 2014 — one of the biggest drops in history."

Quoted by the United Arab Emirates (UAE) news service, *WAM,* the report points out that some $289bn of the full investment figure has already been committed to projects under execution in the region, while an additional $611bn worth of development schemes is planned.

Leading the investment drive is Saudi Arabia, along with the UAE and Kuwait, which will look to invest across the energy value chain. The report noted that Iraq and Iran will "play catch-up" but are determined to push their ambitious oil and gas plans forward, even though they are expected to face many above-ground challenges.

Algerian upstream investment

In North Africa, the report states that Algeria has pledged to pump billions of dollars into developing its upstream sector. A good deal is also expected in Egypt as recent gas finds promise to meet rapidly rising demand for electricity.

And in Morocco, Tunisia and Jordan, renewable-energy projects will be at the forefront of efforts to meet rising domestic demand for electricity.

Commenting on the report, Dr Raed Al-Rayes, Deputy Chief Executive Officer and General Manager of APICORP, said: "Global investments in oil and gas fell by 20 per cent in 2015, compared with 2014 — one of the biggest drops in history."

However, he said, against this trend, APICORP expects the MENA region to continue investing heavily as major energy-exporting countries expand the size of their energy sectors and strengthen their positions within global markets.

Despite the increasing investment plans within the MENA region, the APICORP report also highlights several challenges and constraints that will prove pivotal over the medium term.

It observes that global investments in the oil and gas sector are closely interlinked with oil prices.

Although some MENA countries, including Saudi Arabia, Iran, the UAE and Kuwait, have already announced they will go ahead with investment plans despite low prices, other countries with low fiscal buffers and competing pressures on their revenues, particularly Iraq, may have to reconsider their ambitious capacity-expansion programmes.

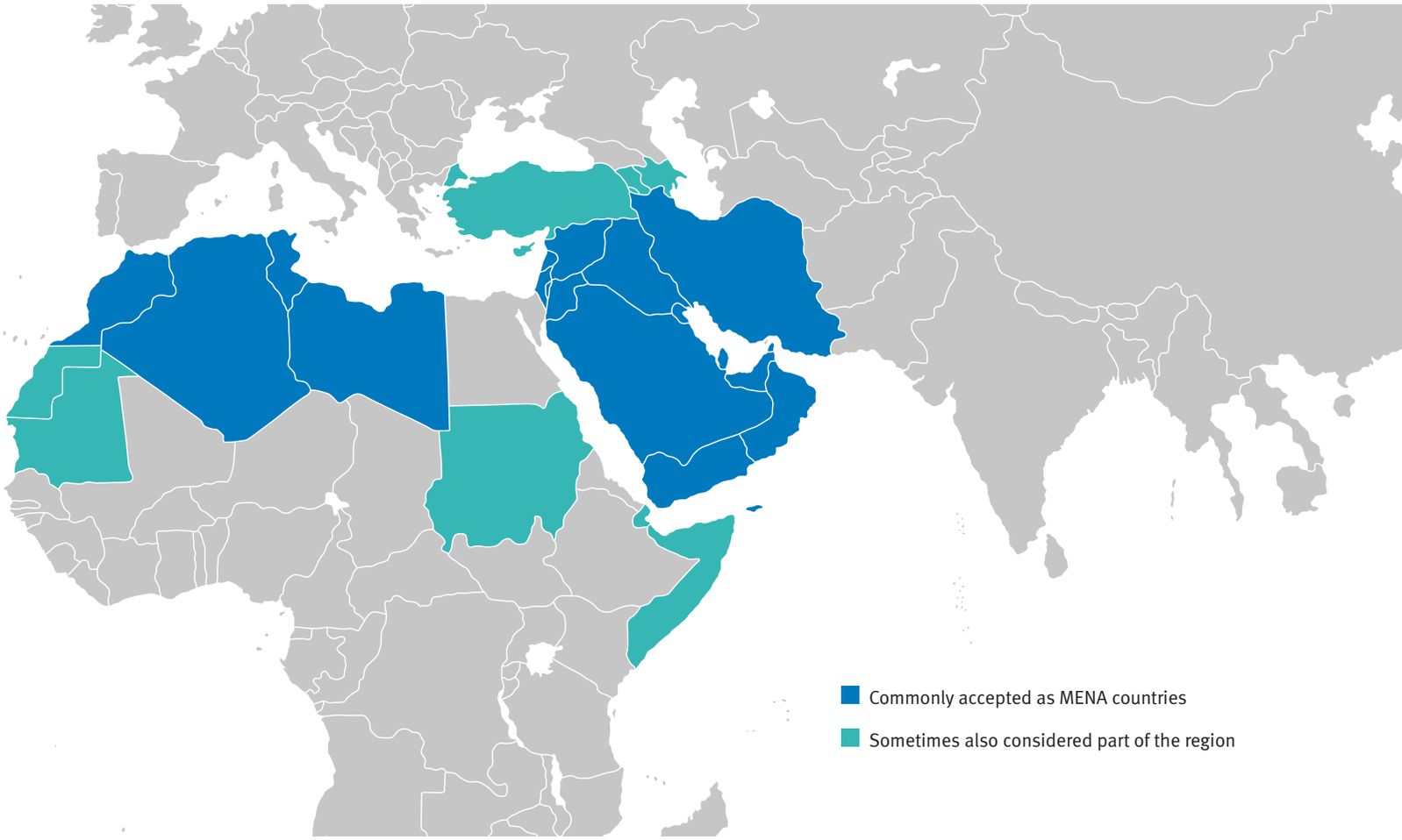
In addition, says APICORP, financing projects has become more challenging.

It notes that Standard & Poor's Ratings have indicated that credit worthiness in the MENA region has deteriorated over the past six months, with average sovereign ratings of 'BBB'.

Although recent efforts to attract foreign investment have seen some success, political and economic concerns mean investors will be cautious, the report stresses.

APICORP also highlights that parts of the region are in turmoil. Persistent conflicts in Syria, Iraq and Libya, and the emergence of a new coalition in Yemen, is reshaping the geopolitical landscape.

It says conflicts and instability in these countries will keep investments at bay in the near term, adding that regional instability is unlikely to recede in the immediate



future and investors will be wary of spill-over effects in neighbouring countries.

Dr Bassam Fattouh, an energy sector specialist and advisor to APICORP, pointed out that 2015 was unsettling for the MENA region at a time of slower global economic growth and low oil prices.

Many Gulf Cooperation Council (GCC) governments, he declared, have announced that budget deficits and public expenditure will be tightened in response. But, governments will prioritize critical investments in their energy sectors.

"Saudi Arabia has the largest committed and planned investments in the medium term, while the UAE and Kuwait have ambitious programmes throughout the value chain," he affirmed.

"The GCC will use their investments to maintain the status quo as the major supplier of energy to the rest of the world. Iran and Iraq will also play catch-up, especially as investments in Iran start flowing back after years of sanctions," he maintained.

"Saudi Arabia has the largest committed and planned investments in the medium term, while the UAE and Kuwait have ambitious programmes throughout the value chain."

Bouteflika praises Algeria's progress, oil and gas production set to rise

Algerian President, Abdelaziz Bouteflika, has praised the level of economic standing achieved by the country over the past few decades, stating that in the years ahead it will be important to promote and develop national production further to maintain the nation's progress.

Abdelaziz Bouteflika, Algerian President.

In a message marking the celebration of 'International Workers' Day', he said Algeria's huge investment efforts over the past few decades had made it possible for it to legitimately aspire today to build, in a short time, a productive, diversified and competitive economy.

He stressed the state's will to encourage productive investment and boost the role of companies in the OPEC Member Country's economic development.

"Algeria, over the past few decades, has made significant achievements, namely the transformation of our hydrocarbons, as well as human resources, into a production potential, both in the public and private sectors," the President said in the speech, read on his behalf by Mohamed Benamar Zerhouni, an adviser at the Presidency of the Republic.

He underlined that those achievements, made through "huge" investment efforts, had contributed to "the building of the basic infrastructure that are essential to socio-economic development."

Said Bouteflika: "It is henceforth possible (for Algeria) to aspire, and it is a legitimate aspiration, to the building, in a short time, of a productive, diversified and competitive economy, provided that national production is promoted and developed."

However, he pointed out that the country could not have a productive, diversified and competitive economy "if we are not interested in the promotion and development of national production."

He continued: "Our aspiration will be really met through the promotion of exports, in addition to hydrocarbons, and the strengthening of our economic development."

The President said Algeria today was confronted by an almost total dependence on hydrocarbon revenues, along with an increase in commercial imports whose costs had skyrocketed.

"This has forced us to use our foreign exchange reserve," he explained. "That is why we see the reduction, over the past months, of the volume of imports as a must."

Bouteflika maintained that the promotion of the national economy required a "leap for our companies" so as to win back the national market.

"It is one of the claims of the General Union of Algerian Workers (UGTA) — which we thank by the way — through mobilization for further production and consumption of domestic products," he added.

Meanwhile, concerning its hydrocarbons operations, Algeria is aiming to boost its crude oil and gas production by more than 20 per cent by 2020.

According to the country's Energy Minister, Dr Salah Khebri, new investment in upstream schemes was forecast to increase petroleum output to 241 million tonnes of oil equivalent annually by the end of the decade.

He told Algeria's National Council that, going through the next few years, petroleum output should hit 197 mtoe this year, rising to 210 mtoe in 2017, 215 mtoe in 2018, 225 mtoe in 2019 and 241mtoe in 2020.

Quoted by the *Algerian Press Service (APS),* Khebri revealed that oil and gas investments over the next five years would amount to $73.5 billion.

These, he said, were being made by the national energy company, Sonatrach, either alone or in partnership with international firms.

Khebri stressed that "all possible measures" were being taken to increase petroleum production, adding that previous declines in output had been compensated for by the higher prevailing crude prices.

He disclosed that the country's petroleum production had peaked at 233 mtoe in 2007.

Angola sets guidelines for Sonangol restructuring

The Angolan government has given the green light to proposed plans to restructure Sonangol, the state oil company, although the move only entails a set of basic principles at the moment.

According to Eng Jose Maria Botelho Vasconcelos, the OPEC Member Country's Minister of Petroleum, the guidelines to signaling broader moves to restructure the domestic oil sector, involved streamlining Sonangol's operations as an explorer and producer.

At the same time, he said, two new entities — a Petroleum Agency and a Superior Council — would be responsible for regulation and administration in the sector.

Quoted by the *International Oil Daily,* a source advising the Angolan oil industry stated that having established the basic principles, "the government will now work out the details, approve new legislation to implement the guidelines, create new entities and split existing ones."

However, he pointed out that due to the current climate of low crude oil prices, such a restructuring would take some time to implement.

The report by *Energy Intelligence* noted that two working groups had been looking at the guidelines, one to see how Angola's oil legislation could be improved and the other to come up with a broader reorganization of the whole sector.

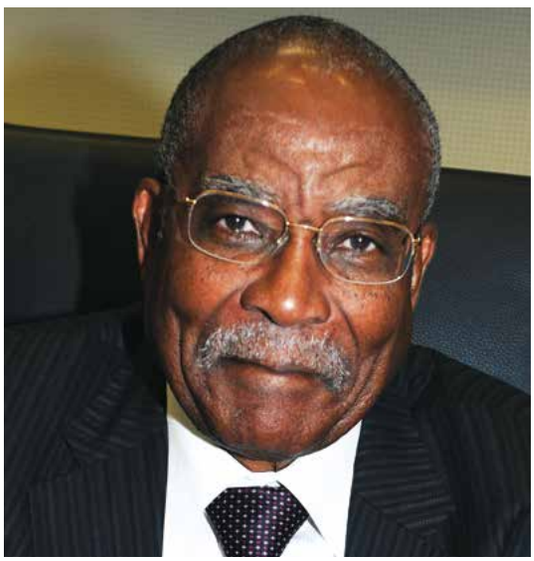
Angola, which is in discussions with the International Monetary Fund (IMF) for assistance as it seeks to cope with low crude prices, reportedly needs a considerable investment of $29 billion for energy and water projects if it is to attain its development targets by 2025.

"If we do not build this infrastructure, nothing will be developed," Joao Baptista Borges, Water and Energy Minister, was quoted as saying at a media briefing.

He stated that the Angolan government wanted to invite the private sector to invest in its power and water operations. The country is looking to add 5,000 megawatts of extra electricity to its power grid over the next decade, much of it to be derived from natural gas and hydropower.

In April, Sonangol announced the discovery of huge reserves of oil and natural gas equivalent to those found in the basins of Kwanza and Congo.

According to estimates, the exploitation of these new reserves would yield two million barrels of oil daily for three years.



Eng Jose Maria Botelho Vasconcelos, Angola's Minister of Petroleum.

The discovery will help Angola to increase production, which now stands at around 1.8m b/d.

At the end of February, Sonangol said it saw 2016 as being a tough year, but was still hopeful of a rise in oil production.

It is still aiming to attain its long-awaited crude oil production target of 2m b/d by the beginning of next year.

Sonangol said that to achieve this target, domestic production would have to rise by around 330,000 b/d from the 1.67m b/d average produced last year.

The 2014 production figure was 50,000 b/d lower than the 1.72m b/d recorded in 2013.

"The year 2016 will continue to be quite a difficult year, in which Sonangol hopes to increase petroleum production, which will certainly be accompanied by a substantial fall in the crude oil price," Sonangol said in the statement in February.

Indonesian regulator approves plans for 18 oil and gas projects

Sudirman Said, Indonesia's Minister of Energy and Mineral Resources.

Development plans for 18 oil and gas projects with a total investment of $1.496 billion have been approved by Indonesia's upstream oil and gas regulator, SKK Migas.

A statement by the regulator said estimated cumulative oil and condensate output from the 18 projects was forecast to amount to 45 million barrels of oil, while natural gas production was estimated at 271bn cubic feet.

The schemes are projected to start between 2016 and 2020.

The statement noted that most of the projects approved were operated by Chevron Pacific Indonesia, the local unit of the United States-based oil major.

SKK Migas revealed that the OPEC Member Country's crude oil production in the first quarter of 2016 reached an average of 835,234 barrels/day, slightly above the target of 830,000 b/d that was set in the 2016 state budget.

It said the target was met due to a combination of setting a realistic oil production target, as well as realising long-awaited crude production growth at ExxonMobil's Banyu Urip field, which forms part of the Cepu Block in East Java.

SKK Migas spokesperson, Elan Biantoro, was quoted as saying by *Indonesia Investments* that the country's crude oil output had been on the rise. In March, the daily average stood at 847,291 b/d, significantly up from the average of 786,000 b/d recorded in the full year of 2015.

Higher crude oil output had primarily come on the back of the Banyu Urip field, which reached peak production of around 165,000 b/d.

Output at this field, the largest existing oil field in Indonesia and estimated to contain some 450 million barrels of oil, had been on the rise since 2014, when output stood at an average of just 40,000 b/d. Production then increased to 130,000 b/d in December 2015, hitting its peak rate of 165,000 b/d in early March 2016.

Indonesian authorities and Exxon have stated that the Banyu Urip field would account for around 20 per cent of Indonesia's full-year 2016 total oil production target.

Other oil and gas companies have reportedly cut back on capital expenditure this year as a result of the prevailing low crude oil prices.

However, the Bukit Tua field, which forms part of the Ketapang block in East Java and operated by Petronas Carigali, as well as the North Duri Development Area 13 in Sumatram, operated by Chevron Pacific Indonesia, also recorded higher output in the first quarter of 2016.

The Bukit Tua field reached its peak production rate of 20,000 b/d, while the North Duri Development Area 13 entered its 'pilot project' stage. Peak production of 17,000 b/d is expected.

Biantoro also disclosed that Indonesia's gas production had also exceeded the target set by the government. It stood at around 8,290m standard cu ft/day in the first quarter.

Meanwhile, Indonesia's Minister of Energy and Mineral Resources, Sudirman Said, has said the country needs to develop sufficient oil buffers that can meet domestic demand for at least 30 days in times of trouble.

He revealed that, currently, and considering the rising level of domestic oil demand, the nation's oil stocks, which were managed by the state energy company Pertamina, could only cover 22 days of supply.

Said maintained that this level was far below the oil stock levels of several of its regional peers, such as Vietnam (two months) and Myanmar (four months), while the United States had oil buffers that could cover supplies for seven months and Japan for six months.

In this event, stated Said, Indonesia needed to make more investments in oil exploration, as well as in domestic refineries over the next five years.

The Minister noted that over the past two decades Indonesia's oil production had fallen sharply due to a lack of new oil exploration.

This trend, he said, had been caused by a relatively weak investment climate in the country, while its larger oil fields were located deep sea offshore causing production costs to rise steeply.

Iran seeks to double LPG output in post-sanctions era

Iran is planning to double its liquefied petroleum gas (LPG) production in the post-sanctions era, according to the Deputy Director of International Affairs for Marketing and Crude Oil Operation at the National Iranian Oil Company (NIOC).

In a keynote speech delivered to the first Argus Conference on Bitumen and LPG in Tehran, which he inaugurated, Safar Ali Keramati underlined Iran as one of the biggest and most reliable suppliers of LPG, bitumen and base oils, adding that Asia represented a significant part of Iran's export market for these commodities.

He pointed out that Iran had never lost its LPG market share even under the extended period of economic and trade sanctions over its nuclear programme.

But now, the removal of those sanctions greatly and positively impacted the OPEC Member Country's presence in international markets.

Quoted by the *SHANA* news service, Keramati noted, however, that the introduction of shale oil and gas by the United States into the global market had negatively affected the LPG market for traditional suppliers.

He disclosed that Iran currently produced eight million tons of LPG annually, of which 3m t came from natural gas, 2.5m t from petrochemical plants, while the rest was supplied by refineries across the country.

Infrastructure projects

Keramati told delegates that Iran was developing enormous infrastructure projects in Asaluye sand Bandar Abbas that would dramatically boost its export capacities.

He noted that the inauguration of the South Pars gas project phases would almost double the country's LPG output.

Keramati called on foreign countries and investors to bankroll the construction of a major industrial oil plant in Iran that would make the country one of the world's largest suppliers of finished products.

The Managing Director of the Iranian Gas Commercial Company (IGCC), Mohammad Ali Barati, told the conference that the country's annual LPG export capacity would reach 5m t following the completion of new phases in the South Pars field.

The SPQ1 gas platform is seen on the southern edge of Iran's South Pars gas field.

In also confirming that Iran's LPG production would experience a 100 per cent jump up to 2018, he noted that the domestic LPG production volume had enjoyed a 70 per cent rise from 2010 to 2016.

The Bitumen and LPG Conference was the inaugural event of the Argus Commodity Week of Iran.

Iran's Minister of Petroleum, Eng Bijan Namdar Zangeneh, considers the completion of the South Pars gas field's development phases of prime importance to the oil industry's upstream sector in the current year, in addition to the launch of the country's Star Refinery and the signing of new petroleum contracts.

Meanwhile, the Director of the National Iranian Gas Company for Planning, Mohammad Reza Qodsizadeh, has said that the export of gas to Iraq was Iran's top priority.

Speaking in an interview with *SHANA* on the sidelines of the 21st International Oil, Gas, Refining and Petrochemicals Exhibition, he said that this priority to its neighbour and fellow OPEC Member was based on Iran's 6th Development Plan.

He noted that the construction of the 600 km second part of the Iran Gas Trunkline-6 (IGAT-6), from Ahvaz to Dehgolan, had already started.

Completing the Iran-Iraq gas pipeline during the current and next Iranian calendar year was Iran's top priority, Qodsizadeh stressed.

Iraq's southern oil exports near to record in April

Iraq's crude oil exports from its southern fields in April were near to the record set in November last year.

Iraqi Oil Ministry spokesman, Asim Jihad, disclosed that the OPEC Member Country exported 3.364 million barrels/day of crude from the southern region in April. This compared with March's average of 3.286m b/d and was close to the record 3.365m b/d exported that was registered in November.

Oil exports increasing

Before November's 3.365m b/d record, Iraq's southern exports had never exceeded the 3.2m b/d mark.

According to a report by *Reuters*, the country was in line to exceed the record figure in April with loading data showing that exports in the first 24 days of the month were averaging 3.43m b/d. However, export volumes then fell back in the ensuing days.

Jihad pointed out that the April figures were for exports by the central government, which, he explained, was now only shipping crude from its southern terminals, and not through a northern pipeline to Turkey.

That pipeline, he said, was also used by the Kurdish Regional Government to independently export crude from fields it controlled in the north of the country.

Jihad said the Baghdad government, which relies on oil for nearly all its revenue, sold the crude in the month under review at an average price of $33.26/b which realized revenues of $3.343 billion.

Meanwhile, Iraq is in discussions with a number of companies for setting up a trading desk for refined products and crude oil.

Dr Falah J Alamri, Director General of Iraq's state marketing arm Somo, stated that Iraq needed to "enter the value chain" and could have a joint venture in place by the end of 2016 or the start of next year.

Alamri, who is also Iraq's Governor for OPEC, told the FT Global Commodities Summit in Lausanne, Switzerland: "We are in the process of partnering up with another company for crude oil and products."

Quoted by the *International Oil Daily,* he said Somo had not yet decided what the trading desk would look like, although he stated that it would need to meet the needs of Iraq's product imports and could support more intense crude trading.

A worker checks the valve of an oil pipe at Nahr Bin Umar oil field, north of Basra, Iraq.

Benchmark crude

Iraq is mulling over making its Basrah Light or Basrah Heavy crude grades available as a benchmark crude, which Alamri thinks would increase the value of the crude and boost its price stability.

Iraq is a considerable importer of refined products and in recent times has used the services of international firms like Vitol, Trafigura, Gunvor and France's Total.

Various national oil firms, such as Norway's Statoil, Angola's Sonangol, Brazil's Petrobras and Mexico's Pemex, operate sophisticated trading desks.

In the Middle East, Iran is said to probably have the most established trading desk, while others include the United Arab Emirates (UAE), Qatar, Kuwait and Oman.

Said Alamri: "So we have to do it. Iraq is late to the game."

Kuwait's oil expansion plans have more emphasis on gas

Kuwait is expecting to boost its oil production capacity to 3.165 million barrels/day by the end of 2016, according to Jamal Abdulaziz Jaafar, Chief Executive Officer of the state-owned Kuwait Oil Company (KOC).

Speaking on the sidelines of the Fourth Kuwait Oil and Gas Summit, he said current upstream development projects were scheduled to add 165,000 b/d to the OPEC Member Country's current 3m b/d crude output capacity.

Quoted by the *International Oil Daily,* Jaafar pointed out that the Gulf's State's overall aim was to increase its crude capacity to 4m b/d by 2020.

But the official explained that whereas the official target for 2020 was for crude alone, it now included condensates, such was the importance of gas to the nation going forward.

This change of focus, he added, was due to Kuwait's growing need for gas as a feedstock for the nation's refining, and petrochemical and industrial sectors, which were also expanding rapidly.

In so doing, said Jaafar, the country would attain more value from its crude oil resources, while diversifying its economy and cutting dependence on revenue from crude exports.

He maintained that Kuwait's gas development plans should result in around one billion cubic feet a day of new production, as well as 300,000 b/d of condensate, by 2022.

Jaafar explained that because they had not signed the facilities earlier, the extra one billion cu ft/d of gas would not be seen by 2020, but hopefully by 2022.

"By that time the new facilities will be ready to produce," he affirmed.

Jaafar revealed that the Kuwait Petroleum Corporation (KPC), the parent company of KOC, was due to soon sign two enhanced technical service agreements with international oil companies for onshore oil and gas development in the north and southeast of Kuwait, while a third accord was expected to be inked in September.

Meanwhile, Nizar Al-Adsani, KPC's Deputy Chairman and Chief Executive Officer, told delegates that the future focus in Kuwait would be on the Jurassic gas project.

In his keynote presentation to the conference, he said a number of long-planned upstream oil facility projects were moving ahead.

Recent contract awards included three deals for the provision of new oil-gathering centres, while bids for a fourth facility were ongoing.

Four new production facilities were planned. Contract awards for two of them had already been signed, while the other two were expected to be finalized soon.

In addition, international service provider, Petrofac, has been awarded a contract for a heavy oil project.

Al-Adsani disclosed that a new offshore exploration bidding round was expected to get underway within the coming year following an extensive marine seismic exploration survey.

Nizar Al-Adsani, KPC's Deputy Chairman and CEO.

"Our plan was to start in 2016, but we are a little delayed. We will start by March or April next year," he was quoted as saying.

Separately, Abdulaziz Al Attar, KPC Head of Research, said Kuwait's aim for a considerable increase in its domestic crude oil production over the next four years would help it secure future economic growth.

Addressing the *Platts* Crude Oil Summit in London, he said the 4m b/d crude capacity level would be maintained through 2030.

Al Attar noted that such an increase would represent a 44 per cent increase over Kuwait's current output of around 2.77m b/d. It would also be the country's highest ever output.

"We also intend to provide fuel stock capabilities to counter for seasonality and domestic energy demand," Al Attar was quoted as saying by *Market Watch*.

He said Kuwait was also planning to expand its domestic refining capacity to 1.4m b/d and enhance international cooperation.

UAE can become global clean energy finance capital

Dr Nasser Saidi, former Chief Economist of the DIFC, and now Chairman of the CEBC.

The United Arab Emirates (UAE) can become the clean energy finance capital of the world, according to Dr Nasser Saidi, former Chief Economist of the Dubai International Financial Centre (DIFC).

Saidi, who is now Chairman of the Clean Energy Business Council (CEBC), stated that the UAE's capital markets could "own the clean energy finance space" and in doing so, demonstrate global leadership in impact investments.

"The long-term economic returns on social investments that fundamentally shift the urban paradigm are enormous," he was quoted as saying by the UAE news service, *WAM*.

Speaking ahead of the Clean Energy Project Financing Middle East and North Africa (MENA) conference, presented by the National Bank of Abu Dhabi (NBAD) in Dubai, Saidi said: "We are rapidly entering a new economic age — a post carbon era, one in which the financial winners and losers may be separated by those who boldly pursue a first mover position in the solutions that support long-term sustainable development, and those who stand by and observe."

He stressed that the UAE had always been a pioneering nation that had strived to reshape and define the future.

"And as it transitions its own economy from oil into knowledge and investments it can become the clean energy finance capital of the world by owning the conversation around the subject,'' he maintained.

He paid tribute to the fact that more than 150 governments around the world — including the UAE — had signed the Paris Climate Agreement, which set out a framework to systematically decarbonize national economies and promote cleaner sources of energy and energy efficiency.

However, with the International Renewable Energy Agency (IRENA) recently reporting that the pace of renewable energy development needed to increase six-fold in order to successfully avert irreversible climate change, financing remained a challenge.

Nathan Weatherstone, Head of Sustainable Business at NBAD, said that even in an era of low commodity prices, the increasing commercial viability of utility scale projects in solar and wind was encouraging governments to turn to renewables as a core part of their future energy mix.

"MENA's financial community has a real and immediate opportunity to catalyze development in the growing renewable energy sector," he asserted.

"That is why we are delighted to support this Clean Energy Business Council event and why NBAD has committed to lending, investing and facilitating $10 billion in sustainable businesses within the next ten years," he informed.

The Clean Energy Project Finance in MENA conference brought together senior regional leaders from the public and private spheres to develop solutions to the renewable energy finance gap.

It addressed clean energy project financing opportunities and the economic feasibility of the future of renewables.

Global industry experts shed light on project financing structures, latest financial and energy innovations, share case studies and lessons learned.

Participants discussed making projects bankable in the MENA region, along with addressing the risks and barriers of renewable energy investment.

Call for papers

The OPEC Energy Review is a quarterly energy research journal published by the OPEC Secretariat in Vienna. Each issue consists of a selection of original well-researched papers on the global energy industry and related topics, such as sustainable development and the environment. The principal aim of the OPEC Energy Review is to provide an important forum that will contribute to the broadening of awareness of these issues through an intellectual exchange of ideas. Its scope is international.

The three main objectives of the publication are to:

1. Offer a top-quality original research platform for publishing energy issues in general and petroleum related matters in particular.
2. Contribute to the producer-consumer dialogue through informed robust analyses and objectively justified perspectives.
3. Promote the consideration of innovative or academic ideas which may enrich the methodologies and tools used by stakeholders.

Recognizing the diversity of topics related to energy in general and petroleum in particular which might be of interest to its readership, articles covering relevant economics, policies and laws, supply and demand, modelling, technology and environmental matters will be considered.

The OPEC Energy Review welcomes submissions from academics and other energy experts. Prospective authors wishing to submit papers should send them to: Executive Editor, OPEC Energy Review, OPEC Secretariat, Helferstorferstrasse 17, 1010 Vienna, Austria; tel: +43 1 21112-0; e-mail: prid@opec.org.

All correspondence about subscriptions should be sent to John Wiley & Sons, which publishes and distributes the quarterly journal on behalf of OPEC *(see inside back cover)*.

Global gas industry ready for significant growth — IGU

Natural gas is a vital energy resource that can lead to a lower carbon future, cleaner air in metropolitan areas, and a prosperous economic future.

That is the view expressed by the International Gas Union (IGU) which aims to promote the technical and economic progress of the gas industry worldwide.

In its *2016 World LNG Report,* released in April, the Union demonstrates how the global liquefied natural gas (LNG) industry is poised for growth and plays a key role in expanding access to natural gas in the world's future energy mix.

The IGU has more than 140 members worldwide on all continents, representing around 97 per cent of the world gas market.

The report discloses that LNG trade in total reached 244.8 million tons in 2015, up by 4.7m t from 2014 and the largest year ever for LNG trade, surpassing the previous high of 241.5m t set in 2011.

Although the Pacific Basin remained the largest source of demand, growth was driven by Europe and the Middle East.

New regasification markets formed in Egypt, Jordan, Pakistan and Poland, just in time to benefit from near record-low prices.

However, the decline in oil prices and growing weakness in Pacific demand led all global LNG price markers to fall in 2015 — from an average $15.60 million British thermal units in 2014 to $9.77m Btu in 2015.

In 2015, global liquefaction capacity reached 301.5m t per annum. A further 142m tpa of liquefaction capacity was under construction worldwide as of January 2016.

Final investment decisions (FID) occurred for a combined 20m tpa at Sabine Pass T5, Corpus Christi T1-2, Freeport LNG T3, and Cameroon FLNG. In 2015, the start-up of new projects in Australia and Indonesia contributed to the growth in non-long-term trade (all those volumes traded under contracts of less than five years), as the delivery of commissioning cargoes plus the prevalence of more flexible contracts allowed short- and medium-term trade to grow in both countries by over 3m t year-on-year.

In total, all non-long-term LNG trade reached 71.9m t in 2015, accounting for 29 per cent of total gross LNG trade.

The report noted that while the natural gas industry was undergoing fundamental changes as it operated in a historical low-price environment, the global social and political momentum illustrated by COP21 agreements reached in Paris in 2015 suggested that natural gas could be a critical part of the globe's future energy mix more than ever. "Natural gas accounts for roughly a quarter of global energy demand, of which 9.8 per cent is supplied as LNG," David Carroll, President of the IGU, commented in report's foreword. He pointed out that the report showed that a major expansion of LNG supply through 2020 positioned LNG to further increase its market share.

"The LNG industry has developed to a point where the necessary foundations have been built to turn natural gas into a truly global commodity, enhancing both energy security and meeting growing demand," he maintained.

But Carroll admitted that he "had been struck" by the remarkable changes seen in the gas industry over the past year.

"When we released last year's report we could see the writing on the wall … today there is growing evidence of fundamental changes in the energy industry."

Global energy pricing, he said, had entered a new paradigm; while $70 (and higher) crude was the norm for many years, the industry was now uncertain about when to expect a rebound to historical trading ranges.

"Gas industry dynamics are also changing. Projects approved several years ago in a more robust pricing environment are now coming onstream. This supply abundance has affected gas hub and spot LNG pricing levels. LNG contract prices are trending downward, driven by traditional oil-linked formulas," he affirmed.

Nevertheless, stressed Carroll, the LNG industry remained vibrant, with four liquefaction projects reaching final investment decision in 2015, representing 20m tpa of new capacity by the end of the decade.

"New regasification markets formed in Egypt, Jordan, Pakistan and Poland, just in time to benefit from near record-low prices. The United States is about to ride its shale technology revolution to increasing exports of both crude oil and LNG," he observed.

The report stated that natural gas had many important benefits. It was abundant, flexible and the perfect complement to intermittent renewables for power generation. It said natural gas provided clean affordable heating for industrial processes and for commercial and residential customers around the world.

The fuel also had benefits relative to coal and oil in terms of lower carbon emissions, but also in terms of particulates and other pollutants that contributed to poor air quality and ensuing health concerns. Carroll stated that the results of COP21 provided some uncertainty and hinted at some potentially exciting opportunities for natural gas.

While the overall message of COP21 was a desire to move the world economy away from fossil fuels and toward renewables, news from Paris also highlighted a nearer-term challenge, the detrimental effects of poor air quality on public health and economic development, he professed.

"The global social and political groundswell illustrated by the COP21 agreements suggests that gas can be a critical part of the globe's future energy mix." He concluded: "The IGU is strongly promoting the myriad benefits of gas and the worldwide LNG industry is playing a key role in expanding access to this important energy resource that leads to a lower carbon future, cleaner air in metropolitan areas, and a prosperous economic future.

About The International Gas Union (IGU)

The International Gas Union (IGU) was founded in 1931 and is a worldwide non-profit organization aimed at promoting the political, technical and economic progress of the gas industry. The Union has more than 140 members worldwide on all continents, representing approximately 97 per cent of the world gas market. The members of the IGU are national associations and corporations within the gas industry worldwide. The IGU organizes the World Gas Conference (WGC) every three years, with the forthcoming WGC taking place in Washington, DC, US, in June 2018. The IGU's working organization covers all aspects of the gas industry from exploration and production, storage, LNG, distribution and natural gas utilization in all market segments.

www.igu.org

Spreading the word

The King Abdullah Bin Abdulaziz International Centre for Interreligious and Intercultural Dialogue, tucked away in a magnificent, historical building in the heart of Vienna, Austria, may not seem gigantic, but it has big plans for the future. The OPEC Bulletin's Maureen MacNeill reports.

Established in 2012, the King Abdullah Bin Abdulaziz International Centre for Interreligious and Intercultural Dialogue (KAICIID) is a partner for United Nations agencies, national governments and internationally active religious and interreligious organizations. Its mandate: to promote the use of dialogue globally to prevent and resolve conflict, and to enhance understanding and cooperation.

Certainly a considerable goal in today's world, rife with inter-sectarian and religious upheaval and war.

"Here you have a relationship between politics and religion … with the increasing violence and problems in the world it has been proven the centre is needed," states KAICIID Secretary General, Faisal Bin Abdulrahman Bin Muaammar.

"In fact, we need more centres like this that really help to build bridges to help build respect to help connect civilizations and cultures, to help also to reduce violence in the world," he maintains.

Interreligious dialogue is the best and cheapest tool to reduce violence, he emphasizes.

Although plans were already being laid, the definitive spark for the centre could be traced back to a visit in November 2007 by the late Saudi King Abdullah bin Abdulaziz Al Saud (who died in January 2015) to Pope Benedict XVI at the Vatican. The Pope received the King warmly and the two discussed religious freedom and interreligious and intercultural dialogue.

It was the first ever visit of a Custodian of the Two Holy Mosques to the Vatican.

The late King Abdullah proposed an idea to announce interreligious dialogue among the followers of different religions and cultures.

However, the idea to establish a global dialogue initiative goes back even further, explains Muaammar. It was presented to the Islamic Summit at Mecca, Saudi Arabia, in November 2005 and supported by 57 Islamic states — the idea was warmly welcomed by those present.

What is really remarkable about KAICIID is that the first stone was laid in the Middle East, notes Muaammar. "That is why I think it was counterintuitive as it proved many people's assumptions about the Middle East to be untrue. In fact, if we look at early Islamic history, back to the time of the Prophet Muhammad, Islam had opened its doors to dialogue and interaction with those of other faiths."

The international stage for the initiative took place at a meeting in Madrid, Spain, attended by more than 500 leaders from different religions — Christians, Muslims, Hindus, Buddhists and others, according to Muaammar, who again pledged support for the initiative.

"The initiative was a long journey and was by no means quick. It was needed to bring the whole world closer and to use the tool of dialogue instead of clashing. There was a lot of talk about the clash of civilizations, a lot of talk about accusing one religion or the other," he says. "It was really very important for the whole world to look to this as a new tool to discuss problems."

The Saudi King then took the initiative to the UN General Assembly and a special committee

Faisal Bin Abdulrahman Bin Muaammar, KAICIID Secretary General.

Faisal Bin Abdulrahman Bin Muaammar.

was recommended to follow it up, at which the decision was reached to establish a permanent centre.

"The Austrians invited us to host the centre here," recalls Muaammar. "Vienna is well known for hosting international organizations and I think they are very interested in building bridges also. Vienna will soon be exporting dialogue to the whole world."

As a result, KAICIID was founded by the Kingdom of Saudi Arabia (Custodian of the Two Holy Mosques), Austria (the host country) and Spain (host of the Madrid conference), with the Holy See (the biggest Christian denomination) as the Founding Observer. Saudi Arabia is currently responsible for funding the centre, though the Centre is looking at other options.

"We will have a fundraising programme to ensure funding from a number of countries. The Centre is under no political, national, religious or economic influence from any country. It is free of any influence — independence is anchored in our agreement establishing the centre," asserts Muaammar.

"What is good about it is you have a founding state which is a political state, and you have a board of directors composed of nine religious leaders who are Buddhist, Christian, Hindu, Jewish and Muslim, which is a unique asset. We are the only intergovernmental organization in the world to have this structure.

"The idea is to build bridges between religious leaders and policymakers and this was missing in the past. There was not much involvement of religious leaders in providing support to policymakers. We need to do that and that is our main business."

Since 2012 the organization has been building up its structure, rules, procedures and dealing with issues that come with the opening of any new organization.

Global village

There are a lot of differences, cultures, religions and civilizations in the world, states Muaammar. "The world is a global village, there are no borders. If we make

geographic borders you can cross them through social media.

"We as humans enjoy getting to know one another, however the constant bad news and various crises that our world continually witnesses have created a mountain of psychological barriers."

The only way to face these problems is to talk and see where the problems are, he contends.

"Europe and the Middle East are getting closer and closer — through immigration and refugees ... I know from inside what is happening in Iraq, Syria, Yemen. We need to do more than we are doing now.

"I do not claim that interreligious dialogue is the only solution, no. But it can play a major part. Religion in that region is very important, whether it is Christianity or Islam or Judaism. Religious leaders have a lot of influence.

"Secondly there is growing fear; widespread Islamophobia in Europe and around the world, anti-Semitism, as well as Christianophobia."

Muaammar adds that it is very important to improve citizenship status for people in the Middle East.

"Promoting equal and shared citizenship in Syria, Iraq and other nations with diverse populations, is essential. Diversity ensures the cultural richness of a region. Iraqi and Syrian Christians and Muslims, as well as other ethnic groups, are equally rooted in the history of these two nations and must coexist. There are no minorities, all are citizens!"

In addition, other issues such as human rights and women's rights are connected to interreligious dialogue, claims Muaammar.

"The mere fact you have interreligious dialogue at all is a contribution to the better implementation of human rights in all countries because the assumption is that regardless of who is talking, each will have a different perspective on the same rights, and in particular, the exercising of those rights.

"If people do not talk about how this is to be realised, there will never be any possibility of building up a place of support for the broader exercising of human rights."

"This is based on the UN special rapporteur report on human rights which says that interreligious dialogue is necessary if you want to ensure the exercise of universal human rights, whether it is about women or being able to voice concerns at the policy level of various groups, freedom of speech, freedom of religion etc. So it is clearly part of the mandate."

In the preamble to KAICIID's multilateral treaty it

Faisal Bin Abdulrahman Bin Muaammar.

The KAICIID Dialogue Centre (King Abdullah Bin Abdulaziz International Centre for Interreligious and Intercultural Dialogue) was founded to enable, empower and encourage dialogue among followers of different religions and cultures around the world.
Located in Vienna, the Centre is an independent, autonomous, international organisation, free of political or economic influence.

The Founding States of the Centre (Kingdom of Saudi Arabia, Republic of Austria and Kingdom of Spain) constitute the "Council of Parties" responsible for overseeing the work of the Centre; the Holy See is admitted as a Founding Observer to the Centre.

The Board of Directors comprises high-level representatives of the major world religions (Judaism, Christianity, Islam, Hinduism and Buddhism) and cultures. The Centre is headed by a Secretary General. An Advisory Forum of up to 100 members of other religions, cultural institutions and international organisations will provide a further resource of interreligious and intercultural perspective.

specifically supports the Declaration of Human Rights and in particular freedom of thought and expression. Although the primary interest is building mutual respect between people, there is an increased demand for interreligious dialogue in addressing refugee support and integration.

"Which is why our strategic focus for the next three years is applying interreligious dialogue in tough conflict situations, where citizenship and human rights are severely restricted," states Muaammar.

Other really tough problems being addressed by interreligious dialogue include, for example, environmental degradation, he explains.

"A perfect example of this is the Ecumenical Patriarch, Bartholomew I, also often referred to as the 'Green Patriarch' because of his commitment to environmental activism and protecting the planet," states Muaammar. "There's a huge interreligious dialogue movement in support of environmental preservation."

KAICIID

KAICIID

Top: A KAICIID Fellow led students on a tour of different places of worship in Uganda. Religious site tours are a key part of instilling interreligious understanding and mutual respect.

Above: KAICIID supported the development of an interreligious education manual in Indonesia, an OPEC Member Country of more than 200 religions.

Fighting terrorism

Muaammar comments on the terrorist group called the Islamic State (ISIS), stating crime is not new in the world, but it is very important not to associate terrorist acts or crimes with any religion or culture.

"That is the number one issue — the misuse of religion and sometimes criminals who are trying to associate themselves with any religion … we have to fight it."

The second point is that there is a silent majority in every religion and "if we do not bring this silent majority to speak and to denouce these few groups who are claiming they represent this culture or this religion then we are committing a mistake," he maintains.

The third focus is to see what the cause is. "Justice is very important. Fighting poverty is very important. Solving problems of youth is very important. Stability is very important.

"I believe that knowledge, sound education and stable social structure allow us to cherish the value of human dignity and ensure that we remain open to understanding and respecting others through dialogue.

"I believe there is a growing world movement to put an end to this violence and I know that mistakes have been made in dealing with certain issues. An obvious example for me is the worrying trend of associating Islam with terrorist acts by the media and some politicians.

"I strongly believe that the constant use and repetition of the term 'Islamic State' by the media and many politicians over recent years has been a huge mistake, as it has unintentionally given credibility to ISIS' conviction that they are somehow 'Islamic'. A brand name of sorts has been unwittingly handed to them on a silver platter. They are criminals and must be vilified as such.

"The primary victims of terrorism have been Muslims by a huge, huge factor — this is what so few understand.

"What we are experiencing in Europe (with terrorism) now is what we have long witnessed as an everyday occurrence in the Middle East," Muaammar adds. "It is also a wakeup call that we are one world. Calling it a refugee crisis just shows the helplessness of the situation because where else would they go?

"When you look at the global number of 60 million refugees and displaced people you really do have to focus your energies. The only way you are going to get cross-community support is through dialogue. It is essential."

Partner organizations and projects

KAICIID does a lot of work together with various UN branches, including the UN Educational, Scientific and Cultural Organization, the UN Development Programme as well as with interfaith organizations around the world, according to Muaammar.

"We have created different programmes where we are in partnership with different organizations all over the world."

For example, a current leading project is called the Peace Mapping Project, which is an online directory of information for all interfaith and international dialogue organizations in the world which are working to build peace.

Another area KAICIID focuses on is training, particularly training for young religious leaders. There is also a major programme called United Against Violence in the Name of Religion, which has been strongly recognized by the media. The organization additionally contributes to bringing religious leaders in conflict zones together to help each other and support peace building in the area.

If you want to institute interreligious dialogue within religious communities then you have to start with religious educational centres, states Muaammar.

"Fundamentally, you have to find the place where people are trained to be religious leaders. And then you have to convince the power structure that interreligious dialogue is not only necessary but effective and desirable because not every community believes that interreligious dialogue is necessary."

"Targeting religious or educational leaders who are mid-career is preferable", he says. "They adapt the curriculum in a way which best suits their respective communities. Each group of trainees represents about 20 different countries. They spend a year together and must meet at least four times physically in different parts of the world."

"They go to places of worship, find out about background, ask each other tough theological questions."

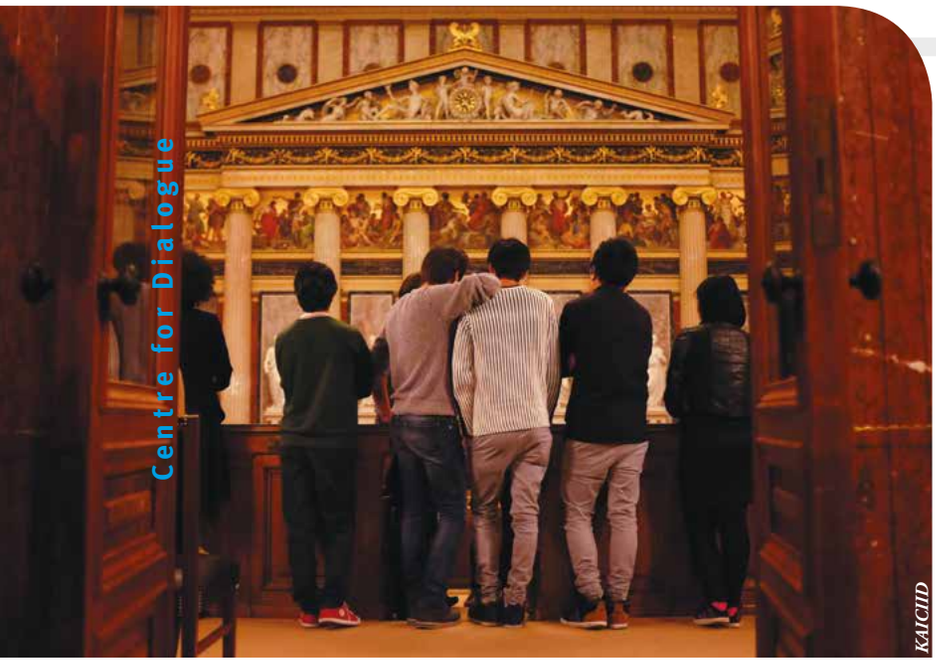
In fact, two Fellows, one Hindu and one Muslim, are writing a book on how difficult it is to understand each other (after having had this experience), he states.

In 1965 the Catholic Church changed Church doctrine by issuing a declaration to encourage and initiate dialogue with non-Catholics, observes Muaammar. "So when we think about a civilization of dialogue, it is really very young — it is a mid-20th century innovation."

Measuring success

The challenge after three years is to measure success in the programmes which have been started, states Muaammar. There are some criteria to measure programmes, he says.

"We need to achieve progress otherwise we will be just wasting our time. Our field is not an easy field to be measured. It will take time. Maybe it is easy to measure in



Europe where things are stable and everything is organized — other parts of the world where there is crisis it is not easy, but we can reach success and we can see it.

"For example, to bring together religious leaders from different backgrounds, from different religions … it is a success."

Dialogue does not only include bringing people together to talk, but providing them with the skills of dialogue, training, choosing the right people, choosing the right subject, discussion, how to facilitate discussion, how to follow up, how to implement ideas, how to build trust and how to cross psychological barriers, says Muaammar.

At KAICIID there are 55 employees from 25 countries, among them top experts in these areas, who address these issues, he adds.

The organization must adhere to correct procedure when getting involved in a country, which means approaching that country's government and religious leaders, following rules and protocol. "The UN helps us a lot."

In some countries KAICIID talks to religious leaders and they secure permission for the organization to work there, for example if the political situation is unstable. In the case of one country, people had to be brought out to talk.

Governance and structure

The core of the organization is now in place, the Advisory Forum is the last of the institution's bodies to be established, states Muaammar. There are 12 seats on the board, reflecting the world's major religions, nine of which are currently filled.

"The idea is that there is a check and balance against any kind of denominational or national influence so whatever programmes are designed must be inclusive and the only way to guarantee that is if the board unanimously agrees," he adds.

Top: Asylum seekers look on during a tour of the Austrian Parliament. KAICIID supports refugee cultural integration through its various outreach projects.

Centre: The International Fellows Programme is an initiative through which KAICIID trains peace builders around the world. This network links dozens of practitioners from all major world religions.

Left: A KAICIID Fellow supported peace and reconciliation in Sri Lanka, a country still recovering from a 20-year civil war. By focusing on educating young people, dialogue practictioners work to form the next generation of peace builders.

The Forum – with up to 100 members of other religions, cultural institutions and international organizations – is seen as a way to provide a further resource for interreligious and intercultural perspective.

The thinking is that no matter how many seats are on the board, it would not be really inclusive unless there was some sort of advisory forum for other religions that are not on the board, but also those with different cultural and geographical perspectives, and people who represent international, intergovernmental and civil society, states Muaammar. "For now we have 38 members and the first meeting recently took place."

Setting up the Forum took about one-and-a-half-years because everybody had to agree on its composition, rules of procedure, etc says Muaammar. "And we are like any other international organization — spread across many time zones, so it is complicated.

"The next step is to bring these two bodies together, the board and the advisory forum. What the board is saying is: 'We cannot know everything — know our traditions, we want to learn about yours.' It is like a learning centre, a virtual think-tank for the board."

The Vatican normally does not take such an active role in governing bodies, claims Muaammar, but "here they are always at the table and always involved in decision-making. They are very, very active, which is good, and also refer to themselves as the Founding Observer — they are actively branding themselves as being part of the founding infrastructure of the organization.

After the board agrees on plans, the entire budget is brought to member states to agree.

"So it is in line with the multilateral treaty of this establishment. They ensure this remains within the broad framework of being supportive of the UN Declaration of Human Rights, the UN charter, international law, etc. and at the same time ensure the board really did approve a programme that is inclusive and pan-denominational."

The board works with the Advisory Forum in task forces, which also offer expertise on the areas where the Centre should engage, says Muaammar. "These are people who have advocated very assertively for the rights of other religious groups as well as their own."

The future

KAICIID is working on a strategy of enlargement, according to Muaammar. "We will soon open the door for different countries to join, but there will be a procedure for this. The strategy is currently with the board and member states for a final decision.

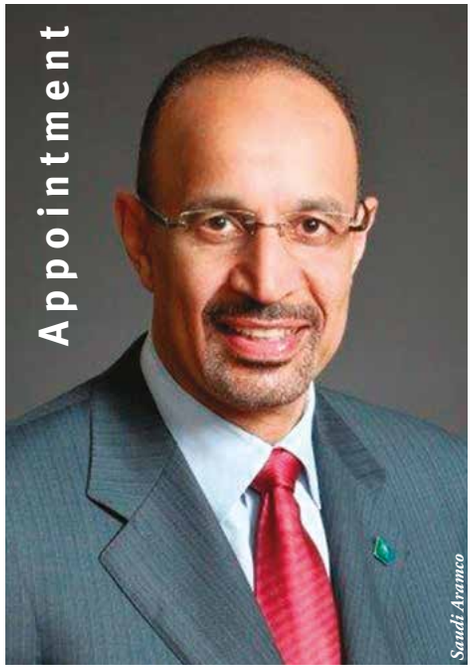
Faisal Bin Abdulrahman Bin Muaammar with the OPEC Bulletin's *Maureen MacNeill.*

Meanwhile, support for the centre and similar initiatives is growing internationally. "Maybe we need ten like KAICIID. Not only world leaders, but the UN and international organizations are supporting it. They need it because it is the most peaceful way of solving problems, says Muaammar.

"We hope and dream that we can contribute — that we can play a major role in peaceful things in the world and we can do it. We know that through dialogue, through interreligious dialogue, through building bridges there is success, so this is how I can see there is an open door for all of us to do more and more and more.

"I see that the world is shifting from hard solutions to soft solutions. I think there could be a way of reaching peace," says Muaammar.

"If you want to work in this field you have to be positive," he adds, smiling.



Khalid A Al-Falih.

Saudi Arabia appoints new Energy Minister

Khalid A Al-Falih has been appointed Saudi Arabia's new Energy Minister, succeeding Ali I Naimi, who held the position for just over two decades.

In the Royal Decree announcing the appointment in early May, the former Petroleum and Mineral Resources portfolio was renamed the Ministry of Energy, Industry and Mineral Resources.

Al-Falih, formerly President and Chief Executive Officer of the national energy concern, Saudi Aramco, still holds the position of Chairman of the company's Board of Directors. In a statement after his appointment, he stressed that the Kingdom would maintain its petroleum policies, adding that it was committed to meeting demand for hydrocarbons from its customers.

"Saudi Arabia will maintain its stable petroleum policies. We remain committed to maintaining our role in international energy markets and strengthening our position as the world's most reliable supplier of energy," he was quoted as saying.

"We are committed to meeting existing and additional hydrocarbons demand from our expanding global customer base, backed by our current maximum sustainable capacity," he affirmed.

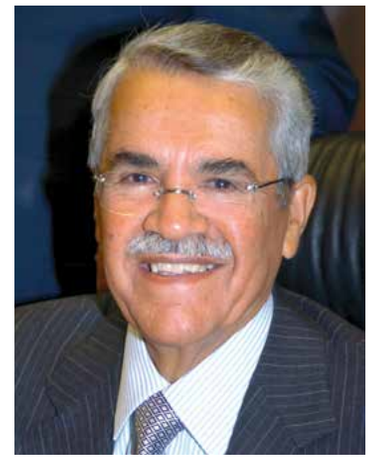
Concerning the change of name of the Ministry, he said this was in line with the transformation of the economy envisaged under the recently announced 'Saudi Vision 2030'.

"The creation of the new Ministry in Saudi Arabia brings together the Kingdom's abundant and unrivalled energy and mineral resources and industrial capabilities," he stated.

Al-Falih, who was born in 1960 in the Saudi Arabian capital, Riyadh, attended Texas A&M University in College Station, earning a bachelor's degree in Mechanical Engineering in 1982. He later pursued an MBA at the King Fahd University of Petroleum and Minerals, which he completed in 1991. In his working career, he joined Saudi Aramco in 1979, holding several positions in project management in the ensuing years as he established his presence in the company.

In 1992, he joined the firm's Consulting Services Department (CSD) and was named CSD Manager in January 1995. Later that year, he became Manager of the Ras Tanura Refinery Maintenance Department and by 1998 he had become Manager of the Business Analysis Department.

In July 1999, Al-Falih was appointed President of the Petron Corporation, a joint venture between Saudi Aramco and the Philippine National Oil Company.



Ali I Naimi.

In September the following year he returned to the Kingdom to serve as Vice Chairman on the Saudi Aramco Study Team for Upstream Gas Ventures. In May 2001, he was appointed Vice President of Gas Ventures Development and Coordination.

Al-Falih played a leading role in negotiations with international oil companies and other major national oil firms in connection with the Kingdom's natural gas initiative which saw four joint ventures — the South Rub' al-Khali Company (SRAK), Luksar Energy, Sino Saudi Gas, and EniRepSa Gas — established.

In early 2003, he headed a newly formed administrative area, called New Business Development, and served as Exploration Vice President from April 2004 and Senior Vice President of Gas Operations from August of that year. In October 2004, he was appointed to the Board of Directors of Saudi Aramco. He served as Chairman of the Board of the joint venture between Shell, Total and Saudi Aramco.

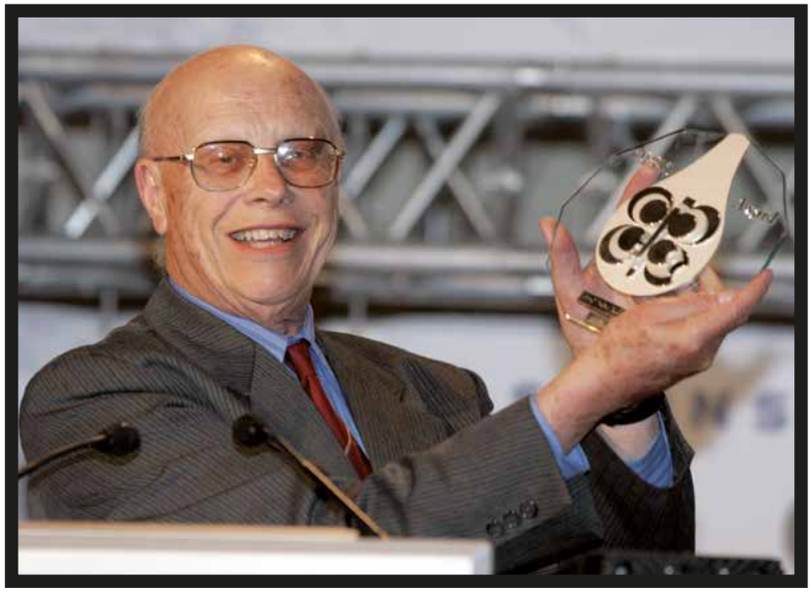
With Saudi Aramco, he served as Senior Vice President, Industrial Relations, as well as Executive Vice President of the Operations Business Centre.

Then with the retirement of Abdallah S Jum'ah, Al-Falih, who was serving as Saudi Aramco's Executive Vice President of Operations, was appointed as the new President and Chief Executive Officer of the company, effective January 2009 until he was succeeded by Amin H Nasser in September 2015. He was appointed Chairman of the Saudi Aramco Board of Directors in April 2015.

Al-Falih is a well-known advocate for higher education in Saudi Arabia. He is a founding member of King Abdullah University of Science and Technology (KAUST) and serves as a member of its Board of Trustees. He also continues to oversee Saudi Aramco's partnerships with King Fahd University of Petroleum and Minerals (KFUPM), where he serves as a member of the university's International Advisory Board.

Al-Falih is a member of the Asia Business Council and the J P Morgan International Council. He also sits on the Board of Directors of the United States-Saudi Arabian Business Council. In addition, he is active in many social programmes.

OPEC prize winner Peter Odell passes away



It was with great sorrow that the OPEC Secretariat learnt of the passing of Professor Peter Odell, a world-renowned economist, an eminent scholar and historian of the global oil industry, and the recipient of the OPEC Award for Research in 2006.

His research and publications on a broad range of economic and geopolitical issues, relating to global energy, spanned six decades.

The depth and longevity of his work should be greatly admired, as well as his belief in the importance of sharing his thoughts and research findings with the larger academic and research community so that knowledge of the industry can be enhanced around the world.

Odell was born in 1930 in Coalville, Leicestershire, in the United Kingdom, into a family of coal-miners and railwaymen. His lifetime interest in energy emerged from this background.

Following three years with Shell International's Economic division from 1958, he moved to academia via the London School of Economics and subsequently in 1968 to a Chair in the Netherlands School of Economics, now part of Erasmus University in Rotterdam.

He retired from his Directorship of the University's Centre for International Energy Studies in the 1990s. He then became the Professor Emeritus of energy economics at Erasmus University, and a visiting professor at the London School of Economics.

Throughout his career, Odell enriched the available oil and gas market commentary and analysis, writing numerous books and research papers.

In 1970, he wrote one of his, and the oil industry's, most authoritative works, Oil and World Power. The publication ran to eight editions and 13 translations between 1970 and 1986, and has proven to be of immense value to students of energy economics the world over.

More recently, he published a two-volume selected collection of 70 of his studies and commentaries, entitled Oil and Gas: Crises and Controversies, 1961–2000; and, in 2004, the book, Why Carbon Fuels Will Dominate the 21st Century's Global Energy Economy.

In 1991, he was honoured by the International Association for Energy Economics for his "outstanding contributions to the subject and its literature," while in 1994 he was awarded the Royal Scottish Geographical Society's Centennial Medal for his studies on North Sea Oil and Gas.

In 2006, he was the recipient of the OPEC Award for Research. In handing the OPEC Award to Odell, the then Nigerian OPEC Governor, Ammuna Lawan Ali, said Odell was a "gift to academia" and a legend of the global energy sector.

She paid tribute to his "unparalleled commitment and contribution" to the energy industry with over five decades of academic and research excellence in energy economics.

"This is a man who has devoted his whole life to research in petroleum economics," she added.

In accepting the award, Odell said he wanted to express his appreciation of the honour which OPEC had bestowed upon him in the context of the criteria employed by the Organization's Board of Governors in reaching their collective decision.

"This award to me was totally unexpected and I will endeavour to ensure that my efforts to understand the international oil and gas industry continue to meet the criteria on which the award has been made," he said.

There is no doubt that Odell's body of work and his long list of achievements exemplify the criteria of the OPEC Award for Research.

And his passion for the oil and gas industry, as well as his analysis and insights into both its past and future, will continue to be important to the industry and scholars in the decades ahead.

Traditional dishes in OPEC Member Countries

Unique flavours reflect diverse cultural roots

In identifying OPEC Member Countries on the world map, the disparity in their geographical locations becomes prevalent. It is a dispersion that has contributed exceptionally to their massive cultural wealth. Today, the Organization comprises 13 sovereign states as a result of Indonesia reactivating its membership at the beginning of the year after initially joining in 1962 and suspending its ties in 2009.

OPEC's Members are found across three different continents — Africa, Asia and South America. And the cultural diversity they naturally enjoy has been a driving force for the emergence of delicious, delightful, rich-in-flavour national dishes. Of note, the various landscapes surrounding Member Countries are considerably heterogeneous; a factor that has played an influential role in the development of traditional meals and the specification of the seasoning used, whether it be for a soup, steak, grilled fish or even a sweet dish.

In this article, OPEC intern, **Ayman Almusallam**, takes you on a journey through Member Countries to savour and sample the full flavour of some memorable meals and tasty classics.

Algeria

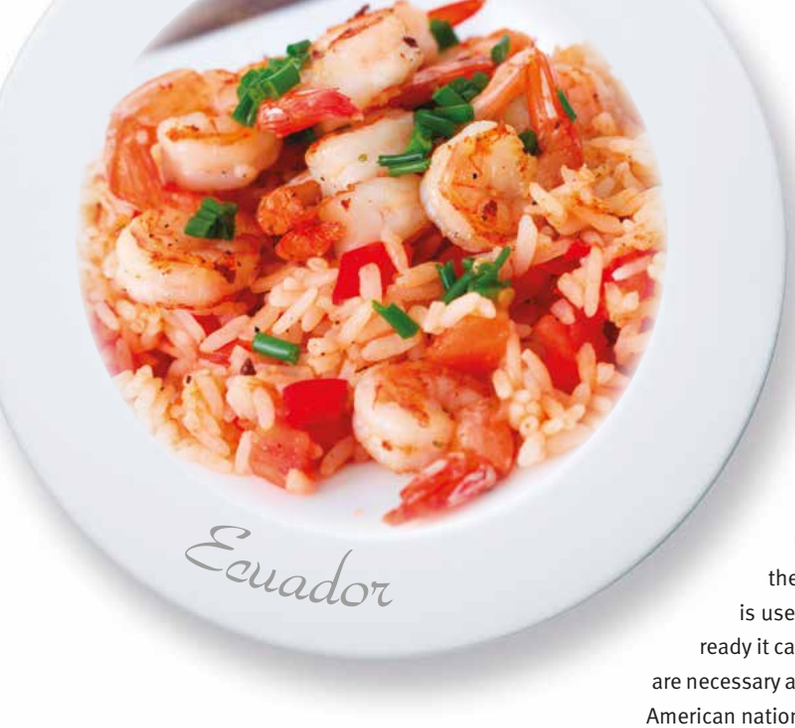
Merguez

The tasty *Merguez* is a reflection of North African culture and reflects its diverse and extensive cuisine. It is a common dish found in the Republic of Algeria, which joined OPEC in 1969. Made primarily of beef or mutton, essentially it is fresh seasoned sausage. Its colour is normally red due to the use of chili pepper, either cumin or harissa, garlic and sumac. Noteworthy, harissa is a paste used as a spice in cooking and it consists of several types of spicy and non-spicy peppers, in addition to saffron, coriander, caraway and rose. Some add olive oil as well. The tangy sausages are normally served grilled or dried. Optionally, it can be used to prepare sandwiches. Chips are usually served as a side dish. Moreover, *Merguez* is also consumed in other regional nations, such as Libya and Tunisia.

Angola

Moamba de galinha

The cuisine of this south central African country is influenced to a great extent by the Portuguese colonization and its indigenous culture. The Republic of Angola, which joined OPEC in 2007, overlooks the Atlantic Ocean, another important factor that has helped shape the nation's cuisine. *Moamba de galinha* is one of the widespread dishes enjoyed among Angolans, in addition to Funge. The thick broth-based dish is cooked frequently in the country. It is typically prepared with chicken, okra and palm paste. To enhance the rich seasoning taste, red palm oil, red palm hash and garlic are added. Several variates of the dish exist, such as *Uamba de ginguba*, which is cooked with peanut sauce, substituting the palm paste. If the right balance is achieved, the dish should be yellow in colour and naturally delicious in taste.



Ecuador

Arroz con Camarones

The Republic of Ecuador, which joined OPEC in 1973, suspended its Membership in 1992 and rejoined in 2007, relishes a wide range of seafood meals and platters, the result of being located on the shoreline. A delicious *Arroz con Camarones* is one of the most popular and frequently cooked dishes in the South American nation. The classic Ecuadorian meal is a rice-based dish comprising shrimp, shrimp broth, garlic, cumin, sautéed onions, peppers, tomatoes and parsley. To maintain the rich flavour of the shrimps, they are cooked with their shells on, after marinating them with pepper, salt and garlic. The shrimp broth is used as a flavour for the rice, hence they should be cooked together. Once the dish is ready it can be served with avocado slices, onion curtido and tomatoes. Moreover, lime slices are necessary additions to enhance the seasoning of the dish. The meal is also known in other Latin American nations, especially those found near the coast.

Indonesia

Soto Ayam

A classic traditional Indonesian dish that has gained a global reputation is *Soto Ayam*. The Southeast Asian nation enjoys a diverse cuisine reflecting its massive land area and population size. The dish comprises a spicy liquid food in essence, flavoured by various condiments and enriched by adding chicken slices. The meal is served with noodles or vermicelli, a traditional kind of pasta that is similar to spaghetti. Turmeric is added as well to enrich the meal's flavour and colour. Garlic is also used. Some serve it with fried shallots, slices of fried potatoes, Chinese celery leaves or a hard-boiled egg. The dish is normally served warm. Its dominant colour leans notably to the colour yellow. The meal is commonly found in Indonesia, Singapore and Suriname. Of note, several variations of the dish exist.

IR Iran

Fesenjãn

Khoresh-e Fesenjãn, commonly known as *Fesenjãn*, is an outstanding tangy dish cooked frequently by the masses in the Islamic Republic of Iran. The traditional meal in the OPEC Founding Member consists of Iranian stew and seasoning. The meat used in the dish is typically chicken. However, some substitute it with duck, lamb or even fish. For vegetarians, the meal can be cooked without adding any meat. Several additional ingredients are prepared in order to create a perfect seasoning, such as pomegranate, pomegranate syrup and walnuts. The balance in spices plays a significant role in determining whether the dish will be sweet or sour. Traditionally, the dish is served with Persian white rice. Although *Fesenjãn* is primarily found in IR Iran, it is also consumed in Iraq and Azerbaijan.

Iraq

Dolma

Rich, tasty and very diverse is *Dolma*, the traditional dish of Iraq, another of OPEC's Founding Members. *Dolma* is a reflection of the nation's extensive and varied culture. The principle idea involves stuffing different types of common vegetables found in Iraqi cuisine with seasoned rice. Depending on the personal preference, meat can be included in the stuffing, in addition to herbs, dill, parsley and various condiments. Onion, zucchini, pepper, tomato and eggplant are examples of vegetables that *Dolma* is made of. Of note, olive oil is an important topping of the dish. The dish can be served either cold or warm. Regularly, Tahini, egg-lemon, garlic yogurt or cucumber yogurt are served as a side dish. *Dolma* has gained popularity throughout time across several countries, which have developed the dish further. In some particular areas of the Middle East, vine leaves are prepared in a similar technique as the one used in *Dolma's* preparation. Stuffed vine leaves are popular in Lebanon, Syria and Turkey.

Kuwait

Machboos

The classic of Kuwaiti hospitality — the lamp *Machboos* — is one of the most traditional dishes in the State of Kuwait, an OPEC Founding Member. It is rich in taste and recommended for a big appetite. The intensively spiced rice-based dish consists of two key ingredients — high-quality long-grain rice and seasoned chicken or mutton. The use of a leg of lamb is also recommended. As for condiments, cinnamon sticks, whole cloves, cardamom, in addition to sea salt, dried black lime and saffron are included. Onion can also be used. The dish must be served with lemon and dakkous. Dakkous is a unique tasty spice used to flavour a particular range of meals. It comprises tomato paste, chopped onion, fresh tomato sauce, cloves, white vinegar, salt and lemon. The typical side dish is salad. The meal is commonly found in Arab states located in the Gulf region, such as Saudi Arabia, Bahrain and Qatar.

Libya

Bazin

The cuisine in Libya, as any other cuisine, is heavily influenced by local culture and practices. A very popular dish in Libya, which joined OPEC in 1962, is *Bazin*, or *Bazeen*. The essence of the dish is primarily unleavened bread which is typically prepared with water, barley and salt. The preparation starts with boiling barley flour in water then creating a dough. The second step is usually carried out with the use of a special stick which is produced mainly for the above purpose, known as magraf. The dough is then placed in a pan in order for it to harden, then it can be either baked or steamed. Additional ingredients that can be used are olive oil and pepper. *Bazeen*, or *Bazin*, is usually served with eggs, mutton, tomato sauce and potatoes. It can also be eaten with cooked pumpkin.

Nigeria

Isu

Isu, or spiced yam, is a regularly consumed meal in Nigeria. Among all other regional dishes, *Isu* gained a distinct popularity in the Federal Republic of Nigeria, which joined OPEC in 1971. This is due to its nutritional benefits, tastefulness, the extensive availability of yams and its low relative cost, in addition to the fact that it is easy to cook. Yams are the traditional substitute for potatoes in Nigeria. Principally, regular or African yams are used, mixed with butter. To enrich the seasoning of the dish, garlic, pepper and cinnamon are included. To maintain a unique level of spiciness and meet the typical Nigerian taste, a particular type of pepper is used. This is cayenne or Guinea pepper. Of note, all above ingredients must be covered with water to boil them properly.

Qatar

Balaleet

Although the State of Qatar has distinctive salty traditional dishes, such as *Ghuzi*, a very popular sweet dish is selected for this feature. *Balaleet* is one of the very common sweet meals prepared in Qatar, which joined OPEC in 1961, a year after OPEC was established. The main ingredient of the dish is noodles, which need to be thin. These are traditionally cooked in a pan with sugar. In order to enhance the flavour of the dish, cinnamon, saffron and cardamom are added. Occasionally, and on personal preference, an egg omelette can be included as a topping. Furthermore, some add butter or ginger to enrich its flavour further. The dish is commonly consumed in Arab countries located on the Gulf, such as the United Arab Emirates, Kuwait and Saudi Arabia

Saudi Arabia

Kabsa

The well-renowned dish of *Kabsa* in the Kingdom of Saudi Arabia is believed to have originated in the Republic of Yemen. It is a rice-based dish that is regarded to a large extent as the national meal of the Kingdom, one of OPEC's Founding Members. The rice used in cooking the dish is considered important. Traditionally, long-grain rice, such as Basmati, is used. Additionally, meat and various vegetables are included as the main ingredients. Lamb, beef, camel or goat meat can be used in preparing the dish. Concerning the selection of vegetables, carrot and zucchini can be used. Furthermore, the condiments used in cooking play a significant role in creating the special flavour of the dish. Typically, cardamom, saffron, black lime, cinnamon, nutmeg and bay leaves are included. The resulting rich mixture gives the popular dish its unique flavour. Of note, the meal is consumed widely in other countries, including, but not limited to, Kuwait, Palestine, Jordan, Qatar, Bahrain and Oman.

United Arab Emirates

Fish

The Emirati cuisine is notably influenced by the country's culture and landscape. The United Arab Emirates, which joined OPEC in 1967, has several traditional dishes. However, and considering that the nation overlooks the Gulf, *fish* is consumed regularly and intensively by the masses. The dish traditionally consists of two elements — fish and rice. The fish is grilled normally after marinating it in a mixture of rich condiments and sea salt to enhance the seasoning. The rice cooked is white rice and once it is fully prepared a pre-prepared mixture of spices is applied to it. This enriches its taste and colour. The mixture used for the rice contains rose water, saffron and cardamom. Some serve a salad additionally to maintain the needed moisture and avoid the dryness of the main dish elements. This dish can also be found in other Arab states situated on the Gulf, particularly Saudi Arabia, Kuwait and Bahrain.

Venezuela

Arepa

The South American country of Venezuela produces various delightful dishes, both salty and sweet. But the Bolivarian Republic, which is a Founder Member of OPEC, considers *Arepa* as a traditional dish. Primarily, *Arepa* is made of corn flour in order to prepare a ground maize dough, in addition to salt, sugar and white premade cornmeal. The dough is served with avocado, octopus, ham, egg or cheese. Some use it to prepare sandwiches. Moreover, *Arepa* can be produced in different size and shapes. Traditionally, and regardless of the variety of existing sizes for *Arepa*, it is commonly found in Venezuela with a diameter of three to eight inches, while the thickness is approximately three-quarters of an inch. The dish is consumed widely in Colombia, as well as in Panama, thr Dominican Republic, Trinidad and Tabago and other central and South American nations.

Keeping the world

Vessels passing through the Gatun Locks of the Panama Canal.

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A cargo ship transits through the newly expanded Suez Canal in Ismailia, Egypt.

Reuters

connected

With major expansions of the world's two largest canals in Egypt and Panama, oil and gas producers stand to benefit from quicker and more efficient trade routes. The* OPEC Bulletin's *Scott Laury reports.

Every day, tourists from around the world flock to the magnificent ancient pyramids dotting the dessert landscape in Egypt and marvel at these wonders of the world. Even more so, they are spellbound that these mighty structures were erected by mere human hands that long ago.

Fast forward to 1869. This was the year that Egypt unveiled the Suez Canal, the world's first major canal, which was built to open up vital trade routes by connecting the Red Sea and the Mediterranean. This abbreviated route between east and west spared ships the lengthy and arduous journey around the southern coast of Africa. It took an estimated 20,000 workers per year to dig out the canal over a ten-year period.

Though it would still seemingly pale in comparison to the monumental achievement of the pyramids, the canal was acclaimed to be a civil engineering triumph, marking a sea change and a transition to the modern era.

Forty-five years later, in 1914, the Panama Canal linking the Atlantic and Pacific Oceans through the Isthmus of Panama was opened with great adulation and confidence that yet another step change in progress had taken place.

Now, both canals are in the process of upgrading their infrastructures to accommodate today's largest ships and enable increased traffic, mainly on the lucrative Asia to North America route.

In addition to the routine cargo traffic, the competing canals will seek to attract more oil and gas tankers, as well as the expected increase in traffic linked to the forecast rise in United States exports of liquefied natural gas (LNG). This healthy dose of rivalry should prove beneficial to the oil and gas industry.

Egypt's gift to the world

Last August, Egypt reached yet another major milestone for the history books — the inauguration of a massive $8.5 billion canal extension.

Fully funded by the Egyptian government, the mega project came at an opportune moment to provide the country with a much-needed boost as it slowly emerged from a tumultuous four years of strife with two *coups d'état*.

At the outset, the project was expected to last three years. However, convinced that the extension could serve as a much needed economic catalyst, President Abdel Fattah El Sisi insisted

Egyptians gather in Cairo's Tahrir Square in August 2015 to celebrate the inauguration of the massive $8.5 billion Suez Canal expansion.

that the project be expedited, and it was completed two years ahead of schedule.

The canal has always been a source of national pride, dating back to June 18, 1956 when Egyptian Premier, Gamal Abdel Nasser, raised the country's flag over the canal after more than 70 years of British and French control.

In the lead-up to the inauguration of the expanded canal, the excitement built as citizens across the country got into the spirit.

Tahrir Square in Cairo was decorated with festive lights and countdown clocks were installed to signal the days left before the newly outfitted canal was to be unveiled. Some arriving passengers at the Cairo airport even received special stamps in their passports commemorating the canal as "Egypt's gift to the world".

Pomp and ceremony

Inauguration day was full of pomp and ceremony with President El Sisi addressing world leaders on the historic El-Mahrousa yacht in Ismailia with helicopters and fighter jets zooming by overhead. The yacht was the first ship to pass through the canal after it was opened in 1869.

Russian Prime Minister, Dmitry Medvedev, and French President, Francois Hollande, were among the heads of state and other dignitaries attending the ceremony.

In his speech, President El Sisi said the new canal would be his country's present to the world to promote international trade and development, while serving as a source of pride and progress for the Egyptian people.

"We, the Egyptians, have promised the whole world to offer them the gift of the new canal. And here we are fulfilling our promise in record time," he proudly proclaimed.

"We are offering the world an additional lifeline for prosperity and a channel of interaction among the peoples of the world to contribute to facilitating and promoting international navigation and opening new horizons for development. The new canal also participates in achieving the hopes and aspirations of the great Egyptian people who achieved this project through the minds, hands and funds of its sons."

Making room for super tankers

The project's main thrust entails deepening and widening the existing bypasses along a 37-kilometre distance while digging and dredging a 35 km-long parallel waterway that is wide enough and deep enough to accommodate today's largest vessels moving in both directions. The overall result is a 72 km extension along the 193 km-long canal.

With 24 metres of depth and 317 metres of width at water level, the canal will enable the passage of 20 metre draught ships in both directions and is expected to double the current daily ship capacity.

These enhancements are expected to ease up logjams along the canal and result in increased traffic, quicker transit times and a bolstered competitive advantage over other international trade routes.

According to the Suez Canal Authority, transit time could be cut from 18 hours currently to 11 hours on the southbound route, with the current estimated eight to 11 hours of waiting time potentially dropping to around three hours. This would, in turn, help transport companies cut their transit costs.

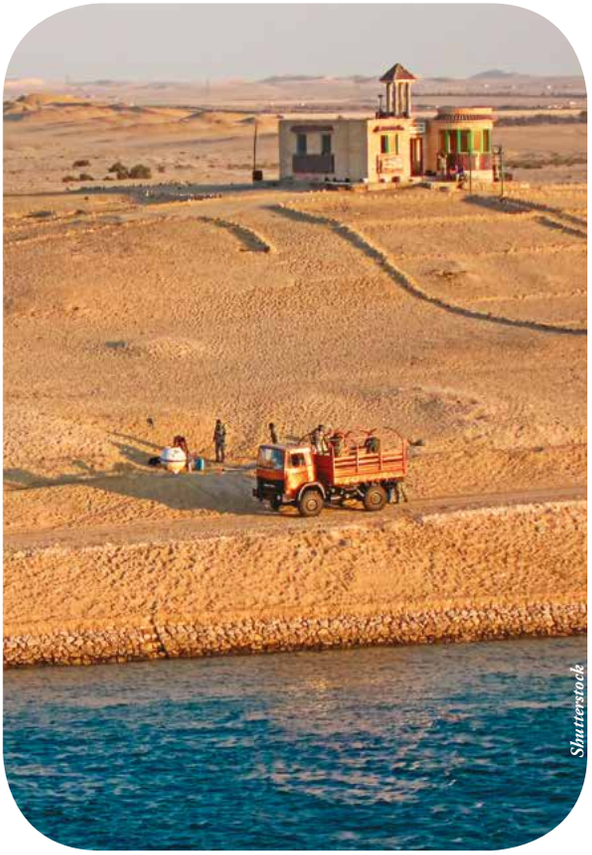
The canal's expansion will also enable the direct continual transit for 45 ships in both directions, including the giant 20 metre vessels. In the long run, this is forecast to increase the daily transit average to 97 ships by 2023 from 49 ships currently.

Increased revenue and development

Though the return on this major investment will depend on international trade and economic developments in the coming months and years, current projections estimate that the canal authority stands to increase its annual revenue from $5.3 billion in 2015 to around $13.2bn in 2023.

If these numbers hold up, this would provide Egypt with a much-needed economic boost to spur on further investment and create additional jobs for its citizens.

The canal extension is part of the country's vision to construct an industrial development area along the canal — known as the Suez Canal Area Development Project.



The Suez Canal's east bank (pictured) is rugged and arid, while the west bank is a luscious oasis due to its irrigation from the Nile River.

Tankers and cargo ships moving through the Gatun Locks of the Panama Canal.

The area would comprise sectors such as manufacturing, technology, logistics and ship repair operations. Infrastructure improvements would also be made, such as the construction of seven tunnels connecting Sinai, Ismailia and Port Said, as well as refurbishments of five existing ports.

Investors and businesses operating in the development zone would benefit from access to a massive 1.6bn international customer base.

These positive developments are geared to ensuring that the canal maintains its position as a top player in the highly competitive international shipping industry.

Panama Canal expansion

In June of this year, the Suez Canal's main rival, the Panama Canal, is scheduled to complete an expansion project of its own — the largest it has undertaken since the canal first opened in 1914.

An estimated 13,000–14,000 ships currently use the canal every year, mostly from the US, China, Chile, Japan, Colombia and South Korea.

The 80 km waterway provides a crucial shortcut for ships travelling between the Atlantic and Pacific Oceans. Vessels sailing between New York and California, for example, are able to bypass the long trip around the tip of South America, saving them nearly 8,000 miles and countless hours of travel time.

Expansion work began in September 2007 to create a new lane of traffic along the canal by building a new set of locks, which are expected to double the waterway's capacity. The two new lock complexes will be on the Atlantic and Pacific sides of the canal and will each have three steps.

The expanded canal will allow for vessels carrying up to 13,000–14,000 20 foot equivalent units (TEUs), more than double the capacity of the existing locks, which allow for up to 5,000 TEUs.

The main objective of the $5bn expansion is to increase capacity in order to meet the forecasted growth in demand in the years to come, enabling it to remain a leading international maritime trade route.

Despite the enhancements of both canals, limitations remain in handling the world's largest ships, such as the MSC Oscar, which has a capacity of 20,000 TEUs.

Panama's new locks are not outfitted to handle that size of ship and the Suez would be constrained to limit movement of this type of mega vessel in one direction only.

There is one wild car player in the mix, though — Nicaragua.

Nicaragua Grand Canal

Nicaragua is considering a bid to join the canal club as the western hemisphere's second major shipping route connecting the Atlantic and Pacific Oceans.

The country's parliament has approved the plans, which include the designation of China's Hong Kong Nicaragua Development (HKND) Company to construct the 278 km canal through the country and maintain it over a 50-year interval. The massive project is officially called the Nicaragua Grand Canal Project.

The canal's routing was approved in July 2014 and would initiate from the mouth of the Brito River on the Pacific Ocean side, then pass through Lake Nicaragua, ending in the Punta Gorda River on the Caribbean Sea. Its dimensions would measure between 230 and 520 metres wide and 27 metres in depth. Construction reportedly commenced at the end of 2014, but was then interrupted and is currently scheduled to start up again at the end of 2016. Once underway, the project is expected to take five years to complete.

At an estimated cost of between $40 and $50bn, the canal would be custom-built to accommodate the largest ships on the market, giving it a competitive advantage over its rivals, including its regional neighbour to the south, the Panama Canal.

The Nicaraguan government sees the new canal as a significant opportunity for economic and industrial development, improved infrastructure, as well as a vehicle for creating up to an estimated quarter of a million new jobs for the Nicaraguan people.

As part of the project, an environmental assessment has been carried out to ensure that the canal would adhere to all required environmental norms and regulations during and after construction.

Nicaragua's entrance into the world of maritime trade routes would surely boost competition and offer the oil and gas industry with yet another option for getting their products to the consumer faster and more efficiently.

The Miraflores Locks Visitor's Centre and Museum located on the Panama Canal, which celebrated 100 years of operation in 2014.

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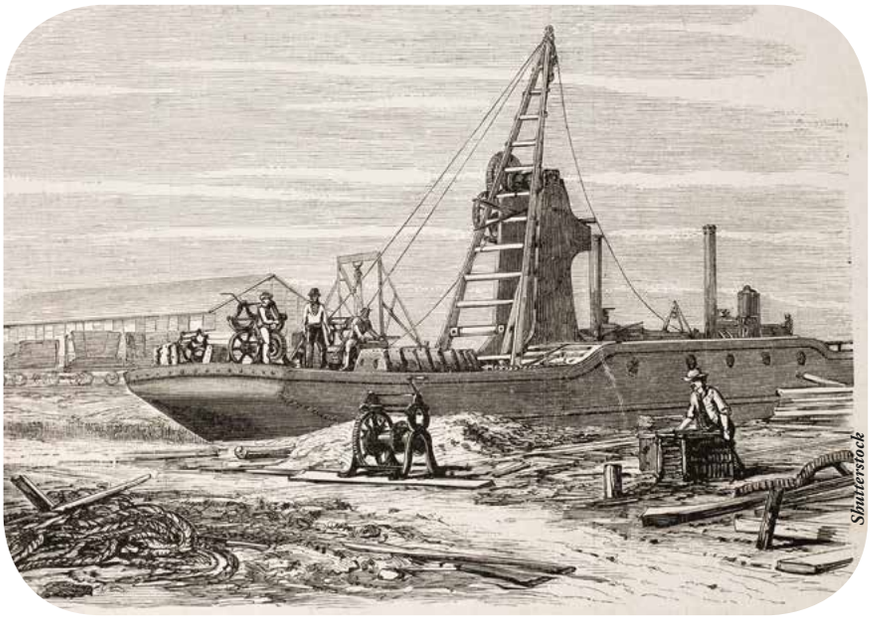
Two canals with two distinct histories

Though the world's two most important canals, in Egypt and Panama, are on opposite ends of the earth and share very different histories, their goal from the beginning was always the same — to bring the world closer together.

Egypt is an ancient culture that has displayed its ingenuity and engineering mastery time and again throughout history. There is just no debating that, among these feats, its magnificent pyramids are the ultimate masterpiece and truly wonders of the world that will stand the test of time.

Among the many other impressive achievements it has shown the world, the Suez Canal would surely rank towards the top.



An old illustration of a Suez Canal dredger excavating soil in Port Said. During the Canal's construction, an estimated 240 million cubic yards of dirt and stone were dug up.

Canal of the Pharaohs

The Suez Canal, as we know it today, is merely the latest manifestation of a series of waterways that date way back to the times of ancient Egypt and the Pharaohs.

Egyptian Pharaoh Senusret III is said to have built a canal connecting the Red Sea and the Nile River in approximately 1850 BC. Pharaoh Necho II and Persian King Darius also supposedly initiated work on a similar effort, but then abandoned the project.

Completed during the time of the Ptolemaic dynasty in the 3rd century BC, a host of historical figures are said to have travelled on the canal, including Cleopatra.

The ancient routing was evidently quite a bit more circuitous than today's canal, meandering its way through the desert to the Nile River. From there, the Canal of the Pharaohs, as it became known, opened up into the Mediterranean Sea.

Napoleon's survey

After the French conquered Egypt in 1798, its military commander, Napoleon Bonaparte, dispatched a team to survey the Isthmus of Suez and assess whether it would be possible to build a canal between the Red Sea and the Mediterranean.

After four trips were sent to inspect the area, the team falsely estimated that the Red Sea was at least 30 feet higher than the Mediterranean, which, they feared, could risk covering the Nile Delta in a deluge of severe flooding if the canal were built. In hearing this, Napoleon no longer pursued the project.

Plans for a canal lay dormant until 1847, when researchers finally confirmed that there was, in actuality, no difference in altitude between the two seas.

In 1854, Ferdinand de Lesseps, a former diplomat from France, reached an agreement with the Egyptian viceroy to establish the Suez Canal Company, which enabled plans for the canal to proceed.

After years of British opposition to the project on the suspicion that this was a political ploy by the French emperor to undermine Britain's dominance of the global shipping industry, the British Empire decided in 1875 to purchase a 44 per cent stake in the canal from the Egyptian government, which sold its shares to raise funds.

A massive undertaking

Construction of the canal required substantial manpower, innovation and ingenuity. The Egyptian government provided most of the human workforce, mostly through forced peasant labour.

In 1861, some tens of thousands of labourers began digging out the canal with the sole use of picks and shovels. The project moved

at a slow pace and hit a stumbling block two years later when the Egyptian ruler, Ismail Pasha, intervened to prohibit forced labour.

A manpower shortage ensued, causing Lesseps and the Suez Canal Company to change course and look to innovative solutions to continue working on the canal.

New technology was the answer to their problems as they acquired hundreds of custom coal and steam-generated shovels and dredgers to excavate the waterway. This enabled them to advance quickly in the last two years of construction. Nearly 75 per cent of the estimated 75 million cubic metres of dirt and sand removed from the main canal was completed by this high-tech machinery.

Statue of Liberty for Suez

In 1869, as work on the canal was nearing completion, French sculptor, Frédéric-Auguste Bartholdi, proposed to Lesseps and the Egyptian government his idea of building a major sculpture to adorn the Mediterranean entrance to the canal.

With the symbolic title 'Egypt bringing light to Asia' and the ancient Colossus of Rhodes as his model, Bartholdi's concept featured a 27-metre-tall statue of a lady dressed in Egyptian peasant robes and holding a massive torch, which, practically speaking, would function as a lighthouse to guide ships into the canal.

The statue never saw the light of day — in Egypt, at least.

Bartholdi did not give up on the project, though, and his persistence paid off when, in 1886, a completed version of his statue called "Liberty Enlightening the World" was presented with great fanfare in New York Harbour.

The beloved statue, known around the world simply as the Statue of Liberty, remains there to this day and is visited by more than three million people each year.

Linking east and west

After 15 years of meticulous planning and painstaking construction, the Suez Canal celebrated its official inauguration on November 17, 1869 with an elaborate ceremony at Egypt's Port Said.

Labour shortages, political strife and even a murderous bout of cholera were not enough to keep this prized and much sought-after link between the Mediterranean and Red Seas from opening for business.

Upon completion, the 160 km-long waterway permanently transformed worldwide shipping by sparing vessels the long and dangerous route around the southern tip of Africa.

Cold War crisis

In 1956, the Suez Canal was the focal point of a brief conflict between the combined forces of Britain, France, Israel and Egypt. The battle was the result of rising tensions fuelled by Britain's military occupation of the canal zone, which continued to persist even after Egypt gained independence in 1922.

Egyptian resentment regarding this ongoing colonial presence culminated in a decision by Egyptian President, Gamal Abdel Nasser, to nationalize the canal in July 1956.

In response to this decision, in October 1956, a joint force comprising soldiers from France, Britain and Israel launched an offensive against Egypt, moving in close to the canal.

This manoeuvre, however, was halted when the Soviet Union threatened retaliation and the US expressed condemnation over the act of aggression.

Forces were withdrawn and the British Prime Minister resigned over the controversy. Egypt then retained its rightful control over the canal.

An eight-year stay

During the Six Day War that occurred in June 1967 between Egypt and Israel, Egyptian officials closed the canal, blocking both sides with mines and scuttled ships. When the canal was shut down, there were reportedly 15 international vessels moored at the halfway point of the canal near the Great Bitter Lake.

These ships would remain stranded there for eight long years and were eventually called the "yellow fleet" due to the desert sand that had blown in and collected on their decks. The majority of the ships' crews were on rotating duty, serving on three-month assignments, while the remainder created their own floating communities by hosting social get-togethers and organizing sporting events.

Over time, the fleet even produced its own stamps and trading protocol. In 1975, the blockaded ships were finally permitted to exit the canal, but by then, only two of the vessels were

in good enough condition to make the voyage.

From Suez to Panama

The histories of the Panama and Suez Canals have very little in common, with the sole exception of a common founder: Frenchman, Ferdinand de Lesseps.

After overcoming great adversity and beating the odds to successfully complete the Suez Canal, de Lesseps shifted his focus to Central America and the idea of building a canal across the Isthmus of Panama.

This idea was not a new one. In fact, it had been pondered since the 16th century by a Spanish explorer named Vasco Nunez de Balboa, who in 1513, came to the realization that the Isthmus of Panama was a mere sliver of land between the world's two major bodies of water — the Atlantic and Pacific Oceans.

This set him on a mission to find a natural way of connecting the two oceans. He searched long and hard for a solution, yet had no success.

The Holy Roman Emperor, Charles V, also intervened, demanding a survey be conducted to see about potentially building a passageway. This too was deemed impossible at that time.

De Lesseps, though, had gained valuable experience working on the Suez Canal, which built his confidence that the Panamanian project could also be carried out successfully.

At the outset, he expected the new canal to be easier to build and maintain than the Suez Canal, but after construction began in 1881 and the project began to advance, things took a turn for the worse.

Thousands of canal workers lost their lives during construction due to the rough conditions in the hot, rainy, disease-ridden jungle, where malaria and yellow fever were rampant.

Nearly $260 million was expended without the project being completed and the canal company ended up going out of business in 1889.

A major international scandal erupted afterwards involving de Lesseps, Eiffel Tower designer, Gustave Eiffel, and several others, who were eventually convicted of fraud and conspiracy.

US takes charge

In 1902, the US bought the French-owned assets in the canal zone for $40m, allowing it to develop its plans to build the nearly 80 km-long sea-level canal from Colón to Panama City.

Shortly after a dedication ceremony was held on May 4, 1904 to kick off the project, John Wallace, who was chief engineer, came to the stark realization that the French equipment they inherited was in poor shape and needed to be repaired or replaced. At the same time, yellow fever and malaria were still spreading, which scared off much of the labour force.

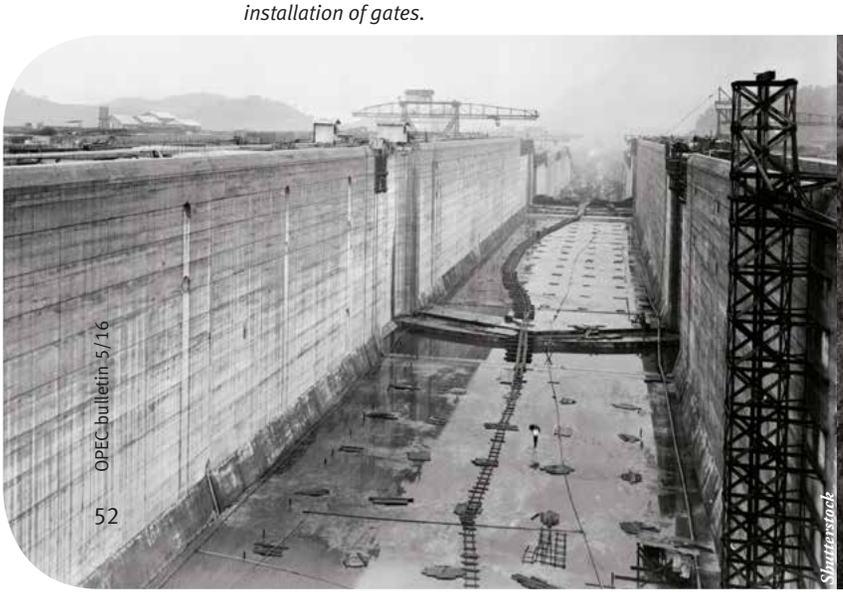
Wallace caved in under mounting pressure to advance the project and a year later tendered his resignation.

In July 1905, a new chief engineer was appointed, this time a railroad engineer named John Stevens. He began by addressing the labour shortage through the hiring of workers from the West Indies. He also procured new equipment and figured out ways to expedite the construction process, including the deployment of swinging booms to lift and move large sections of railroad track to efficiently carry off the massive amounts of dug-up earth and other materials.

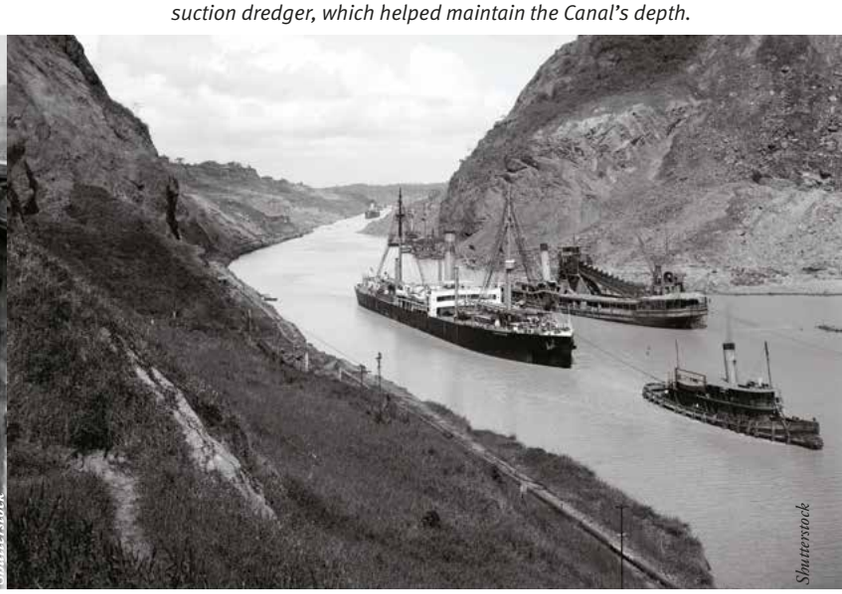
In order to reduce the risk of landslides, a key decision was made to proceed with a lock canal.

And to combat the spread of disease that was impacting the canal's workforce, Stevens hired a physician, Dr William Gorgas, who undertook widespread fumigation efforts to kill off the

Panama Canal construction in circa 1912 showing the giant locks before the installation of gates.



Boats moving through the Panama Canal at Culebra Cut (circa 1910–1914), which crosses the continental divide. Pictured centre right is a suction dredger, which helped maintain the Canal's depth.



disease-borne mosquitos. This paid off as the last case of yellow fever was reported in November 1905, while malaria cases dropped drastically in the decade to follow.

US President, Franklin D Roosevelt, visited the site in November 1906 to observe the progress being made. Just a few months afterwards, though, the project hit another bump, when Stevens suddenly resigned.

Roosevelt appointed Lt Col George Washington Goethals from the Army Corps of Engineers to replace Stevens and gave him full reign in managing the construction of the canal zone.

Goethals was a strong leader, who proved to be the right person for the job. Although his decisions were sometimes controversial, such as an instance when he squashed a labour strike, he was also known for having made significant improvements for the workers' quality of life.

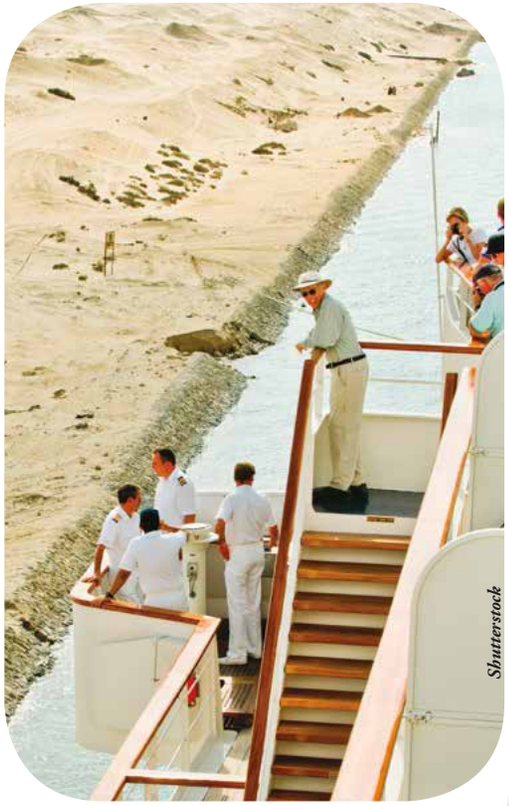
A monumentous task

Panama's mountainous terrain was a major challenge for Goethals and his team as they were faced with having to clear the mountain range between Gamboa and Pedro Miguel.

This required engineering prowess and the brute strength of roughly 6,000 labourers toiling around the clock to excavate the nearly 14 km stretch of mountain. This treacherous undertaking caused many workers to lose their lives, mainly from landslides and dynamite mishaps.

In August 1909, construction of the locks began at Gatun with the pouring of concrete. When completed, the canal's three locks were able to elevate ships 85 feet above sea level to the surface of Gatun Lake in the middle.

In May 1913, as construction moved towards completion, two steam shovels met in the centre of Culebra Cut, having arrived from opposite directions. Then, a few weeks afterwards, the Gatun Dam's last spillway was closed, enabling the lake to rise to its full height. In October, through a telegram from the White House, President Woodrow Wilson triggered the explosion of the Gamboa Dike, which flooded the final stretch of dry canal terrain at Culebra Cut, completing the canal and joining together the Atlantic and Pacific Oceans.



Cruise ship officers view the east bank of the Suez Canal in 2010.

A subtle opening before WWI

The canal officially opened on August 15, 1914. A grand ceremony full of pomp and pageantry was planned to mark the milestone, but had to be toned down due to the outbreak of World War I.

At its time of completion, the canal was the most expensive construction project in US history at a cost of more than $350m.

The logistics were mind-boggling: around 3.4m cubic metres of concrete were poured for the locks, and nearly 240m cu yards of dirt and stone were dug up. The American Society of Civil Engineers would later recognize the canal as one of the seven wonders of the modern world.

Mega projects such as this, however, do not come without casualties of hard-working labourers. Out of an estimated total of 56,000 workers employed for the project between 1904 and 1913, around 5,600 sadly lost their lives on the job.

In 1935, an additional dam was constructed, called the Madden Dam, to provide additional water storage for the canal.

A ship makes its way through the Miraflores Lock of the Panama Canal in circa 1915.

Panamanian oversight

In 1977, US President, Jimmy Carter, signed a treaty with Panamanian leader, Omar Torrijos, for the transfer of US management of the canal to local oversight. After an interim period of joint management, the Panama Canal Authority gained complete control of the canal on December 31, 1999, and continues to run the canal to this day.

Annual traffic on the canal has risen exponentially over the years, increasing from around 1,000 ships when it first opened in 1914 to more than 14,000 today.

In September 2010, the canal celebrated another major milestone with the passage of the one millionth ship.

OFID exhibition highlights plight of world's refugee children

OPEC Fund for International Development (OFID)

The OPEC Fund for International Development (OFID) in April opened an exhibition at its Vienna headquarters dedicated to highlighting the plight of the world's growing number of refugees, deemed as constituting the most devastating humanitarian crisis of the modern era.

Co-hosted by the United Nations High Commissioner for Refugees (UNHCR) and the UN Relief and Works Agency for Palestine Refugees in the near East (UNRWA), the exhibition, called 'Equal Dreams', ran until the beginning of June. Importantly, it formed part of the institution's 40th anniversary activities.

In showcasing, in particular, the difficulties faced by refugee children in realizing their dreams against a background of ongoing conflict and other emergency situations, the exhibition also promoted the solidarity between OFID and the millions of refugees in dire need of assistance.

OFID launched its Equal Dreams campaign early this year in partnership with the Child of Play Foundation to highlight the difficulties faced by refugees, especially refugee children. Currently, there are over 30 million refugee children globally who remain displaced as a result of ongoing conflicts.

The Child of Play Foundation promotes the idea that refugee children have the same dreams as all other children and should be able to realize their dreams regardless of their situation.

Using the UN framework, Equal Dreams has been launched as a "recreation-education-awareness" platform to address the issue

Left: TREE OF HOPE, Zaatari Refugee Camp, 2014, by LET THE CHILDREN PLAY Initiative. Artistic concept: L M Hüller/H Seebacher.

through a multi-faceted approach. It aims to highlight the current refugee crisis from a child's perspective and shed light on the obstacles refugee children face in their search for a secure and safe future that promotes equality.

The OFID exhibition featured artworks from Child of Play, including 'Tree of Hope' and 'SOS Boat of Hope.' The central piece of artwork — Tree of Hope — was a result of collaboration between Child of Play and some 300 children from the UNHCR's Zaatari Refugee camp in Jordan.

Child of Play is an initiative of Austrian artists Lukas Maximilian Hüller and Hannes Seebacher to promote awareness about children's rights, as prescribed under the UN Convention on the Rights of the Child.

In cooperation with international artists, Child of Play travels to crisis regions to work with children to help them rediscover the concept of play and develop artwork together in the form of photographs.

The opening ceremony of the exhibition on April 26 was attended by representatives from various international organizations, as well as other development and aid institutions. Guests of honour included UNHCR High Commissioner, Filippo Grandi, and UNRWA Commissioner General, Pierre Krähenbühl. OPEC Secretary General, Abdalla Salem El-Badri, was represented at the event by Hasan Hafidh, Head of the Organization's Public Relations and Information Department (PRID).

In welcoming guests to the event, Souhad Khriesat

OFID

pointed out that throughout its four decades of existence, OFID had assisted over 130 developing countries through four different financial windows.

"The plight of refugees is considered the most devastating humanitarian crisis of the modern era. It also has undeniable implications on sustainable development. With this understanding, OFID dedicated this year's thematic focus to the refugee situation worldwide," she affirmed.

"... OFID continues to extend financial support through its grants programme towards the alleviation of human suffering and also to interventions aiming at mitigating the long-term implications of widescale displacement on territories tormented by protracted conflicts and on the communities hosting refugees in developing countries," she added.

Opening the exhibition, OFID Director-General, Suleiman J Al-Herbish, highlighted OFID's commitment to empowering displaced children and helping them to achieve their dreams.

"The world's refugee children are at risk; we must address the challenges they face by providing realistic solutions to help integrate them into their host communities," he stressed.

Al-Herbish said that four decades of hard work and dedication had transformed OFID from a temporary short-term facility with a narrow scope of limited resources to a world-class international development finance institution.

"Over the past four decades, we have worked tirelessly to promote the institution's noble aims and mission. We have done much to assist global development. We have helped reduce poverty worldwide. We have actively contributed to forming the new global development agenda and the sustainable development goals," he stated.

On its 40th anniversary, said Al-Herbish, OFID had dedicated its thematic focus to the plight of refugees and to the impact the crisis had on development and on host countries.

"This focus, however, is not a novelty for OFID. Our institution has always as part of its mandate provided humanitarian aid in response to the plight of victims of all kinds of disasters and conflict around the world. A special emergency aid grants programme was incepted for this purpose a decade ago," he explained.

"Most importantly, as part of our mission to promote the sustainable development of our partners, we have committed through our various finance windows considerable resources to support programmes and projects aimed at tackling fragility, poverty and the vulnerability of conflicts and disaster."

In his comments to the exhibition's opening, Filippo Grandi commended the continuing cooperation between OFID and the UNHCR, paying tribute to OFID's practical and leading approach to the complex issue of refugees.

"In a year in which, we, in the UN and in the humanitarian community, are looking closely at how to bridge the gap between humanitarian and development programmes, OFID is leading the way by tackling humanitarian problems with a development eye," he asserted. "I think this is the practical way forward for an

From left: Pierre Krähenbühl, UNRWA Commissioner General; Filippo Grandi, UNHCR High Commissioner; Hannes Seebacher and Lukas M Hüller, Child of Play Foundation; Robert Mardini, ICRC Regional Director for the Middle East; and Suleiman J Al-Herbish, OFID Director-General.

Pierre Krähenbühl, UNRWA Commissioner General.

issue that is so complex to define and to decide upon," he added.

Grandi said that in talking about solving the problems of displacement and finding solutions for them, it would be remiss of him not to pay respect to Vienna and also to the Austrian authorities.

"This is a country that, especially last year, took in a large number of refugees coming, many of them from Syria, but from other parts of the world. I think that this flow here and in other places has really contributed to the sense that refugees displaced are a global responsibility that we must all share and find solutions for."

Grandi said that, in the last couple of years, the world had seen the refugee crisis in all its gravity and size.

"Through the crisis in Syria, through the movement of Syrians and other refugees towards Europe — there is a greater awareness that refugees are not and cannot be the problem of a few countries hosting them or of a few countries contributing money to keep them alive. They are a much broader problem.

"They are a global responsibility as the refugee convention says. Therefore, the responsibility to take care of them, to find solutions to their plight, to give them a future, lies with the international community. I think there is a greater awareness that we have to do this ."

Grandi stressed that refugees were ordinary people "like you and me" that had lost the protection of their state, of their nation, and therefore, went elsewhere to seek that protection.

"Sometimes, within that same country in safer areas, then we call them internally displaced — sometimes they cross borders and they seek protection in other countries.

"The work, the job of the UNHCR, my organization, is to help create and provide them with that protection. Through legal means, through material means, assisting them, supporting host countries, trying to find together a solution to their plight," he affirmed.

Grandi stated that he had known OFID for many years as a very special partner. "I really find OFID a very good all-rounder as a donor. They are great at organizing advocacy events like this fantastic exhibition on children. But also, they are very good, like I said earlier, in providing humanitarian assistance, life-saving assistance with an eye to the long term because their approach is fundamentally developmental.

"This combination makes OFID a very unique partner even more than a donor, a real partner for organizations that work on the ground and whose work they help very effectively," he said.

"I want to congratulate OFID for 40 years well spent and 40 years of very successful humanitarian and development work," he added.

Robust OFID support

UNRWA's Pierre Krähenbühl told exhibition attendees that he was deeply grateful for the robust and consistent support of OFID, which had continuously enabled UNRWA to help improve the living conditions of Palestine refugees over nearly four decades of partnership.

"I must say that UNRWA is a particularly proud partner of OFID. When I was informed of the fact that our very first partnership goes back to 1979, it really says something about OFID's commitment and determination to support refugees, but also to support UNRWA in its activities.

"It has touched on a wide range of issues from school, constructions, to healthcare work, to scholarships for young Palestinian students, all the way across to micro-credits — all things very important," he added.

Krähenbühl said he wanted to thank OFID for its very strong spirit and dedication, but also the staff around the institution that had shown in the partnership with UNRWA something that was very much driven by professionalism and dedication.

"Clearly, I think all of us and certainly my case, wish OFID a very successful path in the future and ongoing engaging partnerships with many of us in this room," he said.

Krähenbühl professed that funding was an important issue for UNRWA because it had such a large scale of services to deliver.

"We need multiple partnerships to be able to address those needs. In practical terms of course, it would be wrong to say that the funding is not important. There, we have a very proud relationship with OFID that goes back to 1979 which I find really frankly quite remarkable that that was a very young age for OFID to start engaging with UNRWA. Fantastic, really, and remarkable."

Krähenbühl pointed out that, today, there were 5.2m Palestine refugees in the Middle East. "That is the population, essentially, of Finland, of Ireland, of Scotland, of Singapore, of Norway. That is the size today of the Palestine refugee community."

He said the exhibition at OFID spoke of equal dreams. "Where is the hope in this landscape?" he asked "The hope is in the classrooms. The hope is among young students, Palestinians I have just described that believe that despite all the constraints and all the adversity and challenges they face, there is something called hope.

"We are proud to continue with OFID and other partners on this path that has to preserve hope for young Palestinians and so many other refugees in the world," he said.

Meanwhile, at the exhibition's opening, OFID signed four grant agreements totaling over $2 million with its partner organizations to provide assistance to refugees and internally displaced persons.

"The four grant agreements are good examples of the diversity of our efforts and the multi-faceted approach toward the need on internal displaced persons and refugees, especially those taking refuge in countries already facing their own development challenges and therefore posing an additional burden on the host communities," remarked Al-Herbish.

The grants comprised emergency aid in support of the ongoing humanitarian operations of the ICRC in Yemen; a supplementary grant to UNRWA to improve water and sanitation facilities in the Shu'fat Camp in East Jerusalem; support to a UNHCR initiative to provide shelter for internally displaced persons in Syria; and a grant to the Child of Play Foundation.

Since its inception, OFID has provided regular support to refugees through its grants facility. OFID has longstanding cooperation with organizations that provide assistance to refugees, including UNRWA, and UNHCR.

Many of these grants have been delivered in emergency assistance, including during conflicts in Rwanda, Sudan and Afghanistan.

Students and professional groups wanting to know more about OPEC visit the Secretariat regularly, in order to receive briefings from the Public Relations and Information Department (PRID). PRID also visits schools under the Secretariat's outreach programme to give them presentations on the Organization and the oil industry. Here we feature some snapshots of such visits.

Visits to the Secretariat

March 10 Students from the PTS Groß-Enzersdorf, Austria.

March 10 Students from the Herning Gymnasium, Denmark.

March 10 Students from the University of Sussex, Brighton, England.

March 16 Students from the Franklin University Switzerland, Lugano, Switzerland.

March 17 Members of the Multicultural Society Austria, Vienna.

March 23 Students from the Diplomatic Academy of Vienna, Austria.

March 31 Students from the Colgate University, Hamilton, NY, United States.

Director, Research Division

The Research Division's objective is to conduct a continuous program of research, issuing reports, analyses and data in the field of energy and related matters. It monitors, forecasts and analyses development in energy in general and the oil industry in particular, as well as follows and analyses related economic and financial developments. It contributes to the coordination of OPEC Member Countries (MCs) in international negotiations and promotes cooperation between the various relevant global players to be able to be present and actively participate in the various international fora.

Objective of position:

The Director, Research Division, plans, organizes, coordinates, manages and evaluates the work of the Research Division in accordance with the work programme and budget of the Division. The work covers studies on medium and long-term energy developments, short-term perspective studies and analyses of the petroleum market as well as data, information and IT Development in these fields. He/she provides substantive reports and other documentation with particular focus on supervising, guiding and contributing to the Secretariat's technical reports. As designated by the Secretary General, to represent OPEC in MCs and at relevant international fora and to prepare and deliver substantive reports and statements and to initiate research collaboration with relevant organizations and institutions. Furthermore, he/she contributes to further strengthening the cooperation between MCs in the fields of Research & Development (R&D) and technology. He/she pursues close monitoring and analysis of ongoing multilateral negotiations and dialogues with various governmental bodies and further enhances the producer-consumer and producer-producer dialogues. Finally he/she acts on behalf of the Secretary General (SG) during his absence as and when the SG delegates his authority.

Main responsibilities:

- Defines, in broad terms, a research programme on energy and related matters that is responsive to the needs of the Organization and MCs;
- Directs and coordinates the work of the Departments in the Research Division according to agreed priorities, and paying particular attention to ensuring that:
  - The activities of Petroleum Studies Department (PSD), Data Services Department (DSD), Energy Studies Department (ESD) and Environmental Matters Unit (EMU) are efficiently and appropriately coordinated, and the output is optimal and of high quality;
  - The information needs for PSD, ESD and EMU are clearly communicated to DSD and channeled through Public Relations & Information Department (PRID);
  - The plans and priorities of DSD are fully responsive to these needs;
- Plans the activities of PSD, ESD, DSD and EMU and sets priorities among these to ensure that:
  - All studies requested by the Economic Commission Board (ECB), other standing committees and working groups are completed to high quality standards and on time;
  - Other activities of the Division are appropriately focused on the areas of greatest interest to the MCs;
  - Likely future requests for research and analysis are anticipated and requisite preparatory work is initiated;
- Supervises the Department Heads and Environmental Coordinator reporting to him in assigning staff to studies and research projects, with particular attention to ensuring that:
  - Studies that require staff from more than one Department, or that cut across the specific

responsibilities of each Department and Unit, are efficiently carried out and appropriately coordinated and staffed;
  - All staff are effectively utilized on work of an appropriate level for their skills and experience;
- Coordinates the work of the ECB and standing committees, assisting them in defining a coherent programme of research to support the policy making activities of the Conference, and supervising the execution of this research programme;
- Identifies issues of importance to and their implications for the Organization; brings these issues to the attention of the SG;
- Keeps the SG fully informed of the work of the Division, and draws his attention to specific issues and studies of major importance;
- Works with the SG and Head, PRID to coordinate the participation of the Secretariat staff in outside meetings and seminars, and reviews proposed contributions by research staff to ensure high quality and in accordance with the interests of the MCs;
- Reviews the performance evaluation, staff development, salary, promotion and separation recommendations made by the Department Heads and Environmental Coordinator reporting to him and amends these as appropriate;
- Ensures that the staff in his division receive the supervision and guidance necessary to broaden and deepen their skills and constantly improve their performance;
- Defines the Division's future staff needs and ensures that these are clearly communicated to, and discussed with Head, Finance & Human Resources Department (FHRD);
- Coordinates the preparation of the annual budget for the Research Division;
- Makes plans of missions and training for staff in the Research Division;
- Carries out any other tasks assigned to him/her by the SG.

Required competencies and qualifications:

Education: Advanced University degree preferably in Economics and/or Engineering. PhD preferred.

Work experience: Advanced university degree: Minimum 15 years whereof six years at international level in conducting and/or in planning/supervising research and development work relating to energy, in particular oil, and at least six years in high level managerial position. PhD: 12 years.

Training specializations: Conducting and leading research on economic and technological issues in the fields of oil and energy.

Competencies: Managerial & leadership skills; communication skills; decision making skills; strategic orientation; analytical skills; presentation skills; interpersonal skills; customer service orientation; negotiation skills; initiative; integrity.

Language: English.

Status and benefits:

Members of the Secretariat are international employees whose responsibilities are not national but exclusively international.

In carrying out their functions they have to demonstrate the personal qualities expected of international employees such as integrity, independence and impartiality.

The post is at grade A reporting to the Secretary General. The compensation package, including expatriate benefits, is commensurate with the level of the post.

Applications:

Applicants must be nationals of Member Countries of OPEC and should not be older than 58 years.

Applicants are requested to fill in a résumé and an application form which can be received from their Country's Governor for OPEC.

In order for applications to be considered, they must reach the OPEC Secretariat through the relevant Governor not later than **July 8, 2016,** quoting the job code: 2.1.01 *(see www.opec.org — Employment)*.

Environmental Coordinator

Within the Reseach Division of the Secretariat, the Environmental Unit's objectives are to analyse, report and advise on developments pertaining to the international debate on climate change and contribute to the close coordination of Member Countries' positions on environmental matters. This entails: monitoring and analysing international debate and development on climate change, sustainable development and trade; gathering and analysing data and information in these fields; contributing to coordination among Member Countries and participating in relevant multilateral fora and discussions; and building up OPEC's networks with national, regional and multilateral organizations.

Objective of position:

The Environmental Coordinator is to coordinate the activities of the Unit to fulfill its objectives. Under the supervision of the Director of Research Division, he/she is to study and analyse national and multilateral environmental policies and assess their impact on energy developments, in particular on the medium- to long-term oil outlook and on OPEC, study and analyse developments in the global and multilateral debate on climate change, evaluate the impact on OPEC and contribute to the coordination of OPEC Member Countries' positions in international fora on issues pertaining to environment in general and to the United Nations Framework Convention on Climate Change (UNFCCC) negotiations in particular.

Main responsibilities:

- Coordinates the activities of the Unit in line with its objectives;
- Studies and analyses developments in the international debate on environmental issues related to the energy industry and in particular the activities related to the UNFCCC and its subsidiary bodies and the Kyoto Protocol;
- Responsible for preparing for and attending UNFCCC meetings and reporting on these;
- Assesses the impact of changes in environmental policies in consuming countries on the medium- and long-term development of the world petroleum industry;
- Conducts studies relevant to the subject of environment as it affects the energy sector in general and oil in particular;
- Contributes to the coordination of Member Countries' positions concerning environmental issues;
- Contributes to speeches, articles and presentations to internal meetings and various international forums.

Required competencies and qualifications:

Education: University degree in Environmental Science or Economics, Engineering or other Sciences, preferably with specialization in environment; advanced degree preferred.

Work experience: University degree: ten years; advanced university degree: eight years.

Training specializations: Environmental policies; analysis of environmental issues related to energy; international debate on environment; modelling techniques.

Competencies: Managerial and leadership skills; communication skills; decision making skills; analytical skills; presentation skills; interpersonal skills; customer service orientation; team-building skills; initiative; integrity.

Language: English.

Status and benefits:

Members of the Secretariat are international employees whose responsibilities are not national but exclusively international. In carrying out their functions they have to demonstrate the personal qualities expected of international employees such as integrity, independence and impartiality.

The post is at grade D reporting to the Director of Research Division. The compensation package, including expatriate benefits, is commensurate with the level of the post.

Applications:

Applicants must be nationals of Member Countries of OPEC and should not be older than 58 years.

Applicants are requested to fill in a résumé and an application form which can be received from their Country's Governor for OPEC.

In order for applications to be considered, they must reach the OPEC Secretariat through the relevant Governor not later than **August 8, 2016,** quoting the job code: 6.1.01 *(see www.opec.org — Employment).*

Forthcoming events

LNGgc Americas, June 22–24, 2016, Houston, TX, USA. Details: IBC Global Conferences, The Bookings Department, Informa UK Ltd, PO Box 406, West Byfleet KT14 6WL, UK. Tel: +44 207 01 75 518; fax: +44 207 01 74 715; e-mail: energycustserv@informa.com; website: www.ibcenergy.com/event/lnggc-americas-conference.

Bunker and residual fuel oil conference, June 27–28, 2016, Houston, TX, USA. Details: Platts, 20 Canada Square, Canary Wharf, London E14 5LH, UK. Tel: +44 207 1766142; fax: +44 207 17 68 512; e-mail: cynthia_rugg@platts.com; website: www.platts.com/events/americas/bunker-and-residual-fuel-oil/index.

Oil and gas cyber security, June 27–28, 2016, Amsterdam, The Netherlands. Details: SMi Group Ltd, Unit 122, Great Guildford Business Square, 30 Great Guildford Street, London SE1 OHS, UK. Tel: +44 207 82 76 000; fax: +44 207 82 76 001; e-mail: client_services@smi-online.co.uk; website: www.smi-online.co.uk/energy/europe/conference/oil-gas-cyber-security-europe.

Developing a successful FLNG project 2016, July 6, 2016, London, UK. Details: smi. Website: www.smi-online.co.uk/energy/uk/masterclass/developing-a-successful-flng-project-2016.

2nd Oil and gas Tanzania, July 7–9, 2016, Dar-es-Salaam, Tanzania. Details: Expo Group, 1910, 19th Floor, Monarch Office Tower, PO Box 333840, One Sheikh Zayed Road, Dubai, UAE. Tel: +971 4 37 21 421; fax: +971 4 37 21 422; website: www.expogr.com/tanzania/oilgas.

Oil and gas fiscal designs and systems, July 11–14, 2016, London, UK. Details: Energy Institute. E-mail: nwilkinson@energyinst.org; website: www.energyinst.org/events/view/323.

The 7th sub-Saharan oil and gas – Petrochem engineering supply chain exhibition and conference 2016, July 13—15, 2016, Cape Town, South Africa. Details: dmg ems Africa, PO Box 650302, Benmore 2010, Johannesburg, South Africa. Tel: +27 11 783 72 50; fax: +27 11 783 72 69; e-mail: dmgemsafrica@dmgeventsme.com.

Geopolitics, risk and opportunity in the oil and gas industry, July 18–21, 2016, London, UK. Details: Energy Institute. E-mail: nwilkinson@energyinst.org; website: www.energyinst.org/events/view/324.

4th annual power and energy Philippines conference 2016, July 19–22, 2016, Manila, Philippines, IBC Asia – Informa plc. Website: www.philippinespower.com.

India refining summit 2016, July 29, 2016, New Delhi, India. Details: Messe Frankfurt Trade Fairs India Pvt Ltd, 501–502, 5th Floor, A Wing, DLF Towers, Jasola, Behind Apollo Hospitals, New Delhi, 110025 India. Tel: +91 11 6676 23 86 or +91 11 6676 23 00; website: www.refining-technology.com.

Unconventional resources technology conference, August 1–3, 2016, San Antonio, TX, USA. Details: Society of Petroleum Engineers, 10777 Westheimer, Suite #335, Houston, TX 77042, USA. Tel: +1 713 779 9595; fax: +1 713 779 4216; e-mail: spehou@spe.org; website: http://urtec.org/2016.

Nigeria annual international conference and exhibition, August 2–4, 2016, Lagos, Nigeria. Details: Society of Petroleum Engineers, 10777 Westheimer, Suite #335, Houston, TX 77042, USA. Tel: +1 713 779 9595; fax: +1 713 779 4216; e-mail: spehou@spe.org; website: http://connect.spe.org/spenc/naice/naice2016.

Oil spill India 2016, August 11–12, 2016, Mumbai, India. Details: iTEN MEDIA Pvt Ltd, Plot No 33, Janki House, 4th Floor, Sector–12 A, Dwarka, New Delhi 110075, India. Tel: +91 11 43 01 34 74; fax: +91 11 42 17 14 83; website: www.oilspillindia.org.

2nd refining outlook Asia, August 23–24, 2016, Bangkok, Thailand. Details: Centre for Management Technology, 80 Marine Parade Road #13–02, Parkway Parade, 449269, Singapore. Tel: +65 6345 7322/6346 9132; fax: +65 6345 5928; e-mail: cynthia@cmtsp.com.sg; website: www.cmtevents.com/aboutevent.aspx?ev=160826&name=2nd-Refining-Outlook-Asia&.

The plant shutdown and turnaround summit, August 25–26, 2016, Mexico City, Mexico. Fleming, contact person Manohar Bharwani, Marketing Manager. Tel: +91 206 72 76 403; e-mail: manohar.bharwani@fleming.events; website: https://fleming.events/en/events/landing-page/oil-gas/plant-shutdown-turnaround-summit-mx.

FLNG 2016, September 6–8, 2016, London, UK. Details: ICBI Conferences Ltd, 8th Floor, 29 Bressenden Place, London SW1E 5DR, UK. Tel: +44 207 915 5103; fax: +44 207 915 5101; e-mail: info@icbi.co.uk; website: https://finance.knect365.com/flng.

Intelligent energy international conference and exhibition, September 6–8, 2016, Aberdeen, UK. Details: Society of Petroleum Engineers, 10777 Westheimer, Suite #335, Houston, TX 77042, USA. Tel: +1 713 779 9595; fax: +1 713 779 4216; e-mail: spehou@spe.org; website: www.intelligentenergyevent.com.

India oil and gas review summit 2016, September 9–10, 2016, Mumbai, India. Details: ITE Group plc, Oil and Gas Division, 105 Salusbury Road, London NW6 6RG, UK. Tel: +44 207 596 5233; fax: +44 207 596 5106; e-mail: oilgas@ite-exhibitions.com; website: www.oilgas-events.com/india-oil-gas.

Alberta power symposium, September 14–15, 2016, Calgary, Canada. Details: The Canadian Institute, 1329 Bay Street, Toronto, ON M5R 2C4, Canada. Tel: +1 877 927 7936; fax: +1 877 927 1563; e-mail: CustomerService@CanadianInstitute.com; website: www.canadianinstitute.com/2017/337/alberta-power-symposium.

Deepwater drilling and completions conference, September 14–15, 2016, Galveston, TX, USA. Details: Society of Petroleum Engineers, 10777 Westheimer, Suite #335, Houston, TX 77042, USA. Tel: +1 713 779 9595; fax: +1 713 779 4216; e-mail: spehou@spe.org; website: www.spe.org/events/en/2016/conference/16ddc/homepage.html.

Non-OPEC oil supply forecast to slump but uncertainties remain

***May* 2016**

It is widely recognized that an adequate return on investment is needed to maintain crude oil production levels, as well as to allow for the growth necessary to meet future requirements in a timely fashion.

That was the view expressed by the OPEC Secretariat in Vienna in the May issue of its *Monthly Oil Market Report (MOMR).*

"Therefore, a return to balance is a shared interest among consumers and producers alike," a feature article in the publication stressed.

In looking at non-OPEC oil supply developments, the report observed that overall non-OPEC supply in 2016 was expected to contract by 740,000 b/d.

It said that just for the case of the United States, oil output was expected to contract by around 430,000 b/d this year, following strong growth in the previous two years.

In addition to the US, declines were expected in China, Mexico, the United Kingdom, Kazakhstan and Colombia, while growth was projected in Canada, Brazil, Russia and Malaysia.

The *MOMR* recalled that non-OPEC oil producers saw a historically strong expansion of oil supply in 2014, with remarkable growth of 2.3 million b/d.

In 2015, non-OPEC oil production showed further strong growth of 1.5m b/d, despite an ongoing decline in oil prices and a 20 per cent cut in global exploration and production (E&P) spending.

"Additional production from already-sanctioned projects coming onstream was a key driver behind this continued healthy growth," it maintained.

The report disclosed that, last year, total global oil supply increased by 2.7m b/d to average 95.1m b/d, at a time when world oil demand averaged 93.0m b/d. This resulted in an oversupply of 2.1m b/d.

In the OECD Americas, US supply showed growth of more than 1m b/d in 2015, mainly from tight oil developments. An additional 100,000 b/d came from Canadian oil sands, partially offsetting the 200,000 b/d decline in Mexico's oil output.

OECD Europe registered growth of 140,000 b/d, which was five times higher than a year earlier, boosted by growth in Norway and the UK. Higher output also came from non-OPEC countries outside the OECD.

More exploitation from pre-salt oil fields lifted Brazil's annual output by 200,000 b/d. Russia increased production by 200,000 b/d and Chinese companies lifted oil supply by around 70,000 b/d.

"The resulting oversupply accelerated the decline in prices, which had a huge negative effect on global upstream oil investments," the report stated.

It said that, in 2016, cuts in global capital expenditures (capex) were expected to continue to be significant, negatively impacting the amount of new oil discoveries.

Some $290 billion was estimated to be cut from companies' capex in 2015–16. This would continue the declining trend in new discoveries started last

year in which less than 3bn b were added to the discovered oil, much less than in past years.

The *MOMR* said that between 2016 and 2018, the industry was expected to invest around $40bn per year in exploration and appraisal, less than half its investments during 2012 to 2014.

"Many pre-final investment decisions (FID) for projects have been deferred over the past year as the economics are no longer justifiable under the current oil price environment.

"Companies seeking to remain cash-flow positive are likely to continue to cut investments, leading to further project delays or cancellations," it affirmed.

Meanwhile, the report has stated that its forecast for non-OPEC supply for 2016 was subject to many uncertainties.

A special report in the *MOMR's World oil supply* section said that parts of these factors were relevant to price movements – partially due to policies and regulation, some related to operational activities – including technical bottle necks, some due to weather, investments and, of course, cuts in spending.

Indeed, it said, there were several factors which may influence any oil supply forecasts and each factor had a different degree of impact. In countries with dynamic economies, planned projects could be implemented sooner than expected, leading to volumes coming onstream ahead of schedule.

"Moreover, in a bullish oil market with high oil prices or lower breakeven compared to the sale price, actual oil supply can turn out to be considerably higher-than-predicted," it contended.

The report said that technical improvements, such as in-well drilling and completion, new methods of fracking, enhanced oil recovery (EOR), or reservoir combination – stimulation – could bring about more oil recovery and an increase in planned output in different countries from the North Sea to North America.

"With the use of secondary and tertiary EOR during exploitation, not only will more production be achieved, but also the annual decline rate can be reduced. All of the above can create a suitable environment to produce more oil than forecast."

At the same time, continued the article, there were also other fundamental factors that could have a negative effect on production.

These included a low oil price environment, accelerated declines, unplanned shutdowns and delays in start-ups or ramp-ups, as well as geopolitical factors and natural disasters.

"Examples can be seen in the Kashagan field, in Kazakhstan, which was originally scheduled to come onstream in 2015 with a capacity of 180,000 b/d in the first phase; however, this has been pushed off to 2017."

In past years, said the report, hurricanes in the Gulf of Mexico had led to a cut of as much as 500,000 b/d over a period of two months. Accelerated annual declines, such as in the Cantarel offshore field in Mexico, were another negative factor impacting output, as were unplanned field or well shutdowns due to blowouts, or fires.

"In 2016, uncertainties affecting non-OPEC supply include weather and unexpected disasters, such as the recent wildfire in Canada. More than 1.5m b/d of the region's 2.5m b/d capacity is now offline."

The report noted that delays in field start-ups or ramp-ups, such as for the Bigfoot and KMZ fields in the Gulf of Mexico, had also unexpectedly impacted 2016 non-OPEC supply.

Changes in rig counts, the high number of drilled, but uncompleted, wells (DUCs) in US tight oil fields that would be activated from inventories and the impact of hedging were also likely to influence oil supply developments for US onshore production.

Fires had also affected expected production from the ACG platform in Azerbaijan and the Abkatun platform in Mexico.

"Investments in currently producing non-OPEC oil fields are forecast to fall to levels last seen in 2005. As a result, deferred projects and production shutdowns in several oil fields, as well as sizeable cuts in planned ramp-ups for new production in most regions are also likely," the *MOMR* said.

Finally, it added, geopolitics and unrest in countries such as Syria, the Sudans, Yemen, Colombia, Brazil and elsewhere had also increased the uncertainty surrounding non-OPEC supply in 2016.

MOMR ... oil market highlights

May 2016

The **OPEC Reference Basket** averaged $37.86/b in April, a gain of $3.21 or 9.3 per cent. This was 40 per cent higher than the lows reached in the beginning of the year, buoyed by expectations for an improving market situation, despite the current persistent oversupply. Oil futures surged by more than eight per cent, with ICE Brent up $3.55 to average $43.34/b, while Nymex WTI rose by $3.16 to $41.12/b.

World economic growth is forecast at 3.1 per cent in 2016, after estimated growth of 2.9 per cent last year, both unchanged from the previous month. OECD growth in 2016 remains at 1.9 per cent, slightly below the 2.0 per cent seen in 2015. In the emerging economies, India and China continue to expand this year at a considerable level of 7.5 per cent and 6.5 per cent, respectively, with China having been revised up by 0.2 per cent after a better-than-expected first quarter. Brazil and Russia, however, are forecast to remain in recession this year, contracting by 3.4 per cent and 1.1 per cent, respectively, with Brazil having been revised down by 0.5 per cent.

World oil demand in 2015 grew by around 1.54m b/d, unchanged from last month's report. Total oil consumption averaged 92.98m b/d. In 2016, world oil demand is projected to rise by 1.20m b/d to reach 94.18m b/d, unchanged from last month's projections, despite upward revisions to Other Asia, which were counterbalanced by downward revisions to Latin America and China.

Non-OPEC oil supply growth for 2015 has been revised up slightly to 1.47m b/d for an average of 57.14m b/d. For 2016, non-OPEC oil supply was adjusted lower to average 56.40m b/d, contracting by 740,000 b/d. The estimate for OPEC NGLs and non-conventional oils in 2015 has been revised down by around 20,000 b/d based on direct communication to show a rise of 130,000 b/d to average 6.13m b/d. Growth in 2016 has also been adjusted lower to 160,000 b/d to average 6.29m b/d. In April, OPEC crude oil production rose by around 188,000 b/d to average 32.44m b/d, according to secondary sources.

Product markets in the US were supported by strong domestic gasoline demand amid tightening sentiment due to some outages and maintenance. In Europe, higher export opportunities for gasoline ahead of the driving season lent support to refinery margins. Meanwhile, Asian margins weakened despite peaking refinery maintenance in the region as the oversupply in middle distillates weighed on product markets.

Dirty **tanker** spot freight rates declined on the back of lower VLCC and Aframax freight rates as tonnage availability grew, while market activity remained limited. Suezmax spot freight rates improved in April supported by strong sentiment for several destinations, combined with an occasionally tight position list. In the clean tanker market, West of Suez activities supported freight rates, while East of Suez rates remained weak.

OECD commercial oil stocks fell in March to stand at 3,049m b. At this level, OECD commercial oil stocks were around 361m b above the latest five-year average. Crude inventories showed a lower surplus of 215m b, while products were broadly flat at 146m b. In terms of forward cover, OECD commercial stocks stood at 66.8 days, some 7.5 days higher than the latest five-year average.

Demand for OPEC crude in 2015 is estimated to have averaged 29.7m b/d, unchanged from the previous month and 100,000 b/d lower than the previous year. In 2016, demand for OPEC crude is projected at 31.5m b/d, unchanged from the previous report and 1.8m b/d higher than last year.

The feature article and oil market highlights are taken from OPEC's Monthly Oil Market Report (MOMR) for May 2016. Published by the Secretariat's Petroleum Studies Department, the publication may be downloaded in PDF format from our Website (www.opec.org), provided OPEC is credited as the source for any usage. The additional graphs and tables on the following pages reflect the latest data on OPEC Reference Basket and crude and oil product prices in general.

Table 1: OPEC Reference Basket spot crude prices $/b

Crude/Member Country	2015 Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2016 Jan	Feb	Mar	Mar	Weeks 14–18/2016 (week ending) Apr 1	Apr 8	Apr 15	Apr 22	Apr 29
Arab Light – Saudi Arabia	57.73	62.62	60.94	54.95	46.52	45.56	45.37	40.64	33.70	26.35	28.77	34.74	38.22	35.01	34.54	38.55	38.86	41.54
Basrah Light – Iraq	55.61	60.40	58.63	53.10	44.32	43.41	43.50	38.70	32.06	24.73	27.08	33.39	36.62	33.50	32.87	37.05	37.42	39.85
Bonny Light – Nigeria	60.65	65.31	62.19	56.77	47.07	48.01	49.16	44.81	38.16	30.40	32.24	38.53	41.51	38.06	37.41	42.26	42.93	44.45
Es Sider – Libya	58.40	63.22	60.79	55.54	45.82	46.71	47.56	43.30	37.16	29.75	31.46	37.51	40.48	37.04	36.38	41.23	41.90	43.42
Girassol – Angola	61.12	65.51	63.28	56.46	47.42	48.01	48.45	44.74	37.88	29.95	32.28	38.42	41.25	37.80	37.08	42.05	42.70	44.18
Iran Heavy – IR Iran	56.26	61.38	59.86	54.86	46.25	44.62	44.55	38.92	31.73	24.07	27.28	33.23	36.65	33.57	32.95	37.00	37.39	39.80
Kuwait Export – Kuwait	55.96	60.92	59.29	53.85	45.28	43.96	43.61	38.39	31.49	23.92	26.77	32.99	36.33	33.29	32.68	36.67	36.98	39.60
Marine – Qatar	58.51	63.26	61.79	55.36	46.98	45.88	45.89	41.66	34.36	26.95	29.41	35.49	38.97	35.88	35.13	39.28	39.73	42.25
Merey – Venezuela	49.49	55.09	51.74	44.43	35.26	34.13	35.48	31.87	24.42	20.80	21.38	25.83	28.84	26.17	25.77	28.74	29.30	32.08
Minas – Indonesia*	58.55	62.98	60.09	51.86	42.46	42.05	42.13	40.79	33.53	30.80	29.49	34.62	38.52	34.79	34.46	38.71	39.18	42.34
Murban – UAE	61.66	66.18	64.59	57.58	48.83	48.88	49.48	45.99	39.19	31.57	34.15	40.01	42.47	40.08	38.93	42.72	43.00	45.60
Oriente – Ecuador	52.73	58.04	56.71	47.78	39.75	41.03	39.91	36.40	32.18	24.03	24.70	31.45	35.04	31.33	31.12	35.26	35.75	39.04
Saharan Blend – Algeria	59.75	64.12	61.69	56.34	47.17	48.36	49.51	45.30	38.59	31.28	33.26	39.41	42.33	38.93	38.23	43.08	43.75	45.27
OPEC Reference Basket	**57.30**	**62.16**	**60.21**	**54.19**	**45.46**	**44.83**	**45.02**	**40.50**	**33.64**	**26.50**	**28.72**	**34.65**	**37.86**	**34.75**	**34.15**	**38.24**	**38.64**	**41.08**

Table 2: Selected spot crude prices $/b

Crude/Member Country	2015 Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2016 Jan	Feb	Mar	Mar	Weeks 14–18/2016 (week ending) Apr 1	Apr 8	Apr 15	Apr 22	Apr 29
Arab Heavy – Saudi Arabia	54.26	59.42	58.01	53.55	44.82	43.37	43.01	37.00	30.15	22.50	26.15	32.76	35.92	33.11	32.26	36.26	36.63	39.05
Brega – Libya	59.20	63.97	61.24	56.04	46.32	47.25	48.21	44.02	37.91	30.60	32.31	38.36	41.42	37.89	37.31	42.18	42.85	44.37
Brent – North Sea	59.50	64.32	61.69	56.54	46.72	47.61	48.56	44.30	38.16	30.75	32.46	38.51	41.48	38.04	37.38	42.23	42.90	44.42
Dubai – UAE	58.55	63.54	61.76	56.15	47.87	45.38	45.84	41.79	34.59	26.81	29.44	35.15	39.00	35.42	35.22	39.30	39.72	42.33
Ekofisk – North Sea	60.51	64.86	62.21	57.02	47.53	48.24	49.23	45.10	38.80	31.45	32.86	38.86	42.15	38.31	37.95	42.86	43.65	45.17
Iran Light – IR Iran	59.34	63.97	62.28	55.76	45.74	46.16	47.05	43.17	35.98	28.34	30.16	36.08	39.09	35.44	34.91	39.66	40.49	42.28
Isthmus – Mexico	59.10	63.78	63.48	55.62	46.56	47.71	46.90	43.29	37.68	30.03	28.68	35.45	38.14	35.42	34.37	38.41	38.87	41.75
Oman – Oman	58.66	63.60	61.77	56.23	47.87	45.65	46.07	42.10	34.61	27.48	30.37	36.46	39.43	36.99	35.89	39.83	40.14	42.37
Suez Mix – Egypt	57.07	61.32	59.36	53.00	43.30	44.53	44.65	40.07	34.07	27.45	29.17	35.15	38.19	34.54	34.01	38.76	39.59	41.38
Urals – Russia	59.70	64.33	62.52	55.84	46.22	47.19	47.49	43.05	36.97	29.15	30.87	36.87	39.89	36.39	35.71	40.46	41.29	43.08
WTI – North America	54.43	59.28	59.81	51.17	42.77	45.48	46.26	42.67	37.23	31.46	30.33	37.77	40.95	38.22	37.26	41.23	41.65	44.50

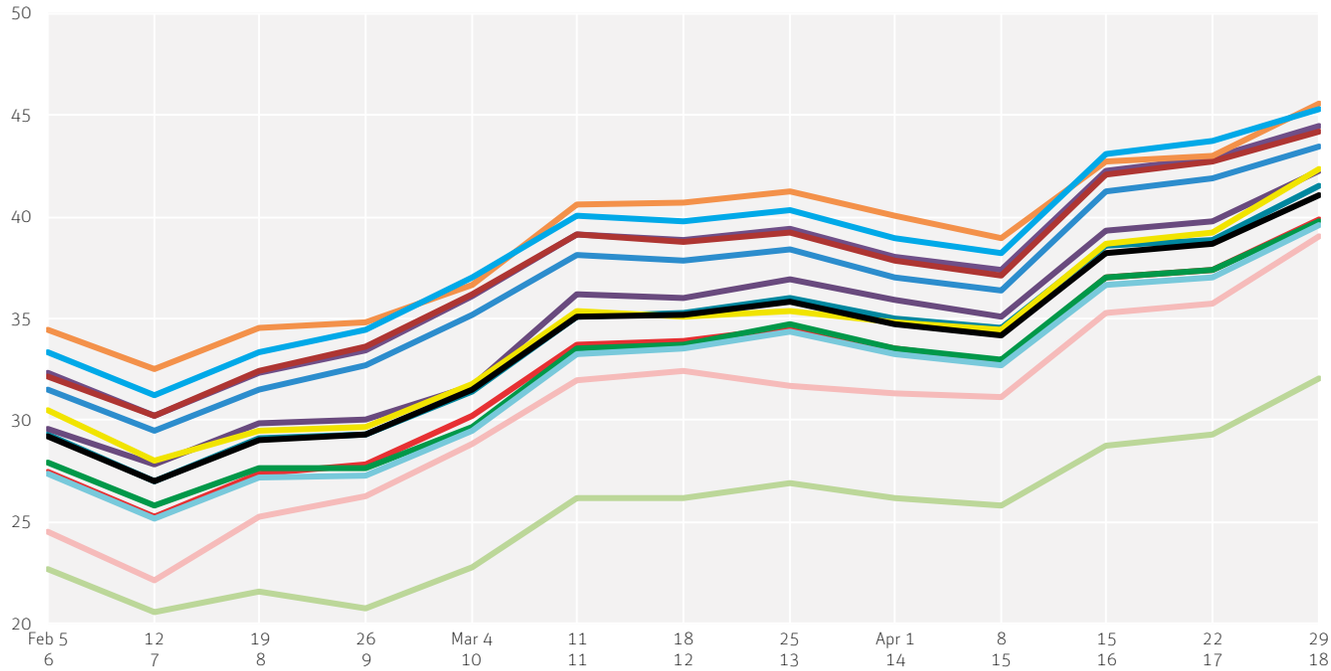
Note: As per the decision of the 109th ECB (held in February 2008), the OPEC Reference Basket (ORB) has been recalculated including the Ecuadorian crude Oriente retroactive as of October 19, 2007. As per the decision of the 108th ECB, the ORB has been recalculated including the Angolan crude Girassol, retroactive January 2007. As of January 2006, monthly averages are based on daily quotations (as approved by the 105th Meeting of the Economic Commission Board). As of June 16, 2005 (ie 3W June), the ORB has been calculated according to the new methodology as agreed by the 136th (Extraordinary) Meeting of the Conference. As of January 2009, the ORB excludes Minas (Indonesia).

** Indonesia suspended its OPEC Membership on December 31, 2008, but this was reactivated from January 1, 2016.*

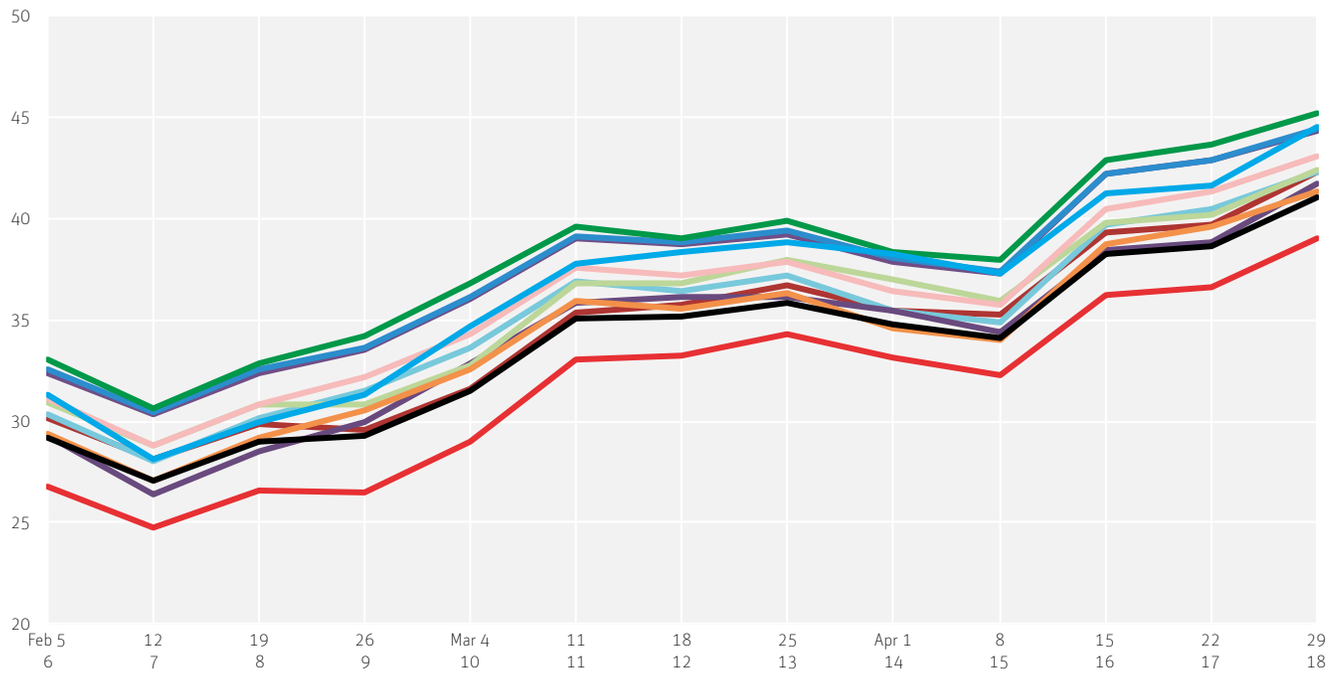
Brent for dated cargoes; Urals cif Mediterranean. All others fob loading port.

Sources: The netback values for TJL price calculations are taken from RVM; Platt's; as of January 1, 2016, Argus; Secretariat's assessments.

Graph 1: Evolution of the OPEC Reference Basket spot crude prices, 2016 *$/b*



Graph 2: Evolution of selected spot crude prices, 2016 *$/b*



Note: As per the decision of the 109th ECB (held in February 2008), the OPEC Reference Basket (ORB) has been recalculated including the Ecuadorian crude Oriente retroactive as of October 19, 2007. As per the decision of the 108th ECB, the basket has been recalculated including the Angolan crude Girassol, retroactive January 2007. As of January 2006, monthly averages are based on daily quotations (as approved by the 105th Meeting of the Economic Commission Board). As of June 16, 2005 (ie 3W June), the ORB has been calculated according to the new methodology as agreed by the 136th (Extraordinary) Meeting of the Conference. As of January 2009, the ORB excludes Minas (Indonesia).
Indonesia suspended its OPEC Membership on December 31, 2008, but this was reactivated from January 1, 2016.

Table and Graph 3: North European market — spot barges, fob Rotterdam

$/b

		naphtha	regular gasoline unleaded	diesel ultra light	jet kero	fuel oil 1 per cent S	fuel oil 3.5 per cent S
2015	April	57.96	82.31	74.21	73.97	49.20	49.64
	May	60.76	87.70	79.16	78.67	52.57	53.41
	June	59.34	93.68	76.37	76.99	50.32	51.12
	July	52.04	90.50	68.59	68.18	44.59	45.30
	August	44.38	77.52	60.66	60.18	35.24	35.80
	September	45.30	70.72	61.41	61.35	33.88	34.41
	October	47.36	66.73	59.23	59.68	33.89	34.43
	November	46.13	65.27	57.06	56.78	30.20	30.68
	December	42.67	58.79	45.68	47.54	22.40	22.59
2016	January	35.13	53.41	38.11	39.21	19.85	15.08
	February	32.32	49.48	40.41	41.48	21.45	17.91
	March	38.53	54.82	47.13	47.43	24.83	21.32
	April	41.69	66.41	48.57	50.30	27.82	23.66

Note: Prices of premium gasoline and diesel from January 1, 2008, are with 10 ppm sulphur content.

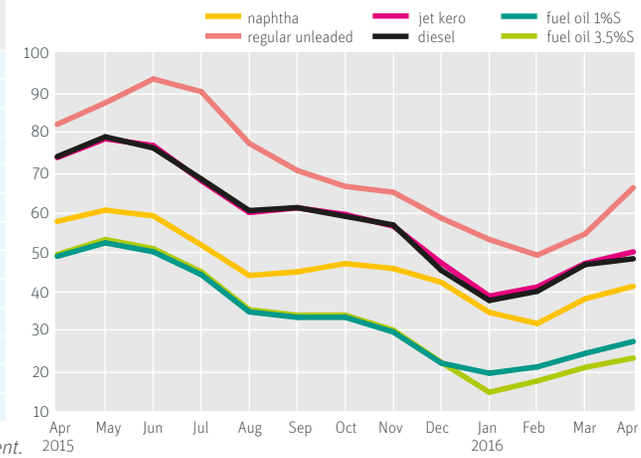


Table and Graph 4: South European market — spot cargoes, fob Italy

$/b

		naphtha	premium gasoline 50ppm	diesel ultra light	fuel oil 1 per cent S	fuel oil 3.5 per cent S
2015	April	54.42	78.27	75.84	51.02	49.58
	May	58.37	82.87	80.99	54.19	52.79
	June	56.05	86.19	78.19	51.87	51.46
	July	48.48	83.94	70.34	45.57	44.77
	August	42.33	70.26	62.21	36.31	35.76
	September	43.00	63.02	63.34	34.49	34.26
	October	45.25	58.98	61.26	36.20	34.97
	November	44.06	58.77	57.28	32.83	30.02
	December	40.29	51.81	46.40	25.88	22.20
2016	January	33.42	47.01	39.48	21.22	18.35
	February	30.99	42.98	41.88	22.53	21.14
	March	37.76	47.68	48.28	24.63	23.44
	April	40.39	58.04	50.56	28.01	26.30

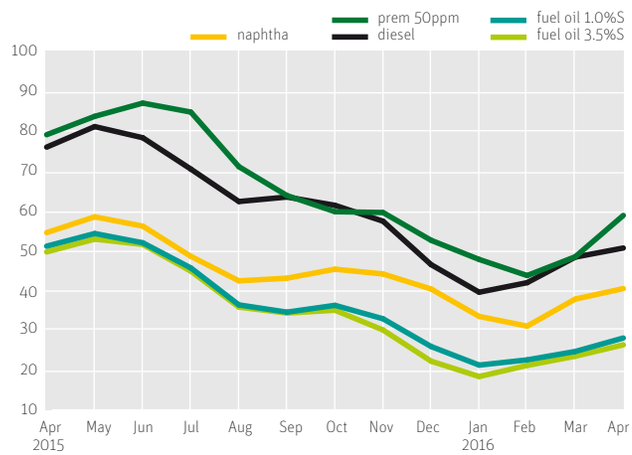


Table and Graph 5: US East Coast market — spot cargoes, New York

$/b, duties and fees included

		regular gasoline unleaded 87	gasoil*	jet kero*	fuel oil 0.3 per cent S	fuel oil 3.0 per cent S
2015	April	75.99	72.65	74.67	61.66	49.04
	May	82.00	76.98	80.00	61.89	53.03
	June	84.60	74.07	75.76	59.69	51.51
	July	78.66	64.91	67.53	52.31	44.07
	August	68.26	58.40	60.76	44.45	36.44
	September	61.40	59.78	61.60	43.40	35.77
	October	58.62	58.73	60.94	46.36	35.64
	November	58.51	55.08	59.07	45.01	33.12
	December	53.68	43.89	49.31	35.65	24.09
2016	January	46.88	39.14	40.13	32.01	20.16
	February	42.59	39.48	43.03	32.46	20.20
	March	50.34	43.56	47.68	35.61	24.27
	April	60.09	47.27	49.43	37.10	27.93

* *FOB barge spot prices.*

Source: Platts. As of January 1, 2016, Argus. Prices are average of available days.

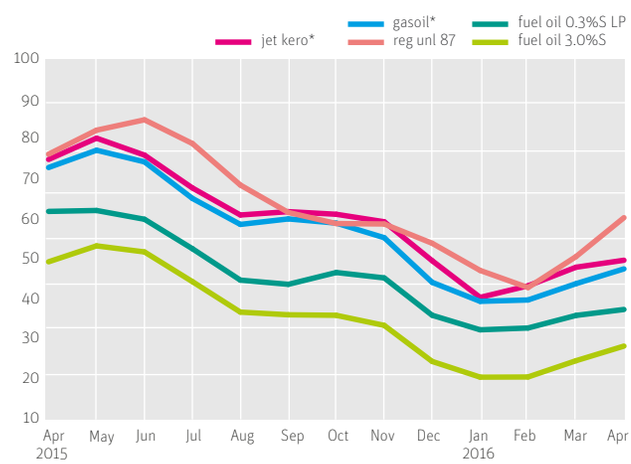


Table and Graph 6: Singapore market – spot cargoes, fob

$/b

		naphtha	premium gasoline unl 95	premium gasoline unl 92	gasoil	jet kero	fuel oil 180 Cst	fuel oil 380 Cst
2015	April	59.56	75.55	73.07	72.37	72.08	54.82	52.45
	May	62.04	83.73	81.10	78.02	77.69	61.28	58.22
	June	60.89	83.97	81.02	74.73	74.56	57.08	55.73
	July	53.15	75.95	72.52	65.07	65.81	48.71	47.49
	August	45.76	66.00	61.95	57.12	57.08	39.04	37.36
	September	46.81	65.24	61.59	59.48	58.99	37.37	36.58
	October	48.92	63.39	60.55	59.13	59.28	38.32	36.99
	November	48.95	59.10	56.42	57.46	57.46	36.11	34.98
	December	45.69	55.63	52.83	46.86	47.70	28.20	27.15
2016	January	36.78	50.33	47.04	36.16	37.93	26.77	22.77
	February	33.97	44.33	41.29	38.51	40.98	25.92	23.27
	March	39.20	52.68	49.58	45.52	47.40	28.20	27.07
	April	42.52	54.49	51.45	48.08	49.51	31.02	29.17

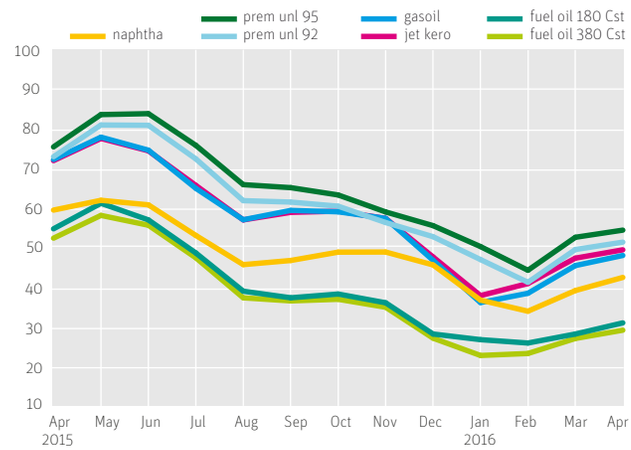
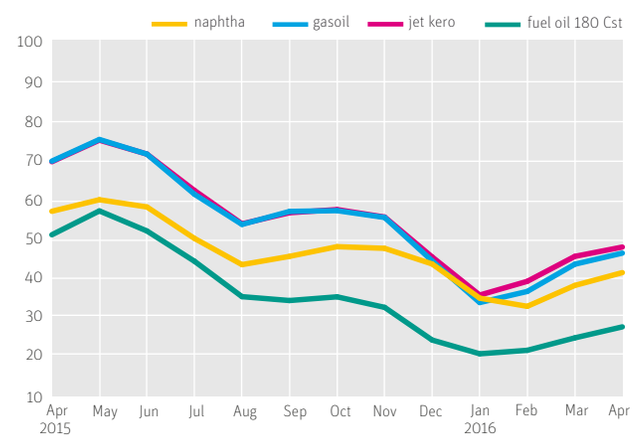


Table and Graph 7: Middle East Gulf market – spot cargoes, fob

$/b

		naphtha	gasoil	jet kero	fuel oil 180 Cst
2015	April	56.96	69.66	69.51	51.01
	May	59.89	75.15	74.98	57.06
	June	58.06	71.44	71.45	51.98
	July	50.09	61.29	62.23	44.31
	August	43.45	53.64	53.79	35.34
	September	45.55	56.93	56.60	34.36
	October	48.00	57.13	57.40	35.30
	November	47.58	55.40	55.51	32.63
	December	43.62	44.42	45.39	24.35
2016	January	34.96	33.85	35.75	20.87
	February	32.89	36.66	39.22	21.75
	March	38.18	43.56	45.54	24.90
	April	41.43	46.37	47.90	27.69



Source: Platts. As of January 1, 2016, Argus. Prices are average of available days.

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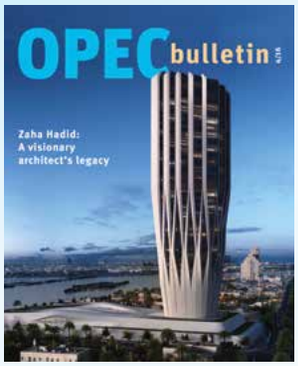

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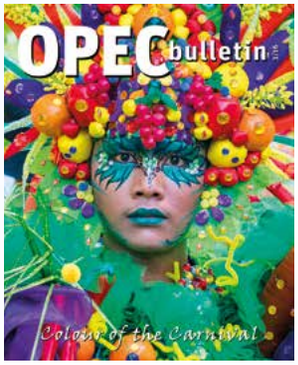

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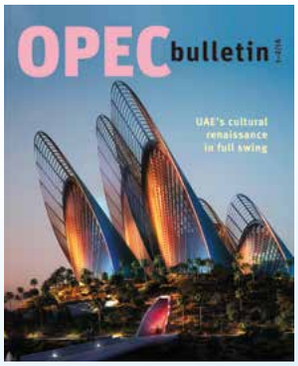

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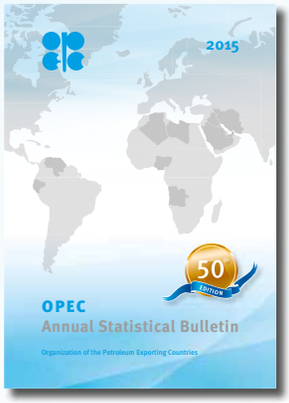

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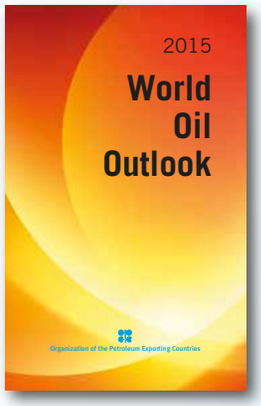

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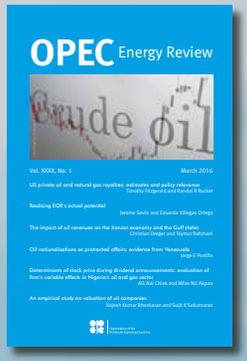

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